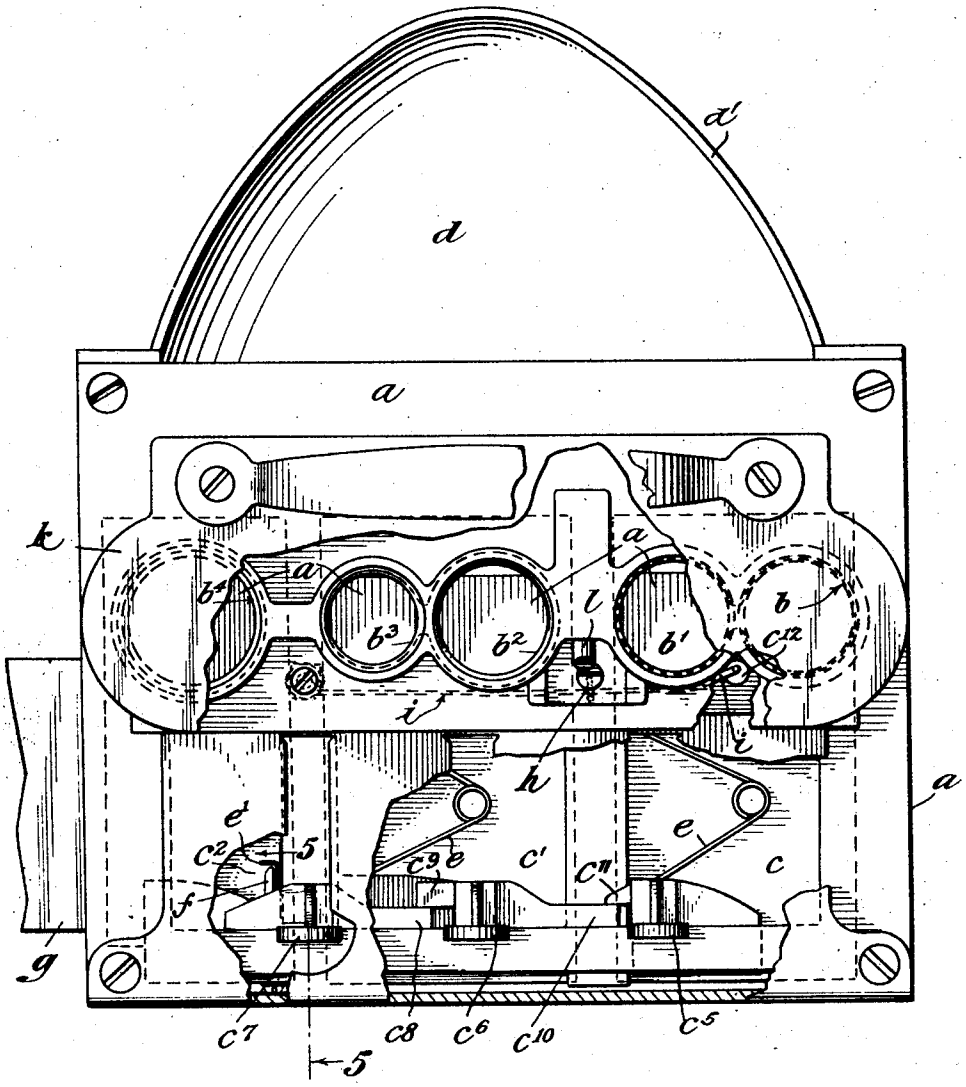
May 10, 1927. 1,627,562

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CHANGE MAKING DEVICE

Filed Jan. 13, 1925 3 Sheets-Sheet 1

Fig. 1.



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Fig. 2.

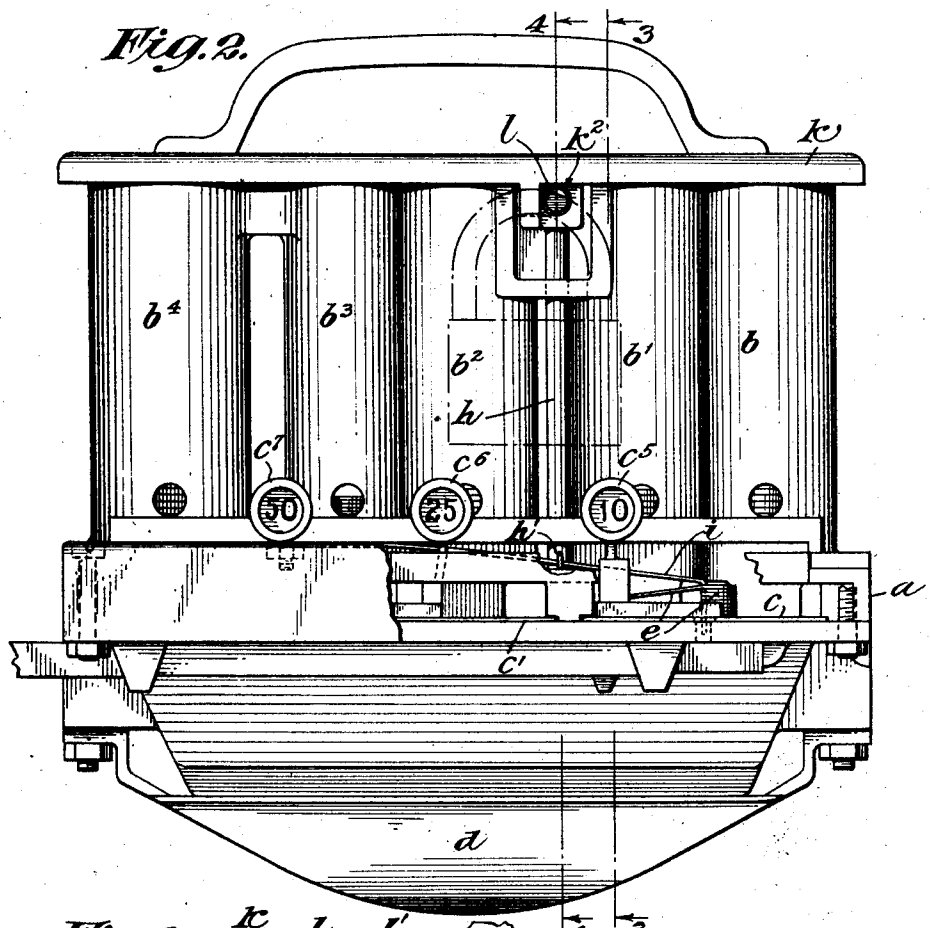
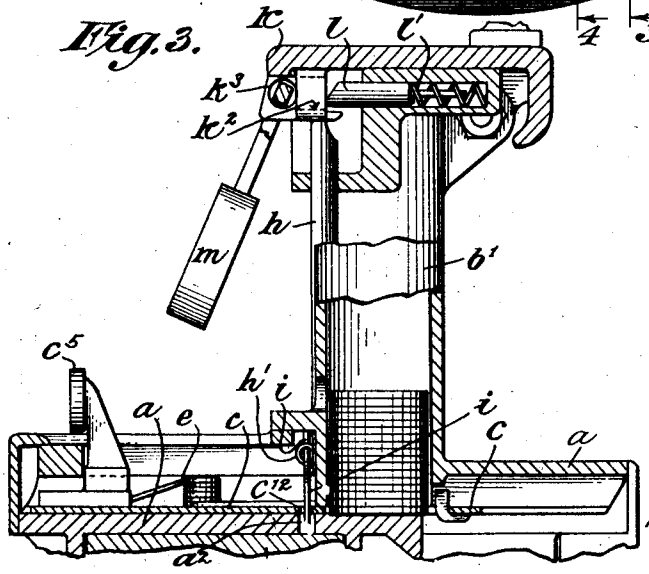


Fig. 3.



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Fig. 4.

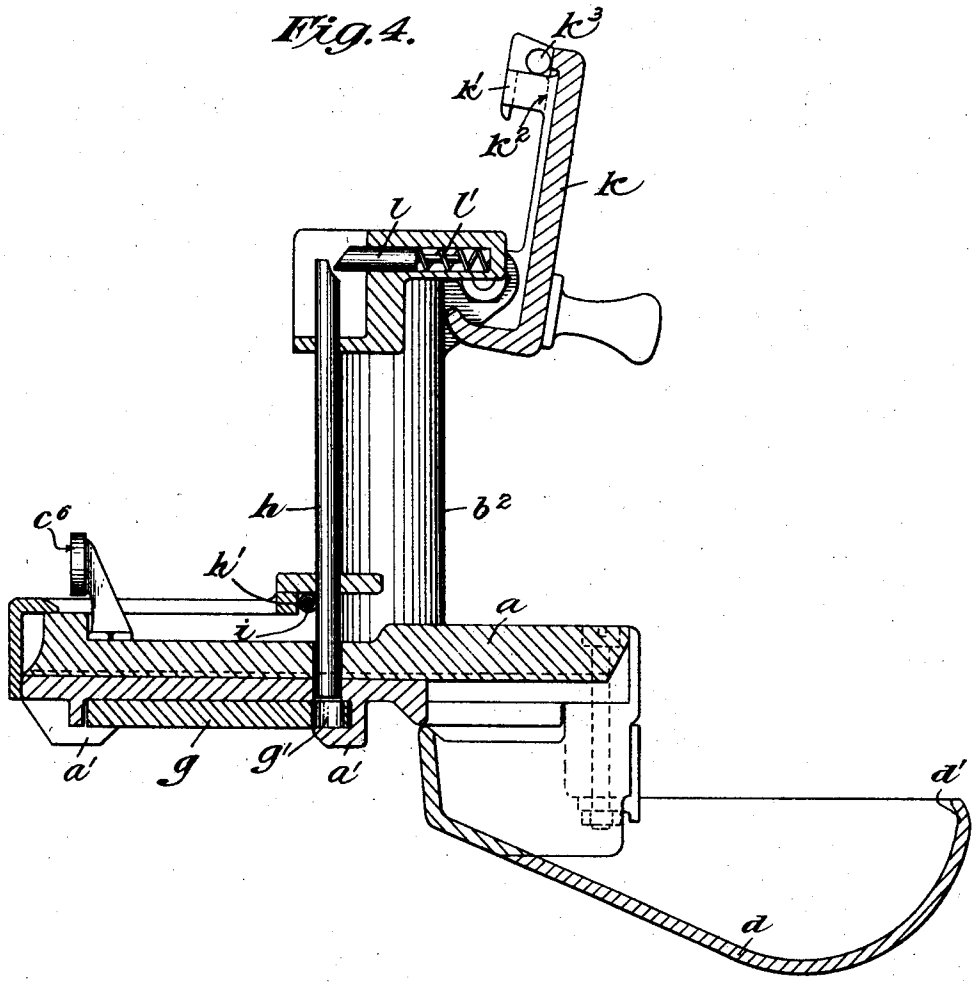


Fig. 6.

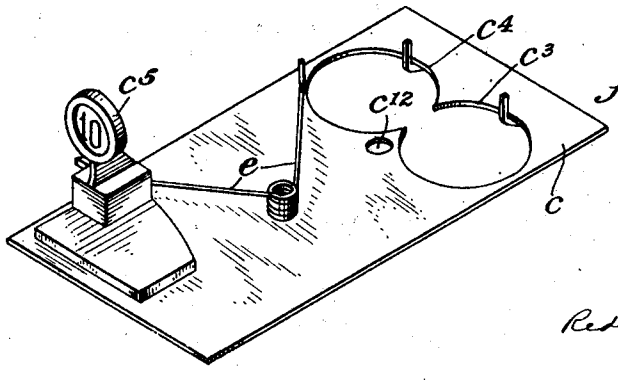
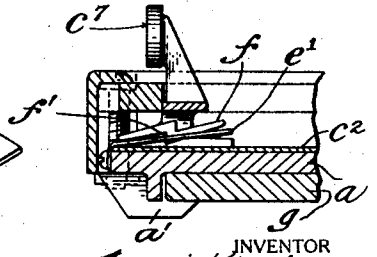


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRANCIS KINGSLEY, OF PELHAM MANOR, NEW YORK.

CHANGE-MAKING DEVICE.

Application filed January 13, 1925. Serial No. 2,077.

This invention relates to a simple and effective device for presenting change of a coin to the receiver in predetermined denominations through a single manipulation of the attendant. The improvements in their simplest form contemplate the making of change for three different amounts of money such as dimes, quarters and half dollars, the change in each instance being presented upon a single manipulation of an appropriate instrumentality by the operator. The principal object of the present invention is to accomplish the conditions briefly stated through means which are invariable in operation, quick in action, and independent, to the greatest possible degree, of the human equation for their successful operation. In accordance with this stated object selector slides control the discharge of coins from their stacks and themselves have a novel interrelation to the end that the slides controlling successively coins of higher denominations progressively pick up the slides controlling coins of lower denominations when moved. Still another object of the invention is to incorporate, in mechanism of the character described, safeguarding devices to prevent the surreptitious removal of the device from its base or coins therefrom in the temporary or permanent absence of the attendant. Such protective means are of two kinds, one being in the nature of a latch releasable readily by one accustomed to manipulating it and the other being in the nature of a positive lock. The latch itself, in the preferred form, locks the device on its base and holds the selector slides against movement. If desired, the position of the latch may be controlled by the cover for the coin tubes so that when the cover is closed the parts are locked.

For a more complete understanding of the invention reference is now to be had to the accompanying drawings illustrating a suitable embodiment of the improvements and in which:

Figure 1 is a view in plan of the change making device, parts being broken away to show some of the coin tubes and the selector slides.

Figure 2 is a view in elevation of the device shown in Figure 1, looking from the operator's side, parts being broken away in the interest of clearness.

Figure 3 is a view in transverse vertical section taken on the plane indicated by the line 3—3 of Figure 2 and looking in the direction of the arrows and showing clearly the relation of a selector slide to the stack of coins controlled by it and locking mechanism.

Figure 4 is a view somewhat similar to Figure 3 and taken on the plane indicated by the line 4—4 of Figure 3 and looking in the direction of the arrows but showing the cover open to release the locking devices and expose the coins.

Figure 5 is a fragmentary detailed sectional view, taken along the line 5—5 of Figure 1, of a simple detent for holding the selector slide in inoperative relation to the coins in case the operator has failed to make a full stroke, thereby failing (possibly) to discharge all of the coins and causing the total sum of change to be incorrect. In practice, only the 50-cent slide is provided with a detent, because it has been found that the tendency of an operator to make short strokes with the 25-cent and 10-cent slides is negligible. However, each slide could, if desired, be so equipped, making the machine literally follow the principle that, if one coin of a combination is discharged all must be discharged before any new coins can be picked up.

Figure 6 is a view in perspective of one of the slides for controlling coins from a plurality of tubes.

As the description proceeds it will be evident that the invention is not to be limited with respect to features of design, since one skilled in the art may construct the parts to operate in substantially the manner intended but having a somewhat modified relation or shape. For the purpose of this description the improvements will be described as incorporated in a simple form of change making device suitable for use by street-car conductors and adapted accordingly for the most usual conditions encountered where coins of predetermined denominations are to be presented quickly to the passenger for amounts of ten, twenty-five and fifty cents. For other purposes

coins constituting change for other amounts may be provided for without departing from the spirit of the invention.

In the illustrated design the device comprises generally a rigid base a on which are carried five upstanding coin tubes open at the top. Three of these tubes b, b', b^2, for instance, may be designed to receive stacks of five cent pieces, one of the tubes b^3 may be designed to receive a stack of dimes and the fifth tube b^4 to receive a stack of quarters. These tubes are disposed in a row. Immediately beneath the lower ends of the tubes are disposed three slides c, c', c^2, supported for sliding movement on the base a across the lower ends of the tubes. One of the slides c (Figure 6) has two openings c^3, c^4, therein, normally in line with two of the tubes b, b', which contain stacks of nickels. The adjoining slide c' also has two openings therein disposed, respectively, beneath one of the tubes b^2 for nickels and the tube b^3 for dimes. The third slide c^2 has a single opening therein disposed normally in line with the tube b^4 containing quarters. These slides may be projected forwardly out over a cup d which is carried with the base plate a and receives the coins as discharged for convenient presentation to the hand of the receiver. This cup d, it will be noted, is concave in section with steep side walls d' to co-operate with the fingers when the coins are withdrawn from the deepest part of the cup.

The slides c, c', c^2 have thumb pieces c^5, c^6, c^7, respectively, so that they may be projected forwardly when change is to be withdrawn from the tubes. Each of the slides, in addition, has a suitable spring e to hold it in its rearwardly projected position while permitting it to be moved forwardly for the ejection of coins. With the finger piece c^7 is carried a laterally extending flange c^8 against the front edge of which abuts a similar laterally extending flange c^9 carried on the thumb piece c^6 and, similarly, the thumb piece c^6 has a laterally projecting flange c^{10} at its opposite side against the front end of which bears a toe c^{11} on the thumb piece c^5. This relation of parts is such that the slide c may be projected forwardly under pressure on the thumb piece c^5 to eject two nickels simultaneously from the respective tubes b, b', and without disturbing the remaining slides. However, when the slide c' is projected forwardly by pressure on its thumb piece c^6, the flange c^{10}, being in engagement with the toe c^{11} on the thumb piece c^5 picks up the slide c and carries it forwardly simultaneously. The selection of coins resulting from the projection of the slide c' is, therefore, nickels from the tubes b, b', b^2 and a dime from the tube b^3 thereby presenting at a single operation a quarter in change. Forward projection of the slide c^2 results in this slide picking up the slide c' by engagement of the flanges c^8, c^9, and simultaneous projection in the manner above described of the slide c. The change discharged then comprises three nickels from the tubes b, b', b^2, a dime from the tube b^3 and a quarter from the tube b^4, making fifty cents in all by a single movement of the slide c^2. The springs e, it is obvious, will return the slides to normal position when they are relieved of pressure of the thumb.

From this description the simplicity and certainty of the improved device will be apparent, two of the selector slides upon movement controlling a plurality of stacks of coins either of the same or of different denominations and the slides controlling coins of higher denominations progressively pick up and actuate slides controlling the coins of lower denominations. The human equation is eliminated to the greatest possible degree since the thumb pieces bear appropriate legends for change of the amount required and the operator need perform no other act than selection of the appropriate thumb piece and thumb pressure thereon. The receiver readily extracts the coins from the cup d.

The latch indicated in Figure 5 is one which may be associated with a slide c^2 and serve to hold that slide with the other slides in inoperative relation to the coins in case the operator fails to make a full stroke and thereby possibly fails to clear all the coins belonging to that discharge. In other words he is compelled always to make full strokes. Subsequent release is readily effected by first projecting the slide c^2 forwardly, thus completing the full stroke, and then releasing it. The detent e', which may be in the form of a resilient element, normally rides under the fixed latch piece f which moves with the slide c^2 when the latter is projected forwardly. This latch piece is shouldered as at f' so that if movement of the slide c^2 is discontinued at a time when the detent e' engages the shoulder f' the slide c^2 with the other interlocked slides will be held against rearward movement. If now the slide c^2 is moved forwardly until the detent e' rides off the tail of the latch piece f, rearward movement of the slide c^2 will not be interfered with since the detent e' will ride over the upwardly inclined top surface of the latch piece until the slide is in its extreme rearward position where the detent e' passes off the front end of the latch piece and the parts resume the relation shown in Figure 5. The same plan of operation follows in case the slides are started forward before the full stroke to the rear has been completed and, possibly, before all coins have been picked up. In this case the detent (which will be riding on top of the latch piece) will

catch on the upper tooth as the slide is moved forward, and the forward movement will be stopped at about half stroke, preventing any coins from being discharged, therefore, until the slides have been moved rearwardly to such a point that coins from all tubes must surely have been engaged by all slides, the operator is prevented from discharging any coins.

A second general object of the invention is to associate with a device of the character described protective features whereby the entire unit may be locked on its support and the parts may be secured so that surreptitious removal of the coins is prevented. Under the conditions of use found in street-car operation it might be that the conductor would be obliged to leave his station temporarily or, under some circumstances, for a relatively long period of time. In either event it is desirable to make it impracticable or impossible for anyone to steal the device or withdraw the coins. In the preferred embodiment the base a is shown as provided with undercut noses a' adapted to engage the underside of a fixed plate g by which the entire device is supported when slid onto the plate by an endwise movement as will be clear. A locking rod h is supported alongside of the coin tubes and extends downwardly through the base a and may enter an opening g' in the plate g when the parts are properly assembled. Normally, the rod h is held out of the opening g' in the plate g by means of a spring i fastened to some part of the device and engaging the rod as through an eye h' carried thereon. The free end of the spring i is formed so as to normally lie immediately over an opening c^{12} in the plate c and to be movable downwardly through said opening into an aligned opening a^2 in the base a. The effect of this relation of parts is that if the rod h be moved downwardly against the action of the spring i it locks the base a to the plate g and simultaneously moves the end of the spring i into the openings c^{12}, a^2, so as to lock the slide c against forward projection. Since all three slides c, c', c^2, are interengaged in the manner hereinbefore described all of them are thereby locked. When the operator is in attendance it is unnecessary to have any of the parts locked and at that time the coins within the tubes may be exposed since there is no danger of their surreptitious removal. However, for the greatest protection these coin tubes should be covered at such times as the locking devices are employed. Accordingly, the tubes are provided with a single hinged cover k which may be closed down over them at one movement and this cover is formed with a nose k' adapted to engage the upper end of the rod h and depress it for the purpose described. A detent for the cover is indicated at l and its spring at l', the relation of the detent being such that when the cover k is closed down its end will be projected forwardly into engagement with the opening k^2 in the nose k'. Contrariwise, when the detent l is forced out of engagement with the nose k' the cover may be thrown back. When the cover is closed and the parts thereby locked some protection is afforded as during the temporary absence of the attendant since the cover may not be unlatched by one who is not familiar with the arrangement and location of the detent l and has not available some sort of implement which may be introduced through the opening k^2 in the nose k' to force back the detent l sufficiently to release the cover. For greater and more permanent protection, however, the opening k^2 in the nose k' may be blanketed by securing a suitable lock such as a pad-lock m on the nose k' through an opening k^3 therein so disposed with relation to the opening k^2 that the bolt of the pad-lock will overlie said opening as indicated clearly in dotted lines in Figure 2. With the parts in this relation it is evident that the device may not be removed from its support g nor any coins removed separately from the respective tubes until and unless the pad-lock m is removed to permit manipulation of the detent l in the manner described. On the other hand, if the device is first removed from the support g and the cover k then closed and the pad-lock applied, as illustrated, it may be carried about and left in intended places without fear of any division of responsibility for the coins contained therein.

As emphasized at the outset, provision for coins of different denominations and for change of different amounts may be made without departing from the spirit of the invention and the elements may be modified in form and size without changing the principle of operation.

What I claim is:

1. In a change making device, in combination with a plurality of coin containers, means to discharge the coins in predetermined denominations and means jointly to lock said coin discharge means and to lock the change making device to its support, said discharge locking means serving to oppose yieldingly locking movement.

2. In a coin changing device, a support therefor, a plurality of containers for coins, means to eject the coins selectively, a cover for said containers and means movable by the cover upon closing to lock said coin ejecting means and to lock said coin changing device to its support.

3. In a coin changing device, a support therefor, a plurality of containers for coins, means to eject the coins selectively, a cover for said containers and a bolt movable by

the cover upon closing to lock said coin ejecting means and to lock said coin changing device to its support.

4. In a coin changing device, a support therefor, a plurality of containers for coins, means to eject the coins selectively, a cover for said containers and a bolt movable by the cover upon closing to lock said coin ejecting means and to lock said coin changing device to its support and positive locking means to secure the cover in closed position.

This specification signed this 5 day of January A. D. 1925.

FRANCIS KINGSLEY.