

(No Model.)

2 Sheets—Sheet 1.

J. M. DASHIELL, Jr.

COIN CONTROLLED AND COIN RETURN LOCK FOR TELEPHONES.

No. 517,445.

Patented Apr. 3, 1894.

Fig. 2.

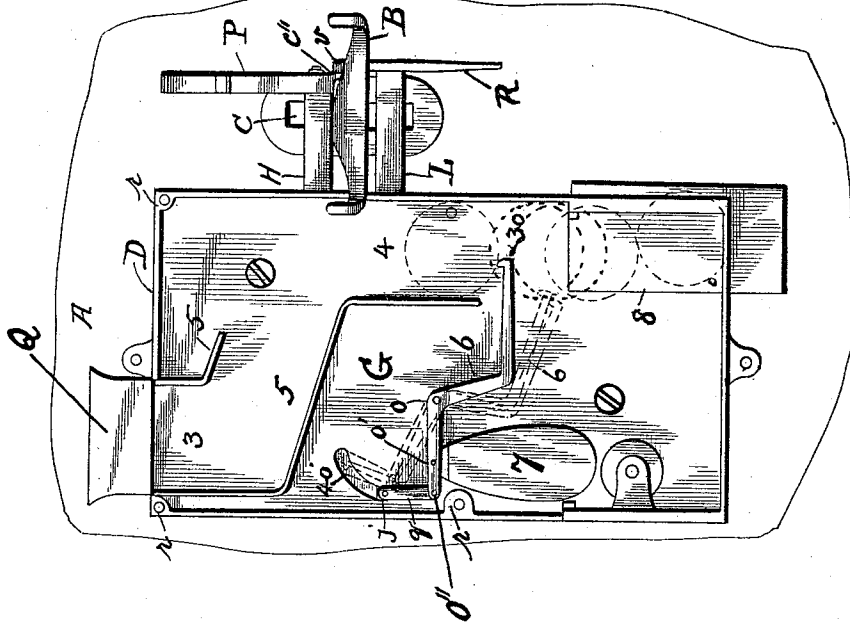
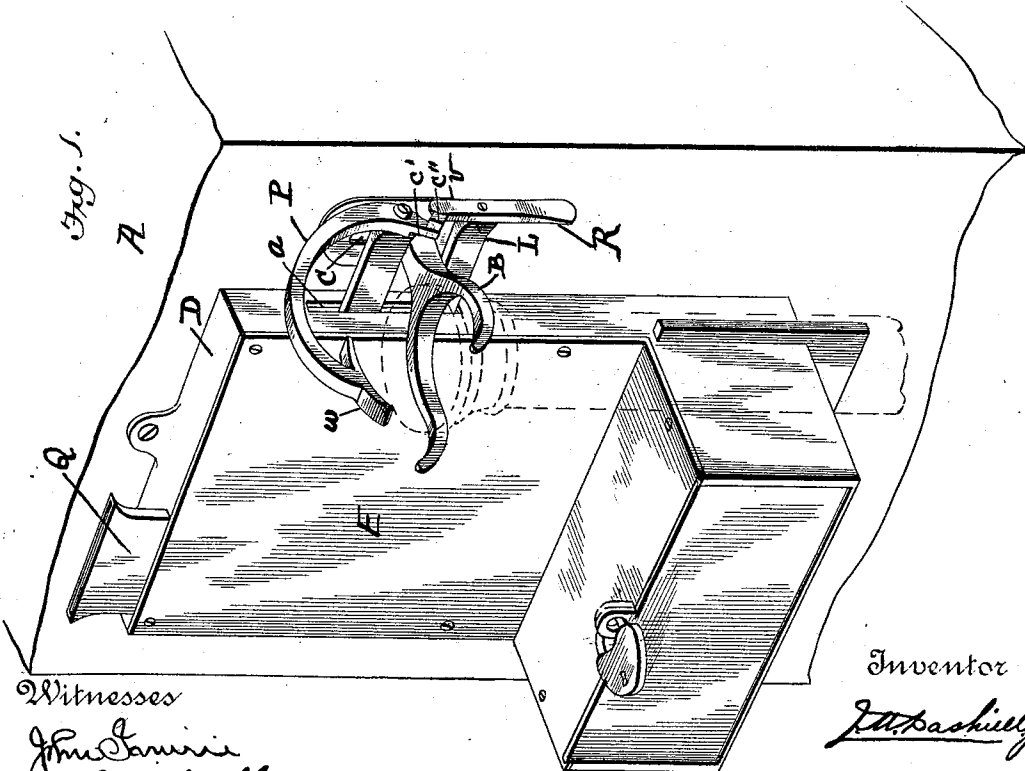


Fig. 1.



Witnesses

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(No Model.)

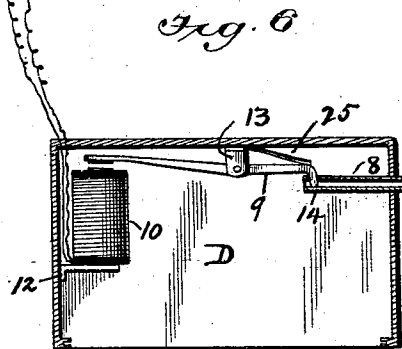
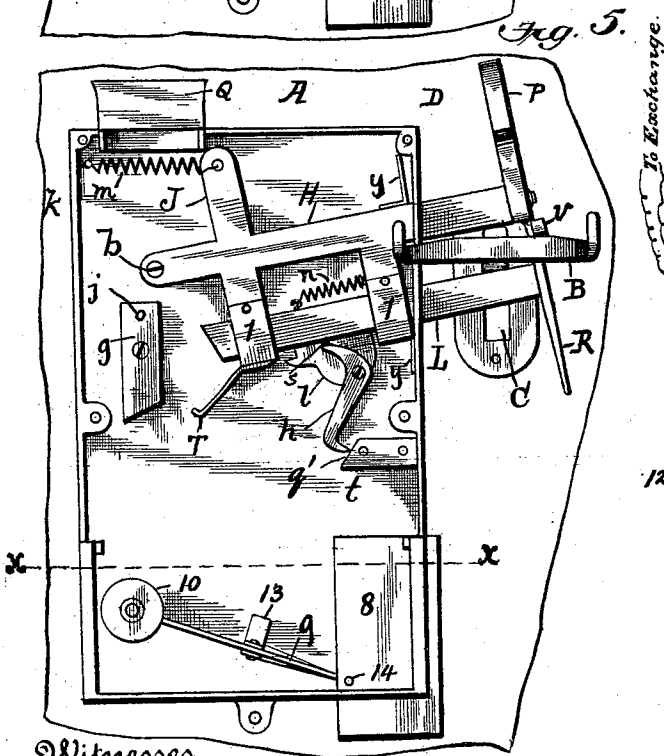
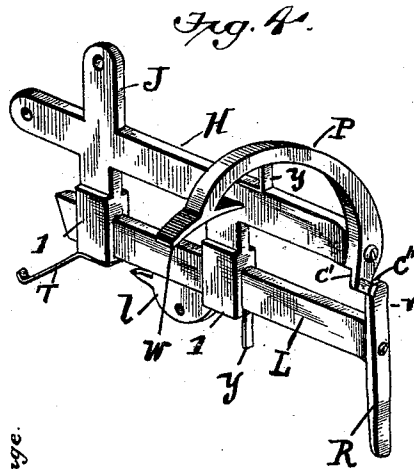
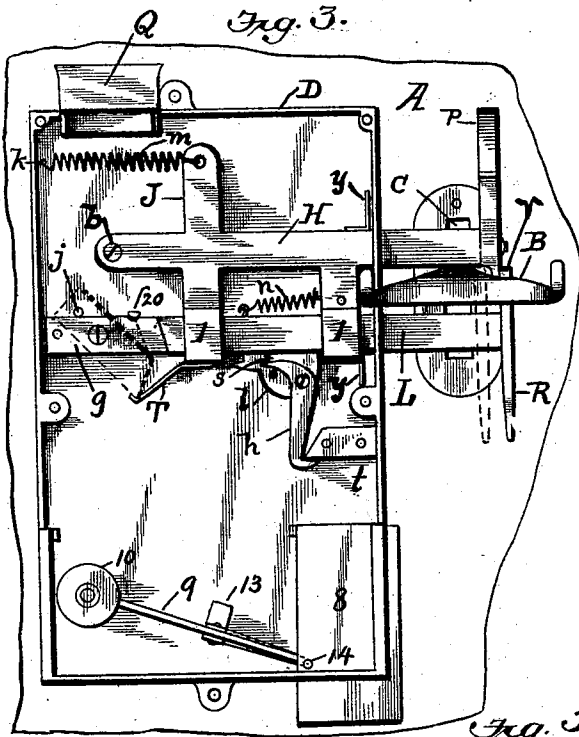
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Witnesses

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UNITED STATES PATENT OFFICE.

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COIN-CONTROLLED AND COIN-RETURN LOCK FOR TELEPHONES.

SPECIFICATION forming part of Letters Patent No. 517,445, dated April 3, 1894.

Application filed July 18, 1893. Serial No. 480,811. (No model.)

To all whom it may concern:

Be it known that I, JULIUS M. DASHIELL, Jr., a citizen of the United States, residing at Washington, in the District of Columbia, have invented a new and useful Improvement in Coin-Controlled and Coin-Return Locks for Telephones, of which the following is a specification.

The object of my invention is to provide a lock, applicable by its size and construction to any telephone box in ordinary use, the mechanism of the lock being controlled by some coin of definite value representing the existing toll charged for the use of the telephone in receiving and sending a message.

A further object of my invention is to provide a means whereby, when justice so demands, a person may have a coin returned to him after he has used the same to unlock the phone.

In the drawings—Figure 1 represents a perspective view of my improved locking device attached to the side of an ordinary telephone box. The box is shown partially, and the receiver of the phone is shown in dotted lines in its normal position upon the switch lever. Fig. 2 represents a front view of the device with the outside or front cover removed. Fig. 3 is a view similar to that shown in Fig. 2 with the inside plate or partition removed to show the locking mechanism in its normal and locked position. Fig. 4 is a perspective view of the locking lever supporting the push bar and guard. Fig. 5 is a view similar to that of Fig. 3, and shows the mechanism when unlocked. Fig. 6 is a horizontal section of the device taken on a line $x-x$ in Fig. 5.

A represents a portion of an ordinary telephone box where messages are sent and received. This box is provided with the usual switch lever B working vertically in the slot C.

Attached to the side of the telephone box, in any suitable manner, is a small metallic box D, containing the mechanism of the coin-controlled and coin return lock. The box D is provided with an outside or face cover E, and an inner plate or partition G that divides the inside of the box into two compartments. The plate G is screwed to the back plate of the box so that it may be readily removed.

This plate covers the mechanism proper of the locking device. The cover E is riveted or bolted to studs r situated in the corners and on the edge of the box frame.

Between the covers G and E are ways or guides 5 for the coin; and a lever 6—provided with a toe 30, a weight 7, and a link q —is also pivoted within this space at o .

A coin chute Q is provided at the top of the box and leads into the space or compartment between the covers G and E. This chute is calipered to exactly fit the coin used as the toll, and is made of a depth a little less than the diameter of the coin, so that any coin which may not pass through the chute can be easily removed. The weight 7 is pivoted to the lever 6 at o' , as is also a link q at o'' . This link q is also pivoted at j to a lug or projection that protrudes through a slot 40 in the plate G to a short lever g with which it is integral. A coin, after passing the chute Q, falls upon and rolls down the incline 5 into the way or chute 4 which is also calipered for the particular coin. Near the bottom of the way or chute 4 the coin strikes the toe 30 of the lever 6, and overcoming, by its inertia, the resistance of the weight 7, forces the lever 6 into the position shown by the upper set of dotted lines in Fig. 2. The short lever g (see Fig. 3) is thus moved or rotated from its position as shown by the full lines to that shown by the dotted lines. Its movement is here arrested by a plate or projection T attached to or integral with an extension 1 of the locking lever H, to be hereinafter referred to. This arrested movement of the lever g stops the downward movement of the toe 30 of the lever 6 and therefore that of the coin. The coin is thus held above the cash box and cannot farther descend until the toe 30 shall have reached the position shown by the lower dotted lines in Fig. 2, and this cannot take place until lever g is released from plate T.

The box D is provided with a vertical slot a in its edge, covered by slides $y y$ secured to or formed integral with the locking lever H, and through this slot extend the said lever H, and the push bar L. The locking lever H extends horizontally and rests upon the upper face of the switch lever of the telephone when in its lower or normal position. The push

bar L also extends horizontally when in its normal position, (see Figs. 1 and 3) and is in contact with and beneath the lower face of the switch lever. The lever H and bar L are preferably made rectangular in cross section, the depth being much greater than the width. They fit between the side of the phone box and the swell or curve of the switch lever. The lever H is pivoted to the back plate of the box D at *b*, and is provided with an upwardly extending arm J, and downwardly projecting arms 1, 1, which latter are provided with slots through which reciprocates the push bar L (Fig. 4). The upper arm J has attached to its end a spring *m*. The other end of this spring is secured at a point *k* to the edge of the box D. This spring is held in tension by the hook *h* being in engagement with the lug *t*, to be hereinafter referred to, and when the hook *h* is freed from its engagement with the lug *t* the spring *m* moves the lock lever H about its pivot *b*, in a vertical plane to the upper edge of the slot *a*.

In the locked or normal position of the device,—shown in Figs. 1 and 3,—the push bar L is in contact at its inner end with the end of the stop lever *g*. The pivot of this lever *g* is in the axial line of the push bar, so that a push on the bar cannot move the lever *g*. In other words the push bar cannot be operated until the lever *g* is turned to the position shown dotted in Fig. 3, and before explained.

Attached to, or formed integral with the bar L is a plate *l* to which is pivoted the hook or catch *h* adapted to engage the under side of a lug *t* integral with or attached to the edge of the box D. A small spring *s* is fitted between the upper arm of this hook and the under edge of the push bar, and serves to keep the point of the hook in a position to engage the lug *t*.

Above, and secured to the push bar L and to one of the projections 1, is a spring *n* which forces the push bar to its outer or normal position. This spring, as shown in Figs. 3 and 5, is in tension. On the outer end of the push bar L there is a button or thumb-piece R provided with an extension *v*.

On the outer end of the lock lever H is pivoted a peculiarly shaped device which I here term a "guard" P. This "guard" is of such shape that the preponderance of weight is at its upper end *w*. Its lower arm is provided with a cut out *c'* and a projection *c''* (see Figs. 1 and 4). In the normal or locked position of the mechanism, shown in Fig. 1, the end *w* of the guard P is above the top of the receiver of the telephone when hung upon the switch lever. The guard is held in this position by its lower lug *c''* resting against the arm *v* of the button or thumb-piece R, as shown. The receiver of the phone may now be removed and replaced at will.

The function and operation of this "guard" will appear more clearly in the following explanation of the operation of so much of the device as has been here described. As long

as the switch lever of the phone is down, and locked, no conversation can be had over the phone wire. "Exchange" may however be "rung up," and this ring may take place either before or after the receiver is removed from the switch lever, or before or after the unlocking coin or toll is dropped through the chute Q. The coin operates lever 6 which in turn revolves the stop lever *g* till its movement is arrested by the plate or projection T as before explained. The thumb piece or button R is now pressed and the push bar L forced in until the hook or catch *h* is free from engagement with the lug *t*. The receiver having been previously removed from the switch lever, and the hook *h* being now disengaged, the spring *m* moves the mechanism to the position shown in Fig. 5. The arm *v* of the thumb-piece R falls into the recess or cut out *c'* of the "guard." The lower arm of the guard being free from its position of rest upon the arm *v*, the preponderance of weight at *w* causes the guard to turn forward and downward until the lug *c''* comes into contact with the telephone box. In this position the lower arm of the guard will hold the arm *v* and consequently the push bar L, and prevent their return by the spring *n* to their normal position. The end *w* of the upper arm of the guard will now be in such a position as to offer an obstacle to the replacing of the receiver upon the switch lever of the phone. As long as the guard remains in this position, and holds the push bar, the switch lever may be drawn down by the hand, should it be necessary to "ring up" again. The drawing down of the switch lever will carry with it the lock lever and push bar, but their relative positions will remain unchanged; and the push bar being in, the hook *h* will merely slide on the inclined face of the lug *t* and will not engage the lug. Consequently the phone will not be locked. After the party is through using the phone he naturally seeks to replace the receiver as usual on the switch lever. To do this he must remove the end *w* of the guard. This is done by merely raising it, and such movement turns the lug *c''* away from the arm *v*, allowing the spring *n* to force the push bar outwardly to its normal position. The receiver is hung upon the switch lever, and its weight, overcoming the resistance of the spring *m*, draws down the switch lever, lock lever and push bar to their original or normal positions. The push bar being out the hook *h* will engage the lug *t* and lock the phone for the next comer. As soon as the lock lever revolves on its pivot when the push bar has been pressed in, the projection T partakes of this movement, releases the stop lever *g*, and allows the lever 6 to descend to the position shown by the lower dotted lines in Fig. 2. At this point the coin is free, and drops to the lower receptacle or cash box, and the weight 7 immediately returns the levers 6 and *g* to their first positions.

Thus far I have described the coin con-

trolled mechanism of my lock. I will now describe the coin return mechanism of the same. In Fig. 6 of the drawings is shown a horizontal section of the box D taken on the line $x-x$ of Fig. 5. In this view 8 represents a chute situated beneath the way or chute 4, and after the coin leaves the toe 30 of the lever 6, it falls into this chute 8. As shown by the views the edges of the chutes 4 and 8 are not in the same vertical line, the chute 8 being moved slightly to one side and projecting beyond the side of the box D. The coin, on entering the chute 8 falls to one side, as shown in Fig. 2. The downward movement of the coin is arrested by a projection on the end of the lever 9 to be hereinafter referred to. As long as a coin is at rest in the chute 8, another coin, which may be used to unlock the phone, will fall upon the first coin, striking it on one side of the vertical line through its center. The upper edge of the stationary coin will thus act as an inclined guide, and the descending coin will roll off, through a cut away portion of the edge of the chute 8, into the main compartment of the cash box. No matter how often the phone is used there will always be one coin held at rest in the chute 8, and it is this one coin which is returned to a party who, after paying his toll, fails to get the connections sought through the central office or "exchange."

Pivoted to a bracket 13 on the back of the box D, is a lever 9. One end of this lever is provided with a piece of soft iron and is in the field of an electromagnet 10 which is secured to a bracket 12 in a convenient place in the lower part of the box D. A projection on the other end of the lever 9 extends through a hole 14 in the sides of the chute 8. A spring 25, between the back of the box and the lever 9 tends to keep the projection always in the chute so that no coin can pass through the chute unless the projection of the lever 9 be withdrawn from the hole 14. Wires lead from the electromagnet 10 to the "exchange." When the operator at the central office fails to secure the wire sought by a party at the phone, and when it is only just to such party that his coin be returned to him, said operator sends a current of electricity through the coils of the electro-magnet 10. The lever 9, having the soft iron end thus attracted by the magnet, turns on its pivot, and releases the coin in the chute 8,—the projection of the lever being withdrawn from the holes 14 and consequently from the path of the coin. The coin will drop out of the chute 8 into any receptacle provided to catch it. On cutting off the current from the coils of the magnet 10, the spring 25 will return the lever 9 to its normal position.

I do not limit myself to the form of cash box shown. With the chute 8 leading outside the lock box, whatever form of box is employed, it is only necessary that the coin slot in its edge shall open into a cash recep-

tacle. I may use any old form of cash box to receive the coins which are designed to enter it.

Departures may be made from the forms and details of the levers, hooks and catches, springs, &c., as shown without departing from the spirit of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is as follows:

1. In a lock, adapted for use on a telephone box, a lever or bar pivoted to one face of the lock box, an operating push bar carried by the first named lever or bar, and extending outside the lock box, and means substantially as described for moving the whole about the pivot in the manner and for the purposes set forth.

2. In a telephone lock, a lever or bar pivoted to one side of the lock box, an operating bar carried by said lever or bar, and extending outside the lock box, and guiding lugs projecting from the first named lever or bar, through which lugs passes the operating bar, substantially as shown and described.

3. In a telephone lock, a lever or bar pivoted within the lock box, projections attached to or formed integral with said lever or bar, an operating means connected with one of said projections, and an operating push bar carried by the other projections and extending outside of the lock box, substantially as shown and described.

4. In a telephone lock a pivoted bar or lever resting upon the switch lever of the telephone box and extending into the lock box, a push bar carried by said lever and extending beneath the switch lever, a push button or thumb-piece on one end of said push bar, means for returning the push bar to its normal position after it has been operated, means carried by said push bar to hold it in its locked position, and means for moving the whole about the pivot of the first named lever or bar, substantially as shown and described.

5. In a telephone lock the combination of a lock lever or bar pivoted in the lock box, and carrying an operating push bar, a hook or catch carried by said push bar, and engaging a lug or projection on the box, a stop lever also pivoted within the lock box and having its pivot in axial line with the push bar, means for moving said stop lever, and means for turning the push bar and lock bar about the pivot of the latter, substantially as described.

6. In a telephone lock a lock lever or bar pivoted in the lock box, and means for turning said lever about its pivot, a push bar carried by said lock lever or bar, a hook or catch attached to the push bar and adapted to engage a lug attached to or formed integral with the lock box, a spring acting upon said hook to keep it normally in engagement with said lug or projection, a stop lever pivoted in axial line with the push bar, a projecting plate or stop attached to or formed integral with one

of the projecting arms of the lock lever and adapted to arrest the movement of the stop lever, and means, substantially as set forth for imparting motion to said stop lever.

5 7. In a telephone lock, a lock bar or lever pivoted in the lock box and extending over the switch lever of the phone, a push bar carried thereby, a pivoted guard on one end of the lock lever and provided with a depend-
10 ing arm, and a projection on the end of the push bar extending beneath and in contact with said depending arm of the guard, substantially as described.

8. In a telephone lock the lock lever carry-
15 ing an operating push rod, an arm carried by said push rod, a guard pivoted to the lock lever and comprising a curved lever with one of its arms resting upon the projection on the end of the guard, its other arm having a pre-
20 ponderance of weight at its end, a cut out, and a projecting lug for engagement with the projection of the push bar, a hook or catch carried by the push bar, and means for returning the push bar to its normal position
25 after being operated, substantially as described.

9. In a lock of the character described a pivoted lock bar adapted to move up and down with the switch lever of the phone, in
30 combination with a guard attached to the end of said lock bar, one end of said guard extending over the fork of the switch lever when the phone is locked, and adapted to offer an obstacle to the replacement of the receiver
35 upon the switch lever when the phone is unlocked, substantially as described.

10. In a lock of the character described, a guard for the switch lever of the phone, comprising in its structure a pivoted lever, hav-
40 ing a short arm provided with a cut away portion and projection, and its other arm bent and so formed that the preponderance of weight shall be at or near its extremity, substantially as set forth.

45 11. In a telephone lock comprising mechanism for locking or unlocking the switch lever of the phone, a guard, forming a part of, and mechanically connected to, the locking and unlocking mechanism, adapted to control the replacement of the receiver of the
50 phone upon its switch lever.

12. In a telephone lock, a coin operated lever, a lever pivoted within the box and in axial line with the push bar, connections be-
55 tween said lever and the coin operated lever, and means for arresting the movement of the coin operated lever before it has attained the limit of its movement to release the operating coin, substantially as set forth.

60 13. In a telephone lock a coin operated lever pivoted in the lock box and provided with an adjustable weight, a stop lever in line with the push bar, connections between the stop lever and the coin operated lever, and
65 means for arresting the movement of the stop lever before the operating coin has been released, the arrest of the stop lever and coin

operated lever being independent of any function of the push bar, substantially as described.

70 14. A telephone lock comprising the following instrumentalities, namely, a coin operated lever, a stop lever connected therewith, a push bar normally in contact with the end of said stop lever when the phone is locked, a
75 lock lever carrying said push bar and provided with a projecting plate or lug for arresting the movement of the coin operated and stop levers, and means for removing said arresting plate when the push bar is oper-
80 ated.

15. In a telephone lock, a lever adapted to be operated by a descending coin, a locking lever or bar pivoted within the lock box and carrying a push bar or operating bar, and
85 means connected with said locking lever or bar for arresting the descent of the operating coin before the same has moved the first named lever to its limiting position, substantially as shown and described.

90 16. In a telephone lock a push-bar having a locking hook or catch attached thereto, a stop lever pivoted in axial line with said push-bar, and operated by another lever which is in turn operated by a coin, as shown
95 and described.

17. In a telephone lock, two parallel bars or rods in contact with the upper and lower faces of the switch lever, respectively, one of said bars or rods being pivoted and supporting
100 the other bar or rod, means for moving the two bars or rods simultaneously about the pivot as the switch lever moves up or down, and means connected with one of said rods for locking the bars, substantially as shown
105 and described.

18. A telephone lock comprising a box adapted to be secured to the side of a telephone box, a cover or plate within said box dividing the inside into two compartments,
110 an entrance or chute for the operating coin leading into one of said compartments, guides within the same compartment adapted to guide the coin to a cash receptacle, a lever pivoted to the cover or plate and having one
115 end extending into the guideway for the coin, said end being provided with a projection or "toe" adapted to be struck by and to carry the descending coin, a lock lever or bar pivoted within the second compartment and sup-
120 porting a push bar or rod, a stop lever pivoted also in the second compartment, adapted to control the operation of the push bar or rod, and connections between said stop lever and the coin operated lever situated on the
125 opposite side of the separating cover or plate, substantially as shown and described.

19. In a lock of the character described a coin operated lever provided with an adjustable weight, means connected with said lever
130 for arresting its movement and stopping the descent of the coin before the phone is unlocked, a coin chute situated within the lock box and below the descending coin, said chute

having its vertical center line to one side of the vertical line through the coin center, and provided with a slot in its edge, leading to the cash box, and means in connection with said chute for arresting the descending coin after it has entered the chute, substantially as shown and described.

20. In a lock of the character described a coin operated lever, means for arresting the movement of said lever while being operated by the coin, a chute placed below and adapted to receive the descending coin on a further movement of the coin operated lever, a slot in the edge of said chute and leading into the cash box, means for arresting a coin after it has entered said chute, and means for releasing the coin, substantially as described.

21. In a coin operated lock for use on a telephone box, a vertically disposed guideway or chute, a second chute beneath and having its edges to one side of those of the first named chute, and a means connected with the lower chute for arresting the descent of a coin.

22. In a lock of the character described, a chute placed below the mechanism proper of the lock and adapted to receive a coin after it has operated the unlocking mechanism, means for arresting the descent of the coin in said chute, and means for releasing said coin, as shown and described.

23. In a lock of the character described, a vertically disposed guide way for the operating coin, a lever pivoted in the lock box and having one of its arms projecting into said guide way, a "toe" or projection on the end of said lever arm at the vertical center line of the guide way,—said "toe" adapted to support and be struck by the descending coin,—a second chute or guide way placed below the toe of the coin operated lever, the vertical edges of said lower chute being out of line with those of the upper chute, a slot in the edge of said lower chute leading into the cash box, a lever pivoted in the lock box and having a projection on one of its arms which pro-

jection extends through the lower chute in the path of a descending coin, and an electro magnet or magnets and electrical connections for operating said lever, substantially as described.

24. In a lock of the character described a coin receiving chute placed beneath the descending coin and adapted to receive the same after it has operated the unlocking mechanism, said chute leading to a point outside of the lock box, a slot cut through one edge of the chute and leading into a cash receptacle, a lever pivoted in the lock box and having a projection on one of its arms normally extending through a slot in the sides of the chute, a spring in connection with said lever for returning it to its normal position after it has been withdrawn from the chute, an electro magnet or magnets supported within the lock box and in juxtaposition to one end of the aforesaid lever, and wires or conductors leading out of the lock box for exciting said magnets when it is desired to operate the lever thereby and so release a coin from the lower chute, substantially as shown and described.

25. In a coin operated device, a chute for receiving a coin and holding the same from further descent, a slot cut through the edge of said chute, the lower edge of said slot being below the upper edge of an imprisoned coin, a chute situated above the first named chute having a slot cut through its edge for the path of the coin operated lever, the edges of said chutes being so disposed that they will not be in the same vertical line, as described, so that a coin descending from the upper chute will strike a coin which has previously entered the lower chute, and roll upon the edge of the imprisoned coin into the cash receptacle.

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Witnesses:

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