Nov. 24, 1936. S. SEGAL 2,061,638

LOCK

Filed June 23, 1932

Fig. 1

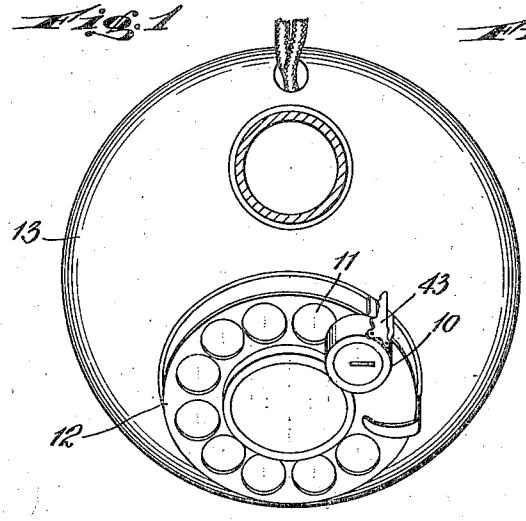


Fig. 2

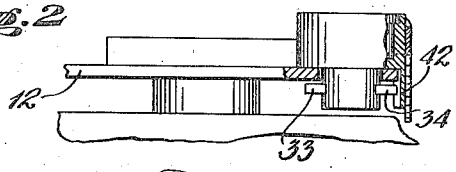


Fig. 3

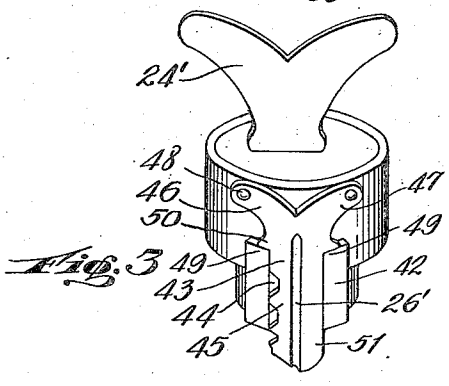


Fig. 4

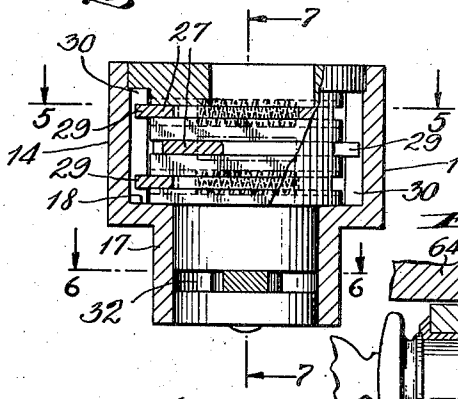


Fig. 5

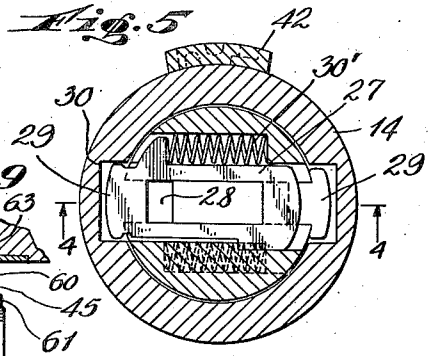


Fig. 9

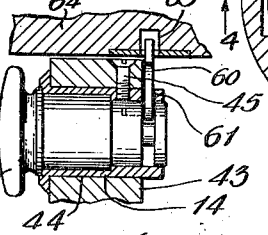


Fig. 7

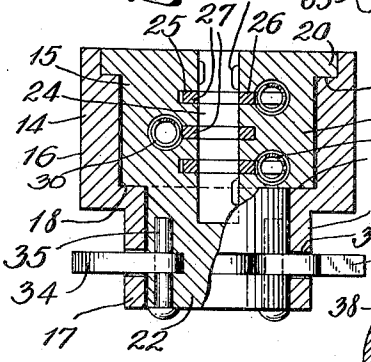


Fig. 10

Fig. 6

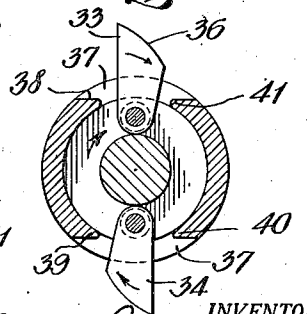
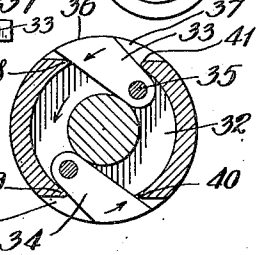


Fig. 8



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2,061,638

LOCK

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Application June 23, 1932, Serial No. 618,869

3 Claims. (Cl. 70—14)

The present invention has to do with locking devices of general application and more particularly relates to a functionally and structurally improved locking device having a slotted casing through which latch means may be extended for locking purposes upon actuating a key receiving barrel. In several aspects the locking device in accordance with the invention comprehends certain improvements although not exclusively upon the locking embodiment for reducing the range of selections on an impulse transmitting rotary dial of a telephone, which embodiment is disclosed in an application Serial No. 606,896 filed April 22, 1932, Patent No. 1,984,089, Dec. 11, 1934, and in which a jacket with a depending member is advantageously utilized to preclude effective rotary displacement thereof about its respective vertical axis during the manipulation of the key receiving barrel prior to obtaining the full range of selections on the dial. Although the invention is not limited to being merely an improvement upon the locking embodiment as disclosed in said application, in certain aspects it is an object of the present invention to provide a locking device particularly adapted to cut down the range of selections on the impulse transmitting rotary dial which for this purpose may be quickly attached within a finger opening thereof and which embodies suitable means for carrying an emergency duplicated key needed in cases where the locking device is fastened to the dial to prevent unauthorized use of the telephone for outgoing calls and where it becomes necessary that it be quickly removed to establish the full range of selections on the dial for calling a desired station. A broader object however comprehends the provision of a locking device in which the key receiving member or barrel includes one or more pivotally disposed fingers or latch means adapted to be swung within the limits of the casing if extended therefrom or extend the latch means as to overhang a portion of the casing, if within the limits thereof upon the manipulation of the key receiving member.

In another aspect of the invention the locking device may be utilized to lock slideable receptacles, as in bureaus, desks, tables, safe deposit boxes etc., which device for this purpose is secured in a relatively small opening in a wall of the receptacle and which may be operated to effect locking action upon actuating its key receiving barrel for swinging a single latch member into a recess of an adjacent wall above the receptacle but independent thereof.

Other objects, advantages and features are in part obvious and in part pointed out hereinafter and the invention aims further as above intimated, to improve generally and enhance the utility of the locking device of the types hereinfore alluded to and hereinafter more specificially described.

The invention accordingly comprises the features of construction, combination of elements, arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the application thereof will be indicated in the appended claims.

The present invention will be best understood from the following discussion of several typical structural embodiments, reference being had to the accompanying drawing in which:

Fig. 1 illustrates in perspective one form of locking device applied to a finger pull opening of a dial associated with an automatic telephone.

Fig. 2 is an elevational view partly in section of the locking device which is illustrated as mounted within an opening of the dial ring.

Fig. 3 is a view in perspective of the locking device showing an emergency key carried by its shell or casing and the parent key disposed in the key receiving member or barrel prior to turning the latter for extending the latch means.

Fig. 4 is a sectional view of the locking device taken along the line 4—4 of Fig. 5.

Fig. 5 is a section taken along the line 5—5 of Fig. 4.

Fig. 6 is a section taken along the line 6—6 of Fig. 4.

Fig. 7 is a vertical section along the line 7—7 of Fig. 4.

Fig. 8 is a section similar to Fig. 6 but illustrating the latch means within the limits of the casing or shell.

Fig. 9 illustrates another form of the invention applied to a sliding receptacle or the like and

Fig. 10 is an end view of Fig. 9 however with the latch means disassociated from the recess of a cooperative panel independent of the sliding receptacle.

In the form illustrated in Figs. 1 to 8 inclusive, the locking device, broadly denoted 10, is constructed to be applied to a finger pull aperture or opening as 11 of a rotary impulse transmitting dial or ring 12 associated with the base 13 of an automatic telephone. When disposed in a finger pull opening, the locking device cuts down the full range of impulse selections of the dial and although incoming calls may be re-

ceived, the dial is rendered ineffective for practical purposes in calling a distant station.

The locking device comprises essentially an outer jacket or casing 14 in which the key receiving barrel or cylinder generally designated 15 is appropriately mounted. As shown, casing 14 is a hollow unitary member having an enlarged upper cylindrical portion 16 from which depends a relatively reduced annulus 17, the upper portion 16 and the annulus being so interconnected as to form a shoulder 18 on which an intermediately disposed overhanging part 19 of the barrel or key receiving member 15 is seated.

According to the invention the key receiving member constitutes a plug which under certain conditions may be partly rotated relative to the casing and to this end, the plug comprises an upper overhanging part or flange 20, an intermediate cylindrical reduced part 21, and a further reduced cylindrical portion 22, the flange 20 being seated on the inside rabbeted portion or shoulder 23 of the casing, and the parts 21, 22 and 23 are portions of a unitary embodiment hereinbefore referred to as the plug or barrel.

The barrel is provided with a vertically disposed opening 24 for receiving the shank portion of a key as 24' and is further provided with several superposed pairs of alined channels 25 and 26, each alined pair being adapted to receive a plate tumbler broadly denoted 27.

As shown three pairs of alined channels have been provided to accommodate three plate tumblers but it is to be understood the invention is not limited to this number which may be decreased or increased depending upon the permutation desired.

Each tumbler 27 is in the form of a plate having a central opening 28 and a terminal extension as 29 which by reason of the action of an associated helicoidal spring 30' normally overhangs the plug and is urged into an adjacent vertically disposed slot or cut away portion 30 of the casing.

In the showing according to Fig. 4, the first and third tumblers have their left hand terminals 29 normally disposed in the left hand slot 30 of the casing and the middle tumbler has its terminal 29 normally projecting in the right hand slot 30 of the casing. If any of the tumblers has its terminal disposed in an adjacent slot as 30, the barrel is prevented from turning. The purpose of the key 24' is to so position the tumblers as to permit the barrel within the casing to be turned. With a view to achieving this result the several tumblers are provided with central openings as 28 of different lengths although their overall lengths are the same, which tumblers, due to the action of the shank portion of a suitable fitted key as 24', causes the several superposed but spaced tumblers to be moved within or substantially within the limits of the body of the plug, thus freeing the terminals 29 of the tumblers from respective slots 30 at the inner sides of the casing.

Where the shank portion of a key is disposed in the key receiving slot 24, the tumblers therefore do not prevent the turning of the plug upon the turning of the key. In cases where the shank portion of the key includes longitudinal grooves as 26', the sides of the key receiving slot 24 is provided with protuberances 31 which cooperate with the grooves of the shank to guide the latter when forced into the key receiving slot. If a key having a shank with flat faces be employed, the guide protuberance may be eliminated.

The reduced cylindrical portion 22 of the plug is provided with an annular channel or groove 32 within which the inner portions of the opposed latch members 33 and 34 are pivotally mounted on respective pins as 35 appropriately fastened to the plug. The outer portions of the latch members are slightly flared and embody a curved face 36 disposed in arc preferably coincident with circumferential outside face of the lower portion of the plug.

As illustrated the skirt or annular portion 17 is provided with opposed gaps or slots 37 which house respective flared portions of the pivoted latch members when the latter are in a nonlocking portion, as shown in Fig. 8.

Accordingly the wall of the annulus is therefore formed with nose portions or abutments, 38, 39, 40 and 41. These abutments facilitate to extend the latch members in a locking position to overhang the lower portion of the plug or conversely to fold or swing the latch members in a nonlocking position.

If a key 24' be disposed within the key receiving slot of the plug the latter is freed and may be rotated by turning of the key. At this point assume that the latch members are in a nonlocking position and that the tumbler carrying means or plug should be turned in a counterclockwise direction to extend the latch members or wings 33 and 34 from their position illustrated in Fig. 8 to the locking position exemplified in Figs. 2 and 6.

If therefore the key be turned the plug is also turned with respect to the casing although the latter is held against turning in a manner hereinafter disclosed.

Rotation of the plug in a counter clockwise direction as indicated by the arrow (see Fig. 8) by the key, also carries the latch members 33 and 34 in the same direction. Thus latch member 33 will abut nose 38 and latch member 34 will abut nose 40. Further rotation of the plug will therefore cause the latch members to swing into their locking position shown in Fig. 6.

When it is desired to close or fold the wings in nonlocking position, the key is rotated in a clockwise direction, which in turn also causes the plug to carry the latch member in a similar direction and hence the nose 41 facilitates to swing latch member 33 into its gap or opening 37 and nose 39 in a similar fashion operates to close latch member 34 and arrange the same in its associated gap.

Since it is necessary to hold the casing stationary when the plug is rotated, the casing may be provided with a depending lug generally designated 42 which overhangs the circumferential face of the dial and which prevents effective rotation of the locking device about its vertical axis when the key is turned to rotate the plug.

In the event, however, the locking device is secured to a wall 43 (see Fig. 9) of a sliding receptacle, such as of the type in desks, tables, chiffoniers, deposit boxes or the like, the casing thereof is disposed in a small cylindrical passageway 44 and therein held against rotation by an appropriately counter sunk fastening member 45 having its shank threaded into a side wall of the casing.

In the form according to Fig. 3, an emergency key 43, which is a duplication of the parent key 24', is secured to the outside face of the casing and has its shank portion disposed in a channel 44 in the depending lug 42, the sides of the channel preventing the shank 45 from being displaced in a lateral direction, while the arms 46 and 47 of the headed portion of the key are secured by pins

48 or the like to the casing to prevent the key from being displaced vertically and this action is supplemented by shoulders as 49 on which the stop lips 50 of the key are seated.

Although both arms of the headed portion of the key have been disclosed as secured to the casing, it is within the province of the invention to appropriately fasten just one of these arms to the casing. The end portions of the arms in which the pins 48 are arranged are preferably attenuated or otherwise weakened in order that the emergency key may be quickly ripped from the supporting pins. This result is achieved by grasping the free terminal 51 of shank 45, swinging the shank of the key towards the fastening pins 48, and bending the terminals of the arms back and forth until the key is free of the casing or alternatively suddenly tearing away the portion of the arms adjacent a fastening pin. In achieving a similar purpose the headed portion of the emergency key of course may be secured to the casing with a spot of solder or otherwise fastened thereto by a piece of soft wire or the like as is well understood.

In Fig. 2, the locking device is mounted on the dial 12 and secured in one of its finger pull perforations to prevent the unauthorized use of the telephone. If the parent key 24' be at a point removed from the telephone and there comes a time when an emergency call should be put through, the duplicated key carried by the depending lug may be quickly torn off and used to disengage the locking device from the dial.

The locking device illustrated in Figs. 9 and 10 includes a plug member of the same construction hereinbefore disclosed in connection with Figs. 1–8 inclusive. In Figs. 9 and 10, however, the tumbler carrying plug when actuated by its key moves but a single latch member 60 and its associated casing embodies only a single slot or gap 61 to facilitate the opening or folding of the latch member when the plug is turned and further to receive the same when moved in a closed non-locking position. In a locking position latch member 60 extends into recess 63 and thus prevents effective movement of the receptacle with respect to its adjacent panel 64. In a closed position, latch member 60 is free of the panel 64, and the receptacle may be moved relatively thereto by grasping knob or enlargement 65 carried by the plug, and sliding the receptacle forwardly of the panel. In some cases, recess 63 may be dispensed with, and the receptacle may be locked by disposing the single latch member directly behind an adjacent rear face of the panel.

According to the present disclosure the locking device has been specifically described and illustrated with a plug or barrel carrying spaced plate tumblers which are lined up in such fashion upon the insertion of a key within the plug as to permit rotation of the latter with respect to its casing. In carrying this function into effect the invention is not limited to spaced plate tumbler locks and it is within the province of the invention to have a suitable key operate and free a plug provided with pin tumblers or laminated plate tumblers or other equivalent tumbler means.

Since many changes can be made in the above methods of operation and many apparently widely different embodiments of the invention could be devised without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing should be interpreted as illustrative and not in a limiting sense.

I claim:

1. In a locking device, the combination of, a casing having a portion including opposed openings, a barrel rotatably disposed within said casing and having an annular groove, tumbler means to prevent rotation of said barrel relative to said casing, and opposed latch members each having an inner portion pivotally sustained in said groove, said barrel adapted to receive a key for operating said tumbler means to permit rotation thereof, an outer portion of each of said latch members coacting with said casing during rotation of said barrel in one direction to project through and beyond one of said openings.

2. In a locking device, the combination of, a casing having a portion including opposed openings, a barrel rotatably disposed within said casing and having a groove, tumbler means to prevent rotation of said barrel relative to said casing, and latch members each having an inner portion pivotally sustained in said groove, said barrel adapted to receive a key for operating said tumbler means to permit rotation thereof, the outer portions of said latch members during rotation of said barrel in one direction projecting through and beyond said openings, said outer portions of said latch members during rotation of said barrel in a counter direction cooperating with said casing to be confined within said openings.

3. In a locking device, the combination of, a casing having a portion including an opening, a rotatable barrel within said opening, tumbler means to prevent rotation of said barrel, the latter having a groove, and a latch member pivoted in said groove and having an outer portion projecting into said opening, said barrel adapted to receive a key for operating said tumbler means to permit rotation of said barrel to swing said outer portion through and beyond said opening.

SAMUEL SEGAL.