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MICHAEL W. DOBBINS
CLERK, U.S. DISTRICT COURT

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

NIRO, SCAVONE, HALLER & NIRO,
a professional corporation

Plaintiff,

v.

PHILIP S. JACKSON and
PMJ FAMILY LIMITED PARTNERSHIP,

Defendants.

07CV 4729
JUDGE ANDERSEN
MAGISTRATE JUDGE COLE

COMPLAINT FOR DECLARATORY JUDGMENT OF PATENT NON-INFRINGEMENT, INVALIDITY AND UNENFORCEABILITY

Plaintiff Niro, Scavone, Haller & Niro complains of defendants Philip S. Jackson and PMJ Family Limited Partnership, as follows:

1. This is a claim for a declaratory judgment of non-infringement, invalidity and unenforceability of United States Patent No. 4,596,900 entitled "Phone-Line-Linked, Tone-Operated Control Device" ("the '900 Patent," Exhibit A). This Declaratory Judgment Complaint arises under the declaratory judgment statute, 28 U.S.C. §2201, and under the patent laws of the United States, Title 35 of the United States Code. This Court has jurisdiction over the subject matter of this Complaint under 28 U.S.C. §1338(a) and/or 28 U.S.C. §1331, along with 28 U.S.C. §2201, as set forth below.

PARTIES

2. Plaintiff Niro, Scavone, Haller & Niro is an Illinois professional corporation practicing intellectual property law, with its office at 181 West Madison Street, Chicago, Illinois 60602.

3. Defendant Philip S. Jackson ("Jackson") is an individual who resides in Cook County, Illinois. Defendant PMJ Family Limited Partnership ("PMJ Ltd.") is an Illinois limited partnership which is the owner of the '900 patent, along with Mr. Jackson.

VENUE AND PERSONAL JURISDICTION

4. Venue is proper in this judicial district under 28 U.S.C. §1391(b) and 28 U.S.C. §1400(b). Defendant Jackson is an Illinois citizen who resides in this judicial district. Defendant PMJ Ltd. is an Illinois limited partnership. Further, a substantial part of the events giving rise to this declaratory judgment claim occurred in Cook County, Illinois, in this judicial district.

SUBJECT MATTER JURISDICTION

5. This case is a consequence of a legal malpractice complaint filed by defendants Jackson and PMJ Ltd. in the Circuit Court of Cook County, Illinois, and specifically relates to Count IV of defendants Jackson and PMJ Family Limited Partnership in their Second Amended Complaint in that lawsuit (Exhibit B). In that complaint, Jackson and PMJ accuse NSHN of legal malpractice in allegedly mishandling a claim of infringement of the '900 patent.

6. In ¶ 33 of Count IV of their Illinois state malpractice Second Amended Complaint, defendants Jackson and PMJ Ltd. pleaded that various acts of NSHN "preclude[d] plaintiffs [Jackson and PMJ Ltd.]] from recovery of all sums to which they were entitled ***for infringement of their patent by customers of Glenayre*** [a manufacturer of telephone switching equipment]" (Exhibit B, ¶ 33; emphasis added). Defendants Jackson and PMJ Ltd. further pleaded that NSHN acted negligently by pursuing a claim for patent

infringement damages against Glenayre, instead of seeking an injunction and/or a declaratory judgment of infringement against Glenayre. Id. According to the Second Amended Complaint of Jackson and PMJ Ltd., but for the acts of NSHN they would have been able to pursue patent infringement claims against Glenayre's customers, thus realizing "the true value of their claims which were primarily against the Glenayre customers." Id. ¶¶ 43-44. Defendants Jackson and PMJ Ltd. also pleaded that NSHN failed to "supervise" a patent infringement damages witness in that lawsuit, id. ¶¶ 36-37; "negligently" failed to take an interlocutory appeal of a ruling concerning patent infringement damage claims against Glenayre customers, id. ¶¶ 34-35 and "negligently" advised Jackson to accept a remittitur of patent infringement damages, id. ¶¶ 38-43. (Counts I and V of the Second Amended Complaint have been dismissed by the state court on statute of limitations grounds; the state court also has ruled that Counts II and III are subject to arbitration, which has not been completed.)

7. Count IV of the Second Amended Complaint of Jackson and PMJ Ltd. therefore depends entirely upon proof of patent infringement by Glenayre's customers and proof that the '900 patent is valid and enforceable – that is, that it was not invalidated by prior art, nor procured by inequitable conduct on the part of Jackson. That proof is essential to the "case within a case" which Jackson and PMJ Ltd. must prove in their state court malpractice lawsuit against NSHN. Therefore, Jackson's and PMJ Ltd.'s right to relief in their malpractice lawsuit necessarily depends on the resolution of one or more substantial questions of federal patent law, in that patent law is a necessary element of the "well-pleaded claim" of Count IV of the Second Amended Complaint of Jackson and PMJ Ltd.

8. The state court lawsuit of Jackson and PMJ Ltd. against NSHN established that there exists a "case or controversy" between NSHN on the one hand, and Jackson and PMJ Ltd. on the other with respect to infringement, validity and enforceability of the '900 patent.

9. Accordingly, there is "federal question" subject matter jurisdiction under 28 U.S.C. §1331 and/or 28 U.S.C. §1338(a) over this declaratory judgment action filed pursuant to 28 U.S.C. §2201.

FACTS COMMON TO ALL CLAIMS FOR RELIEF

Jackson Obtains His "Phone-Line-Linked Control Device" Patent

10. More than twenty years ago, while working for the Chicago-based publisher R.R. Donnelly, Jackson filed an application for a patent on what he called a "phone-line-linked, tone-operated control device" (U.S. Patent No. 4,596,900, Exhibit A). R.R. Donnelly was not interested in Jackson's idea (Glenayre v. Jackson, Case No. 02 C 0256, N.D. Ill., Trial Tr. 124); hence, it permitted him to apply for a patent on his own. Jackson hired the Chicago patent firm of Trexler, Bushnell to prepare a patent application, and the resulting '900 patent is the only U.S. patent Jackson ever obtained. It expired on June 24, 2003, seventeen years after the issue date of the patent.

Jackson Admits His Patent Has Nothing To Do With Voice Mail Systems

11. The '900 patent disclosed a "remote control device" that could receive "'on' and 'off' control signals in response to ... selected [touch-tone] sequences" transmitted by the user over a telephone line to a decoder circuit (Exhibit A, '900 patent, col. 6, lines 38-

41). Jackson testified at trial the "critical" feature of his patent was an "access limiting circuit" for "break-in prevention" (Glenayre Trial Tr. pp. 110-11).

> If it has the right access code, then you can do the rest of this. You can control instruments and so forth. If you don't have the right access code, you can't.

(Glenayre Trial Tr. p. 110).

> Q To what extent did you feel security was important -- this break-in prevention stuff? Why was that important, if it was?
>
> A ***Well, it was critical*** because, you know, once people can get into your -- you know, a place where this device is, they could do anything if they didn't have security.

(Glenayre Trial Tr. p. 138) (emphasis added). Upon recognition of the correct access code, Jackson's patent disclosed that his patented device could then be used to control "various devices in the home such as heating and air conditioning systems, lighting, appliances and the like" (Exhibit A, '900 patent, col. 1, lines 17-19).

12. Jackson admitted that his '900 patent had nothing to do with voice mail or voice processing or telephone answering machines:

> Q Okay. Now, your patent doesn't say anything about voice mail, does it?
>
> A No, it doesn't.
>
> Q Your patent doesn't say anything about answering machines, does it?
>
> A No, it doesn't.

(Glenayre Trial Tr. p. 177).

> Q Now, did you invent the first voice mail system that's phone-line-linked?
>
> A No.

* * * *

Q ***Did you invent the first voice mail system that requires touch tones to operate it?***

A ***I don't think I invented a voice mail system.***

Q Well, did you use, did you invent the first voice mail system that uses touch tones to operate it?

A No.

(Glenayre Trial Tr. pp. 174-75) (emphasis added).

13. Jackson also admitted that he did not invent the "access limiting circuit" for voice mail which reads a password and which he had described as the "critical feature" of his invention either:

Q ***Now, did you invent the first voice mail system that is phone-line-linked that you have to use touch tones to operate and that checks for a password?***

A ***But that it would be a voice mail system too? No.***

(Glenayre Trial Tr. p. 175) (emphasis added). Thus, by his own admission Jackson's '900 patent disclosed nothing about voice mail or telephone answering machines.

Jackson Tries Sporadically For Ten Years
On His Own But Fails To License Or Sell The '900 Patent

14. The '900 patent issued on June 24, 1986. During the following ten years Jackson made only two attempts on his own to interest potential customers in his patent. He showed it to "a rich uncle" while on vacation in the hope that "he'd get interested and maybe help fund a business or something like that," but the uncle's response was decidedly lukewarm: he "was just kind of quiet about it. He didn't seem mad" (Glenayre Trial Tr. p. 136). And in 1988, Jackson showed his patent to Ameritech Development

Corporation and exhibited it at the Consumer Electronics Show in Chicago (Glenayre Trial Tr. p. 137), again without any success. No one seemed interested in his "gray box" prototype device, which admittedly did not include the "access limiting circuit" that he later touted as the "critical feature" of his invention (Glenayre Trial Tr. pp. 132, 178). As of 1986, ten years after his patent issued, Jackson had gotten precisely nowhere in licensing, selling or enforcing his patent.

Jackson Eventually Retains The Trexler Firm, Which Carries His Patent Through Re-Examination

15. Tiring of his inability to make anything of his only patent without professional help, in 1996, Jackson went back to the Trexler firm and retained Raiford Blackstone to try to license the '099 patent. Between 1996 and 2001, Mr. Blackstone took the '099 patent through re-examination in the PTO, obtaining additional patent claims in the process. The Trexler firm also settled lawsuits filed by Jackson against Matsushita Electric Industrial Company and Sony.

16. It was the Trexler firm that first suggested to Jackson that it might be possible to read the claims of the '900 patent onto voice mail systems and telephone answering machines, even though the patent admittedly did not even mention voice mail or telephone answering machines (Glenayre Trial Tr. pp. 174-75, 177). Jackson at first resisted this reading of his patent claims, insisting he had actually invented only a remote control for a household appliance such as a coffee pot, which is what the specification of the '900 patent disclosed. Yet, in the end, Jackson began asserting his '900 patent against voice mail and answering machines.

Dissatisfied With The Trexler Firm's Rate Of Progress, In 2001 Jackson Hires Niro, Scavone, Haller & Niro

17. By early 2001, Jackson had become dissatisfied with the Trexler firm's progress and was shopping for other counsel. On February 16, 2001, NSHN agreed to represent him. In the next three years, NSHN finished the settlements left uncompleted by the Trexler firm and obtained a total of $12.1 million in recoveries for Jackson through May 2004. Eventually, NSHN also won the Glenayre v. Jackson trial in Civil Action No. 02 C 0256 (N.D. Ill.) (the only trial ever conducted on Jackson's '099 patent), obtaining a $12 million jury verdict which the District Court subsequently remitted to $2.65 million.

NSHN Files Lawsuits Against Several Glenayre Customers

18. NSHN filed patent infringement lawsuits on Jackson's behalf in late 2001 against a number of defendants, but not against Glenayre. Among the defendants in the lawsuits NSHN filed in late 2001, however, were two purchasers of Glenayre voicemail systems: TDS Metrocom and Pac-West Telecomm, Inc.

Glenayre Files A Declaratory Judgment Action And Convinces The District Court To Enjoin All Lawsuits Against Glenayre Customers

19. On January 10, 2002, Glenayre filed a declaratory judgment complaint in the Northern District of Illinois against Jackson. The Glenayre complaint in Case No. 02 C 0256 did not attack the validity or enforceability of Jackson's patent; instead, it sought only a declaration of non-infringement.

20. Faced with Glenayre's preemptive strike declaratory judgment lawsuit, on February 4, 2002, NSHN first sought to dismiss Glenayre's lawsuit on the ground that Glenayre had no reasonable apprehension of being sued. The District Court denied that

motion on April 2, 2002. Jackson, therefore, was faced with the choice of either filing a counterclaim for patent infringement or foregoing any prospect of relief, monetary or otherwise, from Glenayre's infringement. This was not much of a choice, and on April 15, 2002, Jackson sued Glenayre for patent infringement – specifically, for contributory infringement and for inducing its customers to infringe his patent. Jackson's counterclaim also named three additional purchasers of Glenayre voicemail systems (Metrocalll, Inc.; Arch Wireless, Inc. and Primeco Personal Communications, L.P.) as patent infringement counterclaim defendants.

21. Glenayre next asked the District Court to enjoin Jackson from proceeding with any lawsuits against any Glenayre customers. The District Court entered two orders prohibiting Jackson from continuing with any lawsuits against any Glenayre customers. NSHN then noticed an interlocutory appeal from these Orders to the Federal Circuit on Jackson's behalf.

The District Court *Sua Sponte* Stays Jackson's Contributory/Induced Infringement Counterclaim Against Glenayre As Well, But Permits Jackson To File A Direct Infringement Counterclaim

22. On September 30, 2002, the District Court *sua sponte* stayed Jackson's contributory/induced infringement counterclaim against Glenayre. Jackson was then facing a trial in which Glenayre would seek to prove non-infringement, but in which if Glenayre lost and infringement was found, Jackson could expect to receive no damages, since his counterclaim had been stayed. NSHN then filed a motion for clarification of the District Court's September 30, 2002 Order, and in response the District Court permitted Jackson to file a ***direct*** infringement counterclaim against Glenayre. In this Order the District Court

also held that: "the question of the measure of damages against Glenayre as an alleged contributory infringer / inducer will not present itself until final judgment is rendered in this case."

23. Before the trial, most of Jackson's positions were rejected and the bulk of his asserted claims were found not be infringed. Specifically, the District Court held on summary judgment that claims 1, 3, 15, 59, 69 and 112 of the Jackson patent were not infringed and that only claims 5 and 79 could survive summary judgment. Claims 1, 3, 15, 59, 69 and 112 were asserted in the Glenayre lawsuit on the advice and insistence of Stuart Gimbel, Jackson's personal counsel, even though those claims had been found not infringed in litigation between Jackson and Casio (which pre-dated Jackson's representation by NSHN), and despite the fact that a sanction of almost $3 million was imposed upon Jackson for frivolously asserting those claims in the Casio lawsuit. Claims 5 and 79 survived summary judgment in the Glenayre lawsuit on the narrowest of grounds -- a fact issue on structural equivalence of the access limiting circuit means.

24. Going into the Glenayre trial, therefore, the situation was this: Jackson was enjoined from suing ***any*** Glenayre customers, but he was permitted to try to establish direct infringement of the two surviving claims of his patent by Glenayre (but not contributory infringement or inducement to infringe). This gave Jackson the opportunity to try to collect at least some damages from Glenayre.

25. Because Glenayre chose not to assert any invalidity or inequitable conduct defenses, no evidence about prior art was permitted at trial (Glenayre Trial Tr. pp. 11-12). This resulted in the exclusion from the Glenayre trial of highly damaging evidence of invalidity and inequitable conduct in procurement of Jackson's patent dating back to

Jackson's activities before his retention of NSHN. The excluded evidence was so damaging to Jackson that it almost certainly would have resulted in the destruction of his patent and precluded any recovery of damages from Glenayre or from anyone else.

The Jury Awards $12 Million In
Compensatory Damages, Which The District Court Remits To $2.65 Million

26. The jury found direct infringement and awarded $12 million in compensatory infringement damages. In view of the jury verdict, as well as the fact that Jackson's patent was due to expire in less than three months (on June 24, 2003), NSHN moved to withdraw the interlocutory appeal to the Federal Circuit on the issues of injunction and stay of Jackson's claims against Glenayre's customers. The nearness of the expiration date meant that a decision on the interlocutory appeal could not have come soon enough to permit the filing of any additional patent infringement lawsuits against Glenayre customers. Jackson's motion to withdraw the interlocutory appeal was granted on May 29, 2003. With Jackson's patent set to expire on June 24, 2003, there was no prospect of obtaining any decision on the interlocutory appeal before expiration of the patent had rendered the interlocutory appeal moot.

27. The District Court denied Glenayre's motion JMOL, but granted Glenayre's conditional motion for a new trial on damages, requiring Jackson to accept a remittitur to $2.65 million or re-try damages. The District Court held that "the jury's $12,000,000 damages award reflects a whopping royalty rate of 30%, a rate five times greater than the very highest rate disclosed in any license agreement offered into evidence" (Order, 7/8/03). Jackson, on the advice and with the consent of his personal counsel, Stuart Gimbel, accepted the remittitur. The Court held in entering judgment under Fed.R.Civ.P. 54(b) that

"additional claims, dependent upon the finality and affirmance of the patent infringement claim against Glenayre, remain for adjudication ... " (Order, 7/22/03).

After The Federal Circuit Affirms The District Court's Judgment, Jackson's New Counsel Attempts To Revive His Contributory/Induced Infringement Claim Against Glenayre But Does Not Try To Revive The Enjoined Lawsuits Against Glenayre Customers

28. Glenayre appealed the jury's infringement verdict to the Federal Circuit. On April 8, 2004, the Federal Circuit summarily affirmed the district court's judgment without issuing any opinion (Federal Circuit Order, 4/8/04). By this time, Jackson's patent had been expired for almost a year.

29. On May 5, 2004, Jackson's personal lawyer, Stuart Gimbel, confirmed that Jackson (with Gimbel's advice) had decided ***not*** to pursue lawsuits against customers of Glenayre, in favor of making an attempt to collect more money from Glenayre itself. Thus, Jackson himself, advised by Mr. Gimbel, decided not to pursue the customers from the Glenayre lawsuit. Pursuant to Jackson's decision, the pending counterclaims in the Glenayre lawsuit against all Glenayre customers accordingly were dismissed under Fed.R.Civ.P. 41(a)(1).

30. Jackson's new counsel, whom he hired in May 2004 to replace NSHN, immediately filed a "motion to set trial on the remaining issues," asking the District Court to "set trial on the remaining issues relating to Jackson's claims ***against Glenayre*** based on Glenayre's contributory infringement and inducement of infringement of Jackson's patent in suit." No request was made by Jackson or his new counsel to vacate the

standing injunctions and stays prohibiting Jackson from suing Glenayre's Named Customers and Unnamed Customers.

The District Court Rejects Jackson's Attempt To Recover More Money From Glenayre, Finding That Jackson Had Already Received "Full Compensation"

31. The Jackson/Gimbel strategy implemented by Jackson's new counsel failed. On June 29, 2004, the District Court held:

> The court agrees with Glenayre that there are no issues remaining between the parties. ***The judgment that this court entered, which was finalized after Jackson accepted a remittitur, completely compensated Jackson for direct infringement. Once this has occurred, there is nothing more that is owed.*** Contributory and inducing infringement are just other sides of the same coin. A patentee is entitled to one complete recovery for the infringement that occurs. Here the direct infringement consisted of the manufacture and sale of Glenayre's MVP products to others. In return for accepting damages awarded by the jury, Glenayre receives a *de facto* license covering the sale of the infringing goods. This legitimizes the sales of the infringing goods to Glenayre's customers, and their usage of them. ... [B]y accepting money instead of seeking an injunction, for example, [Jackson] has acquiesced in the use of the infringing goods by the infringer's customers. ... Therefore, Jackson's Motion to Set Trial on Remaining Issues is denied.

(6/29/04 Order) (emphasis added).

32. Glenayre took this ruling as a cue to seek Rule 11 sanctions. But on September 8, 2004, the District Court denied Glenayre's motion for sanctions, acknowledging that the "Court's previous orders carried some ambiguity as to the continuing viability of Jackson's counterclaims" (9/8/04 Order, p. 5).

33. Jackson then appealed the District Court's June 29, 2004 "full compensation" decision to the Federal Circuit. On April 11, 2006, the Federal Circuit affirmed the District Court's refusal to permit Jackson to try to recover damages from Glenayre for contributory

infringement or inducement to infringe (the Jackson/Gimbel/Orum & Roth strategy). Glenayre Electronics, Inc. v. Jackson, 443 F.3d 851 (Fed. Cir. 2006). It was a split decision, with the majority holding that Jackson had, in fact, received the highest possible amount of compensation for Glenayre's customers' use as well as for Glenayre's sales:

> [T]the district court determined the highest possible royalty Jackson was entitled to collect for infringing use as being based solely on Glenayre's sales. *Remittitur Order, 2003 U.S. Dist. LEXIS 14046, [slip op.] at 15.* ... Although Jackson presented evidence and arguments regarding customer use to the jury and judge, the district court based the damages award on other evidence showing the value of using the '900 patent. ***As discussed above, the court chose instead to rely on contemporaneous license agreements to reach its conclusion that $ 2.65 million is the "highest possible royalty rate the jury could have properly awarded" for "broad" and "unbounded" rights "to use every aspect" of the '900 patent and other patents covering similar technology.*** *Remittitur Order, 2003 U.S. Dist. LEXIS 14046, [slip op.] at 15.* ***In other words, the remitted damages award reflects the district court's best judgment as to the value of using the '900 patent.*** ... In this situation, Jackson is precluded from arguing here that the remittitur was improper, ***or that he was not fully compensated for infringement of the '900 patent.***

443 F.3d at 860-62. The Federal Circuit , therefore, has held that Jackson received "full compensation for infringement of the '900 patent."

34. Circuit Judge Newman dissented from the majority opinion, reasoning that the District Court "changed its mind" after the Federal Circuit's affirmance of Glenayre's appeal in 2004. Specifically, Judge Newman wrote:

> The remittitur limited damages to a reasonable royalty for Glenayre's direct infringement, and did not apply to the severed counterclaims relating to indirect infringement. ... This appeal relates solely to the stayed counterclaims for Glenayre's contributory and induced infringement based on direct infringement by Glenayre's customers. These counterclaims were excluded from the jury trial. The district court decided, after this court affirmed the Rule 54(b) judgment of direct infringement, to dismiss the counterclaims without further proceedings. The district court, today affirmed by the panel majority, incorrectly held that there cannot be contributory

infringement by a direct infringer. From this ruling and its flawed premises, I respectfully dissent.

443 F.3d at 873-74 (Newman, J., dissenting). Reviewing the procedural history of the Glenayre lawsuit, Judge Newman perceived a change in approach by the District Court following the Federal Circuit's affirmance of the verdict against Glenayre:

> After the Federal Circuit affirmed, the district court changed its position and dismissed the counterclaims, acknowledging that its previous orders "carried some ambiguity as to the continuing viability of Jackson's counterclaims," and that the proceedings that had been conducted "contemplate the possibility of additional claims." However, the court now ruled that Jackson had been "completely compensated for direct infringement" and that "once this has occurred, there is nothing more that is owed. Contributory and inducing infringement are just other sides of the same coin."
>
> I do not say that a court cannot change its mind; but the panel majority errs in stating that Jackson somehow waived his right to pursue the counterclaims for contributory infringement when he accepted the remittitur directed to Glenayre's direct infringement.

443. F.3d at 875 (Newman, J., dissenting).

Dissatisfied With The "Full Compensation"
He Has Already Received, Jackson Sues NSHN In State Court

35. On December 9, 2005, Jackson filed a legal malpractice claim against NSHN in the Circuit Court of Cook County, Illinois. As set forth in ¶¶ 5-9, above, Count IV of the pending Second Amended Complaint of Jackson and PMJ Ltd. in their state court lawsuit (Exhibit B) depends entirely upon proof of patent infringement by Glenayre's customers and proof that the '900 patent is valid and enforceable – that is, that it was not invalidated by prior art, nor procured by inequitable conduct on the part of Jackson. Accordingly, Jackson's and PMJ Ltd.'s right to relief in their state court malpractice lawsuit against NSHN necessarily depends on the resolution of the substantial questions of federal patent

law set forth in Counts I through III of this Complaint (¶¶ 37-67 below), in that patent law is a necessary element of the "well-pleaded claim" of Count IV of the Second Amended Complaint of Jackson and PMJ Ltd.

36. On December 13, 2006, the state court held that Jackson was not barred by collateral estoppel under Illinois law from pursuing a malpractice claim against NSHN for more money, despite the holdings of both the District Court (6/29/04 Order) and the Federal Circuit (443 F.3d at 871-73) that Jackson has already received "full compensation" for the infringement of his patent. The state court held:

> This Court has not been asked to decide whether additional damages are available but merely whether collateral estoppel bars the claim [for malpractice against the Niro firm]. This Court finds that the Glenayre federal rulings do not stand for the proposition that the Plaintiffs could not recover more than that remitted award but hold that because Plaintiffs accepted the award they could not recover more. ... ***This Court does not decide that the Plaintiffs are entitled as a matter of law to more than the remitted award.*** Rather, this ruling is limited to the finding that they are not prevented from seeking to pursue more based on the federal rulings. ***This Court has not analyzed what the proper measure for accounting Plaintiffs' damages would have been*** but instead has merely determined that the prior holdings of the federal court did not bar the plaintiffs' suit.

(Order, 12/13/06, p. 3 & n.2) (emphasis added). Still unresolved by the state court at this juncture, therefore, is the question of whether or not Jackson was entitled to anything more than the remitted award granted by the District Court in the Glenayre case. For the reasons set forth in Counts I through III, below, Jackson is entitled to no such additional compensation.

COUNT I

DECLARATORY JUDGMENT OF NON-INFRINGEMENT OF THE '900 PATENT

37. NSHN repeats the allegations of ¶¶ 1 through 36, above, as though fully set forth herein.

38. Glenayre's customers (who are not bound by the District Court's holdings in Case No. 02 C 0256) did not infringe the '900 patent under any theory, either directly or indirectly, or literally or under the doctrine of equivalents.

39. Jackson's admissions quoted in ¶¶ 11-13, above, establish that the claims of his '900 patent cannot be read broadly enough to cover the voice mail systems used by Glenayre's customers.

40. The voice mail systems used by Glenayre's customers lack at least the following elements required by the '900 patent: (1) gate means coupled to detecting means; (2) control means; (3) access limiting circuit means; (4) counter means coupled to gate means. Other elements of the '900 patent claims also may be missing from the voice mail systems used by Glenayre's customers.

41. The voice mail systems used by Glenayre's customers also do not infringe because they perform "verification" by comparing all collected digits with a stored password, thus allowing users to change the length and contents of their passwords. That procedure is inconsistent with the way in which the '900 patent discloses that verification is to be performed. Jackson described verification as the "critical feature" of his '900 patent (Glenayre Trial Tr. p. 138). The voice mail systems used by Glenayre's customers,

accordingly, do not include any structure equivalent, under 35 U.S.C. §112, ¶ 6, to the "access limiting circuit means" required by the '900 patent claims.

42. Only valid and enforceable patent claims can be infringed. For the reasons set forth in Counts II and III, below, the claims of the '900 patent are invalid and unenforceable. The claims are not infringed for those additional reasons.

43. NSHN requests a declaration that the voice mail systems used by Glenayre's customers do not infringe any claims of the '900 patent.

COUNT II

DECLARATORY JUDGMENT OF INVALIDITY OF THE '900 PATENT

44. NSHN repeats the allegations of ¶¶ 1 through 36, above, as though fully set forth herein.

45. The claims of the '900 patent are invalid under one or more of the grounds specified in Title 35 of the United States Code, including 35 U.S.C. §§ 101, 102, 103 and/or 112.

46. More specifically, but without limitation, the '900 patent is invalid under 35 U.S.C. §§ 101 and 112 because it describes and claims a device which would not work, and accordingly lacks an enabling disclosure.

47. The '900 patent is invalid because its claims are anticipated under 35 U.S.C. § 102 and/or invalid under 35 U.S.C. § 103 by prior art devices, including without limitation the IQ3000 answering machine; a 1983 patent issued to Gordon Matthews; the Monroe 3200R-13 answering machine and the RC-850 repeater controller.

48. NSHN requests a declaration that each claim of the '900 patent is invalid.

COUNT III

DECLARATORY JUDGMENT OF INEQUITABLE CONDUCT AND UNENFORCEABILITY

49. NSHN repeats the allegations of ¶¶ 1 through 36 and 45 through 48 above, as though fully set forth herein.

50. During the re-examination process in which he was represented by the Trexler firm, as set forth below, Jackson intentionally concealed from the PTO evidence material to the patentability of the claims of his patent that the PTO was re-examining.

Intentional Concealment Of Material Evidence Relating To The RC-850 Device

51. On August 18, 1994, Jackson filed a Complaint against Matsushita in the Northern District of Illinois for patent infringement. Ray Blackstone was the principal attorney representing Phil Jackson for both the Matsushita lawsuit and the reexamination.

52. On October 13, 1994, Jackson served two interrogatories on Matsushita. The first one asked Matsushita to "identify any and all prior art currently known to [Matsushita] that [Matsushita] contends is as relevant and/or more relevant to the '900 patent than Japanese Publication No. 50-3472 (Himuro '472) assigned to Sony Corporation."

53. On November 21, 1995, the Patent Office granted a third request for reexamination of the '900 patent.

54. On October 7, 1996, Matsushita responded to Jackson's October 13, 1994 interrogatories by identifying a number of alleged prior art references in response to Interrogatory No. 1. Among the 261 references in the interrogatory response: A Universal

Touch-Tone Decoder, QST Magazine, March 1980; A Computer-Controlled Talking Repeater, Ed Ingber, October 1980; A Computer-Controlled Talking Repeater, Ed Ingber, November 1980; A Computer-Controlled Talking Repeater, Ed Ingber, December 1980; RC-850 Repeater Controller Owners Manual (Firmware Vers. 1.4), July 1992 [sic: 1982]; RC-850 Repeater Controller and related advertisements, "73 Magazine," May 1982.

55. On October 17, 1996, in response to Mr. Blackstone's request, Matsushita produced to Jackson's counsel copies of the non-patent references listed in its interrogatory response, including those named in the preceding paragraph.

56. On November 15, 1996, Jackson (through Mr. Blackstone) filed with the Patent Office his Supplemental Information Disclosure Statement to Disclose References Very Recently Disclosed by Requester in the Co-Pending Litigation. Jackson stated: "Nevertheless, because Requester appears to take the position (in its Interrogatory Answer) that these newly-cited references are as relevant or more relevant than the Himuro '472 reference in the First Reexamination of the '900 patent, the Patent Owner is submitting these newly-cited references by Requester in an abundance of caution candor [sic] pursuant to 37 CFR § 1.98(a), CFR § 1.555 and § 2280 of the MPEP."

57. Among the prior art references cited in the Supplemental IDS were: A Universal Touch-Tone Decoder, QST Magazine, March 1980; A Computer-Controlled Talking Repeater, "73 Magazine," Ed Ingber, October 1980; A Computer-Controlled Talking Repeater, "73 Magazine," Ed Ingber, November 1980; A Computer-Controlled Talking Repeater, "73 Magazine," Ed Ingber, December 1980; RC-850 Repeater Controller Owners Manual (Firmware Vers. 1.4), July 1992 [sic: 1982]; RC-850 Repeater Controller and related advertisements, "73 Magazine," May 1982.

58. On June 16, 1997, Jackson's counsel Ray Blackstone attended the deposition of Bruce Martin, creator of the prior art RC-850 device, who described its operation in detail and clarified that certain limitations of the '900 patent claims 1 and 5 were indeed present in the RC-850. The presence of those limitations was not disclosed in the "73 Magazine" article. The discussion of the RC-850 Repeater Controller in the Martin deposition appears mostly between page 120 and page 183 of the transcript.

59. In the Jackson v. VTech case, no. 01 C 8801, N.D. Ill., the District Court (Judge Castillo) held that Jackson withheld material prior art from the Patent Office:

> Jackson failed to submit to the PTO the deposition testimony and exhibits of the RC-850's creator, even though Jackson's counsel [from the Trexler firm] attended the deposition during the pendency of the '900 patent's third reexamination proceeding. The deposition testimony was important because it clarified that certain limitations of the '900 patent were indeed contained within the RC-850 ...

(10/23/03 Order, p. 23, Jackson v. VTech, Case no. 01 C 8001).

60. The District Court further held that Jackson's successful scheme to deceive the PTO during reexamination led to a conclusion that he intended to deceive the PTO:

> [T]he MPEP makes clear that the patentee is obligated to bring to the examiner's attention any material information arising from related litigation, including "pleadings, admissions, discovery including interrogatories, depositions, and other documents, and testimony." .... ***[W]e find that the information contained in the deposition and its exhibits was "material" as that term is defined in the applicable regulations.*** Clearly Jackson was aware of this material information since his counsel attended the deposition and he failed to disclose the information to the examiner during his concurrent reexamination. ... ***[T]here is clear and convincing evidence that Jackson intended to deceive the PTO when he failed to disclose the Martin deposition.*** His counsel [from the Trexler firm] attended the deposition and was well aware that Martin testified regarding the operation of the RC-850, its status as prior art and that Martin gave a live demonstration of the RC-850 in operation. This is particularly material in light of Jackson's representation that the *73 Magazine* articles disclosing the

> RC-850 were less relevant to the reexamination proceeding than the references currently pending before the PTO or otherwise failed to impact the patent's validity.

(10/23/03 Order, pp. 24-25, Jackson v. VTech, Case no. 01 C 8801) (emphasis added). Jackson is now bound by these rulings by principles of issue and/or claim preclusion.

61. Having already found both materiality and intent to deceive (the two required elements of inequitable conduct), the only issue remaining for the District Court to decide was balancing of materiality and intent. Judge Castillo set a short trial date to consider that issue: "The Court has decided to reserve its final ruling on inequitable conduct with respect to the RC-850 materials until the conclusion of a bench trial, which the Court will hold on December 15, 2003" (Id. at pp. 25-26).

62. In view of Judge Castillo's ruling, an eventual holding that Jackson committed inequitable conduct, thus making his patent unenforceable, was virtually certain. Jackson accordingly settled the VTech lawsuit because that was the only way to forestall a holding of unenforceability, which would also have doomed the $2.65 million judgment NSHN had earlier obtained for him in the Glenayre lawsuit and which was then on appeal to the Federal Circuit.

Intentional Destruction Of The Prior Art IQ3000 Device

63. During an early lawsuit against Matsushita in which Jackson was represented by the Trexler firm, Matsushita located a prior art telephone answering machine made by Casio-Phonemate called the "IQ3000" which was in the possession of an individual named Mok, whose deposition Jackson admitted having attended. As a condition for settlement of the Matsushita lawsuit, Jackson insisted on a stipulation that Matsushita return all such items to the individuals who provided them.

64. Following the settlement of his lawsuit against Matsushita, in 1997 Jackson secretly telephoned Mr. Mok and convinced him to sell the "IQ3000" for $100. Jackson told Mok that he (Jackson) was collecting old answering machines, but Jackson subsequently admitted in his deposition that he had no such collection – not even one old answering machine. Jackson failed to produce the "IQ3000" he purchased from Mr. Mok in response to discovery requests, and did not even admit that he had ever possessed the device.

65. Jackson claimed in a deposition during later litigation that he unsuccessfully "tried to use" the "IQ3000," but he never even looked to see if it came with batteries. Ultimately, he claimed, his wife "may have placed it in the garbage" – or perhaps "it could have happened my father also could have thrown it out" – but "I doubt it was me."

66. Jackson intended to conceal the IQ3000 sample by destroying it, so it could no longer be used in any proceedings before the courts or the Patent Office.

67. NSHN requests a declaration that the '900 patent is unenforceable by reason of Jackson's inequitable conduct in concealing from the PTO the Martin deposition and associated exhibits relating to the "RC-850" prior art device and also by reason of Mr. Jakckson's intentional destruction or "loss" of the "IQ3000" prior art device.

PRAYER FOR RELIEF

WHEREFORE, NSHN requests the following relief:

A. A declaration that the '900 patent is not infringed by Glenayre's customers;

B. A declaration that the '900 patent is invalid;

C. A declaration that the '900 patent was procured by inequitable conduct, and is therefore unenforceable;

D. Judgment in favor of NSHN and against Jackson and PMJ Ltd. on all claims in this lawsuit;

E. A finding that this case is "exceptional" and an award to NSHN of its attorneys' fees and costs as provided by 35 U.S.C. §285; and

F. Such other and further relief as this Court may deem just and proper.

NIRO, SCAVONE, HALLER & NIRO

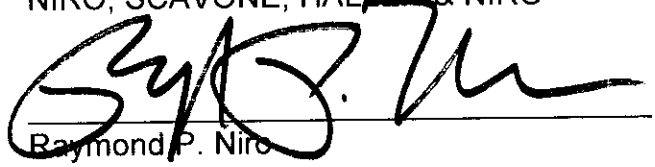

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EXHIBIT A

United States Patent [19]

Jackson

[11] **Patent Number: 4,596,900**

[45] **Date of Patent: Jun. 24, 1986**

[54] **PHONE-LINE-LINKED, TONE-OPERATED CONTROL DEVICE**

[76] Inventor: **Philip S. Jackson**, 5305 N. Neenah, Chicago, Ill. 60656

[21] Appl. No.: **507,702**

[22] Filed: **Jun. 23, 1983**

[51] **Int. Cl.**[4] **H04M 11/00**

[52] **U.S. Cl.** ..... **179/2 A**; 179/84 VF; 179/6.11; 179/5 R

[58] **Field of Search** ..... 179/2 A, 2 AM, 5 R, 179/5 P, 6.16, 6.11, 6.13, 6.07, 6.03, 84 VF

[56] **References Cited**

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Primary Examiner—James L. Dwyer

Attorney, Agent, or Firm—Trexler, Bushnell & Wolters, Ltd.

[57] **ABSTRACT**

A phone-line-linked, tone-operated control apparatus in accordance with the invention comprises a detecting circuit coupled to a telephone line for detecting at least one predetermined sequence of predetermined tone signals received on the telephone line and for producing a corresponding sequence detection signal. An additional control circuit is responsive to the sequence detection signal for producing a corresponding control signal. Preferably, a break-in prevention circuit prevents access to the control apparatus unless a predetermined access code is first given.

17 Claims, 6 Drawing Figures

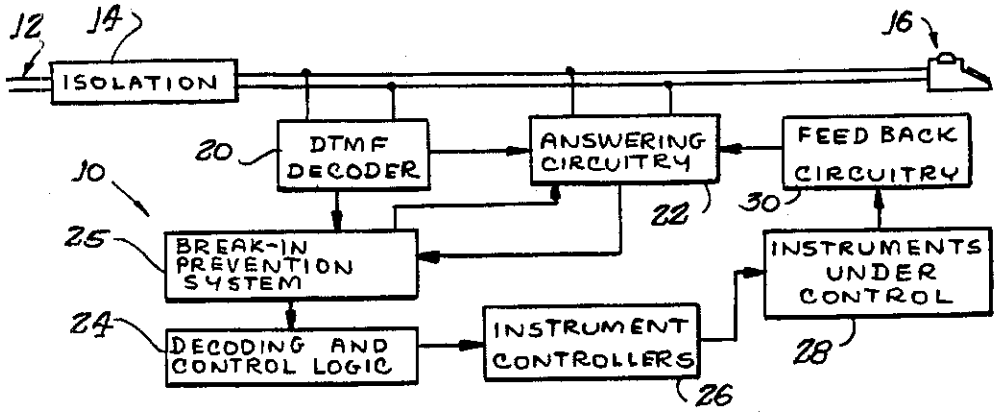


Fig. 1.

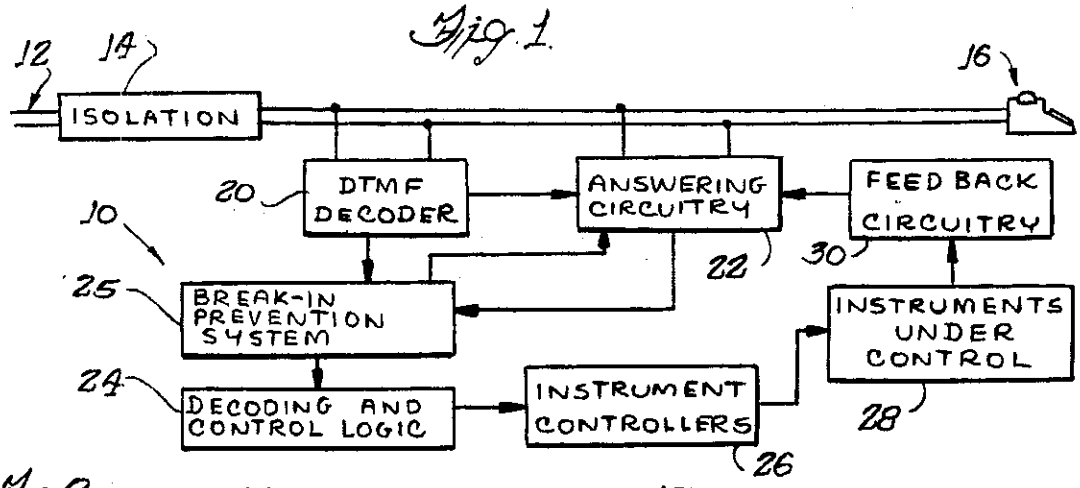
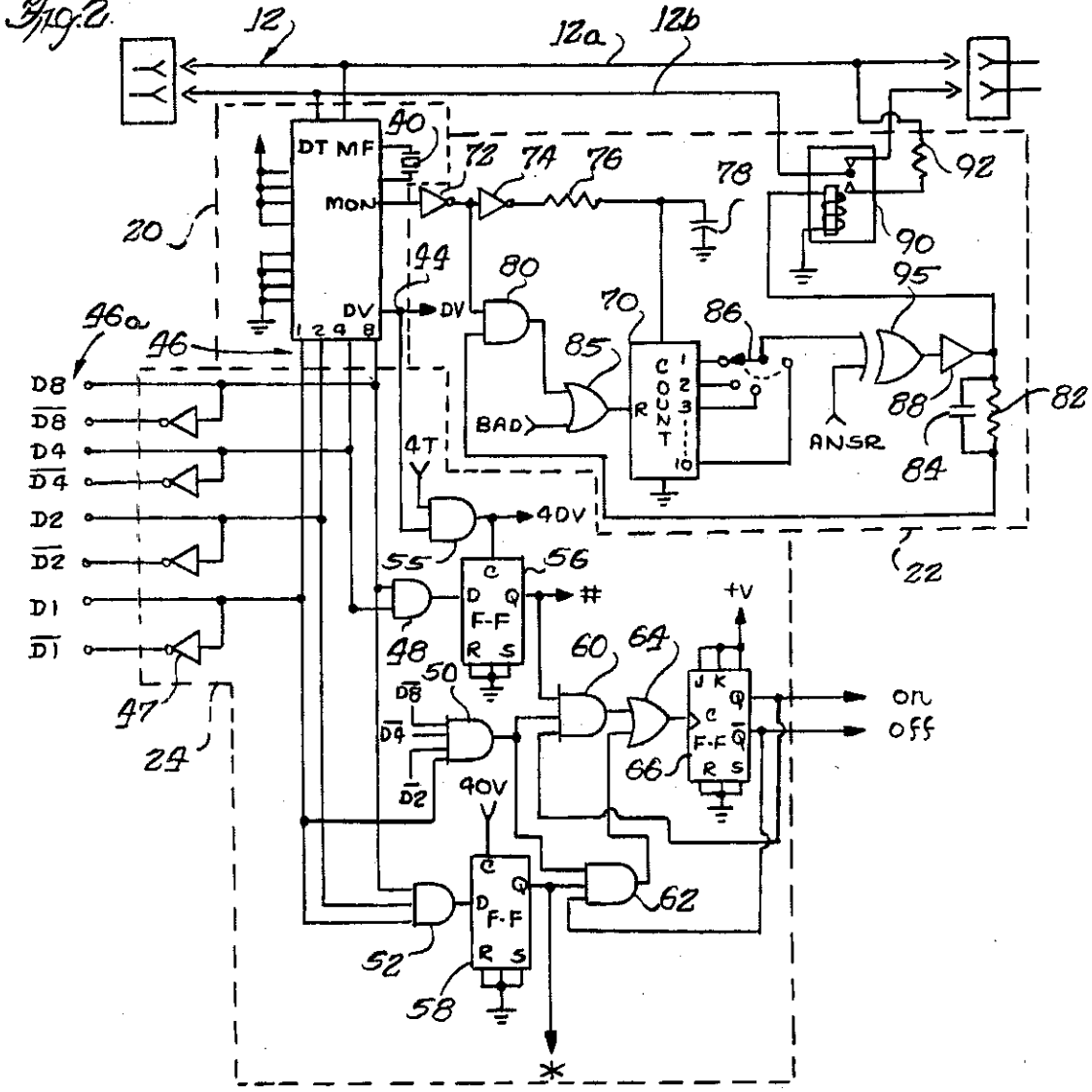

12
14
ISOLATION
16
20
DTMF DECODER
ANSWERING CIRCUITRY
FEED BACK CIRCUITRY
10
22
30
25
BREAK-IN PREVENTION SYSTEM
INSTRUMENTS UNDER CONTROL
24
DECODING AND CONTROL LOGIC
INSTRUMENT CONTROLLERS
28
26

Fig. 2.


12
12a
12b
DT MF
MON
DV
1 2 4 8
40
72
74
76
78
92
90
95
20
44
80
70
86
85
46a
46
D8
D8
D4
D4
D2
D2
D1
D1
BAD
COUNT
R
1 2 3 10
88
82
84
ANSR
4T
4DV
22
55
56
C
D Q
F-F
R S
#
48
+V
60
64
50
DB
D4
D2
40V
J K Q
C
F-F Q
R S
on
off
66
62
52
58
47
29
*

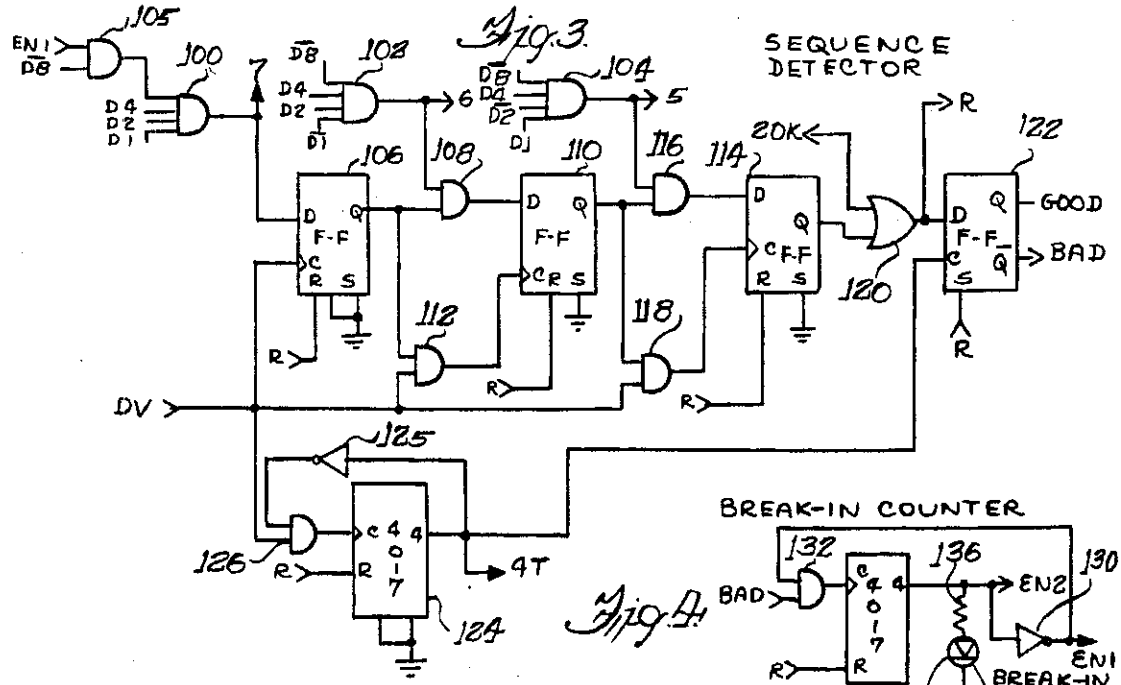


Fig. 3.
SEQUENCE DETECTOR
EN 1
D8
D4
D2
D1
100
105
102
104
106
108
110
112
114
116
118
120
122
20K
R
GOOD
BAD
DV
125
126
124
4T
BREAK-IN COUNTER
Fig. 4.
BAD
132
136
130
EN2
EN1
BREAK-IN ATTEMPT
128
134

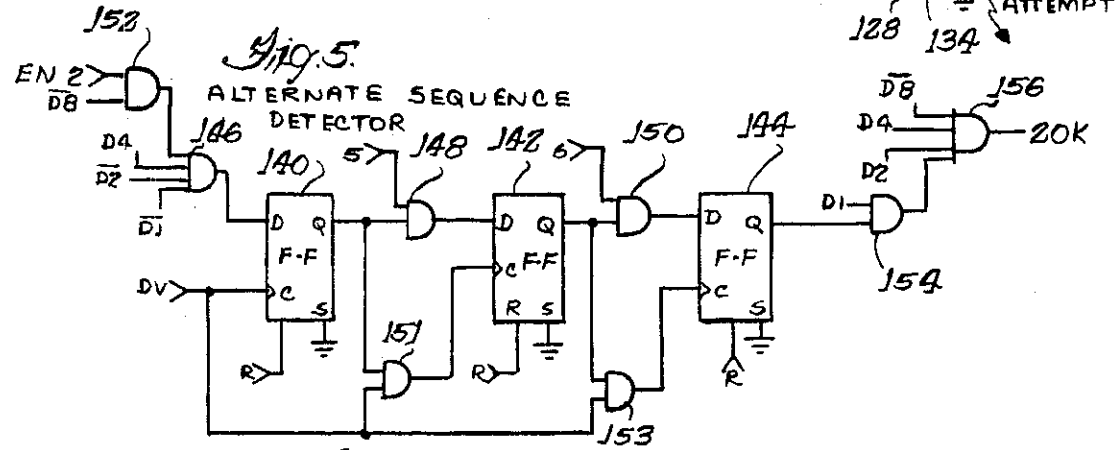


Fig. 5.
ALTERNATE SEQUENCE DETECTOR
EN 2
D8
D4
D2
D1
DV
152
146
140
148
142
150
144
151
153
154
156
20K

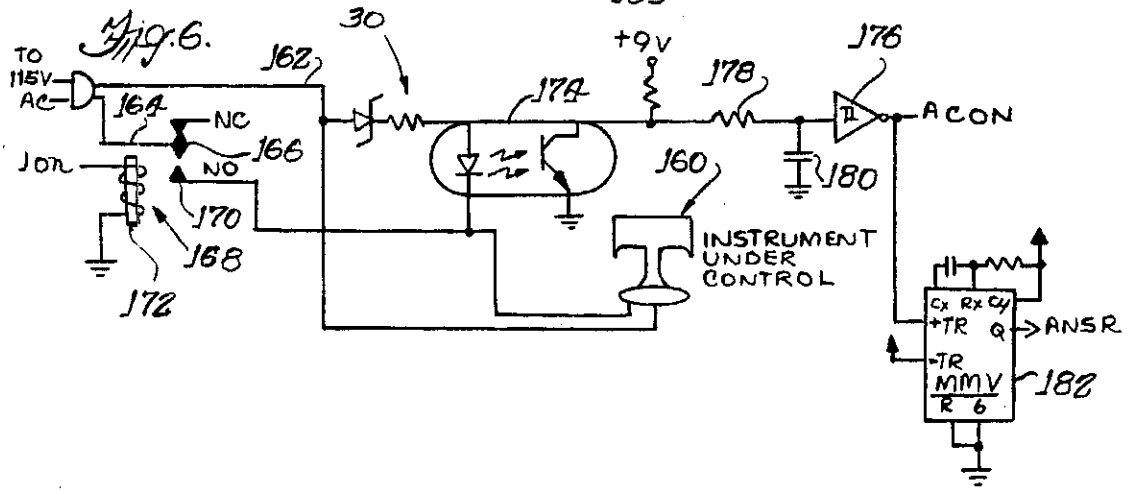


Fig. 6.
TO 115V AC
JOR
162
164
NC
166
NO
168
170
172
30
+9V
174
176
178
180
160
INSTRUMENT UNDER CONTROL
ACON
ANSR
182
MMV

PHONE-LINE-LINKED, TONE-OPERATED CONTROL DEVICE

BACKGROUND OF THE INVENTION

The invention is directed generally to the control arts, and more particularly to a novel apparatus for producing control signals in response to the reception of predetermined tone signals over a telephone line.

In recent years, increasing attention has been given to the field of home electronics and the like. With the advent of modern telephonic communication, as well as the availability of home computers and the like, a number of applications of such systems to home or personal use have been developed. For example, it has been suggested that home computers be utilized to control, through suitable interface devices, various devices in the home such as heating and air conditioning systems, lighting, appliances, and the like.

However, home computers and the necessary interface devices for performing such automatic control functions are still relatively expensive. Moreover, most such computers and other devices require some degree of skill or expertise in their installation and operation. Accordingly, the average consumer may not readily be able to utilize such computer control applications because of either financial considerations or lack of requiste knowledge and skills.

Advantageously, the present invention proposes a phone-line-linked, tone-operated control device for producing suitable control signals for use in home automatic or remote control applications. Moreover, the apparatus of the invention operates automatically in response to tone signals of the type produced by ordinary Touch-Tone telephones over conventional telephone lines. More specifically, any device producing tones commonly known as DTMF tones, such as Touch-Tone telephones, can be utilized to operate the apparatus of the invention. Accordingly, the consumer need only understand the operation of a conventional Touch-Tone telephone to utilize the present invention. That is, no special transmitting unit or device is required, whether permanently installed or a portable unit to be carried by the user. Rather, the invention may be operated from any available telephone transmitter.

Additionally, a preferred form of the invention contemplates prevention of unauthorized access or usage of the foregoing control system. To this end, a preferred form of the invention also provides a novel break-in prevention feature, which requires the entry of a selectible code over a Touch-Tone telephone line, to permit access to the remote control features of the invention. Again, however, no special transmitting unit or other device is required, the necessary code being in the form from the tones provided by any conventional, available Touch-Tone type telephone receiver.

OBJECTS AND SUMMARY OF THE INVENTION

Accordingly, it is a general object of the invention to provide a novel and improved remote control device which requires no special training or expertise to utilize.

A more specific object is to provide a phone-line-linked control device for performing a control function in response to conventional tone signals transmitted over a conventional telephone line.

A related object is to provide apparatus in accordance with the foregoing objects which is relatively simple and inexpensive and yet highly reliable in operation.

Briefly, and in accordance with the foregoing objects, a phone-line-linked, tone-operated control apparatus in accordance with the invention comprises detecting means coupled to a telephone line for detecting at least one predetermined sequence of predetermined tone signals received on said telephone line and for producing a corresponding sequence detection signal; and control means responsive to said sequence detection signal for producing a corresponding control signal.

In accordance with a preferred form of the invention an access limiting apparatus is also coupled with the control apparatus and prevents operation thereof until an access code comprising a predetermined sequence of predetermined tone signals is first received.

BRIEF DESCRIPTION OF THE DRAWINGS

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The organization and manner of operation of the invention, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawings in the several figures of which like reference numerals identify like elements, and in which:

FIG. **1** is a block diagram of a control system utilizing apparatus in accordance with the invention;

FIG. **2** is a schematic circuit diagram illustrating further details of the apparatus of the invention;

FIG. **3** is a schematic circuit diagram illustrating one portion of a novel break-in prevention circuit in accordance with a preferred form of the invention;

FIG. **4** is a schematic circuit diagram of a further portion of the break-in prevention circuit of FIG. **3**;

FIG. **5** is a schematic circuit diagram of a still further portion of the break-in prevention circuit of FIGS. **3** and **4**; and

FIG. **6** is a schematic circuit diagram of one form of feedback circuitry in accordance with a preferred form of the invention.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENT

Referring now to the drawings and initially to FIG. **1**, apparatus in accordance with the invention is illustrated in the form of a control system, designated generally by the reference numeral **10**. The control system **10** is linked to conventional telephone lines **12** by means of a suitable, conventional isolation apparatus **14**, generally in parallel circuit with a conventional telephone receiver **16**.

A dual-tone, multiple-frequency (DTMF) decoder **20** and a suitable automatic answering circuit **22** are generally coupled in parallel circuit with the telephone receiver **16**. Briefly, the DTMF decoder **20** produces standard logic-level signals in response to the dual-tone frequencies generated by conventional push-button or "Touch-Tone" telephone apparatus. Additionally, the DTMF decoder **20** produces analog signals in response to the conventional tip/ring voltages, scaled down for use in the other circuitry, as will be described presently.

An additional decoding and control logic circuit **24** receives the signals from the DTMF decoder **20**. In accordance with a feature of the invention, this decod-

ing and control logic circuit **24** is responsive to predetermined sequences of signals from the DTMF decoder **20** for producing corresponding control output signals. Generally speaking, the DTMF decoder **20** and a decoding portion of the circuit **24** together comprise a sequence detection circuit responsive to a preselected sequence of tone signals received on the phone lines **12** for producing a corresponding sequence detection signal. A control logic portion of the circuit **24** is further responsive to this sequence detection signal for producing a corresponding control output signal for an instrument controller **26**. This instrument controller **26** in turn controls the operation of one or more instruments **28**.

Briefly, such control may comprise turning on and off various devices, making adjustments in their operation, checking their status, and the like. Suitable feedback from the controlled instrument or instruments may be provided by way of a suitable feedback interface circuitry **30** to the answering circuitry **22**, which responsively outputs a suitable signal to the telephone lines **12** to indicate the status of the controlled instrument or instruments **28**.

Advantageously, then, the control system **10** of the invention is useful in parallel with the conventional telephone receiver **16**. That is, the system **10** does not interfere with normal use of the receiver **16**. Moreover, the system **10** may be utilized to control one or more devices **28** in the manner just described while a normal conversation is in progress over the receiver **16**.

In this regard, the decoding and control logic **24** may also be coupled with the answering circuitry **22** to synchronize its operation therewith. Furthermore, circuit **24** may be arranged to cause the answering circuitry **22** to disconnect the system of FIG. **1** from the phone line **12**, if an improper sequence of tones is received, as may occur for example in an attempt to gain unauthorized access or "break-in" to the system of FIG. **1**.

The answering circuitry **22** may be adjusted to couple the system with the phone lines **12** at the first detection of a ring or after a desired number of ring tones received on the line **12**.

Referring now to FIG. **2**, a schematic circuit diagram illustrates various features of the system of FIG. **1** in greater detail. The DTMF decoder **20** comprises an integrated circuit component of the type generally designated ITT3210 DTMF receiver, and is provided with a 3.58 MHz crystal **40**. Suitable DC power for the DTMF decoder **20**, as well as for the other circuits of FIG. **2** may be provided by suitable DC batteries (not shown) or by any other suitable DC voltage supply.

In operation, the DTMF decoder **20** receives conventional telephonic signals over phone lines **12**, which comprise conventional tip and ring lines **12***a* and **12***b* respectively. A line monitoring output (MON) **42** provides a signal which is usable as a CMOS logic **1** or high level when a ring is deteted on the phone lines **12** and a logic **0** or low level when no ring is in progress. An additional DV output **44** signals detection of a valid DTMF tone of the type produced by a conventional push-button or "Touch Tone" telephone.

Accordingly, access to the system from a remote location may be achieved by use of a conventional DTMF telephone transmitter over conventional telephone lines. The system of the invention therefore operates essentially as an independent telephone receiver, whereby it may be wired independently to phone lines **12** or in parallel with a standard receiver **16** as shown in FIG. **1**, as desired. As previously mentioned, when connected in parallel with the standard receiver **16**, the system of the invention does not interfere with normal operation thereof. That is, the tone signals to which the circuitry of the invention responds may be received independently of operation of the receiver **16**, or even at the same time as a normal conversation is in progress, allowing "break-in prevention" and operation of instruments under control by use of the tone signals, but otherwise permitting use as a conventional telephone without any interference therebetween.

The DV signal comprises standard CMOS logic levels, and transmits a logic **1** or high level each time a valid push-button tone is decoded by decoder **20** and a logic **0** or low level at other times. The remaining outputs of the DTMF decoder **20** encode possible push-button tone signals representing digits **0** through **9**, as well as * and # into a 4-bit binary encoded form on a 4-bit output **46**. Although not presently in common use, push-button or Touch Tone telephones are capable of producing four additional dual-tone signals, which the DTMF decoder **20** is also capable of encoding into 4-bit digital form.

In the illustrated embodiment, two sequences of these encoded signals have been selected for producing respective "on" and "off" control signals. The decoding and control logic **24** includes circuitry responsive to the sequence of the tone signals encoded into binary form on the outputs **46** of the decoder **20** for producing these "on" and "off" control output signals. These control signals are then fed to the instrument control circuitry **26** of FIG. **1**. In the illustrated embodiment, the sequence #, 1 is detected to turn the instrument off, and the sequence *, 1 is detected to turn the instrument on. In this regard, the decoder **20** encodes "#" as 1, 1, 0, 0 (in descending order, from the most significant or 8's place to the least significant or 1's place). Similarly, "*" is encoded as 1, 0, 1, 1; while "1" is encoded as 0, 0, 0, 1.

In order to provide both the logic signals from the lines **46** as well as the inverted logic content thereof, each of the lines **46** is further provided with an inverter buffer **47**. In this regard, the respective binary logic contents of the outputs **46** and their inverted forms are indicated respectively D1 and D1, D2 and D2, etc. These resulting logic outputs are indicated generally by the reference numeral **46***a*. It will be recognized that the non-inverted outputs **46***a* carry a logic "1" when the corresponding output of the DTMF **20** is activated, whereas the inverted outputs **46***a* will carry a logic content of "0" when the corresponding output **46** of the DTMF **20** is in an active condition.

Accordingly, the decoding and control logic **24** includes three detectors in the form of logic gates **48**, **50** and **52** which are coupled to suitable ones of the output lines **46***a* for responding to the respective binary signals corresponding to tones representing #, * and 1, respectively. In this regard, the gate **48** comprises a two-input AND gate and has its inputs coupled respectively to respond to the logic content 1, 1, 0, 0 at output **46** of decoder **20**.

Similarly, the logic gate **52** comprises a three-input AND gate and is coupled to respond to the logic content 1, 0, 1, 1 at output **46** of decoder **20**. Finally, the AND gate **50** comprises a four-input AND gate coupled to detect the encoded 1 signal, which corresponds to a logic content of 0, 0, 0, 1 at output **46** of decoder **20**. Accordingly, the respective gates **48**, **50** and **52** detect signals of predetermined logic content produced by the

decoder 20 at its output 46. Different logic contents corresponding to different code sequences may be selected without departing from the invention, by the simple expedient of selecting different ones of the outputs 46*a* as inputs to gates 48, 50 and 52.

In the illustrated embodiment, in order to detect the desired sequence of these encoded logic signals (#, 1 to turn the instrument off and *, 1 to turn the instrument on) the outputs of AND gates 48 and 52 are coupled with respective flip-flops 56 and 58. The output of AND gate 50 is coupled with one input of each of a pair of three-input AND gates 60 and 62.

In the illustrated embodiment, the flip-flops 56 and 58 comprise D-type flip-flops of the type generally designated 4013, and the outputs of respective AND gates 48 and 52 feed the respective data or D inputs thereof. The clock (C) inputs of the flip-flops 56 and 58 are coupled to receive the above-mentioned DV signal from the output 44 of the decoder 20. Preferably, a two-input AND gate 55 is interposed between the DV output and these clock inputs. This gate responds to a further signal "4T" from the break-in prevention circuit, to be described later, for delivering only those DV signals occurring after the fourth incoming tone and corresponding DV signal. The output of the gate is hence designated "4DV".

It will be remembered that a high or logic one signal is produced at DV output 44 upon encoding of a valid tone at the outputs 46 of decoder 20. In operation, the DV output signal is delayed slightly from the production of the encoded signal at outputs 46.

The respective set (S) and reset (R) inputs of the flip-flops 56 and 58 are coupled with circuit ground. The Q outputs of respective flip-flops 56 and 58 are coupled with respective inputs of the AND gates 60 and 62. Accordingly, the flip-flops 56 and 58 will be clocked by the 4DV signal upon each encoding of an incoming tone signal (after the fourth), thereby in effect transferring the logic state of the D inputs thereof to the Q output thereof. When the AND gate 48 produces a logic one in response to detection of the encoded # signal on lines 46, a logic one will be clocked to the 0 output of flip-flop 56. In the same fashion, the AND gate 52 will produce a logic one output to the data input of the flip-flop 58 when it detects the encoded * signal on the lines 46. This logic one will be clocked through to the Q output of the flip-flop 58 in response to the corresponding 4DV output positive transition. The Q outputs of flip-flops 56 and 58 are therefore also designated by "#" and "*" and are respectively coupled to second inputs of respective AND gates 60 and 62.

The AND gates 60 and 62 feed respective inputs of a two-input OR gate 64 which feeds the clock input of a further flip-flop 66. In the illustrated embodiment, the flip-flop 66 comprises one-half of a dual JK-type flip-flop of the type generally designated 4027. The Q and Q outputs of the flip-flop 66 are selected as the instrument "on" and instrument "off" control signal outputs, respectively. Moreover, the Q or "on" output feeds the remaining input of AND gate 60 while the Q or "off" output feeds the remaining input of the AND gate 62. The J and K inputs of flip-flop 66 are tied to a suitable positive potential, while the set and reset inputs thereof are tied to circuit ground.

In operation, the respective flip-flops 56 and 58 and associated gates 60 and 62 act as sequence detectors such that the gate 60 will produce a logic one or high output signal only in response to logic one or high signals at all three of its inputs simultaneously. The OR gate 64 will toggle the flip-flop 66 in response to a logic one signal at either input thereof. It will be remembered that a logic one is produced by the AND gate 50 upon detection of the encoded 1 signal on the output 46. However, the encoded # signal must immediately precede the encoded 1 signal in order to hold the Q output of flip-flop 56 at logic one as previously described. Due to the slight delay in the action of the DV output 44 of decoder 20, this logic one at the Q output of flip-flop 56 will momentarily co-exist with the logic one at the output of AND gate 50. In effect, then, gates 48 and 50, flip-flop 56 and gate 60 respond to or detect the encoded sequence #, 1 and produce a corresponding detection signal. Gate 64 and flip flop 66 respond by producing a corresponding "off" control signal.

In the illustrated embodiment an additional control from the Q output of flip-flop 66 assures that repetition of the #, 1 ("off") sequence will not result in turning the instrument on. This is done by requiring a logic one state from the instrument "on" or Q output flip-flop 66 as the third input to AND gate 60.

From the foregoing it will be recognized that operation with respect to the instrument "on" sequence (*, 1) at AND gates 50 and 52, flip-flop 58 and AND gate 62 is substantially identical. In this regard, gates 50 and 52, flip-flop 58 and gate 62 detect the sequence *, 1 and produce a responsive detection signal. Gate 64 and flip flop 66 respond to this detection signal by producing a corresponding "instrument on" control signal. Additionally, a feedback signal from the Q or instrument off output of flip-flop 66 to gate 62 prevents production of the "on" signals unless the instrument is in the "off" state. Hence, repetition of the sequence *, 1 will not turn the instrument "off", if it is already in the "on" state.

It will be recognized from the foregoing that additional instruments or apparatus may be similarly provided with "on" and "off" control signals in response to additional, different selected sequences from the DTMF 20. For example, since the # and * decoded outputs are already available as the first in a two-signal sequence at the Q outputs of flip-flops 56 and 58, these may be utilized with other decoded digit tone signals to control further instruments or devices. That is, further gates such as AND gate 50 may be used to detect or decode binary signals corresponding to other digits. Additionally, similar gates such as the gate 60 may then be connected to receive the # and * outputs as well as the further decoded digit outputs so as to drive further flip-flops such as the flip-flop 66 in exactly the same fashion as described above so as to provide on and off control signals for additional instruments. For example, *, 2 and #, 2 might be used to control a second instrument and so forth by the simple expedient of a repetition of only a small part of the circuitry of FIG. 2. Other codes may of course be utilized by duplicating more of the decoding and control logic circuit 24 of FIG. 2, if entirely different on and off codes are desired.

Referring now to the answering circuitry 22, an integrated circuit counter component 70 is utilized to count the rings received on the phone line 12. In the illustrated embodiment, this counter comprises an integrated circuit component of the type generally designated 4017. The rings are detected by the decoder 20 and the count input (C) of the counter 70 is fed from the MON output 42 by way of a pair of inverter buffers 72, 74 and an RC filter comprising resistor 76 and capacitor 78.

The first inverter buffer 72 also feeds one input of a two-input AND gate 80, the output of which is coupled to activate the reset (R) input of the counter 70. The remaining input of AND gate 80 is coupled to a selected output of the counter 70 by way of a suitable RC time delay circuit comprising resistor 82 and capacitor 84. In the illustrated embodiment, an additional two-input OR gate 85 is interposed between the AND gate 80 and the R input of counter 70. This OR gate 85 functions to reset the counter in response to either of the AND gate 80 or a "BAD" logic signal produced by the break-in prevention circuit to be described later. As will be seen presently, resetting the counter 70 causes the answering circuitry 22 to "hang up".

The RC filter circuit (76, 78) filters the ring impulses in a ring burst to clock the counter 70 one count for each ring burst. The output of the counter 70 is switch selectable by switch 86 to choose from one to ten rings before enabling a series-connected buffer 88. This buffer 88 in turn activates a relay 90 which in effect "answers" the telephone by coupling a conventional 580 ohm termination resistor acroSs the line. Any additional feedback signals, for example, from the circuit 30 of FIG. 1 are also applied to this phone connection relay 90.

In accordance with a preferred form of the invention an additional exclusive OR gate 95 is interposed between the ring number selector switch 86 and the buffer 88. This exclusive OR gate 95 receives a second input, labeled ANSR, from the feedback circuitry 30, as will be described in detail later. Briefly, the ANSR signal produced by this feedback circuitry momentarily disables gate 95, causing momentary disconnection of the phone line by relay 90. This momentary disconnection results in an audible "click" being sent over phone line 12 to verify operation of an instrument under control as will be more fully described later.

In operation, the MON output 42 will be remembered to produce a logic one or high level during each ring. This high level by way of the two inverter buffers 72, 74 and filter clocks the counter 70. The corresponding logic 0 or low level intermediate rings is then available by way of inverter buffer 72 for resetting the counter 70. Reset only occurs, however, when the selected count has been reached, and after the time delay (RC 82, 84).

The MON output 42 remains in the logic 1 or high level as long as the transmitting or remotely located telephone is on the line. When this transmitter goes off the line or "hangs up", the MON output 42 goes to a logic 0 or low state, thereby also enabling the reset of the counter 70 by way of the AND gate 80. The relay 90 is then de-activated and "hangs up" on its end of the line. Accordingly, if the calling party "hangs up", the foregoing circuits also "hang up" at their end of the line. This then permits the system 10 as well as the receiver 16 to be again reached in conventional fashion over the telephone lines 12.

In accordance with a preferred form of the invention, as previously mentioned an unauthorized access or "break-in" prevention circuit or system is also provided to cooperate with the circuit of FIG. 2, as previously generally indicated. Reference is now invited to FIGS. 3, 4 and 5 wherein the circuit portions making up this break in prevention circuit or system are illustrated in schematic form.

Briefly, this break-in prevention system permits only someone entering the correct sequence of touch tone signals to use the control system of FIG. 2 for controlling one or more instruments or devices. Moreover, any attempt to gain entry to the system without first entering in the proper access code will cause the answering circuitry 22 of FIG. 2 to "hang up". This prevents repeated break-in attempts with one phone call.

Additionally, to prevent repeated attempts at access by the use of successive different codes, a second, different entry access code is placed into operation automatically by the circuits to be described presently, following a preselected number of break-in attempts. As will be seen, the circuits may be readily modified and/or expanded to include additional alternate access or entry codes and to automatically switch to or activate more than two possible entry codes if desired. Accordingly, the following description illustrates one specific embodiment of such a break-in prevention circuit or system, it being understood that changes and modifications may be made without departing from the invention.

Referring initially to FIG. 3, a first access sequence detector is here illustrated in connection with an access sequence comprising touch-tone signals corresponding to 7, 6, 5, x, where x can be any signal at all ("don't care" or dummy signal). These signals are received by respective four-input AND gates 100, 102 and 104 from the encoded outputs 46 of the DTMF 20, by selecting the indicated ones of output lines 46*a*. Additionally, the first AND gate 100 receives an enable signal (EN1) by way of a further two-input AND gate 105 which is further coupled to receive a selected one (D8) of the signals from lines 46*a*. This enable signal is normally a logic 1 when the access sequence detector circuit of FIG. 3 is in operation.

The access sequence or entry code is detected much in the same way as the sequence for the instrument control as described above with reference to FIG. 2. In this regard, the first AND gate 100 feeds the data (D) input of a first flip-flop (F-F) 106. At the same time, the DV line from the DTMF 20 is coupled to the clock (C) input of the flip-flop 106. Accordingly, if a "7" is decoded, a logic 1 is clocked from the D input to the Q output of flip-flop 106. This Q output feeds one input of a two-input AND gate 108 whose other input receives the output of the "6" detection AND gate 102 and whose output feeds the data (D) input of a second, similar flip-flop 110. The clock (C) input of flip-flop 110 is coupled to the output of a further two-input AND gate 112 for response to the DV signal only when a "7" is decoded at the first flip-flop 106, resulting in a logic 1 at the Q output thereof. Accordingly, when a 6 is detected or decoded consecutively following a 7, the second flip-flop will clock a logic 1 from its D input to its Q output.

A third similar flip-flop 114 is then coupled by way of similar AND gates 116 and 118 to respond to an encoded "5" consecutively following an encoded "6" in the same fashion. The Q output of this further flip-flop 114 feeds one input of a two-input OR gate 120, the second input of which receives a similar output signal (2 OK) from the alternate access sequence detector of FIG. 5, to be described presently. A further similar flip-flop 122 has its data (D) input coupled for response to the OR gate 120. The output of OR gate 120 also provides a reset (R) signal.

The Q output of flip flop 122 is here designated as the "GOOD" signal, while the $\overline{Q}$ is designated as the "BAD" signal, these two signals indicating whether or not the correct access code sequence has been received. In this regard, the clock (C) input of flip-flop 122 is

coupled for response to a tone counter **124**. In the illustrated embodiment, the flip-flops **106**, **110**, **114** and **122** preferably comprise integrated circuit components of the type generally designated **4013** dual-D flip-flop, while the counter **124** comprises a decode counter of the type generally designated **4017**.

The tone counter **124** is coupled to count the DV signals, and has its "number 4" output coupled to clock the flip-flop **122**. Hence, the flip-flop **122** clocks through the data at its D input on the fourth-received DV signal, corresponding to the fourth-received tone signal. Hence, if the correct sequence has been entered, a logic **1** is clocked through to the Q output resulting in a "GOOD" output signal. However, if the correct sequence has not been entered, the logic **1** is clocked to the $\overline{Q}$ output resulting in a "BAD" output signal. The output of the counter **124** is also designated "4T" and is fed to the gate **55** of FIG. **2** as previously mentioned.

In this regard, it will be remembered that the fourth tone in the sequence may be any tone in the present example. However, it will be appreciated that any number of signals in any given sequence may be utilized, including any number of desired "don't care" or dummy signals at any point in the sequence, without departing from the invention.

The counter **124** is coupled to disable itself upon reaching the fourth count, so as to maintain the 4T signal at that point. This is done by way of an inverter **125** which is coupled back to one input of a two-input AND gate **126** the other input of which receives the DV signal for input to the count (C) input of the counter **124**.

The reset signal R is also fed to the reset input (R) of each of the flip-flops **106**, **110** and **114** and to the set (S) input of the flip-flop **122**. In this regard, the flip-flop **122** is normally held in the set state, that is, with a logic **1** signal at the Q output, thus comprising the "GOOD" signal. Thus, the clocking of the positive **1** upon completion of the correct entry code merely has the effect of leaving the "GOOD" signal unchanged, whereas any incorrect attempt at entering the access code clocks the flip-flop **122** to produce the logic **1** or "BAD" at the $\overline{Q}$ output.

Each time a "BAD" signal is produced by flip-flop **122** it is utilized to clock or count a further break-in counter **128** illustrated in FIG. **4** to which attention is next invited. This break-in counter **128** is also preferably a decode counter of the type generally designated 4017. Any of the outputs of the counter **128** may be selected to correspond to the number of "BAD" attempts at which the access sequence detector of FIG. **3** will be disabled and an alternate access sequence detector shown in FIG. **5** will be enabled.

Accordingly, a selected output of the decode counter, here chosen as the "number four" output thereof (4) is tied to an enable line (EN2) for enabling the alternate access sequence detector of FIG. **5**. At the same time an inverter buffer **130** changes the first enable line EN1 to a logic **0**. This logic **0** is also fed back to the count or clock input of the break-in counter **128** by way of a suitable AND gate **132** in the same fashion as described above for the counter **124**. This then holds the alternate access sequence detector in the enabled state. If, however, the correct entry or access sequence is detected by the first sequence detector of FIG. **3** previous to four "BAD" attempts, the reset line R resets the break-in counter **128** as indicated at the reset (R) input thereof.

In accordance with a preferred feature of the invention a suitable indicator such as an LED **134** may also be coupled by way of a suitable current limiting resistor **136** to be energized by the selected count output of the counter **128**. This provides a visual indication of a number of break-in attempts and resulting selection of the alternate access sequence detector of FIG. **5**.

Referring now to FIG. **5**, the alternate access sequence detector is similar to the access sequence detector circuit of FIG. **3**. However, the alternate access code or sequence is here chosen as **4**, **5**, **6**, **7**. In this regard, first, second and third flip-flops **140**, **142** and **144** receive selected encoded signals from the DTMF **20** of FIG. **1** by way of suitable AND gates **146**, **148** and **150**. These gates are wired in the same fashion as described with respect to the circuit of FIG. **3** to appropriate ones of the outputs or lines **46***a* of FIG. **2**. Additionally, the first gate **146** is wired to receive one input from a two-input AND gate **152**, the other input of which receives the enable line EN2 from the break-in counter circuit of FIG. **4**. Accordingly, the circuit of FIG. **5** is enabled or activated upon the production of the logic **1** signal at the EN2 output of FIG. **4** as just described.

In other respects, the first three selected members of the code sequence operate the first three flip-flops **140**, **142** and **144** in the same fashion described above with reference to FIG. **3**. In this regard, the DV signal feeds the clock input of the first flip-flop **140** and is ANDed at gate **151** with the Q output thereof to feed the clock input (C) of the second flip-flop **142**. A similar AND gate **153** receives the DV line and Q output of flip-flop **142** and feeds the clock input (C) of the third flip-flop **144**. The Q output of the last flip-flop **144** feeds the 20K line by way of a further pair of AND gates **154**, **156** which incorporate a fourth digit or member of the code sequence for the sequence detector of FIG. **5**.

Accordingly, the alternate sequence detector of FIG. **5** requires four predetermined encoded sequence members in the proper order to give the 20K signal. It will be remembered that this 20K signal alternatively activates the OR gate **120** which enables the continued production of the "GOOD" signal from the flip-flop **122** of FIG. **3**. In the same fashion as the access sequence detector of FIG. **3**, if the proper code is not entered in the proper sequence, a logic **0** will be produced at the 20K output, permitting the flip-flop **122** to be clocked simultaneously with decoding of the fourth-received tone to give the "BAD" signal.

Referring briefly to FIG. **6** one example of a suitable feedback circuit **30** for verifying operation of the control circuit of FIG. **2** is illustrated. In this regard, it will be remembered that the control system of FIG. **2**, once accessed or enabled by the novel break-in prevention circuitry just described permits control of one or more devices or instruments in response to signals received over the telephone line **12** from any conventional push-button-type telephone receiver. Accordingly, the circuit of FIG. **6** is arranged to produce an audible "click" on the line **12** to this "sending" receiver. The instrument or device being controlled is indicated generally by the reference numeral **160**.

In the illustrated embodiment, this instrument **160** is of the type which may be activated or turned "on" by the completion of a circuit thereto from a conventional AC line or household current indicated generally at **162**, **164**. Accordingly, the line **164** feeds a movable contact **166** of a relay **168**. A normally open fixed contact **170** of this relay **166** is in turn coupled with the

instrument 160, while the other side of the AC line 162 is coupled directly thereto. A suitable relay coil 172 is arranged for pulling the movable contactor 166 into engagement with the fixed contact 170 upon energization thereof, thus completing the circuit for turning the instrument 160 "on". Referring briefly to FIG. 2, the "1 on" output may be coupled directly to one side of the coil 172 for this purpose, the other side thereof being coupled with circuit ground.

In order to provide an audible click over the telephone line, the AC line 162 further feeds one side of an opto-coupler or opto-isolator 174 whose other side is also coupled with the fixed contact 170. Hence, the opto-coupler will be activated upon activation of the relay 168 for completing the circuit to the instrument 160. A resultant output signal from the opto-coupler 174 feeds a suitable Schmitt trigger 176 by way of a suitable RC filter 178, 180. The output of the Schmitt trigger is designated ACON and is coupled to the positive trigger input of a monostable multivibrator circuit 182 (MMV). The MMV is preferably of the type generally designated 4098.

The Q output of the MMV 182 provides the ANSR signal, which it will be remembered feeds one input of the exclusive-OR gate 95 of FIG. 2. It will further be remembered that such activation of the exclusive-OR gate 95 gives a suitable signal by way of buffer 88 for connecting and disconnecting the telephone line 12 by way of the relay 90. However, the MMV 182 is provided with a suitably short time constant, such that the ACON signal constitutes a brief pulse, only sufficient to momentarily deactivate and then reactivate the relay 90 of FIG. 2. Hence, an audible "click" is produced over the telephone line 12 upon completion of the AC connection to the controlled instrument 160.

While particular embodiments of the invention have been shown and described in detail, it will be obvious to those skilled in the art that changes and modifications of the present invention, in its various aspects, may be made without departing from the invention in its broader aspects, some of which changes and modifications being matters of routine engineering or design, and others being apparent only after study. As such, the scope of the invention should not be limited by the particular embodiment and specific construction described herein but should be defined by the appended claims and equivalents thereof. Accordingly, the aim in the appended claims is to cover all such changes and modifications as fall within the true spirit and scope of the invention.

I claim:

1. A phone-line-linked, tone-operated control apparatus comprising: detecting means coupled to receive tone signals from said phone line, for detecting at least one predetermined sequence of predetermined tone signals and for producing a corresponding sequence detection signal; control means responsive to said sequence detection signal for producing a corresponding control signal; wherein said detecting means comprises first detecting means for producing a first detection signal in response to a first predetermined sequence of predetermined tone signals and a second detection signal in response to a second predetermined sequence of predetermined tone signals; wherein said control means is responsive to said first detection signal for producing a corresponding first control signal and responsive to said second detection signal for producing a corresponding second control signal; wherein said control means comprises dual state means capable of producting one of said first control signal and said second control signal at a time; and wherein said first and said second detecting means further include gating means coupled in circuit for disabling production of said first and said second detection signals respectively in response to said second control signal and said first control signal, respectively.

2. A control apparatus in accordance with claim 1 wherein said detecting means comprises tone decoding means responsive to said tone signals for producing digitally encoded signals corresponding in a predetermined fashion to said tone signals; and digital decoding means responsive to predetermined ones of said digitally encoded signals occurring in a predetermined sequence for producing said corresponding sequence detection signal.

3. A phone-line-linked, tone-operated control apparatus comprising: detecting means coupled to receive tone signals from said phone line, for detecting at least one predetermined sequence of predetermined tone signals and for producing a corresponding sequence detection signal; and control means responsive to said sequence detection signal for producing a corresponding control signal; wherein said detecting means comprises tone decoding means for converting each of said tone signals into a multiple-bit digital signal, logic gate means coupled to receive said multiple-bit digital signals and responsive to multiple-bit digital signals of predetermined logic content for producing gated output signals, and sequence detecting means coupled to said logic gate means for producing said sequence detection signal in response to production of said gated output signals in a predetermined sequence; and wherein said control means comprises flip-flop means capable of producing first state and second state output signals and responsive to each sequence detection signal for changing the state of its output signal, said output signals comprising said control signal.

4. A control apparatus in accordance with claim 3 wherein said detecting means includes means for detecting at least two predetermined sequences of predetermined tone signals and producing corresponding sequence detection signals; wherein said control means is responsive to each said sequence detection signal for changing state; and further including gating means coupled with said control means and with said sequence detecting means for preventing reception of a sequence detection signal at said control means in response to a corresponding control signal, thereby preventing said control means from changing state in response to consecutive repetition of the same sequence detection signal.

5. A phone-line-linked, tone-operated control apparatus comprising: detecting means coupled to receive tone signals from said phone line, for detecting at least one predetermined sequence of predetermined tone signals and for producing a corresponding sequence detection signal; control means responsive to said sequence detection signal for producing a corresponding control signal; access limiting circuit means coupled with said detecting means for preventing production of said sequence detection signal until an access sequence comprising a further predetermined sequence of predetermined tone signals is first received on said phone line; wherein said access limiting means includes gate means coupled with said detecting means for normally preventing response thereof to said tone signals, and counter means coupled to said gate means and respon-

sive to said tone signals for causing said gate means to enable operation of said detecting means following a predetermined number of tone signals received thereby.

6. A control apparatus in accordance with claim 5 wherein said access limiting means further includes access sequence detecting means responsive to a predetermined number of tone signals consecutively received on said phone line other than said access sequence of producing a disabling signal; and disabling means coupled to said detecting means for preventing production of said sequence detection signal in response to said disabling signal.

7. A phone-line-linked, tone-operated control apparatus comprising: detecting means coupled to receive tone signals from said phone line, for detecting at least one predetermined sequence of predetermined tone signals and for producing a corresponding sequence detection signal; control means responsive to said sequence detection signal for producing a corresponding control signal; and access limiting circuit means coupled with said detecting means for preventing production of said sequence detection signal until an access sequence comprising a further predetermined sequence of predetermined tone signals is first received on said phone line; wherein said access limiting means further comprises a first access sequence detector responsive only to said access sequence, a second access sequence detector responsive only to a second access sequence comprising a different predetermined sequence of predetermined tone signals, and enabling circuit means for normally enabling said first access sequence detector and disabling said second access sequence detector and responsive to a predetermined number of sequences of tone signals not corresponding to said further predetermined sequence for disabling said first access sequence detector and enabling said second access sequence detector.

8. A control apparatus according to claim 6 and further including gate means coupled to said answering means and responsive to said disabling signal for causing said answering means to disconnect said detecting means from said phone line.

9. A control apparatus in accordance with claim 5 and further including access sequence detecting means for producing a disabling signal in response to a predetermined number of tone signals not comprising said access sequence and gate means for disconnecting said detecting means from said phone line in response to said disabling signal.

10. A phone-line-linked, tone-operated control apparatus comprising: detecting means coupled to receive tone signals from said phone line, for detecting at least one predetermined sequence of predetermined tone signals and for producing a corresponding sequence detection signal; control means responsive to said sequence detection signal for producing a corresponding control signal; switching means responsive to said control signal for activating a given instrument under control; and feedback means coupled to said switching means for producing a verifying signal in response to operation of said switching means for activating said instrument under control; wherein said feedback means includes gate means coupled with said answering circuit means and responsive to said verifying signal for momentarily decoupling said detecting circuit means from said phone line and thereby producing an audible signal.

11. An access limiting apparatus for use with a phone-line-linked, tone-operated control apparatus and comprising: access sequence detecting means coupled to receive tone signals from said phone line, and responsive to a predetermined number of tone signals received on said phone line other than an access sequence comprising a predetermined sequence of predetermined tone signals for producing a disabling signal; disabling means coupled to said control apparatus for preventing operation thereof in response to said disabling signal; wherein said access limiting means further comprises a first access sequence detector responsive only to said access sequence, a second access sequence detector responsive only to a second access sequence comprising a different predetermined sequence of predetermined tone signals, and enabling circuit means for normally enabling said first access sequence detector and disabling said second access sequence detector and responsive to a predetermined number of sequences of tone signals not corresponding to said further predetermined sequence for disabling said first access sequence detector and enabling said second access sequence detector.

12. An access limiting apparatus in accordance with claim 11 and further including answering means for normally coupling said control apparatus to said phone line in response to a predetermined number of ring tones received on said phone line; and gate means for disconnecting said control apparatus from said phone line in response to said disabling signal.

13. A control apparatus in accordance with claim 1 and further including means for coupling said apparatus in parallel with a telephone receiver for permitting production of said sequence detection signal and production of said control signal simultaneously with conversation over said telephone receiver.

14. A control apparatus in accordance with claim 1 and further including decoupling means responsive to a remotely located transmitter going off the telephone line for disconnecting the control apparatus from the telephone line.

15. A phone-line-linked, tone-operated control apparatus comprising: detecting means coupled to receive tone signals from said phone line, for detecting at least one predetermined sequence of predetermined tone signals and for producing a corresponding sequence detection signal; control means responsive to said sequence detection signal for producing a corresponding control signal; and access limiting circuit means coupled with said detecting means for preventing production of said sequence detection signal until an access sequence comprising a further predetermined sequence of predetermined tone signals is first received on said phone line; wherein said access limiting circuit means comprises gating circuit means for producing a gate signed in response to tone signals making up said predetermined access, sequence, counter means for producing a count signal upon counting a predetermined number of received tone signals greater in number than the number of tone signals in said access sequence, and disabling circuit means responsive to said count signal and said gate signal for disabling production of said sequence detection signal when said access sequence is not present in said predetermined number of received tone signals; whereby a selected number of additional, arbitrary tone signals may be received in addition to the signals of said access sequence without disabling production of said sequence detecting signals, said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

16. A control apparatus in accordance with claim 1 and further including means for coupling said sequence detecting means to said phone line in response to a predetermined number of ring tones received on said phone line.

17. An access limiting apparatus according to claim 11 and further including answering means coupled to said phone line and responsive to a predetermined number of ring tones received on said phone line for coupling said control apparatus to said phone line; and gate means coupled to said answering means and responsive to said disabling signal for causing said answering means to disconnect said control apparatus from said phone line.

* * * * *

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REEXAMINATION CERTIFICATE (2691th)

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Jackson

[45] Certificate Issued Oct. 10, 1995

[54] **PHONE-LINE LINKED, TONE-OPERATED CONTROL DEVICE**

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[52] **U.S. Cl.** **379/105**; 379/77; 379/102
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U.S. PATENT DOCUMENTS

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Primary Examiner—Jason Chan

[57] **ABSTRACT**

A phone-line-linked, tone-operated control apparatus in accordance with the invention comprises a detecting circuit coupled to a telephone line for detecting at least one predetermined sequence of predetermined tone signals received on the telephone line and for producing a corresponding sequence detection signal. An additional control circuit is responsive to the sequence detection signal for producing a corresponding control signal. Preferably, a break-in prevention circuit prevents access to the control apparatus unless a predetermined access code is first given.

17 Claims

REEXAMINATION CERTIFICATE ISSUED UNDER 35 U.S.C. 307

THE PATENT IS HEREBY AMENDED AS INDICATED BELOW.

Matter enclosed in heavy brackets [] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **5–9, 11–12, 17** is confirmed.

Claims **1, 3, 10** and **15** are determined to be patentable as amended.

Claims **2, 4, 13, 14** and **16**, dependent on an amended claim, are determined to be patentable.

1. A phone-line-linked, tone-operated control apparatus *for remotely controlling various functions of at least one device, said apparatus* comprising: detecting means coupled to receive tone signals from said phone line, for detecting at least one predetermined sequence of predetermined tone signals and for producing a corresponding sequence detection signal; control means responsive to said sequence detection signal for producing a corresponding control signal; wherein said detecting means comprises first detecting means for producing a first detection signal in response to *the reception of* a first predetemined sequence of predetermined tone signals and *second detecting means for producing* a second detection signal in response to *the reception of* a second predetermined sequence of predetermined tone signals; wherein said control means is responsive to said first detection signal for producing a corresponding first control signal and responsive to said second detection signal for producing a corresponding second control signal; wherein said control means comprises dual state means [capable of] *for* producing *only* one of a first control signal and said second control signal at a time; and wherein said first and said second detecting means further include gating means coupled in circuit for disabling production of said first and said second detection signals respectively in response to said second control signal and said first control signal, respectively, *whereby said apparatus cannot produce said first detection signal and said second detection signal at the same time*.

3. A phone-line-linked, tone-operated control apparatus comprising: detecting means coupled to receive *a plurality of* tone signals from said phone line, for detecting at least one predetermined sequence of predetermined tone signals and for producing a corresponding sequence detection signal; and control means responsive to said sequence detection signal for producing a corresponding control signal; wherein said detecting means comprises tone decoding means for converting each *received one* of said *plurality of* tone signals into [a] *an encoded* multiple-bit digital signal, *with each said encoded multiple-bit digital signal having a total number of bits substantially less than the total number of tone signals in said plurality of tone signals*, logic gate means coupled to receive said *encoded* multiple-bit digital signals and responsive to *said encoded* multiple-bit digital signals of predetermined logic content for producing gated output signals, and sequence detecting means coupled to said logic gate means for producing said *corresponding* sequence detection signal in response to production of said gated output signals in a predetermined sequence; and wherein said control means comprises flip-flop means [capable of] *for* producing first state and second state output signals and responsive to each *different* sequence detection signal for changing the state of its *corresponding* output signal, said output signals comprising said control signal.

10. A phone-line-linked, tone-operated control apparatus comprising: detecting means coupled to receive tone signals from said phone line, for detecting at least one predetermined sequence of predetermined tone signals and for producing a corresponding sequence detection signal; control means responsive to said sequence detection signal for producing a corresponding control signal; switching means responsive to said control signal for activating a given instrument under control; and feedback means coupled to said switching means for producing a verifying signal in response to operation of said switching means for activating said instrument under control; wherein said feedback means includes gate means coupled with [said] answering circuit means and responsive to said verifying signal for momentarily decoupling said detecting circuit means from said phone line and thereby producing an audible signal.

15. A phone-line-linked, tone-operated control apparatus comprising: detecting means coupled to receive tone signals from said phone line, for detecting at least one predetermined sequence of predetermined tone signals and for producing a corresponding sequence detection signal; control means responsive to said sequence detection signal for producing a corresponding control signal; and access limiting circuit means coupled with said detecting means for preventing production of said sequence detection signal until an access sequence comprising a further predetermined sequence of predetermined tone signals is first received on said phone line; wherein said access limiting circuit means comprises gating circuit means for producing a gate [signed] *signal* in response to tone signals making up said predetermined access sequence, counter means for producing a count signal upon counting a predetermined number of received tone signals greater in number than the number of tone signals in said access sequence, and disabling circuit means responsive to said count signal and said gate signal for disabling production of said sequence detection signal when said access sequence is not present in said predetermined number of received tone signals; whereby a selected number of additional, arbitrary tone signals may be received in addition to the signals of said access sequence without disabling production of said sequence detecting signals, said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

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[54] **PHONE-LINE-LINKED, TONE-OPERATED CONTROL DEVICE**

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[52] **U.S. Cl.** **379/105**; 379/77; 379/102

[58] **Field of Search** 379/105, 77, 102, 379/104, 97, 88, 89, 67, 200

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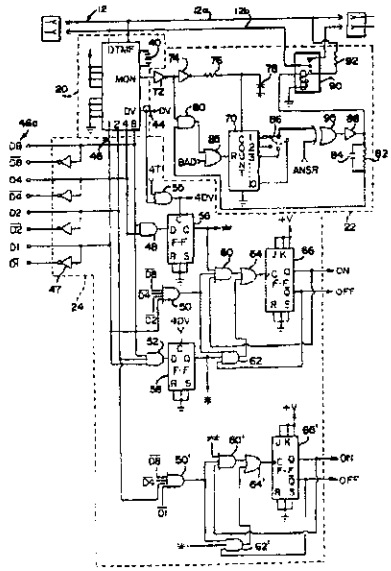
Primary Examiner—Jason Chan

[57] **ABSTRACT**

A phone-line-linked, tone-operated control apparatus in accordance with the invention comprises a detecting circuit coupled to a telephone line for detecting at least one predetermined sequence of predetermined tone signals received on the telephone line and for producing a corresponding sequence detection signal. An additional control circuit is responsive to the sequence detection signal for producing a corresponding control signal. Preferably, a break-in prevention circuit prevents access to the control apparatus unless a predetermined access code is first given.



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REEXAMINATION CERTIFICATE ISSUED UNDER 35 U.S.C. 307

THE PATENT IS HEREBY AMENDED AS INDICATED BELOW.

Matter enclosed in heavy brackets [ ] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.

ONLY THOSE PARAGRAPHS OF THE SPECIFICATION AFFECTED BY AMENDMENT ARE PRINTED HEREIN:

Column 6, lines 36–58:

It will be recognized from the foregoing that additional instruments or apparatus may be similarly provided with "on" and "off" control signals in response to additional, different selected sequences from the DTMF **20**. For example, since the # and * decoded outputs are already available as the first in a two-signal sequence at the Q outputs of flip-flops **56** and **58**, these may be utilized with other decoded digit tone signals to control further instruments or devices. That is, further gates such as AND gate **50** (*e.g. 50'*) may be used to detect or decode binary signals corresponding to other digits. Additionally, similar gates such as the gate **60** (*e.g., 60' and 62'*) may then be connected to receive the # and * outputs as well as the further decoded digit outputs so as to drive further flip-flops such as the flip-flop **66** (*e.g., 66'*) in exactly the same fashion (*e.g., using OR gate 64' and the feedback signals from the Q and Qbar outputs of flip-flop 66' are fed to the third input of AND gates 60' and 62', respectively, as discussed hereinabove with respect to OR gate 64, flip-flop 66 and AND gates 60 and 62*) as described above so as to provide on and off control signals for additional instruments. For example, *, 2 and #, 2 might be used to control a second instrument and so forth by the simple expedient of a repetition of only a small part of the circuitry of FIG. 2. Other codes may of course be utilized by duplicating more of the decoding and control logic circuit **24** of FIG. 2, if entirely different on and off codes are desired.

THE DRAWING FIGURES HAVE BEEN CHANGED AS FOLLOWS:

AND gates **50'**, **60'** and **62'**, flip-flop **66'** and OR gate **64'** have been added to FIG. 2.

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1**, **3**, **4**, **5**, **7**, **8**, **10**, **11** and **15** are determined to be patentable as amended.

Claims **2**, **6**, **9**, **12**, **13**, **14**, **16** and **17**, dependent on an amended claim, are determined to be patentable.

New claims **18–116** are added and determined to be patentable.

1. A phone-line-linked, tone-operated control apparatus for remotely controlling various functions of at least one device, said apparatus comprising:
detecting means coupled to receive tone signals from said phone line,
for detecting at least one predetermined sequence of predetermined tone signals and

for producing a corresponding sequence detection signal;
control means responsive to said sequence detection signal for producing a corresponding control signal;
wherein said detecting means comprises
first detecting means
for producing a first detection signal in response to the reception of a first predetermined sequence of predetermined tone signals and
second detecting means
for producing a second detection signal in response to the reception of a second predetermined sequence of predetermined tone signals;
wherein said control means is
responsive to said first detection signal for producing a corresponding first control signal and
responsive to said second detection signal for producing a corresponding second control signal;
wherein said control means comprises
dual state means
for producing only one of **[**a**]** *said* first control signal and said second control signal at a time; and
wherein said first and said second detecting means further include
gating means
coupled in circuit
for disabling production of said first and said second detection signals respectively
in response to said second control signal and said first control signal, respectively,
whereby said apparatus cannot produce said first detection signal and said second detection signal at the same time.

3. A phone-line-linked, tone-operated control apparatus *for remotely and selectively controlling a plurality of operations, said operations being bistable by having only two mutually-exclusive stable operating conditions, said apparatus* comprising:
detecting means coupled to receive a plurality of tone signals from said phone line,
for detecting at least one predetermined sequence of predetermined tone signals and
for producing a corresponding sequence detection signal; and
control means responsive to said sequence detection signal for producing a corresponding control signal;
wherein said detecting means comprises
tone decoding means
for converting each received one of said plurality of tone signals into an encoded multiple-bit digital signal, with each said encoded multiple-bit digital signal having a total number of bits substantially less than the total number of tone signals in said plurality of tone signals,
logic gate means
coupled to receive said encoded multiple-bit digital signals and responsive to said encoded multiple-bit digital signals of predetermined logic content for producing gated output signals, and
sequence detecting means
coupled to said logic gate means
for producing said corresponding sequence detection signal response to production of said gated output signals in a predetermined sequence; and
wherein said control means comprises
flip-flop means **[**for**]** *associated with each said bistable operation, with said flip-flop means*

producing first state and second state output signals *for each said bistable operation,*

said first state output signal corresponding to one of said mutually-exclusive operating conditions, and

said second state output signal corresponding to the other of said mutually-exclusive operating conditions, and

wherein said flip-flop means

is responsive to [each different] *a* sequence detection signal *selectively associated with one of said conditions of fewer than all of said bistable operations*

for changing [the state of its corresponding output signal,] *from said first state output signal to said second state output signal for said fewer than all of said bistable operations and*

is responsive to a different sequence detection signal selectively associated with the other one of said conditions of fewer than all of said bistable operations

for changing from said second state output signal to said first state output signal for said fewer than all of said bistable operations, and

maintaining the state of said flip-flop means until and if and only if said flip-flop means responds to a sequence detection signal selectively associated with the other of said conditions of fewer than all of said bistable operations,

said *first and second state* output signals comprising said control signal.

4. A control apparatus in accordance with claim **3** wherein said detecting means includes

means for detecting at least two predetermined sequences of predetermined tone signals and producing corresponding sequence detection signals;

wherein said control means is responsive to each said sequence detection signal for changing state; and

further including

gating means

coupled with said control means and with said sequence detecting means

for preventing reception of [a] *one of said corresponding* sequence detection [signal] *signals* at said control means in response to a corresponding control signal,

thereby preventing said control means from changing state in response to consecutive repetition of the same *corresponding* sequence detection signal.

5. A phone-line-linked, tone-operated control apparatus comprising:

detecting means coupled to receive tone signals from said phone line,

for detecting at least one predetermined sequence of predetermined tone signals and

for producing a corresponding sequence detection signal;

control means responsive to said sequence detection signal

for producing a corresponding control signal;

access limiting circuit means

coupled with said detecting means

for preventing production of said sequence detection signal

until an access sequence comprising

a further predetermined sequence of

predetermined tone signals is first received on said phone line;

wherein said access limiting *circuit* means includes

gate means

coupled with said detecting means

for normally preventing response thereof to said tone signals, and

counter means

coupled to said gate means and responsive to said tone signals

for causing said gate means to enable operation of said detecting means following a predetermined number of tone signals received thereby.

7. A phone-line-linked, tone-operated control apparatus comprising:

detecting means coupled to receive tone signals from said phone line,

for detecting at least one predetermined sequence of predetermined tone signals and

for producing a corresponding sequence detection signal;

control means responsive to said sequence detection signal

for producing a corresponding control signal; and

access limiting circuit means coupled with said detecting means

for preventing production of said sequence detection signal

until an access sequence comprising

a further predetermined sequence of predetermined tone signals is first received on said phone line;

wherein said access limiting *circuit* means further comprises

a first access sequence detector

responsive only to said access sequence,

a second access sequence detector

responsive only to a second access sequence comprising

a different predetermined sequence of predetermined tone signals, and

enabling circuit means

for normally enabling said first access sequence detector and disabling said second access sequence detector and

responsive to a predetermined number of sequences of tone signals not corresponding to said further predetermined sequence

for disabling said first access sequence detector and enabling said second access sequence detector.

8. A control apparatus according to claim **6** and further including

gate means

coupled to [said] answering means and

responsive to said disabling signal

for causing said answering means to disconnect said detecting means from said phone line.

10. A phone-line-linked, tone-operated control apparatus comprising:

detecting means coupled to receive tone signals from said phone line,

for detecting at least one predetermined sequence of predetermined tone signals and

for producing a corresponding sequence detection signal;

control means responsive to said sequence detection signal

for producing a corresponding control signal;

switching means responsive to said control signal

for activating a given instrument under control; and

feedback means coupled to said switching means

for producing a verifying signal in response to operation of said switching means

for activating said instrument under control;
wherein said feedback means includes
gate means
coupled with answering circuit means and
responsive to said verifying signal for momentarily decoupling said [detecting] *answering* circuit means from said phone line and
thereby producing an audible signal.

11. An access limiting apparatus for use with a phone-line-linked, tone-operated control apparatus and comprising:
access sequence detecting means coupled to receive tone signals from said phone line,
and responsive to a predetermined number of tone signals received on said phone line other than an access sequence comprising a predetermined sequence of predetermined tone signals
for producing a disabling signal;
disabling means
coupled to said control apparatus
for preventing operation thereof in response to said disabling signal;
wherein said access limiting [means] *apparatus* further comprises
a first access sequence detector
responsive only to said access sequence,
a second access sequence detector
responsive only to a second access sequence comprising
a different predetermined sequence of predetermined tone signals, and
enabling circuit means
for normally enabling said first access sequence detector and disabling said second access sequence detector and
responsive to a predetermined number of sequences of tone signals not corresponding to said [further predetermined] *access* sequence
for disabling said first access sequence detector and enabling said second access sequence detector.

15. A phone-line-linked, tone-operated control apparatus comprising:
detecting means coupled to receive tone signals from said phone line,
for detecting at least one predetermined sequence of predetermined tone signals and
for producing a corresponding sequence detection signal;
control means responsive to said sequence detection signal
for producing a corresponding control signal; and
access limiting circuit means coupled with said detecting means
for preventing production of said sequence detection signal
until an access sequence comprising
a further predetermined sequence of predetermined tone signals is first received on said phone line;
wherein said access limiting circuit means comprises
gating circuit means
for producing a gate signal in response to tone signals making up said [predetermined] access sequence,
counter means
for producing a count signal upon counting a predetermined number of received tone signals greater in number than the number of tone signals in said access sequence, and
disabling circuit means
responsive to said count signal and said gate signal
for disabling production of said sequence detection signal when said access sequence is not present in said predetermined number of received tone signal;
whereby a selected number of additional, arbitrary tone signals may be received in addition to the signals of said access sequence without disabling production of said sequence detecting [signals] *signal*,
said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

18. A control apparatus in accordance with claim 1, further including
access limiting means
coupled with said detecting means,
for preventing production of said sequence detection signal until an access sequence comprising
a further predetermined sequence of predetermined tone signals is first received on said phone line;
wherein said access limiting means includes
access limiting gate means
coupled with said detecting means
for normally preventing response thereof to said tone signals, and
counter means
coupled to said access limiting gate means and responsive to said tone signals
for causing said access limiting gate means to enable operation of said detecting means following a predetermined number of tone signals received thereby.

19. A control apparatus in accordance with claim 1, further including
access limiting means coupled with said detecting means
for preventing production of said sequence detection signal
until an access sequence comprising
a further predetermined sequence of predetermined tone signals is first received on said phone line;
wherein said access limiting means further comprises
a first access sequence detector
responsive only to said access sequence,
a second access sequence detector
responsive only to a second access sequence comprising
a different predetermined sequence of predetermined tone signals, and
enabling circuit means
for normally enabling said first access sequence detector and disabling said second access sequence detector and
responsive to a predetermined number of sequences of tone signals not corresponding to said access sequence
for disabling said first access sequence detector and
enabling said second access sequence detector.

20. A control apparatus in accordance with claim 1, further including
switching means responsive to said control signal
for controlling said device; and
feedback means coupled to said switching means
for producing a verifying signal in response to the changing of said device from one operating state to another;
wherein said feedback means includes
gate means
coupled to answering circuit means and

responsive to said verifying signal for producing an audible verification signal on said phone line.

21. A control apparatus in accordance with claim 1, further including

access limiting means comprising:

access sequence detecting means coupled to receive tone signals from said phone line,

and responsive to a predetermined number of tone signals received on said phone line other than a first access sequence comprising

a predetermined sequence of predetermined tone signals for producing a disabling signal;

disabling means

coupled to said control apparatus

for preventing operation thereof in response to said disabling signal;

wherein said access limiting means further comprises

a first access sequence detector

responsive only to said first access sequence,

a second access sequence detector

responsive only to a second access sequence comprising

a different predetermined sequence of predetermined tone signals, and

enabling circuit means

for normally enabling said first access sequence detector and disabling said second access sequence detector and

responsive to a predetermined number of sequences of tone signals not corresponding to said first access sequence

for disabling said first access sequence detector and enabling said second access sequence detector.

22. A control apparatus in accordance with claim 1, further including

access limiting means coupled with said detecting means

for preventing production of said sequence detection signal

until an access sequence comprising

a further predetermined sequence of predetermined tone signals is first received on said phone line;

wherein said access limiting means comprises

gating circuit means

for producing a gate signal in response to tone signals making up said access sequence,

counter means

for producing a count signal upon counting a predetermined number of received tone signals greater in number than the number of tone signals in said access sequence, and

disabling circuit means

responsive to said count signal and said gate signal

for disabling production of said sequence detection signal when said access sequence is not present in said

predetermined number of received tone signals;

whereby a selected number of additional, arbitrary tone signals may be received in addition to the signals of said access sequence without disabling production of said sequence detecting signal,

said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

23. A control apparatus in accordance with claim 3, further including

means for coupling said apparatus in parallel with a telephone receiver

for permitting production of said corresponding sequence detection signal and production of said control signal simultaneously with conversation over said telephone receiver.

24. A control apparatus in accordance with claim 3, further including

decoupling means

responsive to a remotely located transmitter going off the telephone line

for disconnecting the control apparatus from the telephone line.

25. A control apparatus in accordance with claim 3, further including

means for coupling said sequence detecting means to said phone line in response to a predetermined member of ring tones received on said phone line.

26. A control apparatus in accordance with claim 3, further including

access limiting means

coupled with said detecting means,

for preventing production of said corresponding sequence detection signal

until an access sequence comprising

a further predetermined sequence of predetermined tone signals is first received on said phone line;

wherein said access limiting means includes

gate means

coupled with said detecting means

for normally preventing response thereof to said tone signals, and

counter means

coupled to said gate means and responsive to said tone signals

for causing said gate means to enable operation of said detecting means following a predetermined number of tone signals received thereby.

27. A control apparatus in accordance with claim 3, further including

access limiting means coupled with said detecting means

for preventing production of said corresponding sequence detection signal

until an access sequence comprising

a further predetermined sequence of predetermined tone signals is first received on said phone line;

wherein said access limiting means further comprises

first access sequence detector

responsive only to said access sequence,

second access sequence detector

responsive only to a second access sequence comprising

a different predetermined sequence of predetermined tone signals, and

enabling circuit means

for normally enabling said first access sequence detector and disabling said second access sequence detector and

responsive to a predetermined number of sequences of tone signals not corresponding to said further predetermined sequence

for disabling said first access sequence detector and enabling said second access sequence detector.

28. A control apparatus in accordance with claim 3, further including

switching means responsive to said control signal
for controlling a device; and
feedback means coupled to said switching means
for producing a verifying signal in response to the changing of said device from one operating state to another;
wherein said feedback means includes
gate means
coupled to answering circuit means and
responsive to said verifying signal for producing an audible verification signal on said phone line.

29. A control apparatus in accordance with claim 3, further including
access limiting means comprising:
access sequence detecting means coupled to receive tone signals from said phone line,
and responsive to a predetermined number of tone signals received on said phone line other than a first access sequence comprising
a predetermined sequence of predetermined tone signals for producing a disabling signal;
disabling means
coupled to said control apparatus
for preventing operation thereof in response to said disabling signal;
wherein said access limiting means further comprises
a first access sequence detector
responsive only to said first access sequence,
a second access sequence detector
responsive only to a second access sequence comprising
a different predetermined sequence of predetermined tone signals, and
enabling circuit means
for normally enabling said first access sequence detector and disabling said second access sequence detector and
responsive to a predetermined number of sequences of tone signals not corresponding to said first access sequence
for disabling said first access sequence detector and enabling said second access sequence detector.

30. A control apparatus in accordance with claim 3, further including
access limiting means coupled with said detecting means
for preventing production of said corresponding sequence detection signal
until an access sequence comprising
a further predetermined sequence of predetermined tone signals is first received on said phone line;
wherein said access limiting means comprises
gating circuit means
for producing a gate signal in response to tone signals making up said access sequence,
counter means
for producing a count signal upon counting a predetermined number of received tone signals greater in number than the number of tone signals in said access sequence, and
disabling circuit means
responsive to said count signal and said gate signal
for disabling production of said corresponding sequence detection signal when said access sequence is not present in said predetermined number of received tone signals;
whereby a selected number of additional, arbitrary tone signals may be received in addition to the signals of said access sequence without disabling production of said corresponding sequence detecting signal,
said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

31. A control apparatus in accordance with claim 5, further including
means for coupling said apparatus in parallel with a telephone receiver
for permitting production of said sequence detection signal and production of said control signal simultaneously with conversation over said telephone receiver.

32. A control apparatus in accordance with claim 5, further including
decoupling means
responsive to a remotely located transmitter going off the telephone line
for disconnecting the control apparatus from the telephone line.

33. A control apparatus in accordance with claim 5, further including
means for coupling said sequence detecting means to said phone line in response to a predetermined number of ring tones received on said phone line.

34. A control apparatus in accordance with claim 5, wherein
said access sequence comprising said further predetermined sequence of predetermined tone signals is a first access sequence and,
said access limiting circuit means further comprises
a first access sequence detector
responsive only to said first access sequence,
a second access sequence detector
responsive only to a second access sequence comprising
a different predetermined sequence of predetermined tone signals, and
enabling circuit means
for normally enabling said first access sequence detector and disabling said second access sequence detector and
responsive to a predetermined number of sequences of tone signals not corresponding to said first access sequence
for disabling said first access sequence detector and enabling said second access sequence detector.

35. A control apparatus in accordance with claim 5, further including
switching means responsive to said control signal
for controlling a device; and
feedback means coupled to said switching means
for producing a verifying signal in response to the changing of said device from one operating state to another;
wherein said feedback means includes
gate means
coupled to answering circuit means and
responsive to said verifying signal for producing an audible verification signal on said phone line.

36. A control apparatus in accordance with claim 5, wherein
said access sequence comprising a further predetermined sequence of predetermined tone signals is a first access sequence and

said access limiting circuit means further comprises
access sequence detecting means responsive to a predetermined number of tone signals received on said phone line other than said first access sequence
for producing a disabling signal;
disabling means
coupled to said control apparatus
for preventing operation thereof in response to said disabling signal;
first access sequence detector
responsive only to said first access sequence,
a second access sequence detector
responsive only to a second access sequence comprising
a different predetermined sequence of predetermined tone signals, and
enabling circuit means
for normally enabling said first access sequence detector and disabling said second access sequence detector and
responsive to a predetermined number of sequences of tone signals not corresponding to said first access sequence
for disabling said first access sequence detector and enabling said second access sequence detector.

37. A control apparatus in accordance with claim 5, wherein
said access limiting circuit means further comprises
access limiting gating circuit means
for producing a gate signal in response to tone signals making up said access sequence,
wherein said counter means
produces a count signal upon counting a predetermined number of received tone signals greater in number than the number of tone signals in said access sequence, and
further including disabling, circuit means
responsive to said count signal and said gate signal
for disabling production of said sequence detection signal when said access sequence is not present in said predetermined number of received tone signals;
whereby a selected number of additional, arbitrary tone signals may be received in addition to the signals of said access sequence without disabling production of said sequence detecting signal,
said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

38. A control apparatus in accordance with claim 7, further including
means for coupling said apparatus in parallel with a telephone receiver
for permitting production of said sequence detection signal and production of said control signal simultaneously with conversation over said telephone receiver.

39. A control apparatus in accordance with claim 7, further including
decoupling means
responsive to a remotely located transmitter going off the telephone line
for disconnecting the control apparatus from the telephone line.

40. A control apparatus in accordance with claim 7, further including
means for coupling said sequence detecting means to said phone line in response to a predetermined number of ring tones received on said phone line.

41. A control apparatus in accordance with claim 7, further including
switching means responsive to said control signal
for controlling a device; and
feedback means coupled to said switching means
for producing a verifying signal in response to the changing of said device from one operating state to another;
wherein said feedback means includes
gate means
coupled to answering circuit means and
responsive to said verifying signal for producing an audible verification signal on said phone line.

42. A control apparatus in accordance with claim 7, wherein
said access limiting circuit means further comprises
access sequence detecting means coupled to receive tone signals from said phone line,
and responsive to a predetermined number of tone signals received on said phone line other than said access sequence
for producing a disabling signal;
disabling means
coupled to said control apparatus
for preventing operation thereof in response to said disabling signal.

43. A control apparatus in accordance with claim 7, wherein
said access limiting circuit means further comprises
gating circuit means
for producing a gate signal in response to tone signals making up said access sequence,
counter means
for producing a count signal upon counting a predetermined number of received tone signals greater in number than the number of tone signals in said access sequence, and
disabling circuit means
responsive to said count signal and said gate signal for disabling production of said sequence detection signal when said access sequence is not present in said predetermined number of received tone signals;
whereby a selected number of additional, arbitrary tone signals may be received in addition to the signals of said access sequence without disabling production of said sequence detecting signal,
said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

44. A control apparatus in accordance with claim 10, further including
means for coupling said apparatus in parallel with a telephone receiver
for permitting production of said sequence detection signal and
production of said control signal simultaneously with conversation over said telephone receiver.

45. A control apparatus in accordance with claim 10, further including
decoupling means
responsive to a remotely located transmitter going off the telephone line

for disconnecting the control apparatus from the telephone line.

46. A control apparatus in accordance with claim 10, further including

means for coupling said sequence detecting means to said phone line in response to a predetermined number of ring tones received on said phone line.

47. A control apparatus in accordance with claim 10, further including

access limiting means

coupled with said detecting means,

for preventing production of said sequence detection signal

until an access sequence comprising

a further predetermined sequence of predetermined tone signals is first received on said phone line;

wherein said access limiting means includes

access limiting gate means

coupled with said detecting means

for normally preventing response thereof to said tone signals, and

counter means

coupled to said access limiting gate means and responsive to said tone signals

for causing said access limiting gate means to enable operation of said detecting means following a predetermined number of tone signals received thereby.

48. A control apparatus in accordance with claim 10, further including

access limiting means coupled with said detecting means

for preventing production of said sequence detection signal

until an access sequence comprising

a further predetermined sequence of predetermined tone signals is first received on said phone line;

wherein said access limiting means further comprises

a first access sequence detector

responsive only to said access sequence,

a second access sequence detector

responsive only to a second access sequence comprising

a different predetermined sequence of predetermined tone signals, and

enabling circuit means

for normally enabling said first access sequence detector and disabling said second access sequence detector and

responsive to a predetermined number of sequences of tone signals not corresponding to said further predetermined sequence

for disabling said first access sequence detector and enabling said second access sequence detector.

49. A control apparatus in accordance with claim 10, further including

access limiting means comprising:

access sequence detecting means coupled to receive tone signals from said phone line,

and responsive to a predetermined number of tone signals received on said phone line other than a first access sequence comprising

a predetermined sequence of predetermined tone signals for producing a disabling signal;

disabling means

coupled to said control apparatus

for preventing operation thereof in response to said disabling signal;

wherein said access limiting means further comprises

first access sequence detector

responsive only to said first access sequence,

a second access sequence detector

responsive only to a second access sequence comprising

a different predetermined sequence of predetermined tone signals, and

enabling circuit means

for normally enabling said first access sequence detector and disabling said second access sequence detector and

responsive to a predetermined number of sequences of tone signals not corresponding to said first access sequence

for disabling said first access sequence detector and enabling said second access sequence detector.

50. A control apparatus in accordance with claim 10, further including

access limiting means coupled with said detecting means

for preventing production of said sequence detection signal

until an access sequence comprising

a further predetermined sequence of predetermined tone signals is first received on said phone line;

wherein said access limiting means comprises

gating circuit means

for producing a gate signal in response to tone signals making up said access sequence,

counter means

for producing a count signal upon counting a predetermined number of received tone signals greater in number than the number of tone signals in said access sequence, and

disabling circuit means

responsive to said count signal and said gate signal

for disabling production of said sequence detection signal when said access sequence is not present in said predetermined number of received tone signals;

whereby a selected number of additional, arbitrary tone signals may be received in addition to the signals of said access sequence without disabling production of said sequence detecting signal,

said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

51. An access limiting apparatus in accordance with claim 11, further including

means for coupling said access limiting apparatus in parallel with a telephone receiver

for permitting simultaneous operation of said access limiting apparatus and conversation over said telephone receiver.

52. An access limiting apparatus in accordance with claim 11, further including

decoupling means

responsive to a remotely located transmitter going off the telephone line

for disconnecting the access limiting apparatus from the telephone line.

53. An access limiting apparatus in accordance with claim 11, further including

means for coupling said access limiting apparatus to said phone line in response to a predetermined number of ring tones received on said phone line.

54. An access limiting apparatus in accordance with claim 11, further including
gating circuit means
for producing a gate signal in response to tone signals making up said access sequence, and
counter means
for producing a count signal upon counting a predetermined number of received tone signals greater in number than the number of tone signals in said access sequence, and
wherein said disabling means is
responsive to said count signal and said gate signal
for disabling operation of said control apparatus when said access sequence is not present in said predetermined number of received tone signals;
whereby a selected number of additional, arbitrary tone signals may be received in addition to the signals of said access sequence without disabling operation of said control apparatus,
said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

55. A control apparatus in accordance with claim 15, further including
means for coupling said apparatus in parallel with a telephone receiver
for permitting production of said sequence detection signal and production of said control signal simultaneously with conversation over said telephone receiver.

56. A control apparatus in accordance with claim 15, further including
decoupling means
responsive to a remotely located transmitter going off the telephone line
for disconnecting the control apparatus from the telephone line.

57. A control apparatus in accordance with claim 15, further including
means for coupling said sequence detecting means to said phone line in response to a predetermined number of ring tones received on said phone line.

58. A control apparatus in accordance with claim 15, further including
switching means responsive to said control signal
for controlling a device; and
feedback means coupled to said switching means
for producing a verifying signal in response to the changing of said device from one operating state to another;
wherein said feedback means includes
gate means
coupled to answering circuit means and
responsive to said verifying signal for producing an audible verification signal on said phone line.

59. A phone-line-linked, tone-operated control apparatus for remotely controlling various functions of at least one device, said apparatus comprising:
integrated circuit detecting means coupled to receive DTMF tone signals from said phone line,
for detecting at least one predetermined sequence of predetermined DTMF tone signals and
for producing a corresponding sequence detection signal;
integrated circuit control means responsive to said sequence detection signal
for producing a corresponding control signal;
wherein said detecting means comprises
first integrated circuit detecting means
for producing a first detection signal in response to the reception of a first predetermined sequence of predetermined DTMF tone signals and
second integrated circuit detecting means
for producing a second detection signal in response to the reception of a second predetermined sequence of predetermined DTMF tone signals;
wherein said control means is
responsive to said first detection signal for producing a corresponding first control signal and
responsive to said second detection signal for producing a corresponding second control signal;
wherein said control means comprises
integrated circuit dual state means
for producing only one of said first control signal and said second control signal at a time; and
wherein said first and said second integrated circuit detecting means further include
integrated circuit gating means
coupled in circuit
for disabling production of said first and said second detection signals respectively
in response to said second control signal and said first control signal, respectively,
whereby said apparatus cannot produce said first detection signal and said second detection signal at the same time.

60. A control apparatus in accordance with claim 59 wherein said detecting means comprises
integrated circuit tone decoding means
responsive to said DTMF tone signals
for producing digitally encoded signals corresponding in a predetermined fashion to said DTMF tone signals; and
integrated circuit digital decoding means
responsive to predetermined ones of said digitally encoded signals occurring in a predetermined sequence for producing said correspoinding sequence detection signal.

61. A control apparatus in accordance with claim 59 and further including
integrated circuit means for coupling said apparatus in parallel with a telephone receiver
for permitting production of said sequence detection signal and production of said control signal
simultaneously with conversation over said telephone receiver.

62. A control apparatus in accordance with claim 59 and further including
integrated circuit decoupling means
responsive to a remotely located transmitter going off the telephone line
for disconnecting the control apparatus from the telephone line.

63. A control apparatus in accordance with claim 59 and further including
integrated circuit means for coupling said sequence detecting means to said phone line in response to a predetermined number of ring tones received on said phone line.

64. A control apparatus in accordance with claim 59, further including
integrated circuit access limiting means
coupled with said detecting means,

for preventing production of said sequence detection signal until an access sequence comprising
a further predetermined sequence of predetermined DTMF tone signals is first received on said phone line;
wherein said access limiting means includes
integrated circuit access limiting gate means
coupled with said detecting means
for normally preventing response thereof to said DTMF tone signals, and
integrated circuit counter means
coupled to said access limiting gate means and responsive to said DTMF tone signals
for causing said access limiting gate means to enable operation of said detecting means following a predetermined number of DTMF tone signals received thereby.

65. A control apparatus in accordance with claim 59, further including
integrated circuit access limiting means coupled with said detecting means
for preventing production of said sequence detection signal
until an access sequence comprising
a further predetermined sequence of predetermined DTMF tone signals is first received on said phone line;
wherein said access limiting means further comprises
a first access sequence detector
responsive only to said access sequence,
a second access sequence detector
responsive only to a second access sequence comprising
a different predetermined sequence of predetermined DTMF tone signals, and
integrated circuit enabling circuit means
for normally enabling said first access sequence detector and disabling said second access sequence detector and
responsive to a predetermined number of sequences of DTMF tone signals not corresponding to said access sequence
for disabling said first access sequence detector and enabling said second access sequence detector.

66. A control apparatus in accordance with claim 59, further including
integrated circuit switching means responsive to said control signal
for controlling said device; and
integrated circuit feedback means coupled to said switching means
for producing a verifying signal in response to the changing of said device from one operating state to another;
wherein said feedback means includes
integrated circuit gate means
coupled to integrated circuit answering circuit means and
responsive to said verifying signal for producing an audible verification signal on said phone line.

67. A control apparatus in accordance with claim 59, further including
integrated circuit access limiting means comprising:
integrated circuit access sequence detecting means coupled to receive DTMF tone signals from said phone line,
and responsive to a predetermined number of DTMF tone signals received on said phone line other than a first access sequence comprising
a predetermined sequence of predetermined DTMF tone signals for producing a disabling signal:
integrated circuit disabling means
coupled to said control apparatus
for preventing operation thereof in response to said disabling signal;
wherein said access limiting means further comprises
a first access sequence detector
responsive only to said first access sequence,
a second access sequence detector
responsive only to a second access sequence comprising
a different predetermined sequence of predetermined DTMF tone signals, and
integrated circuit enabling circuit means
for normally enabling said first access sequence detector and disabling said second access sequence detector and
responsive to a predetermined number of sequences of DTMF tone signals not corresponding to said first access sequence
for disabling said first access sequence detector and enabling said second access sequence detector.

68. A control apparatus in accordance with claim 59, further including
integrated circuit access limiting means coupled with said detecting means
for preventing production of said sequence detection signal
until an access sequence comprising
a further predetermined sequence of predetermined DTMF tone signals is first received on said phone line;
wherein said access limiting means comprises
integrated circuit gating circuit means
for producing a gate signal in response to DTMF tone signals making up said access sequence
integrated circuit counter means
for producing a count signal upon counting a predetermined number of received DTMF tone signals greater in number than the number of DTMF tone signals in said access sequence, and
integrated circuit disabling circuit means
responsive to said count signal and said gate signal
for disabling production of said sequence detection signal when said access sequence is not present in said predetermined number of received DTMF tone signals;
whereby a selected number of additional, arbitrary DTMF tone signals may be received in addition to the signals of said access sequence without disabling production of said sequence detecting signal,
said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

69. A phone-line-linked, tone-operated control apparatus for remotely and selectively controlling a plurality of operations, said operations being bistable by having only two mutually-exclusive stable operating conditions, said apparatus comprising:
integrated circuit detecting means coupled to receive a plurality of DTMF tone signals from said phone line,
for detecting at least one predetermined sequence of predetermined DTMF tone signals and
for producing a corresponding sequence detection signal; and

integrated circuit control means responsive to said sequence detection signal for producing a corresponding control signal;

wherein said detecting means comprises

integrated circuit tone decoding means

for converting each received one of said plurality of DTMF tone signals into an encoded multiple-bit digital signal, with each said encoded multiple-bit digital signal having a total number of bits substantially less than the total number of DTMF tone signals in said plurality of DTMF tone signals,

integrated circuit logic gate means

coupled to receive said encoded multiple-bit digital signals and

responsive to said encoded multiple-bit digital signals of predetermined logic content for producing gated output signals, and

integrated circuit sequence detecting means

coupled to said logic gate means

for producing said corresponding sequence detection signal in response to production of said gated output signals in a predetermined sequence; and

wherein said control means comprises

integrated circuit flip-flop means associated with each said bistable operation, with said flip-flop means

producing first state and second state output signals for each said bistable operation,

said first state output signal corresponding to one of said mutually-exclusive operating conditions, and said second state output signal corresponding to the other of said mutually-exclusive operating conditions, and

wherein said flip-flop means

is responsive to a sequence detection signal selectively associated with one of said conditions of fewer than all of said bistable operations

for changing from said first state output signal to said second state output signal for said fewer than all of said bistable operations and

is responsive to a different sequence detection signal selectively associated with the other one of said conditions of fewer than all of said bistable operations

for changing from said second state output signal to said first state output signal for said fewer than all of said bistable operations, and

maintaining the state of said flip-flop means until and if and only if said flip-flop means responds to a sequence detection signal selectively associated with the other of said conditions of fewer than all of said bistable operations,

said first and second state output signals comprising said control signal.

70. A control apparatus in accordance with claim 69

wherein said detecting means includes

integrated circuit means for detecting at least two predetermined sequences of predetermined DTMF tone signals and producing corresponding sequence detection signals;

wherein said control means is responsive to each said sequence detection signal for changing state; and

further including

integrated circuit gating means

coupled with said control means and with said sequence detecting means

for preventing reception of one of said corresponding sequence detection signal at said control means in response to a corresponding control signal, thereby preventing said control means from changing state in response to consecutive repetition of the same corresponding sequence detection signal.

71. A control apparatus in accordance with claim 69, further including

integrated circuit means for coupling said apparatus in parallel with a telephone receiver

for permitting production of said corresponding sequence detection signal and production of said control signal simultaneously with conversation over said telephone receiver.

72. A control apparatus in accordance with claim 69, further including

integated circuit decoupling means

responsive to a remotely located transmitter going off the telephone line

for disconnecting the control apparatus from the telephone line.

73. A control apparatus in accordance with claim 69, further including

integrated circuit means for coupling said sequence detecting means to said phone line in response to a predetermined number of ring tones received on said phone line.

74. A control apparatus in accordance with claim 69, further including

integrated circuit access limiting means

coupled with said detecting means,

for preventing production of said corresponding sequence detection signal

until an access sequence comprising

a further predetermined sequence of predetermined DTMF tone signals is first received on said phone line;

wherein said access limiting means includes

integrated circuit gate means

coupled with said detecting means

for normally preventing response thereof to said DTMF tone signals, and

integrated circuit counter means

coupled to said gate means and responsive to said DTMF tone signals

for causing said gate means to enable operation of said detecting means following a predetermined number of DTMF tone signals received thereby.

75. A control apparatus in accordance with claim 69, further including

integrated circuit access limiting means coupled with said detecting means

for preventing production of said corresponding sequence detection signal

until an access sequence comprising

a further predetermined sequence of predetermined DTMF tone signals is first received on said phone line;

wherein said access limiting means further comprises

a first access sequence detector

responsive only to said access sequence,

a second access sequence detector

responsive only to a second access sequence comprising

a different predetermined sequence of predetermined DTMF tone signals, and

integrated circuit enabling circuit means

for normally enabling said first access sequence detector and disabling said second access sequence detector and

responsive to a predetermined number of sequences of DTMF tone signals not corresponding to said further predetermined sequence

for disabling said first access sequence detector and enabling said second access sequence detector.

76. A control apparatus in accordance with claim 69, further including

integrated circuit switching means responsive to said control signal

for controlling a device; and

integrated circuit feedback means coupled to said switching means

for producing a verifying signal in response to the changing of said device from one operating state to another;

wherein said feedback means includes

integrated circuit gate means

coupled to integrated circuit answering circuit means and

responsive to said verifying signal for producing an audible verification signal on said phone line.

77. A control apparatus in accordance with claim 69, further including

integrated circuit access limiting means comprising:

integrated circuit access sequence detecting means coupled to receive DTMF tone signals from said phone line,

and responsive to a predetermined number of DTMF tone signals received on said phone line other than a first access sequence comprising

a predetermined sequence of predetermined DTMF tone signals for producing a disabling signal;

integrated circuit disabling means

coupled to said control apparatus

for preventing operation thereof in response to said disabling signal;

wherein said access limiting means further comprises

a first access sequence detector

responsive only to said first access sequence,

a second access sequence detector

responsive only to a second access sequence comprising

a different predetermined sequence of predetermined DTMF tone signals, and

integrated circuit enabling circuit means

for normally enabling said first access sequence detector and disabling said second access sequence detector and

responsive to a predetermined number of sequences of DTMF tone signals not corresponding to said first access sequence

for disabling said first access sequence detector and enabling said second access sequence detector.

78. A control apparatus in accordance with claim 69, further including

integrated circuit access limiting means coupled with said detecting means

for preventing production of said corresponding sequence detection signal

until an access sequence comprising

a further predetermined sequence of predetermined DTMF tone signals is first received on said phone line;

wherein said access limiting means comprises

integrated circuit gating circuit means

for producing a gate signal in response to DTMF tone signals making up said access sequence,

integrated circuit counter means

for producing a count signal upon counting a predetermined number of received DTMF tone signals greater in number than the number of DTMF tone signals in said access sequence, and

integrated circuit disabling circuit means

responsive to said count signal and said gate signal for disabling production of said corresponding sequence detection signal when said access sequence is not present in said predetermined number of received DTMF tone signals;

whereby a selected number of additional, arbitrary DTMF tone signals may be received in addition to the signals of said access sequence without disabling production of said corresponding sequence detecting signal,

said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

79. A phone-line-linked, tone-operated control apparatus comprising:

integrated circuit detecting means coupled to receive DTMF tone signals from said phone line,

for detecting at least one predetermined sequence of predetermined DTMF tone signals and

for producing a corresponding sequence detection signal;

integrated circuit control means responsive to said sequence detection signal

for producing a corresponding control signal;

integrated circuit access limiting circuit means

coupled with said detecting means,

for preventing production of said sequence detection signal

until an access sequence comprising

a further predetermined sequence of predetermined DTMF tone signals is first received on said phone line;

wherein said access limiting circuit means includes

integrated circuit gate means

coupled with said detecting means

for normally preventing response thereof to said DTMF tone signals, and

integrated circuit counter means

coupled to said gate means and responsive to said DTMF tone signals

for causing said gate means to enable operation of said detecting means following a predetermined number of DTMF tone signals received thereby.

80. A control apparatus in accordance with claim 79 wherein

said access limiting means further includes

integrated circuit access sequence detecting means

responsive to a predetermined number of DTMF tone signals consecutively received on said phone line other than said access sequence

of producing a disabling signal; and

integrated circuit disabling means

coupled to said detecting means

for preventing production of said sequence detection signal in response to said disabling signal.

80. A control apparatus according to claim 80 and further including

integrated circuit gate means

coupled to integrated circuit answering means and

responsive to said disabling signal

for causing said answering means to disconnect said detecting means from said phone line.

82. A control apparatus in accordance with claim 79 and further including

integrated circuit access sequence detecting means

for producing a disabling signal in response to a predetermined number of DTMF tone signals not comprising said access sequence and

integrated circuit gate means

for disconnecting said detecting means from said phone line in response to said disabling signal.

83. A control apparatus in accordance with claim 79, further including

integrated circuit means for coupling said apparatus in parallel with a telephone receiver

for permitting production of said sequence detection signal and production of said control signal simultaneously with conversation over said telephone receiver.

84. A control apparatus in accordance with claim 79, further including

integrated circuit decoupling means

responsive to a remotely located transmitter going off the telephone line

for disconnecting the control apparatus from the telephone line.

85. A control apparatus in accordance with claim 79, further including

integrated circuit means for coupling said sequence detecting means to said phone line in response to a predetermined number of ring tones received on said phone line.

86. A control apparatus in accordance with claim 79, wherein

said access sequence comprising said further predetermined sequence of predetermined DTMF tone signals is a first access sequence and,

said access limiting circuit means further comprises

a first access sequence detector

responsive only to said first access sequence,

a second access sequence detector

responsive only to a second access sequence comprising

a different predetermined sequence of predetermined DTMF tone signals, and

integrated circuit enabling circuit means

for normally enabling said first access sequence detector and disabling said second access sequence detector and

responsive to a predetermined number of sequences of DTMF tone signals not corresponding to said first access sequence

for disabling said first access sequence detector and enabling said second access sequence detector.

87. A control apparatus in accordance with claim 79, further including

integrated circuit switching means responsive to said control signal

for controlling a device; and

integrated circuit feedback means coupled to said switching means

for producing a verifying signal in response to the changing of said device from one operating state to another;

wherein said feedback means includes

integrated circuit gate means

coupled to integrated circuit answering circuit means and

responsive to said verifying signal for producing an audible verification signal on said phone line.

88. A control apparatus in accordance with claim 79, wherein

said access sequence comprising a further predetermined sequence of predetermined DTMF tone signals is a first access sequence and

said access limiting circuit means further comprises

integrated circuit access sequence detecting means responsive to a predetermined number of DTMF tone signals received on said phone line other than said first access sequence

for producing a disabling signal;

integrated circuit disabling means

coupled to said control apparatus

for preventing operation thereof in response to said disabling signal;

a first access sequence detector

responsive only to said first access sequence,

a second access sequence detector

responsive only to a second access sequence comprising a different predetermined sequence of predetermined DTMF tone signals, and

integrated circuit enabling circuit means

for normally enabling said first access sequence detector and disabling said second access sequence detector and

responsive to a predetermined number of sequences of DTMF tone signals not corresponding to said first access sequence

for disabling said first access sequence detector and enabling said second access sequence detector.

89. A control apparatus in accordance with claim 79, wherein

said access limiting circuit means further comprises

integrated circuit access limiting gating circuit means

for producing a gate signal in response to DTMF tone signals making up said access sequence,

wherein said counter means

produces a count signal upon counting a predetermined number of received DTMF tone signals greater in number than the number of DTMF tone signals in said access sequence, and

further including integrated circuit disabling circuit means

responsive to said count signal and said gate signal

for disabling production of said sequence detection signal when said access sequence is not present in said predetermined number of received DTMF tone signals;

whereby a selected number of additional, arbitrary DTMF tone signals may be received in addition to the signals of said access sequence without disabling production of said sequence detecting signal,

said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

90. A phone-line-linked, tone-operated control apparatus comprising:

integrated circuit detecting means coupled to receive DTMF tone signals from said phone line,

for detecting at least one predetermined sequence of predetermined DTMF tone signals and

for producing a corresponding sequence detection signal;

integrated circuit control means responsive to said sequence detection signal

for producing a corresponding control signal; and

integrated circuit access limiting circuit means coupled with said detecting means

for preventing production of said sequence detection signal

until an access sequence comprising

a further predetermined sequence of predetermined DTMF tone signals is first received on said phone line;

wherein said access limiting circuit means further comprises

a first access sequence detector

responsive only to said access sequence,

a second access sequence detector

responsive only to a second access sequence comprising

a different predetermined sequence of predetermined DTMF tone signals, and

integrated circuit enabling circuit means

for normally enabling said first access sequence detector and disabling said second access sequence detector and

responsive to a predetermined number of sequences of DTMF tone signals not corresponding to said further predetermined sequence

for disabling said first access sequence detector and enabling said second access sequence detector.

91. A control apparatus in accordance with claim 90, further including

integrated circuit means for coupling said apparatus in parallel with a telephone receiver

for permitting production of said sequence detection signal and production of said control signal simultaneously with conversation over said telephone receiver.

92. A control apparatus in accordance with claim 90, further including

integrated circuit decoupling means

responsive to a remotely located transmitter going off the telephone line

for disconnecting the control apparatus from the telephone line.

93. A control apparatus in accordance with claim 90, further including

integrated circuit means for coupling said sequence detecting means to said phone line in response to a predetermined number of ring DTMF tones received on said phone line.

94. A control apparatus in accordance with claim 90, further including

integrated circuit switching means responsive to said control signal

for controlling a device; and

integrated circuit feedback means coupled to said switching means

for producing a verifying sisal in response to the changing of said device from one operating state to another;

wherein said feedback means includes

integrated circuit gate means

coupled to integrated circuit answering circuit means and

responsive to said verifying signal for producing an audible verification signal on said phone line.

95. A control apparatus in accordance with claim 90, wherein

said access limiting circuit means further comprises

integrated circuit access sequence detecting means coupled to receive DTMF tone signals from said phone line,

and responsive to a predetermined number of DTMF tone signals received on said phone line other than said access sequence

for producing a disabling signal;

integrated circuit disabling means

coupled to said control apparatus

for preventing operation thereof in response to said disabling signal.

96. A control apparatus in accordance with claim 90, wherein

said access limiting circuit means further comprises

integrated circuit gating circuit means

for producing a gate signal in response to DTMF tone signals making up said access sequence,

integrated circuit counter means

for producing a count signal upon counting a predetermined number of received DTMF tone signals greater in number than the number of DTMF tone signals in said access sequence, and

integrated circuit disabling circuit means

responsive to said count signal and said gate signal

for disabling production of said sequence detection signal when said access sequence is not present in said predetermined number of received DTMF tone signals;

whereby a selected number of additional, arbitrary DTMF tone signals may be received in addition to the signals of said access sequence without disabling production of said sequence detecting signal,

said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

97. A phone-line-linked, tone-operated control apparatus comprising:

integrated circuit detecting means coupled to receive DTMF tone signals from said phone line,

for detecting at least one predetermined sequence of predetermined DTMF tone signals and

for producing a corresponding sequence detection signal;

integrated circuit control means responsive to said sequence detection signal

for producing a corresponding control signal;

integrated circuit switching means responsive to said control signal

for activating a given instrument under control; and

integrated circuit feedback means coupled to said switching means

for producing a verifying signal in response to operation of said switching means

for activating said instrument under control;

wherein said feedback means includes

integrated circuit gate means

coupled with integrated circuit answering circuit means and

responsive to said verifying signal for momentarily decoupling said answering circuit means from said phone line and

thereby producing an audible signal.

98. A control apparatus in accordance with claim 97, further including

integrated circuit means for coupling said apparatus in parallel with a telephone receiver

for permitting production of said sequence detection signal and production of said control signal simultaneously with conversation over said telephone receiver.

99. A control apparatus in accordance with claim 97, further including

integrated circuit decoupling means

responsive to a remotely located transmitter going off the telephone line

for disconnecting the control apparatus from the telephone line.

100. A control apparatus in accordance with claim 97, further including

integrated circuit means for coupling said sequence detecting means to said phone line in response to a predetermined number of ring DTMF tones received on said phone line.

101. A control apparatus in accordance with claim 97, further including

integrated circuit access limiting means

coupled with said detecting means,

for preventing production of said sequence detection signal

until an access seauence comprising

a further predetermined sequence of predetermined DTMF tone signals is first received on said phone line;

wherein said access limiting means includes

integrated circuit access limiting gate means

coupled with said detecting means

for normally preventing response thereof to said DTMF tone signals, and

integrated circuit counter means

coupled to said access limiting gate means and responsive to said DTMF tone signals

for causing said access limiting gate means to enable operation of said detecting means following a predetermined number of DTMF tone signals received thereby.

102. A control apparatus in accordance with claim 97, further including

integrated circuit access limiting means coupled with said detecting means

for preventing production of said sequence detection signal

until an access sequence comprising

a further predetermined sequence of predetermined DTMF tone signals is first received on said phone line;

wherein said access limiting means further comprises

a first access sequence detector

responsive only to said access sequence,

a second access sequence detector

responsive only to a second access sequence comprising

a different predetermined sequence of predetermined DTMF tone signals, and

integrated circuit enabling circuit means

for normally enabling said first access sequence detector and disabling said second access sequence detector and

responsive to a predetermined number of sequences of DTMF tone signals not corresponding to said further predetermined sequence

for disabling said first access sequence detector and enabling said second access sequence detector.

103. A control apparatus in accordance with claim 97, further including

integrated circuit access limiting means comprising:

integrated circuit access sequence detecting means coupled to receive DTMF tone signals from said phone line,

and responsive to a predetermined number of DTMF tone signals received on said phone line other than a first access sequence comprising

a predetermined sequence of predetermined DTMF tone signals for producing a disabling signal;

integrated circuit disabling means

coupled to said control apparatus

for preventing operation thereof in response to said disabling signal;

wherein said access limiting means further comprises

a first access sequence detector

responsive only to said first access sequence,

a second access sequence detector

responsive only to a second access sequence comprising

a different predetermined sequence of predetermined DTMF tone signals, and

integrated circuit enabling circuit means

for normally enabling said first access sequence detector and disabling said second access sequence detector and

responsive to a predetermined number of sequences of DTMF tone signals not corresponding to said first access sequence

for disabling said first access sequence detector and enabling said second access sequence detector.

104. A control apparatus in accordance with claim 97, further including

integrated circuit access limiting means coupled with said detecting means

for preventing production of said sequence detecting signal

until an access sequence comprising

a further predetermined sequence of predetermined DTMF tone signals is first received on said phone line;

wherein said access limiting means comprises

integrated circuit gating circuit means

for producing a gate signal in response to DTMF tone signals making up said access sequence,

integrated circuit counter means

for producing a count signal upon counting a predetermined number of received DTMF tone signals greater in number than the number of DTMF tone signals in said access sequence, and

integrated circuit disabling circuit means

responsive to said count signal and said gate signal

for disabling production of said sequence detection signal when said access sequence is not present in said predetermined number of received DTMF tone signals;

whereby a selected number of additional, arbitrary DTMF tone signals may be received in addition to the signals of said access sequence without disabling production of said sequence detecting signal,

said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

105. An access limiting apparatus for use with a phone-line-linked, tone-operated control apparatus and comprising:

integrated circuit access sequence detecting means coupled to receive DTMF tone signals from said phone line,

and responsive to a predetermined number of DTMF tone signals received on said phone line other than an access sequence comprising a predetermined sequence of predetermined DTMF tone signals

for producing a disabling signal;

integrated circuit disabling means

coupled to said control apparatus

for preventing operation thereof in response to said disabling signal;

wherein said access limiting apparatus further comprises

a first access sequence detector

responsive only to said access sequence,

a second access sequence detector

responsive only to a second access sequence comprising

a different predetermined sequence of predetermined DTMF tone signals, and

integrated circuit enabling circuit means

for normally enabling said first access sequence detector and disabling said second access sequence detector and

responsive to a predetermined number of sequences of DTMF tone signals not corresponding to said access sequence

for disabling said first access sequence detector and enabling said second access sequence detector.

106. An access limiting apparatus in accordance with claim 105 and further including

integrated circuit answering means

for normally coupling said control apparatus to said phone line in response to a predetermined number of ring tones received on said phone line; and

integrated circuit gate means

for disconnecting said control apparatus from said phone line in response to said disabling signal.

107. An access limiting apparatus according to claim 105 and further including

integrated circuit answering means

coupled to said phone line and

responsive to a predetermined number of ring tones received on said phone line for coupling said control apparatus to said phone line; and

integrated circuit gate means

coupled to said answering means and

responsive to said disabling signal for causing said answering means to disconnect said control apparatus from said phone line.

108. An access limiting apparatus in accordance with claim 105, further including

integrated circuit means for coupling said access limiting apparatus in parallel with a telephone receiver

for permitting simultaneous operation of said access limiting apparatus and conversation over said telephone receiver.

109. An access limiting apparatus in accordance with claim 105, further including

integrated circuit decoupling means

responsive to a remotely located transmitter going off the telephone line

for disconnecting the access limiting apparatus from the telephone line.

110. An access limiting apparatus in accordance with claim 105, further including

integrated circuit means for coupling said access limiting apparatus to said phone line in response to a predetermined number of ring tones received on said phone line.

111. An access limiting apparatus in accordance with claim 105, further including,

integrated circuit gating circuit means

for producing a gate signal in response to DTMF tone signals making up said access sequence, and

integrated circuit counter means

for producing a count signal upon counting a predetermined number of received DTMF tone signals greater in number than the number of DTMF tone signals in said access sequence, and

wherein said disabling circuit means is

responsive to said count signal and said gate signal

for disabling operation of said control apparatus when said access sequence is not present in said predetermined number of received DTMF tone signals;

whereby a selected number of additional, arbitrary DTMF tone signals may be received in addition to the signals of said access sequence without disabling operation of said control apparatus,

said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

112. A phone-line-linked, tone-operated control apparatus comprising:

integrated circuit detecting means coupled to receive DTMF tone signals from said phone line,

for detecting at least one predetermined sequence of predetermined DTMF tone signals and

for producing a corresponding sequence detection signal;

integrated circuit control means responsive to said sequence detection signal

for producing a corresponding control signal; and

integrated circuit access limiting circuit means coupled with said detecting means

for preventing production of said sequence detection signal

until an access sequence comprising

a further predetermined sequence of predetermined DTMF tone signals is first received on said phone line;

wherein said access limiting circuit means comprises

integrated circuit gating circuit means

for producing a gate signal in response to DTMF tone signals making up said access sequence,

integrated circuit counter means

for producing a count signal upon counting a predetermined number of received DTMF tone signals greater in number than the number of DTMF tone signals in said access sequence, and

integrated circuit disabling circuit means

responsive to said count signal and said gate signal

for disabling production of said sequence detection signal when said access sequence is not present in said predetermined number of received DTMF tone signals;

whereby a selected number of additional, arbitrary DTMF tone signals may be received in addition to the signals of said access sequence without disabling production of said sequence detecting signal,

said selected number of additional signals and the number of signals in said access sequence together equalling the number of signals counted by said counter means.

113. A control apparatus in accordance with claim 112, further including

integrated circuit means for coupling said apparatus in parallel with a telephone receiver

for permitting production of said sequence detection signal and production of said control signal simultaneously with conversation over said telephone receiver.

114. A control apparatus in accordance with claim 112, further including

integrated circuit decoupling means

responsive to a remotely located transmitter going off the telephone line

for disconnecting the control apparatus from the telephone line.

115. A control apparatus in accordance with claim 112, further including

integrated circuit means for coupling said sequence detecting means to said phone line in response to a predetermined number of ring tones received on said phone line.

116. A control apparatus in accordance with claim 112, further including

integrated circuit switching means responsive to said control signal

for controlling a device; and

integrated circuit feedback means coupled to said switching means

for producing a verifying signal in response to the changing of said device from one operating state to another;

wherein said feedback means includes

integrated circuit gate means

coupled to integrated circuit answering circuit means and

responsive to said verifying signal for producing an audible verification signal on said phone line.

* * * * *

EXHIBIT B

IN THE CIRCUIT COURT OF COOK COUNTY, ILLINOIS
COUNTY DEPARTMENT, LAW DIVISION

PHILLIP S. JACKSON and PMJ FAMILY LIMITED PARTNERSHIP, Plaintiffs, v. NIRO, SCAVONE, HALLER & NIRO, a professional corporation, and RAYMOND P. NIRO, Defendants.	)	No. 05 L 13934 Judge Cunningham **JURY DEMAND**

SECOND AMENDED COMPLAINT FOR LEGAL NEGLIGENCE AND DECLARATORY JUDGMENT

Phillip S. Jackson and PMJ Family Limited Partnership, for their amended complaint against Niro, Scavone, Haller & Niro and Raymond P. Niro, allege and show as follows.

FACTS COMMON TO ALL COUNTS

1. Philip S. Jackson is an adult citizen of Cook County, Illinois. PMJ Family Limited Partnership is an Illinois Limited Partnership which is the owner of United States patent number 4,596,900 (the '900 Patent) along with Mr. Jackson.

2. Niro, Scavone, Haller & Niro is a Chicago law firm which specializes in handling intellectual property cases.

3. Raymond P. Niro ("Mr. Niro") is an Illinois resident, residing and doing business in Cook County, Illinois. Mr. Niro is a senior partner in the defendant law firm Niro, Scavone, Haller & Niro. On information and belief, Mr. Niro is the founding partner of the firm and the current managing partner.

4. In February 2001, the plaintiffs and Mr. Niro, on behalf of the defendant law firm, entered into a written engagement agreement pursuant to which Mr. Niro, on behalf of the defendant law firm, agreed to handle the licensing and enforcement of what the parties referred to as the plaintiffs' "900" patent. **A copy of the agreement is attached as Exhibit 1.**

5. By its terms the agreement called for the defendant law firm to be paid on a contingent fee basis per a formula set forth in the agreement, and for plaintiffs to pay costs.

6. Upon formation of the attorney/client relationship the defendants owed plaintiffs: (a) a duty to handle plaintiffs' matters with reasonable care and skill; and (b) fiduciary duties of total loyalty and fidelity.

COUNT I

NEGLIGENCE

(Against Niro, Scavone Haller & Niro)

Plaintiffs allege Count 1 in its entirety to preserve for review those claims the court dismissed on statute of limitations grounds by order entered 5/30/06.

1-6. Plaintiffs reallege and incorporate by this reference paragraphs 1 through 6 above in this complaint as paragraphs 1 through 6 of Count I as if the same were set forth in full, word for word.

7. Some time after the plaintiffs retained the defendant, the defendant demanded that plaintiffs stop working with any other patent attorneys. Then, when plaintiffs' patent had expired the defendant informed plaintiffs it would do no further work on plaintiffs work.

8. The defendant was careless and negligent in handling the following cases, as a result of which plaintiffs were forced into settlements for far less than each case was worth, as set forth

more specifically, cases known as follows: (a) VTech; (b) Bell South; (c) Unisys; (d) Lucent; (e) Conair; (f) SS8; (g) NEC; (h) Samsung; (i) Comverse. Plaintiffs are informed and believe and therefore allege that defendant induced plaintiffs into those settlements in order to pursue potentially more lucrative litigation, including, but not limited to, a major patent infringement claim against Microsoft, (ii) in order to induce plaintiffs into accepting settlements which were significantly less than the reasonable settlement value of plaintiffs' claims, and (iii) when plaintiffs hesitated to accept defendant's tainted settlement advice, defendant poisoned plaintiffs' claims by misrepresenting to opposing parties and, more importantly, to the judge who was handling plaintiffs' pending action, the reasonable settlement value of the claims, in direct contravention of the express instructions of plaintiffs regarding the minimum amounts which they would accept in settlement of those claims.

9. As a direct and proximate consequence of the negligence of the defendant the plaintiffs were forced to settle claims for far less than the true value of the claims aforesaid.

10. Plaintiffs were informed and believe and therefore allege that the shortfall between the true value of the claims and the amount plaintiffs were forced to accept by way of settlement exceeds nine million dollars.

11. The defendant carelessly and negligently failed to supervise the work of a purported expert in the Glenayre case, as a result of which the expert's opinion was barred. Plaintiffs paid $79,000 for the service provided by this expert for which plaintiffs got no value.

12. The defendant had a duty to supervise the work of the expert to insure that he considered all pertinent facts and legal constraints in reaching his opinion. The defendant breached this duty as a result of which the expert was barred. This had seriously adverse consequences for

plaintiffs' case.

WHEREFORE, plaintiffs pray that judgment be entered against the defendant, Niro, Scavone Haller & Niro in such amount as the court and jury hold be to due, the same being in excess of the jurisdictional threshold of the Law Division; that it recover interest, costs and legal fees.

COUNT II

DAMAGES FOR FAILURE TO MAKE ACCOUNTING

(Against Niro, Scavone Haller & Niro)

This count was previously dismissed by the court and it is realleged for the purpose of preserving the claim for review.

1-12. Plaintiffs reallege and incorporate by this reference paragraphs 1 through 12 above in this complaint as paragraphs 1 through 12 of Count II as if the same were set forth in full, word for word.

13. Plaintiffs' cases handled by defendant involved the expenditure of hundreds of thousands of dollars in costs and expenses.

14. By virtue of the attorney/client relationship the defendant owed plaintiffs a duty to: (a) expend no funds greater than were reasonably necessary for case expenses, travel, meals, lodging, etc.; and (b) to provide plaintiffs with an accounting, including substantiation for expenses actually incurred and/or paid.

15. When plaintiffs asked for substantiation of expenses the defendant responded that it was not required to do so because its contract with plaintiffs recites in paragraph 1:

> Any questions about disbursements must be raised within thirty (30) days of billing; after that date, all charges will be presumed to be both proper and correct.

16. When the plaintiffs sought documentation to substantiate the hundreds of thousands of dollars charged to it during the representation, the defendant rejected the request and stated plaintiffs had not requested same within 30 days of each billing and defendant was therefore not obligated to provide the accounting.

17. Enforcement of this provision of the contract is inconsistent with the duties owed by defendant to plaintiffs as their counsel and plaintiffs seek a declaratory judgment that the clause is not enforceable.

18. Plaintiffs are informed and believe and therefore allege that they have been over-charged by defendant incurring excessive expenses during the representation

19. Plaintiffs are entitled to a refund of excessive expenses for which it was charged by the defendant.

20. Plaintiffs cannot determine the extent of the overcharges because defendant has custody of all of the records of disbursements made by it.

WHEREFORE, plaintiffs pray that the court hold and declare and enter judgment that the provision in question is not enforceable; that the defendant Niro, Scavone, Haller & Niro be ordered to produce the back-up for all expenses charged and that judgment be entered in favor of the plaintiffs to the extent of the over-charges, the same being to the best of plaintiffs' knowledge information and belief in excess of $50,000; for costs of the action and for such further relief as maybe appropriate.

COUNT III

FOR DECLARATORY JUDGMENT ON LUCENT SETTLEMENT

(Against Niro, Scavone Haller & Niro)

This count was disinissed by agreement for purposes of arbitrating the claims.

1-20. Plaintiffs reallege and incorporate by this reference paragraphs 1 through 20 above as

paragraphs 1 through 20 of Count III as if the same were set forth in full, word for word.

21. During defendant's representation of plaintiffs it handled claims for plaintiffs against Lucent Technologies, Inc.

22. The claims were settled in February 2003, and the agreement called for the payment by Lucent to plaintiffs of certain funds on certain dates depending upon the occurrence of specified conditions.

23. In May 2004 at the insistence of defendant, who unilaterally elected to terminate its attorney-client relationship with plaintiffs, the plaintiffs and defendant entered into a written agreement ending their relationship. **A copy of the agreement is attached as Exhibit 2.**

24. Paragraph 3 of the agreement provides as follows:

> 3. **Payments to Niro.** Upon execution of the Agreement, Niro waives any right to collect fees from Jackson in any customer or end-user suits or settlements, including those in which it was involved.
>
> *** Deletion not related to Lucent.**

25. Pursuant to the written agreement the only fees to which defendant was entitled after the effective date of the agreement were those arising out of plaintiffs' claims against one particular infringer and its customers as expressly delineated in the Agreement. The agreement did not provide for Niro to retain any right to any portion of the Lucent settlement.

26. The last payment by Lucent on its settlement obligation was made in 2005. The funds are on deposit in defendant's trust account.

27. The defendant contends that it is entitled to a fee on the Lucent matter. The plaintiffs contend the defendant is not entitled to a fee on the Lucent matter.

28. The defendant is holding in escrow a portion of the Lucent settlement which it claims is its fee in that matter. Plaintiffs allege the money so held belongs to them and that the defendant is not entitled to any fee in the Lucent matter.

29. The controversy between the plaintiffs and defendant over the Lucent fee issue is a justiciable one ripe for a declaratory judgment.

WHEREFORE, plaintiffs pray that the court hold and declare and enter judgment that under the May 2004 agreement of the parties the defendant Niro, Scavone, Haller & Niro is not entitled to any fees on the Lucent Technologies, Inc. settlement; that the Lucent settlement proceeds in custody of the defendant Niro, Scavone, Haller & Niro be ordered paid forthwith to plaintiffs; that plaintiffs have their costs of the action and

COUNT IV

MALPRACTICE IN GLENAYRE CASE

(Against Niro, Scavone Haller & Niro)

This count is based on a ruling by the United States Court of Appeals for the Federal Circuit on April 11, 2006 in the case captioned Glenayre Electronics Inc. v. Phillip Jackson and PMJ Family Limited Partnership, case number 041568.

1-29. Plaintiffs reallege and incorporate by this reference paragraphs 1 through 29 above as paragraphs 1 through 29 of Count IV as if the same were set forth in full, word for word.

30. The defendant law firm represented the plaintiffs in the Glenayre case in the Federal District Court in Chicago.

31. The defendant law firm's representation in the Glenayre matter was negligent, a breach of the duty to exercise ordinary care and skill in the representation of plaintiffs in the matter, all of which caused plaintiffs to lose valuable claims and causes of actions to plaintiffs great damage.

32. But for the negligence of the defendant law firm in the Glenayre case, the plaintiffs had patent infringement claims worth potentially as much as $150 million dollars against Glenayre and its customers.

33. The defendant law firm negligently filed and pursued a claim for damages against Glenayre. Instead, the defendant law firm, in the exercise of ordinary care, should have (a) sought an injunction and/or (b) sought a declaratory judgment on the issue of infringement. By doing the latter, the plaintiffs' claims against the customers of Glenayre would have been preserved, but by pursuing the damages claims against Glenayre the defendant put at risk that a recovery against Glenayre would lead to a finding of "full compensation." This would and did preclude plaintiffs from recovery of all sums to which they were entitled for infringement of their patent by the customers of Glenayre.

34. The district court judge bifurcated plaintiffs' claims against Glenayre from plaintiffs' claim against Glenayre customers and stayed prosecution of those claims, plaintiffs appealed.

35. The defendant law firm negligently advised plaintiffs to withdraw an interlocutory appeal they had taken on the advice of the defendant law firm from the order staying the claims against Glenayre's customers.

36. The defendant law firm carelessly and negligently failed to supervise the work of a purported expert in the Glenayre case, as a result of which the expert's opinion was barred. Plaintffs paid $79,000 for the service provided by this expert for which plaintiffs got no value.

37. The defendant law firm had a duty to supervise the work of the expert to insure that he considered all pertinent facts and legal constraints in reaching his opinion. The defendant law firm breached this duty as a result of which the expert was barred. This had seriously adverse consequences for plaintiffs' case.

38. After a jury trial against Glenayre and a verdict for plaintiffs, the trial judge ordered a Remittitur or a new trial. On the advice of the defendant law firm, plaintiffs accepted the Remittitur.

39. The defendant law firm negligently advised plaintiffs to accept the Remittitur.

40. Glenayre then appealed. The defendant law firm negligently failed to advise plaintiffs

to appeal or cross-appeal on the issue of the damages claims to preserve those claims against the Glenayre customers.

41. The Court of Appeals held that by accepting the Remittitur, plaintiffs lost their ability to seek recovery from Glenayre's customers because acceptance of the Remittitur meant plaintiffs had received full compensation.

42. The Court of Appeals also held that it was incumbent on plaintiffs to reject the Remittitur to reserve their claims that they had not received full compensation by the Glenayre verdict.

43. The defendant law firm negligently failed to advise plaintiffs that acceptance of the Remittitur would allow Glenayre to claim with success that plaintiffs had received full compensation, thus precluding a claim against the Glenayre customers.

44. The negligence of the defendant law firm in the Glenayre case as outlined above was the proximate cause of plaintiffs losing the true value of their claims which were primarily against the Glenayre customers.

WHEREFORE, plaintiffs pray for a judgment against the defendant Niro, Scavone, Haller & Niro in such amount as the court and jury hold to be due, the same being in excess of the jurisdictional threshold of the Law Division; that they have interest on the amount found due plus their costs of the actions; and any further relief that may be appropriate.

COUNT V

MALPRACTICE IN GLENAYRE CASE

(Against Raymond P. Niro)

This count is based on a ruling by the United States Court of Appeals for the Federal Circuit on April 11, 2006 in the case captioned Glenayre Electronics Inc. v. Phillip Jackson and PMJ Family Limited Partnership, case number 041568.

1-44. Plaintiffs reallege and incorporate by this reference paragraphs 1 through 44 above as paragraphs 1 through 44 of Count V as if the same were set forth in full, word for word.

45. Mr. Niro was the lead attorney on behalf of the Niro firm in connection with the representation of the plaintiffs in the Glenayre case in the Federal District Court in Chicago.

46. Mr. Niro's representation in the Glenayre matter was negligent, a breach of the duty to exercise ordinary care and skill in the representation of plaintiffs in the matter, all of which caused plaintiffs to lose valuable claims and causes of actions to plaintiffs great damage.

47. But for the negligence of Mr. Niro in the Glenayre case, the plaintiffs had patent infringement claims worth potentially as much as $150 million dollars against Glenayre and its customers.

48. Mr. Niro negligently filed and pursued a claim for damages against Glenayre. Instead, Mr. Niro, in the exercise of ordinary care, should have (a) sought an injunction and/or (b) sought a declaratory judgment on the issue of infringement. By doing the latter, the plaintiffs' claims against the customers of Glenayre would have been preserved, but by pursuing the damages claims against Glenayre the defendant put at risk that a recovery against Glenayre would lead to a finding of "full compensation." This would and did preclude plaintiffs from recovery of all sums to which they were entitled for infringement of their patent by the customers of Glenayre.

49. The district court judge bifurcated plaintiffs' claims against Glenayre from plaintiffs'

claim against Glenayre customers and stayed prosecution of those claims, plaintiffs appealed.

50. Mr. Niro negligently advised plaintiffs to withdraw an interlocutory appeal they had taken on the advice of Mr. Niro from the order staying the claims against Glenayre's customers.

51. Mr. Niro carelessly and negligently failed to supervise the work of a purported expert in the Glenayre case, as a result of which the expert's opinion was barred. Plaintiffs paid $79,000 for the service provided by this expert for which plaintiffs got no value.

52. Mr. Niro had a duty to supervise the work of the expert to insure that he considered all pertinent facts and legal constraints in reaching his opinion. Mr. Niro breached this duty as a result of which the expert was barred. This had seriously adverse consequences for plaintiffs' case.

53. After a jury trial against Glenayre and a verdict for plaintiffs, the trial judge ordered a Remittitur or a new trial. On the advice of the Mr. Niro, plaintiffs accepted the Remittitur.

54. Mr. Niro negligently advised plaintiffs to accept the Remittitur.

55. Glenayre then appealed. Mr. Niro negligently failed to advise plaintiffs to appeal or cross-appeal on the issue of the damages claims to preserve those claims against the Glenayre customers.

56. The Court of Appeals held that by accepting the Remittitur, plaintiffs lost their ability to seek recovery from Glenayre's customers because acceptance of the Remittitur meant plaintiffs had received full compensation.

57. The Court of Appeals also held that it was incumbent on plaintiffs to reject the Remittitur to reserve their claims that they had not received full compensation by the Glenayre verdict.

58. Mr. Niro negligently failed to advise plaintiffs that acceptance of the Remittitur would

allow Glenayre to claim with success that plaintiffs had received full compensation, thus precluding a claim against the Glenayre customers.

59. The negligence of Mr. Niro in the Glenayre case as outlined above was the proximate cause of plaintiffs losing the true value of their claims which were primarily against the Glenayre customers.

WHEREFORE, plaintiffs pray for a judgment against defendant Raymond P. Niro in such amount as the court and jury hold to be due, the same being in excess of the jurisdictional threshold of the Law Division; that they have interest on the amount found due plus their costs of the actions; and any further relief that may be appropriate.

PLAINTIFFS DEMAND A JURY.

Philip S. Jackson and
PMJ Family Limited Partnership

BY: _____
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