

[54] **TELEPHONE SECURITY DEVICE
HAVING KEY LOCK**

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[*] Notice: The portion of the term of this
patent subsequent to Jan. 12, 1988,
has been disclaimed.

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[21] Appl. No.: **75,437**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 75,437, Sept. 24,
1970, Pat. No. 3,555,209.

[30] **Foreign Application Priority Data**

April 1, 1968 Canada.....16,379

[52] U.S. Cl.179/90 D, 179/189 D

[51] Int. Cl.H04m 1/66

[58] Field of Search179/90 D, 6.3 R,
179/189 D

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Primary Examiner—Kathleen H. Claffy

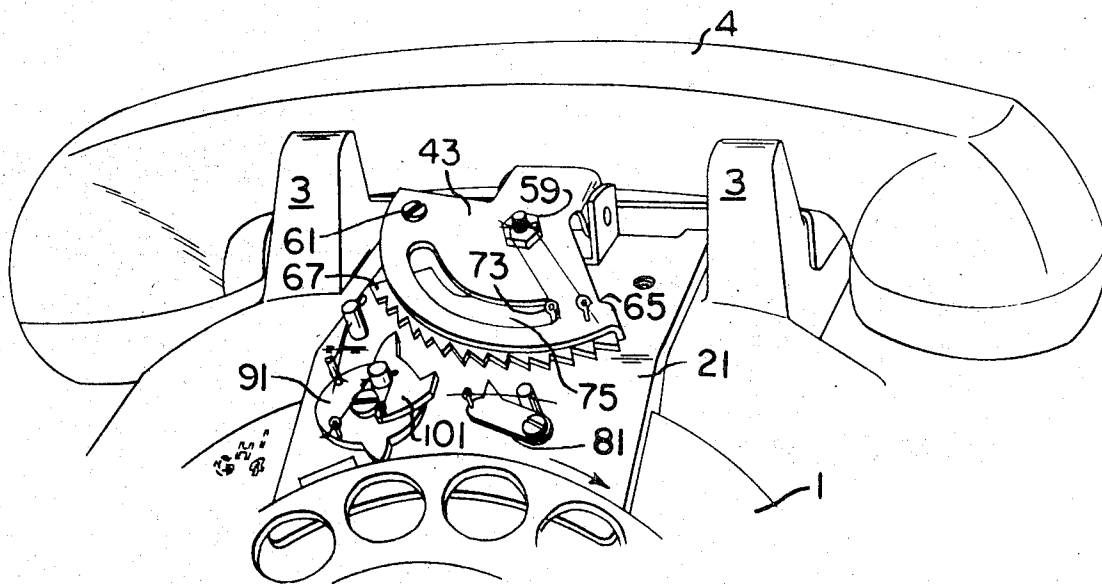
Assistant Examiner—Thomas D'Amico

Attorney—Cushman, Darby & Cushman

[57] **ABSTRACT**

A telephone security device is intended to prevent unauthorised use of the distant-direct-dialing facility on dial-type telephones. It makes use of a mechanism which is stepped by operation of the dial to call a digit, and which after a predetermined number of digits has been called locks the dialing mechanism to prevent further dialing. The predetermined number is so selected as to prevent the desired misuse of the telephone.

9 Claims, 27 Drawing Figures



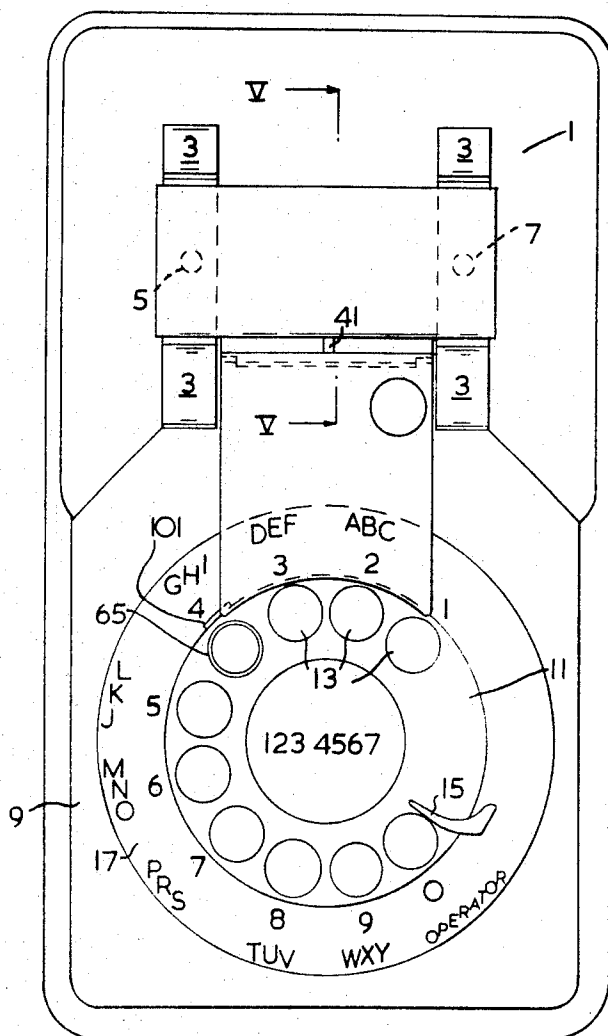


FIG. 1

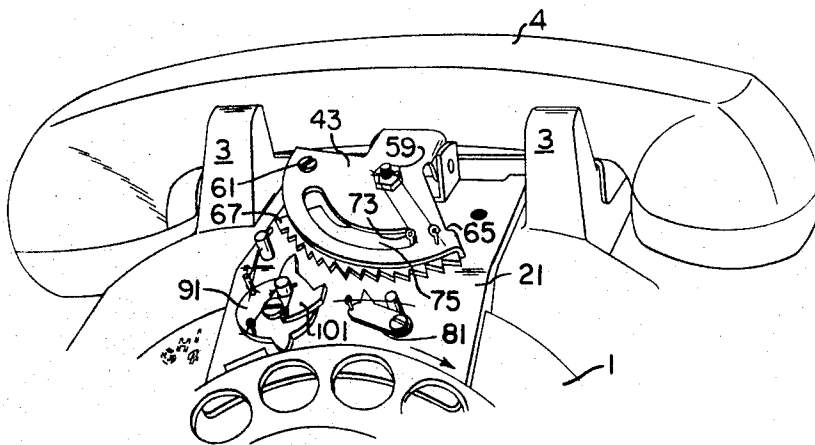


FIG. 3

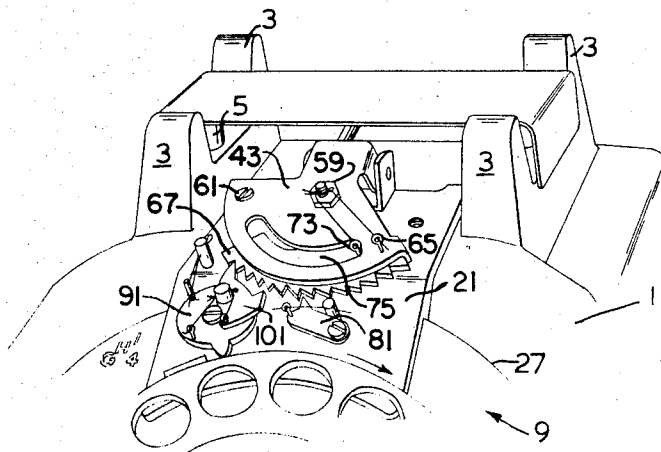


FIG. 2

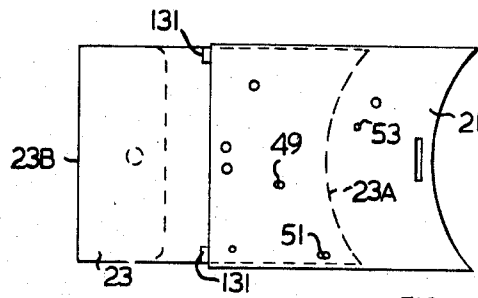


FIG. 4

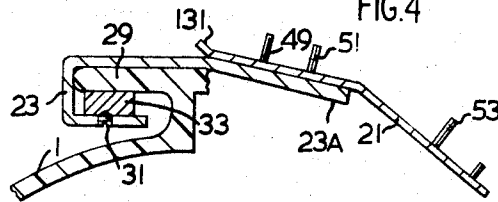


FIG. 5

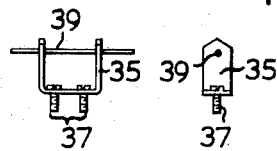


FIG. 6

FIG. 7

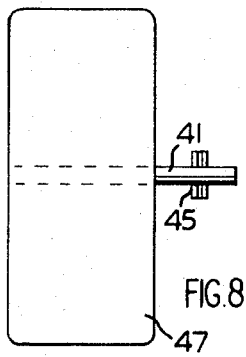


FIG. 8

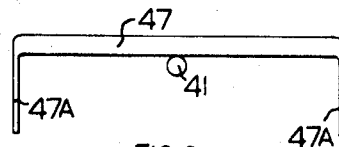
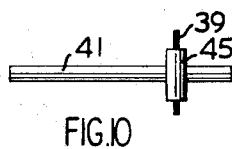
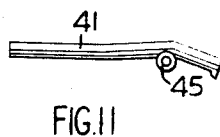
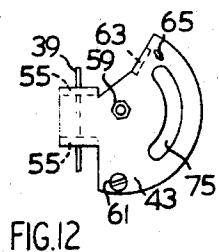
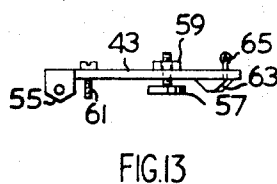
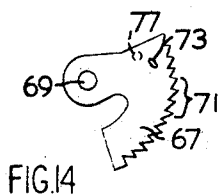
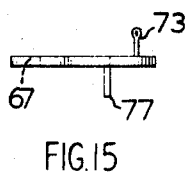
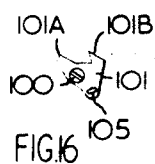
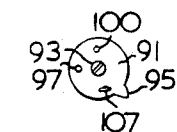
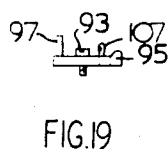
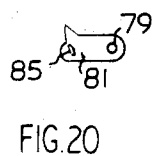
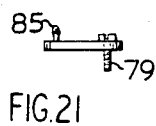


FIG. 9



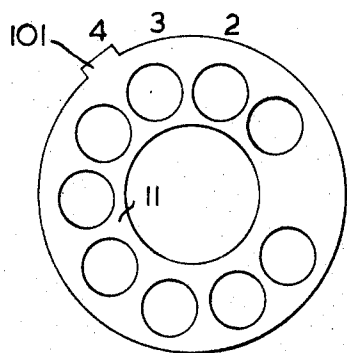


FIG. 22

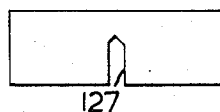


FIG. 25

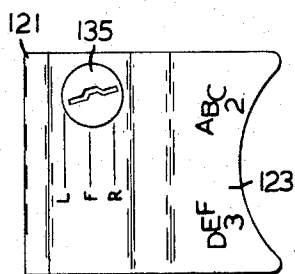


FIG. 23

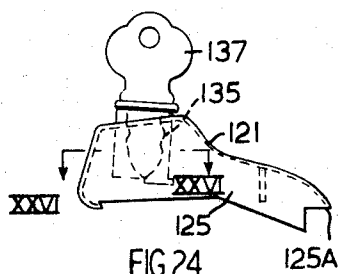


FIG. 24

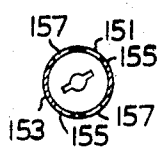


FIG. 26



FIG. 27

TELEPHONE SECURITY DEVICE HAVING KEY LOCK

This invention relates to dial-type telephone sets, in which a user can by repeated operation of the dial make use of automatic exchange facilities to cause his connection to another telephone set.

In commerce and in industry large privately owned telephone installations are often used, all connected to a private branch exchange (PBX) by means of which any telephone set in the installation can be connected to any other telephone set in the installation without making use of the telephone company lines external to the installation. Thus one common system is for each telephone set in the installation to be provided with a dial by which a user can make use of automatic exchange facilities in the PBX to connect himself automatically to any other telephone in the installation. In many installations, connection to an outside line must be made through an operator at the PBX, for example by dialing "0".

With the development of the size of these installations, the automatic facilities have in many cases been extended so that a user can, by first dialing "9", connect his telephone set to the telephone system of the external telephone company, and can then proceed to dial any external telephone number he wishes. For local calls, this is usually acceptable to the owner of the PBX, and when the system is used to make long distance calls through the telephone operator of the external telephone company, the record of such calls kept by that operator for charging purposes usually is sufficient to prevent any serious abuse of the ability of any telephone user in the installation to make long distance calls.

With the advent of "direct distance dialing", a user of any telephone set in the installation can first dial "9" to obtain connection to the external telephone company equipment, can then dial "1" to obtain automatic connection to the "direct distance dialing" equipment of the external telephone company, and then can proceed to call almost any telephone number in Canada and the United States. The equipment of the external telephone company records all such calls for charging purposes, but only identifies the calling PBX. As a result, the system is open to abuse by users of the telephone sets of the installation, there being no record of which telephone set was used to make the "direct distance dialing" call.

My U.S. Pat. application No. 732,632 filed May 28, 1968 now U.S. Pat. No. 3,555,209 had for its object the provision of means by which use of a telephone set can be limited to the dialing of numbers having no more than a predetermined number of digits. For example, in a PBX system having less than 999 internal lines, the apparatus of the invention could be used to prevent all except a few of the telephone sets being used for the dialing of numbers having four or more digits, so that all calls external to the PBX must be routed through the PBX operator. The sets not fitted with the apparatus could still be used normally to use the "9" facility. As a further example, in a PBX system where local calls were to be permitted, the apparatus of the invention could be used to prevent the dialing of numbers having more than eight digits. A telephone set so fitted could be used freely to call any other internal telephone set; it

could be used to call the PBX operator (by dialing "0"); it could be used to call any "local" number (by dialing "9" and then the seven digit local number); it could be used to call the long distance operator (by dialing "9" and then "0"); but it could not be used to make a direct dialed long distance call, which would necessitate dialing first "9", then "1", and then a seven figure telephone number. Any attempted call would be automatically aborted by the equipment of the external telephone company when the transmission of the last digit of the seven figure number had been delayed beyond their predetermined calling-time limit.

The invention set out in that patent application provides a security device suitable for use with a dial-type telephone set having a handpiece, a cradle or the like on which the handpiece rests when not in use, and a rotary signalling dial, the device being adapted to restrict the use of the dial to the effective dialing of a series of digits no greater in number than a predetermined number, comprising a base member adapted for securement to a standard telephone set, ratchet means carried by the base member and arranged to cooperate with a member affixed to the telephone set dial so that each time the dial is rotated in a clockwise direction with the handpiece removed from the cradle or the like to dial a number, the member affixed to the dial through the ratchet operating means moves the ratchet means through a first predetermined distance, stop means arranged when the ratchet means have been moved through a second predetermined distance from a RESET position to prevent further dialing movement of the telephone dial in a clockwise direction, reset means carried by the base member and actuated automatically when the telephone handpiece is restored to its cradle or the like to return the ratchet means to its RESET position, and guard means arranged to prevent unauthorized disengaging of the security device.

The present invention relates to an improvement of the security device described and claimed in my said earlier patent application.

According to the present invention, a security device suitable for use with a dial-type telephone set having a handpiece, a cradle or the like on which the handpiece rests when not in use, and a rotary signalling dial, the device being adapted to restrict the use of the dial to the effective dialing of a series of digits no greater in number than a predetermined number, comprises a base member adapted for securement to a standard telephone set, ratchet means carried by the base member and arranged to cooperate with a member provided on the telephone set dial so that each time the dial is rotated in a clockwise direction with the handpiece removed from the cradle or the like to dial a number, the member affixed to the dial through the ratchet operating means moves the ratchet means through a first predetermined distance, stop means arranged when the ratchet means have been moved through a second predetermined distance from a RESET position to prevent further dialing movement of the telephone dial in a clockwise direction, reset means carried by the base member and actuated automatically when the telephone handpiece is restored to its cradle or the like to return the ratchet means to its RESET position, guard means arranged to prevent unauthorized disengaging of the security device, and

lock means which by application of a key can be set to permit either unrestricted use of the dial or restricted use only of the dial under control of the stop means.

The invention will now be described, by way of example, with reference to the accompanying drawings, in which:

FIG. 1 is a plan view of a standard desk-type dial telephone set of the cradle type to which the invention has been applied, the combination hand microphone/earphone handpiece and its connecting cord being omitted for the sake of clarity;

FIG. 2 is a perspective drawing of the upper part only of the telephone set shown in FIG. 1, with a security cover for certain parts of the apparatus removed to expose the working of those parts;

FIG. 3 is a perspective drawing similar to FIG. 2 but showing the parts in an alternative working position;

FIG. 4 is a plan view of a base plate and of a securing clip shown in FIGS. 1 to 3;

FIG. 5 is a sectional side elevation taken on the line V—V of FIG. 1;

FIG. 6 is a front elevation and FIG. 7 is a side elevation of a bracket shown in FIGS. 1 to 3;

FIG. 8 is a plan view and FIG. 9 is a front elevation of a canceller plate shown in FIGS. 1 to 3;

FIG. 10 is an underneath view and FIG. 11 is a side elevation of a canceller lever shown in FIG. 1;

FIG. 12 is a plan view and FIG. 13 is a side elevation of a ratchet holder shown in FIGS. 2 and 3;

FIG. 14 is a plan view and FIG. 15 is a side elevation of a ratchet member shown in FIGS. 2 and 3;

FIG. 16 is a plan view and FIG. 17 is a front elevation of a ratchet shown in FIGS. 2 and 3;

FIG. 18 is a plan view and FIG. 19 is a side elevation of a ratchet actuator disc shown in FIGS. 2 and 3;

FIG. 20 is a plan view and FIG. 21 is a side elevation of a ratchet shown in FIGS. 2 and 3;

FIG. 22 is a plan view of a modified telephone dial;

FIGS. 23, 24 and 25 are respectively a plan view, a side elevation and a rear elevation of a cover for the security device shown in FIG. 1;

FIG. 26 is a sectional plan view taken on the line X—X of FIG. 24 and showing details of a lock cylinder sleeve only; and

FIG. 27 is a plan view of a pawl mounted on the bottom of a lock cylinder shown in FIG. 24.

The telephone set comprises a moulded body 1 provided at its upper part with upstanding horns 3 which normally serve to locate axially and laterally a standard combination telephone microphone/earphone handpiece 4. In the set shown, two upstanding buttons 5 and 7 located between the horns are normally depressed by the handpiece, when the handpiece is not in use, and serve to operate switches inside the body 1 to place the telephone set in readiness for receiving incoming calls. In some telephone sets, the two buttons are replaced by a single flat member which is mounted on an upstanding stem slidably carried by the body 1, and again arranged to operate switches inside the body to condition the telephone set for transmission or reception. Mounted on the sloping front part 9 of the body 1 is a rotatable dial 11 formed with ten finger holes 13 suitably spaced around a circle concentric with the axis of rotation of the dial. A finger stop 15 mounted on the body limits the clockwise rotation of the dial by a finger

placed in any of the fingerholes, and a return spring (not shown) biases the dial 11 in an anticlockwise direction so that the dial normally assumes the position shown in FIG. 1. A peripheral scale 17 identifies each of the fingerholes, for the convenience of the user of the telephone set.

The preceding description of the telephone set is a description of a standard orthodox desk telephone such as is in use over the whole of North America. The present invention relates to a security device which can be fitted to such a standard telephone set to modify its operation so that the dial 11 can be used to dial, in one effective group, only a number of digits less than a predetermined number of digits.

The security device shown in the drawings includes a bent base plate 21 (see FIGS. 4 and 5) which is firmly secured to the body 1 by a clip 23 to which it is attached by welding. The clip 23 has an arcuate front edge 23A formed as a knife-like hook or claw 25 (see FIG. 5) which is forced into the circular gap 27 which exists in an orthodox telephone handset between the flat plate containing the dial mechanism and the main moulded part of the body. The opposite rear edge 23B of the clip 23 extends rearwardly, downwardly and then forwardly round a platform 29 of the body 1, being locked in place by a socket screw 31 screwed into clip 23 and engaging a flat bar 33 which the screw clamps up against the underside of the platform 29. A U-shaped bracket 35 (see FIGS. 6 and 7) is mounted on the base plate 21 by two screws 37 and carries a horizontal pivot pin 39 on which are mounted firstly a canceller lever 41 (FIGS. 8 to 11) and secondly a ratchet holder 43 (FIGS. 12 and 13). Cancellor lever 41 is a metal rod and is provided with a cross-tube 45 through which a central part of the pivot pin 39 extends. Mounted on the lever is a canceller plate 47 which overlies the buttons 5 and 7 and is provided with skirts 47A which extend down the outer sides of the horns 3.

Mounted on the base plate 21 are three studs, a ratchet holder stop lug 49, an actuator return spring holder 51, and a holding pawl stop and return spring holder 53. The locations of these three studs are shown clearly in FIGS. 4 and 5. The ratchet holder 43 is in the form of a flat plate having two parts bent down to form depending ears 55 (see FIG. 13) through which the pivot pin 39 extends. A shouldered bolt 57 extends upwardly through the plate and is locked in place by a nut 59. A screw 61 extends through the plate and the part of the screw below the plate acts as a ratchet stop. A depending cam 63 is welded to the plate to form a disengaging device for the ratchet member. A pin 65 extending upwardly from the plate serves as an anchor for a ratchet return spring 66. The actual ratchet member 67 (see FIGS. 14 and 15) is mounted on the underside of the ratchet holder, the bolt 57 extending through a hole 69, and the ratchet member is formed with a set of ratchet teeth 71 along a curved surface concentric with the hole 69. The upper side of the ratchet member is provided with a pin 73 to accommodate a second limb of the ratchet return spring 66, and the ratchet holder is formed with an arcuate slot 75 to permit free movement of this pin 73. Mounted on the underside of the ratchet member 67 is a depending pin 77 which serves for a lock pin for a pawl described below in connection

with a lock for a cover of the security device. It will be seen that the forward end of the canceller lever 41 extends past the pivot pin 39 and acts on the underside of the ratchet holder 43. A small spring (not shown) biases the free end of the ratchet holder 43 downwardly towards the base plate 21, and this spring is also effective to bias the canceller plate 47 upwardly.

As a result, this spring holds the canceller plate 47 up away from the body as shown in FIG. 2 so that the two buttons 5 and 7 can rise relative to the body when the handpiece 4 is removed. On the other hand, if the handpiece is replaced on top of the canceller plate, the ratchet holder will be rocked upwardly against the action of the biasing spring about the pivot pin 39.

It will be seen that the ratchet member 67 is pivotally mounted on the ratchet holder 43 by the vertical bolt 57 which is biased in anticlockwise direction, as viewed in plan, by the ratchet return spring 66 acting between pin 73 on the member and pin 65 on the ratchet holder 33. Thus, unless otherwise held, the ratchet member will assume a position in which its continued movement is checked by its engagement with a lug 63 on the ratchet holder. Travel of the ratchet member 67 in the clockwise direction is limited by engagement of pin 73 on the ratchet member with the end of slot 75 in the ratchet holder 33. Pivotally mounted by a pivot screw 79 on the base plate 21 is a pawl 81 biased by a stiff wire spring 83 extending between a pin 85 on the pawl and stud 53 into engagement with the teeth of the ratchet member 67. The teeth of the ratchet member are so directed that it can readily be moved in a clockwise direction (viewed in plan) past the pawl, but the pawl normally prevents return movement. Thus the ratchet member will normally be held by the spring 66 in set position engaging the pawl 81.

Also mounted on the base plate 21 is a ratchet actuator 91 (see plan view FIG. 18 and side elevation FIG. 19) in the form of a circular disc rotatably carried by a vertical pivot screw 93 and formed with an outwardly extending lug 95. An upwardly extending pin 97 on the disc is acted on by a tension spring 99 carried by stud 51 on the base plate. The pin is so located on the disc that the disc is biased in a clockwise direction (as viewed in plan). Pivotally mounted on the disc of the ratchet actuator by a screw 100 is a ratchet 101 (see FIGS. 16 and 17) biased to a median position by a bent wire spring 103 acting between an anchor 105 on the ratchet and an anchor 107 on the disc. The shapes of the two teeth 101A and 101B of the ratchet 100 are such that as the disc is moved in an anticlockwise direction by means of the lug 95, the teeth of ratchet 100 engage the teeth of the ratchet member 67, and move ratchet member 67 through a sufficient distance for the pawl 81 to step to engage the next tooth of the ratchet member. During clockwise return movement of the disc of actuator 91, the ratchet 101 rides freely over the subjacent teeth of the ratchet member 67.

FIG. 22 shows how the rotatable dial 11 is formed with a peripheral lug 111 extending over that part lying between the centres of the third and fourth finger holes, counting in anticlockwise direction. Rotatable dials for this purpose are commonly made from moulded plastics material, and thus the peripheral lug can readily be formed integral with the dial. However, in order to use such a dial on a telephone, it is necessary

to remove the existing dial and replace it with a modified dial. Some telephone companies may object to this and in such a case a lug can be provided, in the manner set out in my earlier patent application. As described therein, a metal bush carrying a lug can be fitted through the "4" hole of the dial. The bush has a peripheral flange and the tubular part of the bush is inserted in the "4" fingerhole from underneath, the upper end of the tubular part then being rolled over to retain the bush in place.

A security cover 121 (see FIGS. 23 to 25) is fitted over the mechanism on the base plate 21 to ensure that the mechanism cannot be tampered with to enable unauthorized dialing of numbers with more than a predetermined number of digits. FIG. 23 indicates how this generally square cover is provided with a forward extension 123 which covers the ratchet actuator 91. The cover is provided with a depending peripheral flange 125 which is cut away at 125A to permit the upper edge of the dial 11 to rotate freely under it, while the rear edge of the cover is formed with a vertical slot 127 to permit free up-and-down movement of the canceller lever 41. The cover is formed along its rear edge with a forwardly facing ledge 129 which hooks under two upwardly and rearwardly inclined lugs 131 provided along the rear edge of the base plate 21. The cover has mounted on it a rotary cylindrical lock 135 provided with a removable key 137. The key (and thus the lock cylinder) has three set positions marked respectively L, F and R.

The cylinder lock is provided externally with a sleeve 151 (see FIG. 26) formed with a central bore 153 into which the cylinder lock fits. As the key is removed from the lock cylinder, the key detents or plungers move inwardly so that their outer ends form an irregular pattern, and as is usual with cylinder locks the protruding plungers serve to lock the cylinder against rotation when the key is removed. The sleeve 151 is formed with pairs of opposite notches 155 and 157, which permit these plungers to assume their protruding positions, so that the key can be removed. At positions other than L and R, the plungers are no longer aligned with the notches, so that they cannot move radially to permit removal of the key. The lower end of the lock cylinder is provided with a lug 159 to which is soldered a lock pawl 161 with the orientation indicated in FIG. 27, which is a plan view.

The security cover 121 is fitted to the base plate 21 before the base plate is installed on the telephone. With the cover ledge 129 hooked over the two lugs 131 on the base plate, a screw is fitted substantially horizontal to connect together a downwardly depending bracket 163 provided on the cover 125 and an upwardly extending bracket 165 provided on the base plate 21. This screw is inaccessible once the base plate has been fitted to the telephone handset in the manner shown and described above.

Once the security cover 121 has been fitted place, the lock pawl 161 is placed in close proximity to the lock pin 77 provided on the underside of the ratchet member 67. In certain positions of the lock cylinder 135, the pawl 161 will be free of the lock pin 77, but when the lock cylinder is in the L or "LOCK" position, that pawl will engage the lock pin 77 and prevent movement of the ratchet member 77 and thus use of

the dial 11. When the lock cylinder is in the "F" or "FREE" position, the pawl 161 engages the curved lower edge of the cam 63 and lifts the ratchet holder 43 to disengage the teeth 71 from the two ratchets.

In use of the telephone handset with the security device fitted to it, the telephone handpiece 4 will rest on the canceller lever 47 as shown in FIG. 3 (the security cover 125 being in place) so that the buttons 5 and 7 are depressed and the telephone set is enabled to receive any incoming calls. To make an outgoing call, the user lifts the handpiece 4, so permitting the spring which acts on the ratchet holder 43 to draw the holder downwards and raising the canceller lever 47 free of the buttons 5 and 7, to enable the switches inside the telephone body 1 for the making of a call. The user then commences to dial his desired number. Since the lug 111 is close to the "4" fingerhole 13, and since that is the hole nearest the actuator 91, even if the first numeral "1" is dialed the lug 11 must pass the lug 95 of the ratchet actuator 91 and so cause an operative partial rotation of the disc of the actuator in an anticlockwise direction. It will be seen that such an action will take place as each digit is dialed, and each such action will be by the action of the ratchet 101A and 101B on the teeth 71 of the ratchet member 67 cause the ratchet member to step one tooth in a clockwise direction. The pawl 81 will hold the ratchet member in the stepped position.

After the ratchet member 67 has stepped through eight teeth, it engages the stop 61, so that upon a user trying to dial the ninth digit of a nine-digit series, forward movement of the dial 11 will be stopped positively by engagement of lug 101 with lug 95. Lug 95 cannot yield to permit continued movement of the dial 11, since ratchet 101 is held immovable by the ratchet member 67 which in turn is held against further movement by the stop 61.

It will be seen that a user attempting to dial "9" (to obtain connection to the outside telephone company equipment), then "1" (to obtain connection to the automatic direct distance dialing equipment) and then a seven-figure subscriber's number, is prevented from completing the call. On the other hand, when calling the PBX operator (dial "0"), or the local exchange (dial "9"), or another number on the PBX (dialing three or four digits only), although the ratchet member 67 will be stepped, it will not reach the stop 61.

In the case of any dialed call, or an abortive attempt to use the direct distance dialing equipment, when the handpiece 4 is replaced it will depress the cancelling lever 47, and the forward end of lever 41 then lift the ratchet holder 43 on its pivot pin 39 to raise the teeth 71 of the ratchet member out of engagement with the pawl 81. The ratchet member then returns automatically to its original position, ready for the use of the dial to dial another number.

The key which has been mentioned above enables certain members of the staff of an organization to make use of the direct distance dialing facility without recourse to the operator. Such a person could always dial "0," ask the operator to connect him to the "1" facility, and then carry on with dialing his seven figure subscriber's number, since he would then have dialed in all only eight digits. However, by inserting the key and turning it into alignment with the mark F he can

disenable the security device by lifting the ratchet holder 43 and thus disengaging the ratchet member 67 out of engagement with the pawl 81 and the ratchet 101.

It is to be noted that the key 137 can be removed only when it has been used either to set the pawl 161 to provide "restricted" dialing facility, or to set the pawl so that it engages the pin 77 on the ratchet member and so prevent all use of the dial 11. Thus the authorised person cannot accidentally leave the telephone handset in the "free use" position as long as he removes his key.

The security device described above has been applied to a desk-type telephone, but obviously the device can readily be modified to suit say a wall-type or "hook" telephone. In such a telephone, the two buttons 5 and 7 are replaced with a pivoted cantilever arm forked to accept and hold the telephone handpiece, which hangs down from the forked arm or "hook." The cantilever arm is arranged to actuate switches inside the body of the telephone set to prepare the set for the reception of calls and for the making of calls.

It will be appreciated that any security device attracts the attention of persons who wilfully seek to disable it. It is important therefore that the security device be engineered in such a way that it is difficult if not impossible for it to be disabled without actual breakage of parts. Thus any bush and lug fitted to the dial must be fitted in a manner preventing its detachment. The fit of the security cover 121 to the base plate must be such that it is not possible for the insertion of any thin item such as a bent paper clip or other piece of wire to lift the ratchet carrier 43. The keyhole in the security cover for this reason is a potential source of weakness which must be guarded to prevent tampering. The use of a reasonably strong spring to hold the ratchet holder 43 down towards the base plate 21 prevents disabling of the security device merely by inverting the telephone set, which inversion otherwise would enable the ratchet holder by its own weight to move the ratchet member 67 out of engagement with the pawl 81. Furthermore, the use of say a steel security cover 121 and the use of non-magnetic material for the ratchet holder prevents use of a small but powerful magnet to disable the security device.

Since the object is to prevent clandestine use of the telephone handset to make unauthorized calls, in some parts of the device it may be more effective to use material which will break rather than bend. Thus the canceller lever 31 can be made of very stiff metal to prevent bending up the arms upwards to disable the device without operating the switch buttons 5 and 7, or it can be made of a brittle material which if so bent will break. It is difficult if not impossible to prevent misuse of the telephone handset, but it is possible to make misuse impossible without obvious damage to the parts.

As described above, the present invention finds a considerable application to telephone sets of a PBX system, but the use of the invention is not limited to such systems. Thus in an ordinary household having but the one telephone set, the security device can be applied to the telephone set to prevent children from using the direct distance dialing system to make other than local calls. In such an installation the parents can have a key to disable the security device whenever desired.

Another application of the invention is to apartment houses and the like in which no PBX is provided but in which the use of the telephone is to be restricted to the making of local calls, which are of course normally uncharged calls.

The proportions of the ratchet member 67 will determine the number of digits which can be dialed before the ratchet member engages the stop 61, and in the mass production of the security device it will be possible to provide several alternative ratchet members which can be used to restrict the number of digits which can be dialed to five, or seven, or any desired number. For the limitation of the use of the telephone set to inter-departmental use with an automatic private branch exchange, the number of permitted digits will depend upon the number of lines on the exchange.

I claim:

1. A security device suitable for use with a dial-type telephone set having a handpiece, a cradle in or on which the handpiece rests when not in use, and a rotary signalling dial, the device being adapted to restrict the use of the dial to the effective dialing of a series of digits no greater in number than a predetermined number, comprising:

- a. a base member adapted for securement to said telephone set;
- b. a member provided on said dial so as to extend outwardly from that dial;
- c. ratchet means carried by said base member;
- d. ratchet operating means arranged to cooperate with said member provided on said dial and, when actuated by that member, to move the ratchet means through a first predetermined distance;
- e. stop means arranged so that when the ratchet means has been moved through a second predetermined distance from a reset position further dialing movement of said dial in a clockwise direction is prevented;
- f. reset means carried by the base member and actuated automatically when said handpiece is restored to its cradle to return the ratchet means to its reset position;
- g. guard means arranged to prevent unauthorised disabling of the security device; and
- h. lock means which by application of a key can be set to permit either unrestricted use of the dial or restricted use only of the dial under control of the said stop means.

2. A security device according to claim 1, in which:
 - a. the ratchet means include a toothed segment movable by the ratchet operating means;
 - b. the ratchet means include a pivotally mounted pawl complementary to the said toothed segment; and
 - c. the reset means is arranged to effect relative lateral movement between the teeth of the seg-

ment and the pawl to free the toothed segment from the pawl for automatic return to the reset position.

3. A security device according to claim 2, in which:
 - a. the pawl is pivotally mounted on the base member;
 - b. the toothed segment is pivotally mounted on the base member; so that it can rock bodily to produce the said relative lateral movement between the teeth of the segment and the pawl; and
 - c. the reset means are arranged to rock the toothed segment on its pivot on the base member.
4. A security device according to claim 3, in which:
 - a. the telephone set is a desk-type set and the reset means comprises a reset lever pivotally mounted on the base member;
 - b. said lever includes a part positioned over the cradle or switch buttons of said desk-type telephone set; and
 - c. said lever is effective when depressed to effect the resetting of the toothed segment.
5. A security device according to claim 4, in which:
 - a. the reset lever is separate from the pivoted toothed segment; and
 - b. the reset lever includes a part which is effective upon replacement of the handpiece to rock the toothed segment to effect resetting.
6. A security device according to claim 1, in which said member provided on the said dial is an integral lug formed on that dial.
7. A security device according to claim 1, in which:
 - a. the member fixed to the said dial is in the form of a bush fitting inside one of the fingerholes of that dial;
 - b. the bush carries a lug extending beyond the periphery of the dial and
 - c. the lug is arranged during clockwise dialing movement of the dial to engage the ratchet means.
8. A security device according to claim 1, in which: the said lock means have three operating positions, namely
 - a. a first "restricted" position in which the security device is effective to limit the number of digits which can be dialed in an effective group by use of the said dial;
 - b. a second "free" position in which the said ratchet means is rendered ineffective and in which the dial can be used to dial any desired number of digits as an effective group; and
 - c. a third "locked" position in which the key operating the lock means can be removed and in which the said ratchet means are locked to prevent all use of said dial.
9. A security device according to claim 8, in which: said key is removable only when the lock means are in the "restricted" position and when the lock means are in the "locked" position.

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