R. COOK.

TOLLING MACHINE.

APPLICATION FILED MAR. 26, 1918.

1,291,416.

Patented Jan. 14, 1919.

4 SHEETS—SHEET 1.

FIG. 1.

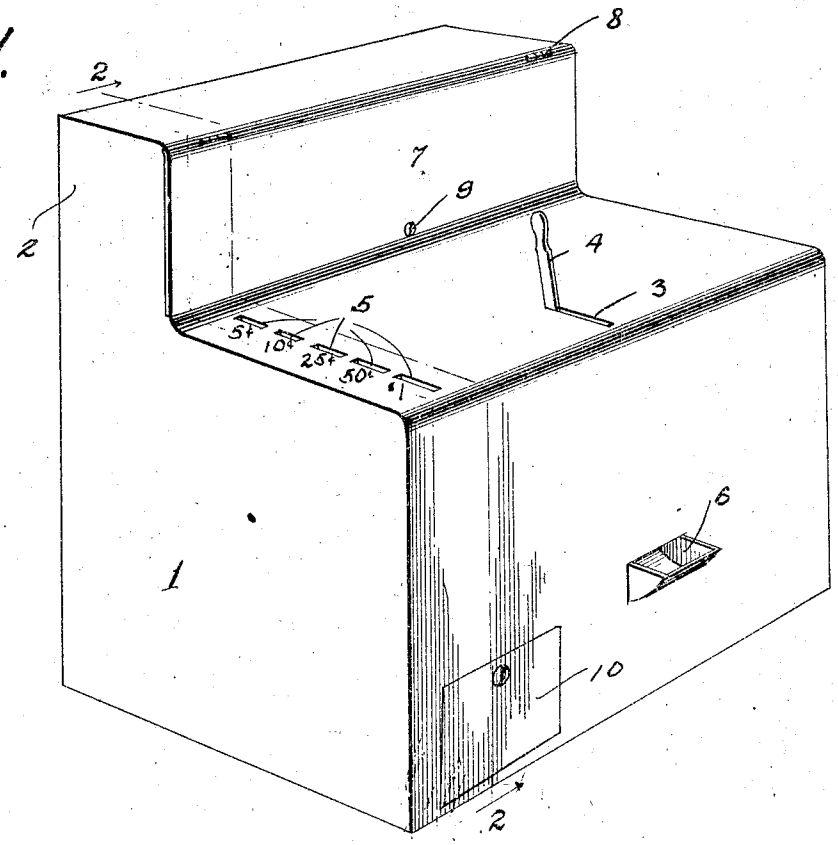


FIG. 10

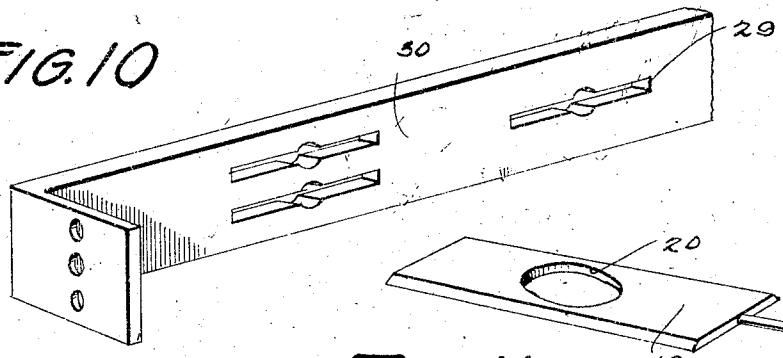


FIG. 11

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4 SHEETS—SHEET 2.

FIG. 7

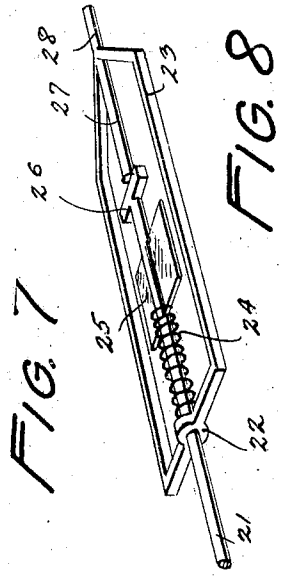


FIG. 8

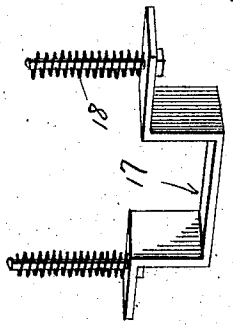


FIG. 9.

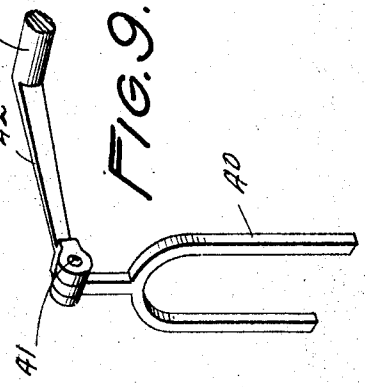
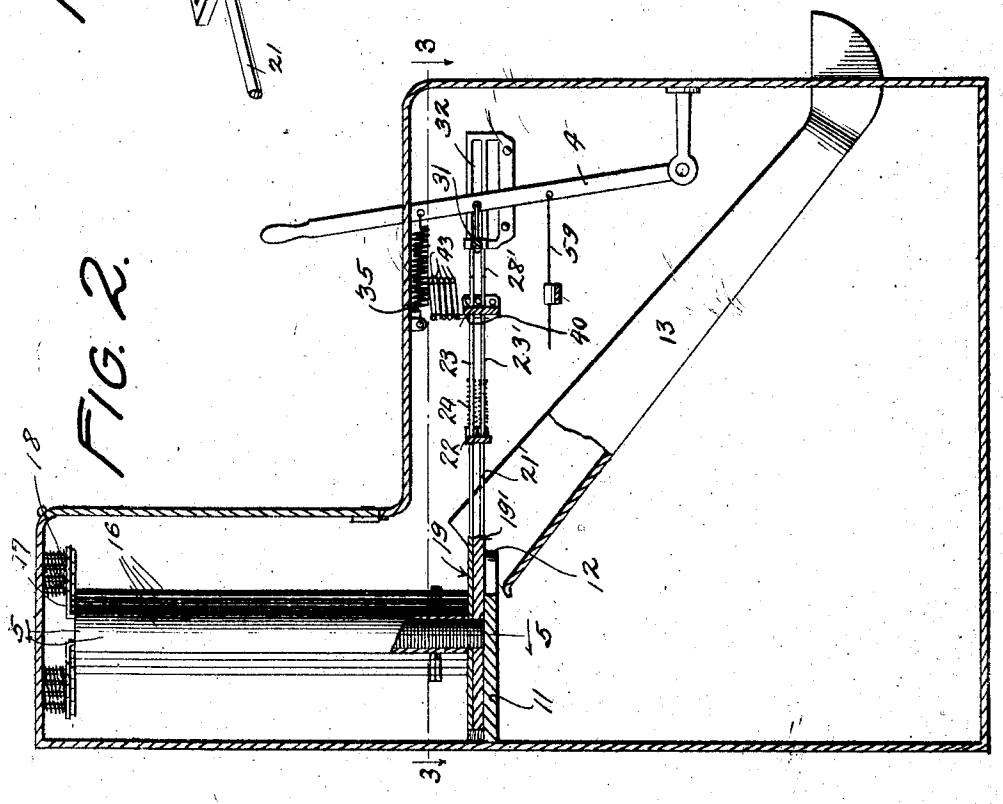


FIG. 2.



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4 SHEETS—SHEET 3.

FIG. 4

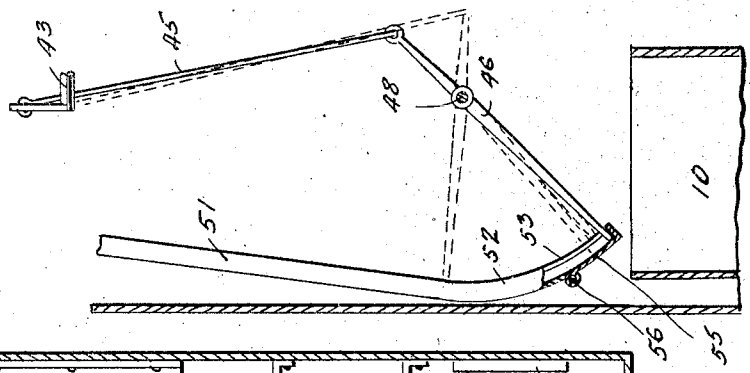
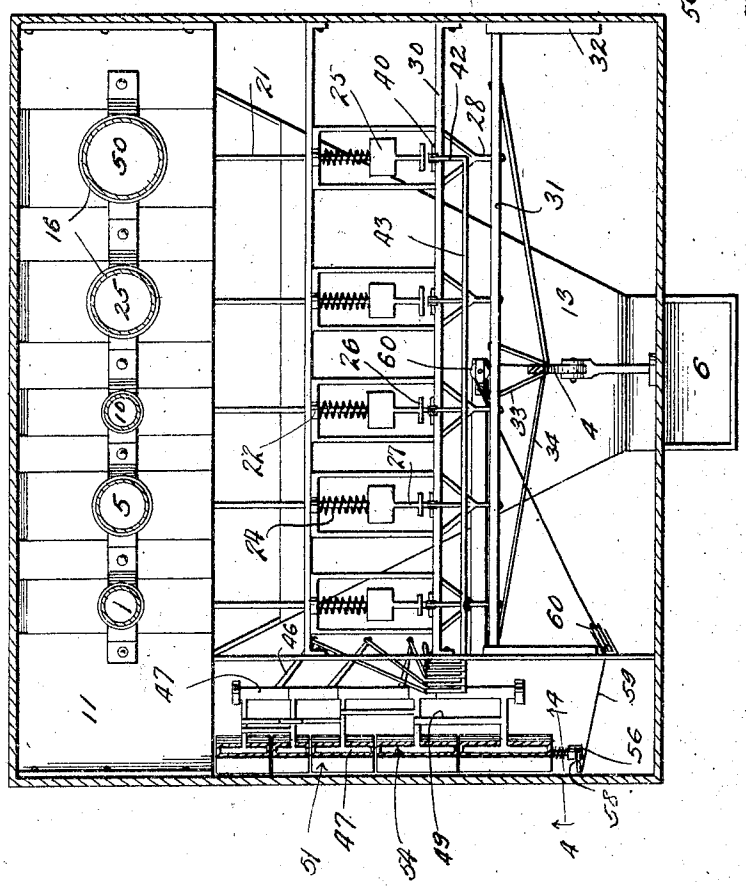


FIG. 3.



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4 SHEETS—SHEET 4.

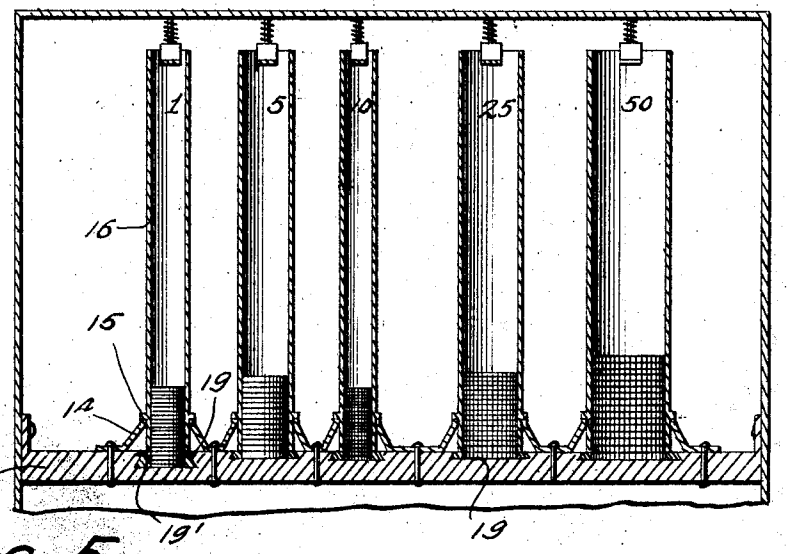


FIG. 5.

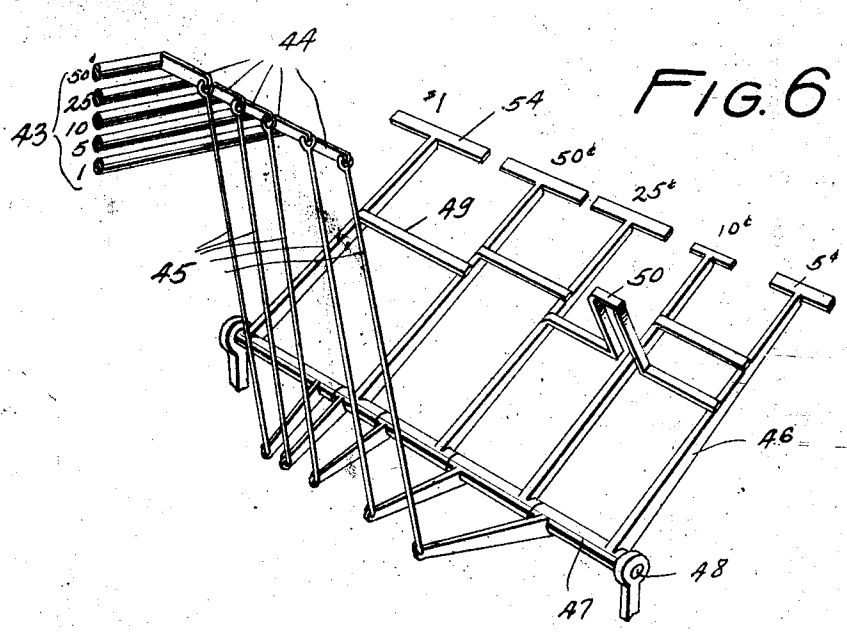


FIG. 6

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UNITED STATES PATENT OFFICE.

ROY COOK, OF MILLPORT, ALABAMA.

TOLLING-MACHINE.

1,291,416. Specification of Letters Patent. Patented Jan. 14, 1919.

Application filed March 26, 1918. Serial No. 224,823.

To all whom it may concern:

Be it known that I, ROY COOK, a citizen of the United States, residing at Millport, in the county of Lamar and State of Alabama, have invented certain new and useful Improvements in Tolling-Machines, of which the following is a specification.

This invention relates to coin handling, and more especially to change makers; and the object of the same is to produce a machine which will take a certain toll from each user by accepting a coin from him and returning change. As illustrated and described, the toll on small coins is one cent and the toll on larger coins is two cents, but this can be altered if desired.

The machine is, in effect, a money changer; but for the toll retained, it is quite possible that service could be rendered or goods or articles delivered. As a suggestion I might say that, whereas the device herewith is shown capable of changing any coin up to one dollar inclusive, it might be made on a smaller scale. Also other modifications and elaborations are possible within the spirit of my invention, as will be understood. The following specification and claims set forth one embodiment of the idea, and reference is made to the accompanying drawings, wherein:—

Figure 1 is a perspective view of the machine entire,

Fig. 2 is a vertical section on an enlarged scale taken on the line 2—2 of Fig. 1,

Fig. 3 a horizontal section on the line 3—3 of Fig. 2,

Fig. 4 a sectional detail taken on about the line 4—4 of Fig. 3, and

Fig. 5 is a vertical section on the line 5—5 of Fig. 2,

Fig. 6 is a perspective view of the group of key levers and associated parts,

Fig. 7 is a perspective view of one yoke connecting a rod and stem, and the parts associated therewith,

Fig. 8 is a perspective detail of one hopper fastener,

Fig. 9 is a perspective view of a key,

Fig. 10 is a perspective view of a portion of the main cross bar,

Fig. 11 is a perspective view of one slide.

The casing of this machine comprises a base 1 from whose rear portion rises an extension constituting a hopper chamber 2, the whole presenting about the appearance shown in Fig. 1. Through a slot 3 in the top of the base projects a main lever or prime mover 4 adapted to be swung forward by the operator's hand; and, as above suggested, the movement of this lever may perform other work without departing from the spirit of this invention. At one end the top of the base is provided with a series of coin slots 5 into which are inserted the coins to be changed, and the change is delivered to the operator by means of a receptacle 6 from which he picks it in a manner which will be clear. This casing as a whole may be mounted upon a standard or table, it may form part of another machine, or it may be secured against a wall or other upright. Its size, shape, proportion, material, and features of ornamentation are unimportant, and it is simply the housing for the mechanism yet to be described. It should have a panel 7 hinged at 8 and preferably locked at 9 so that access may be gained to the interior for the purpose of inserting the hoppers filled with change, and it may have a normally locked drawer 10 which from time to time can be withdrawn for removing the coins which have been changed. Otherwise we are not concerned with the structure of the casing except that it acts as a support for other parts.

Across the interior of the casing at the bottom of the hopper chamber 2 is secured a shelf 11 having in its front edge a series of notches 12 through which the change is dropped into a chute 13 leading forward and downward to the receptacle 6, and the shelf carries a series of ring-shaped supports 14 as best seen in Fig. 5. Upon each of these supports rest a coller 15 surrounding the lower portion of an upright tubular hopper 16, the upper end of the hopper when in place being held by a fastener 17 mounted on springs 18 as best seen in Fig. 8. These hoppers are tubes of appropriate sizes respectively to receive pennies, nickels, dimes, quarters, and half dollars; and for the purpose of making the matter clear I have indicated on the hoppers the denominations of the respective coins. The latter are retained within the hoppers by slides 19 movably mounted in channels across the upper face of the shelf 11, each slide having an opening 20 of exactly the proper size and disposition

to register with the bore of the hopper when the slide is pushed to the rear; whereas when the slide is drawn forward by mechanism yet to be described, this opening carries a coin or coins along over the shelf and drops it or them through the notch 12 into the chute 13, after which the slide is returned to its normal position for another coin or coins from the hopper.

The slides are all operated by mechanism of the same structure, but these mechanisms are tripped in a manner yet to be described. Leading forward from each slide 19 is a stem 21 which passes loosely through an eye 22 at the rear end of a yoke 23 as best seen in Fig. 7. The stem then passes through a coiled expansive spring 24, forward of which it carries a plate or shelf 25, and forward of this in turn it has an enlargement or head 26 adapted to co-act with a key yet to be described. Forward of this head 26 in turn is a tongue 27 standing within the yoke 23 and forming the rear extremity of a rod 28 which constitutes the shank of said yoke; and these parts are supported and guided within a slot 29 in a main cross bar 30 within the casing, the cross bar being best seen in Fig. 10. The several stems are connected with a cross head 31 slidably mounted in guides 32 in the ends of the casing as best seen in Fig. 3, and this cross head is connected by braces 33 and 34 with the main lever 4. Therefore when the latter is drawn forward against the tension of the spring 35 as best seen in Fig. 2, the cross head 31 causes the forward movement of all the rods 28 and all the yokes 23 whereas only such stems 21 may move forward as have no obstructions or keys in front of their heads 26. Consequently the selective forward movement of the stems 21 and their slides 19 depends upon the selection of the keys which are raised out of the path of the heads 26. For example, if the keys alined with the ten cent and twenty five cent hoppers were raised, forward movement of the main lever 4 would move only the stems 21 connected with the slides beneath these hoppers, and change from them would be delivered accordingly, whereas nothing would be delivered from the remaining hoppers. If no key whatever is raised, manipulation of the prime mover or main lever 4 would have no effect, and no change would be delivered to the receptacle 6. It will be observed from Fig. 2 that there are two slides beneath the hopper for the pennies. In addition to the slide 19 there is a subjacent and thicker slide 19′ having its own stem 21′, yoke 23′ and rod 28′, the latter connected with the main lever 4 at the same point as the rod 28, all being for a purpose yet to appear. I might also say that the dime hopper has a special slide beneath it as best seen in Fig. 5. This slide is twice the thickness of a dime so that when moved forward it will drop two dimes. The slides beneath the penny hopper will collectively drop four pennies, the uppermost being the thickness of one cent and the lowermost the thickness of three cents; but the slides beneath the three remaining hoppers drop only one coin each.

Hanging just in rear of the main cross bar 30 are keys 40, each of which is a fork as best seen in Fig. 9, its fingers standing astride the tongue 27 and its shank being pivoted at 41 to a crank arm 42 at one end of a rock shaft 43. There are five of these shafts superposed over each other as best seen in Fig. 2, and extended to the left end of the base 1 of the casing, where they have other crank arms 44 as best seen in Fig. 6; and I purposely omit an illustration of the bearings in which the shafts are mounted, because they would confuse the drawings.

The crank arms 44 are severally connected by links 45 with the rear arms of five key levers 46, these levers having sleeves 47 mounted on a fulcrum rod 48. Finally, each lever 46 has a finger 49 projecting rearward and overlying the body of the next lever, so that the depression of one lever will depress all those to the rear of it. An exception exists with respect to the finger on the third or twenty five cent key lever, which finger has a hump 50 carried over the lever next adjacent, and its extremity continues to the last lever for a purpose yet to appear. As shown by the figures on the key levers and on the rock shafts, the one dollar lever actuates the fifty cent rock shaft, and in fact each key lever actuates the rock shaft of the next lower denomination; therefore we must not become confused by the designation of the several parts.

The coin slots 5 in the top of the base of the casing communicate respectively with coin tubes 51 as best seen in Fig. 4. Each tube is preferably straight throughout most of its length and curved at its lower end as at 52 on an arc around the fulcrum rod 48, the curved portion being slotted as at 53 for the admission of the long arm of a key lever 46, which arm by preference carries a head 54 moving within the coin tube. The latter on the lower side of its curved end has a hinged gate 55, and all the gates are mounted fast on a rock shaft 56 which is turned by a spring 57 in a direction to throw them normally closed. This shaft carries an arm 58 from which a cord 59 leads over suitable pulleys 60 to the main lever 4, and the cord is given proper slack and properly attached to the main lever so that as the latter reaches its forward extreme of movement the shaft 56 is turned to open all the gates 55 and deliver into the drawer 10 any coin which may have been

inserted into one of the slots 5. As above suggested, the drawer is withdrawn from time to time to collect the coins, probably on the same occasion when the hoppers 16 are refilled with change.

I will later describe the operation of this machine as taking a toll of two cents from each silver dollar or half dollar deposited, and a toll of one cent from any other coin deposited excepting a penny which of course need not be changed at all; but it will be shown first how the toll can be made the same for all coins if preferred. Assuming that an operator approaches and deposits a silver dollar in the first and properly designated coin slot 5. It falls on the left hand head 54 of Fig. 6 and depresses the appropriate key lever 46 and the several fingers 49 cause the depression of all key levers except that marked ten cents. These levers all rock on the fulcrum rod 48 and all rock shafts 43 are rotated excepting that marked five cents, with the result that all keys 40 are raised excepting the one forward of the five cent hopper. Now the operator draws on the main lever 4, and the cross head 31 moves all five rods 28 and yokes 23; accordingly the springs 24 move all of the stems 21 excepting that forward of the five cent hopper whose head 26 strikes the key 40 which has not been raised. The result is that the slides under all hoppers but that containing nickles are moved forward, and there fall into the chute a fifty cent piece, a quarter, two dimes and four pennies; and the aggregate change is delivered into the receptacle 6. The two dimes are delivered because the slide under the dime hopper is of double thickness, and the four pennies are delivered because of the extra slide 19′ under the penny hopper. Should the operator deposit a fifty cent coin in the second slot 5, the same action would take place excepting that no fifty cent piece in change would be delivered to him. Should the operator deposit a quarter in the third coin slot, the change delivered is two dimes and four pennies. In these three illustrations, the hump 50 on the third finger avoids the depression of the lever which will actuate the nickle slide, and therefore no nickels have been given in change; but if the operator deposits a dime, he will receive a nickel and four pennies in change, because the dime will of course actuate the appropriate lever 46 which is next to the right hand in Fig. 6. Finally, if the operator deposits a nickel, he will receive four pennies in change.

Now when a little heavier toll is to be taken if the coin deposited is a silver dollar or a half dollar, the construction and action is as follows: If the key 40 opposite the penny slide be raised only so high that its fingers clear the head 46 of the lowermost stem 21′, shown in Fig. 2 whereas they still stand in the path of the head of the uppermost stem, then when the main lever is swung forward it is the lower slide 19′ with its three pennies which moves over the shelf and drops them through the notch 12 instead of both slides 19′ and 19 which would of course deliver four pennies. Accordingly, the delivery of three or four pennies is to be determined by the distance to which this key is raised. (I might say that the double slide under the dime hopper always delivers two dimes in order to make proper change, and it will merely be an ordinary slide 19 of twice the thickness of a dime.) When it is desired, therefore, that the toll from the larger coins shall be two pennies instead of one penny as above described, provision must be made whereby the insertion of said larger coin will raise the key of the penny slide not quite so high. This can be effected in a number of ways, and one practical way is by making the dollar and half dollar coin tubes shorter at their lower ends as indicated by dotted lines in Fig. 4. The result will be that the insertion of either coin swings its key lever 46 and rocks the appropriate shaft or shafts 43, but the rocking motion is not carried to a degree which will lift the keys past both heads 26, and therefore only the lower or three cent slides 19′ is moved.

Actuation of the prime mover which in the present case is the lever 4, first delivers the change into the receptacle 6 as above described, and toward the end of its movement puts tension on the cord 59. This draws on the arm 58, rocks the shaft 56 and opens all the gates 55; and whatever was the coin inserted for change, it now drops out of the tube 51 into the drawer 10. This immediately releases the key lever 46 which stood depressed by the weight of said coin, and that in turn releases all the other key levers which were depressed by the fingers 49, and accordingly the shafts 43 rock and the several keys descend behind the main cross bar 30 and forward of the heads 26. If it should so happen that the operator is still holding the main lever forward, the keys drop onto the shelves or plates 26 which sustain them until the time arrives when the stems 21 do move to the rear and the heads 26 pass from under the keys.

Thus is produced a machine which will make change automatically and which will simultaneously deduct a certain toll which may be charged the operator for the act of making change or for any other purpose; and provision is made for a little larger toll where the coin is of larger denomination. As suggested above, the actuation of the prime mover at the time this toll is deducted from the coin inserted, may perform other service or start other mechanism, but

these details constitute no part of the present invention. The machine is susceptible of modification and refinements within the possibilities of structures of this kind.

What is claimed as new is:—

1. The combination with a hopper, a slide moving thereunder and having a coin-opening, and a stem projecting forward from said slide and having a transverse head at its front end; of a prime mover, a rod connected therewith and standing in line with said stem, the rod having a tongue disposed adjacent said head, a yoke carried by the rod and having an eye in its rear end loosely mounted on said stem, an expansive spring coiled on the latter between the eye and head, a vertically movable key, and means for disposing it between said tongue and head at will.

2. In a coin changing machine, the combination with hoppers for coins of different denominations, means for delivering coins therefrom, a prime mover, and independent yielding connections between it and said several means; of keys standing normally within the several connections and preventing their action on the delivery means, a series of key-levers adapted to be actuated selectively by the coins inserted for the purpose of securing change, and fingers on the levers for the larger coins overlying levers for the smaller coins whereby the descent of a lever by the insertion of a larger coin will depress another lever or levers and result in the delivery of the change desired.

3. In a coin changing machine, the combination with hoppers for coins of different denominations, independent means for delivering coins respectively therefrom, a prime mover, and independent yielding connections between it and said several means; of keys standing normally within the several connections and preventing their action on the delivery means, a trip for displacing each key, a series of key-levers connected with the respective trips and adapted to be actuated selectively by the coins inserted for the purpose of securing change, and fingers on the levers for the larger coins overlying levers for the smaller coins whereby the descent of a lever by the insertion of a larger coin will depress another lever or levers and actuate appropriate trips to deliver the change desired.

4. In a change making machine, the combination with hoppers for coins of different denominations, means for delivering them respectively therefrom, a main lever, a cross head carried thereby, and yielding connections between said cross head and the several delivery means; of check devices movably interposed within the several connections to prevent the movement of the delivery means, and mechanism in the respective tubes for actuating appropriate check devices, for the purpose set forth.

5. In a change making machine, the combination with hoppers for coins of different denominations, means for delivering them respectively therefrom, a main lever, a cross head carried thereby, and yielding connections between said cross head and the several means; of keys interposed within the several connections and preventing the movement of the means by said cross head, trips for displacing said keys, coin tubes for the insertion of the coins to be changed, outlet gates from said tubes, mechanism in the respective tubes for actuating appropriate trips, and means for opening all said gates when the main lever is swung to the extreme of its movement, for the purpose set forth.

6. In a change-making machine, the combination with hoppers for coins of different denominations, means for delivering them respectively therefrom, a main lever, a cross head carried thereby, and yielding connections between said cross head and the several means; of keys interposed within the several connections and preventing the movement of the means by said cross head, trips for displacing said keys, coin tubes for the insertion of the coins to be changed, outlet gates from said tubes, a rock shaft on which all said gates are mounted, a crank arm on said shaft, a cord connecting this arm with said main lever and of a length to be drawn taut to open all the gates as the main lever reaches its extreme of movement, and levers connected with the respective trips and each having one arm entering a tube to be depressed by a coin inserted and released when the coin is dropped through said gate.

7. In a machine of the type described, the combination with a series of upright coin tubes curved and slotted at their lower ends, gates movably closing said ends, and means for opening said gates; of a fulcrum rod, a series of sleeves revolubly mounted thereon, key-levers carried by said sleeves and each having one arm projecting through a slot in a tube and carrying a head within the latter, change-discharge mechanism, a series of keys controlling the same, and connections between the other arms of said levers and keys.

8. In a machine of the type described, the combination with a series of upright coin tubes having slots in their bodies and gates at their lower ends, means for opening said gates, a series of pivoted levers each having one end projecting through a slot in a tube, fingers on levers of larger denominations overlying the levers of smaller denominations, one of said fingers having a hump whereby it is carried past the adjacent lever to the lever beyond, and trips actuated by

the movements of said levers; of hoppers for coins of different denominations, a prime mover; yielding connections between it and the several delivering mechanisms, mechanism for delivering change from said hoppers, and keys standing within said connections and preventing the action of such mechanism, each key being connected with one trip, as described.

9. The combination with a hopper, a slide moving thereunder and having a coin-opening, a stem projecting forward from said slide and having a transverse head at its front end, and a plate mounted on the stem adjacent said head; of a prime mover, a rod connected therewith and standing in line with said stem, the rod having a tongue disposed adjacent said head, a yoke carried by the rod and inclosing the head and plate and having an eye in its rear end loosely mounted on said stem, an expansive spring coiled on the latter between the eye and plate, a vertically movable key, and means for disposing it between said tongue and head at will.

In testimony whereof I affix my signature in presence of two witnesses.

ROY COOK.

Witnesses:
W. R. HAMILTON,
W. N. GRAVLEE.