

(No Model.)

3 Sheets—Sheet 1.

S. J. TAYLOR.
COIN ASSORTER AND DELIVERER.

No. 540,701.

Patented June 11, 1895.

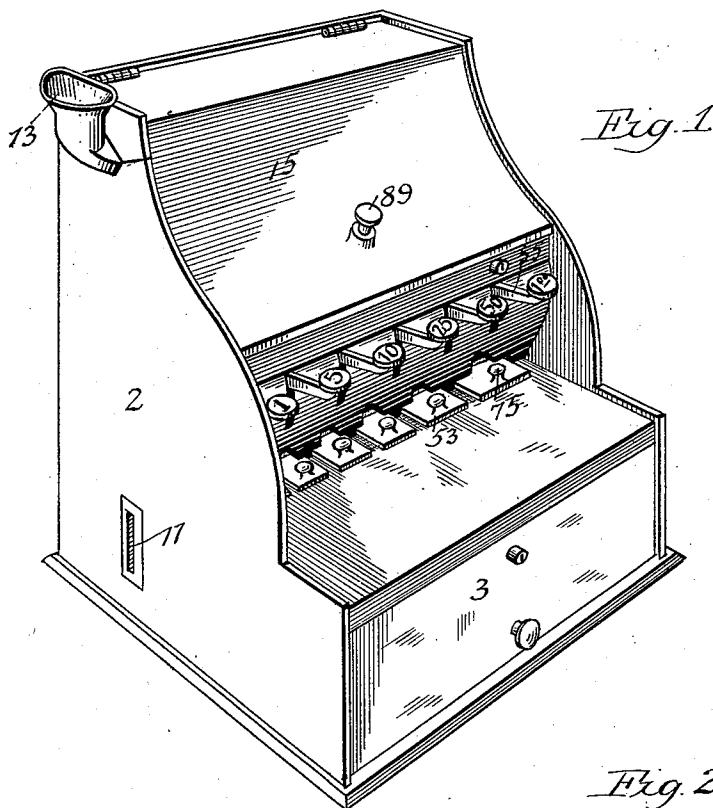


Fig. 1.

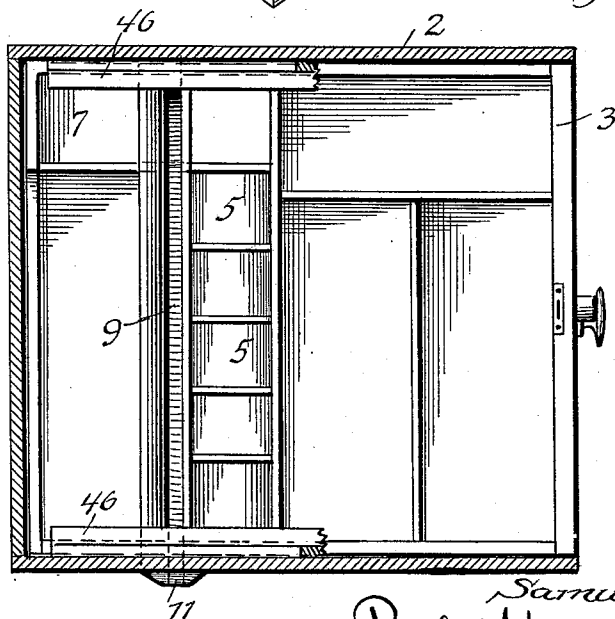


Fig. 2.

Witnesses.
J. Jensen
J. B. Lyon

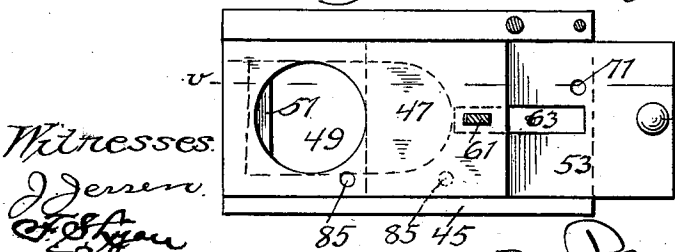
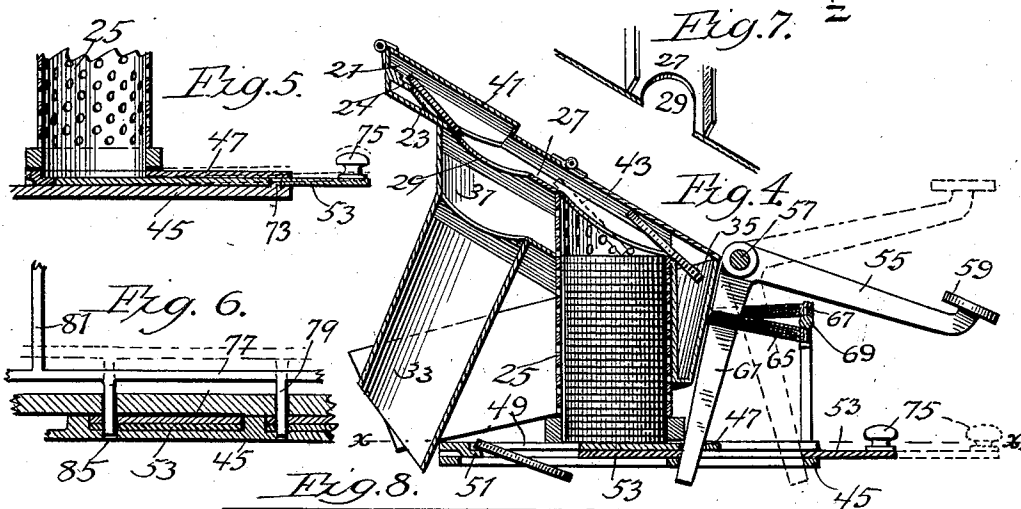
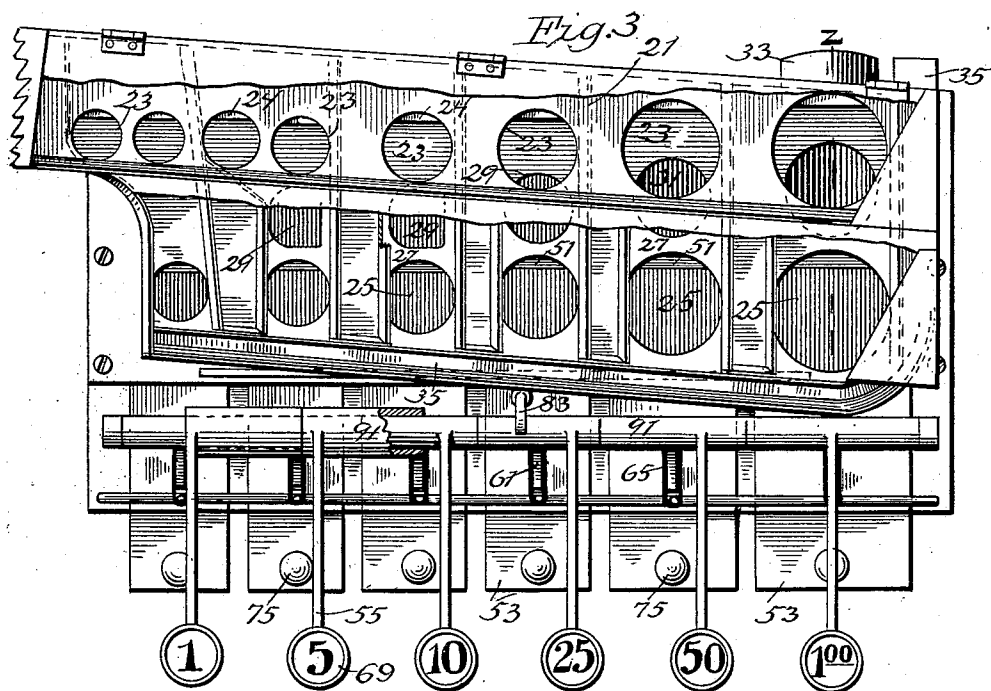
Inventor.

Samuel J. Taylor.
By Paul & Hawley his Attorneys.

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Witnesses:
J. J. J. J.
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Samuel J. Taylor.

By Paul H. Hawley, Atty.

(No Model.)

3 Sheets—Sheet 3.

S. J. TAYLOR.
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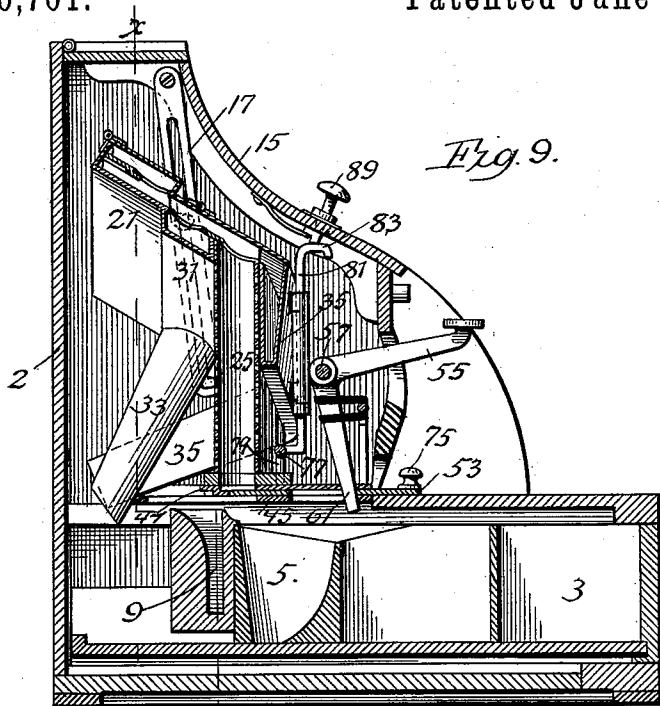
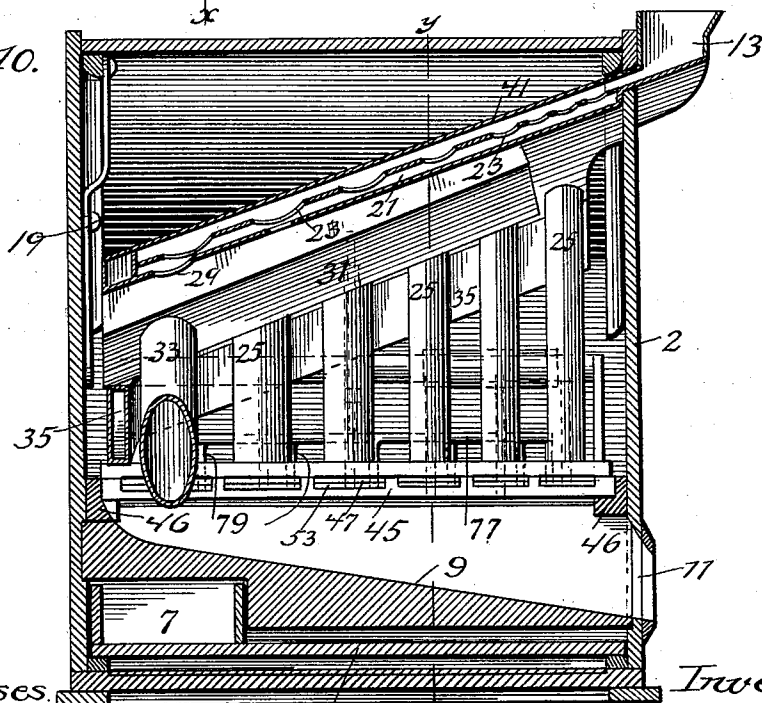


Fig. 10.



Witnesses.

J. J. Jenson.
Chas. E. Shaw

Inventor.

Samuel J. Taylor.

By Paul & Hawley his Attorneys

UNITED STATES PATENT OFFICE.

SAMUEL J. TAYLOR, OF MINNEAPOLIS, MINNESOTA.

COIN ASSORTER AND DELIVERER.

SPECIFICATION forming part of Letters Patent No. 540,701, dated June 11, 1895.

Application filed April 7, 1894. Serial No. 506,660. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL J. TAYLOR, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Change Making and Delivering Machines, of which the following is a specification.

The object of this invention is to provide a suitable machine which will automatically sort or distribute coins of different denominations, directing them into their appropriate receptacles, from which they may be discharged by suitable slides operated by appropriate keys.

The invention consists in the construction and arrangement of slides by which the coins are ejected, in the construction and arrangement of the slides which form the bottoms for the coin-receptacles, and in various details of constructions and in combinations, all as hereinafter described and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective view of a machine constructed in accordance with my invention. Fig. 2 is a horizontal view of the lower part or casing of the machine, showing the money-drawer with the compartments therein adapted to receive the coins when the receptacles are emptied, showing, also, the coin-delivering chute and the overflow-receptacle. Fig. 3 is a detail plan view of the machine with the casing removed. Fig. 4 is a detail section through line *z z* of Fig. 3, showing the slides and one of the keys and showing, also, the overflow. Fig. 5 is a detail section of the lower end of one of the coin-receptacles, showing, also, the slide and the means for emptying the receptacle. Fig. 6 is a detail view showing the device for locking the slides. Fig. 7 is a detail view showing the means for conducting into the overflow-compartment in the cash or money drawer any coin that goes by its appropriate receptacle. Fig. 8 is a plan view of one of the slides, showing, also, the means for emptying the receptacle. Fig. 9 is a transverse section of the machine on the line *y y* of Fig. 10. Fig. 10 is a section on the line *x x* of Fig. 9.

In the drawings, 2 represents a suitable frame or casing in which the mechanism of the device is arranged. It is preferably provided with the cash-drawer 3, which has a series of compartments 5, said compartments corresponding to the coin-receptacles in the machine, and said cash-drawer is also provided with the overflow receptacle 7, which receives all the coins that do not pass into their appropriate receptacles and which receives any coins that may overflow from any full receptacle. The casing is provided with the coin-chute 9, which is arranged to receive the coins from all of the receptacles, as hereinafter described, and is provided with a suitable outlet opening 11. The rear wall of the chute 9 is vertical to a point a little higher from the bottom of the chute than the radius of a silver dollar, so that the largest coin will not bear against the outwardly curved surface of the upper part of the wall. The curve in the upper part of the wall is gradual so that a coin will slide easily over it and will not be retarded by striking the front wall of the chute until the coin has nearly reached the bottom thereof. The front wall is vertical from top to bottom. When a coin is delivered from a receptacle the rear edge will be supported by the ledge on the under side of the slide, as hereinafter described, and will drop from this ledge upon the rear wall and will slide down over the curved surface thereof into the bottom of the chute. The walls of the chute 9 spread very slightly from the starting point of the chute to the opening 11 so as to prevent the possibility of any coins wedging, and the walls being vertical at the bottom of the chute the coins will always be held substantially vertical as they roll along. It is desirable when the coins are delivered from the receptacle, to have them reach the orifice of the chute as soon as possible. I have found that when the bottom of the chute at the upper end is straight, the dollar coin when delivered from the receptacle will stop when it strikes the bottom of the chute before it begins to roll down to the orifice thereof, thereby delaying the delivery of the coin. To obviate this difficulty I curve the bottom of the chute at its upper end, as shown in Fig. 10, so that when the dollar coin is delivered from its receptacle its edge will strike the curved surface of

the bottom of the chute and immediately begin to roll down without stopping, thereby hastening the delivery of the coin. I have found that when several coins are delivered from their respective receptacles, the larger coins in rolling down the chute will overtake the smaller coins and frequently pass them. I have found that the half dollar will pass the nickel even if they are delivered from their receptacles at the same time, and I have found it necessary to have the lower end of the chute of sufficient width to allow the coins to pass without wedging. It is also desirable to have all the coins delivered at the orifice of the chute at about the same time, and I therefore construct the chute so that the upper end will be a little wider than the dollar coin, but not of sufficient width to allow the coin to lean against either side wall. The coin will therefore be held in a vertical position, and will roll very rapidly from the upper end of the chute to the orifice. In order therefore to insure the prompt delivery of the larger coins, and at the same time to prevent wedging when the coins pass one another in the chute it is very desirable, and important to construct the chute so that the walls will spread slightly longitudinally from the starting point to the orifice. I could of course construct the chute of the same width the whole length and of sufficient width to prevent wedging, but this construction would permit the larger coins to lean against the side walls of the chute at its upper end and their delivery would be greatly retarded, if not altogether stopped should four or five of the larger coins be ejected from their respective receptacles in rapid succession. I find also that constructing a chute with the upper end of the bottom curved upwardly is of great advantage when several coins are delivered in rapid succession, in order that, for instance, a dollar coin when delivered will begin to roll down the chute before the second one is ejected. The casing is also provided with a suitable opening to permit the coin-hopper 13, arranged on the ends of the assorter-chute hereinafter described, to project outside of the casing. The casing is also provided with a suitable hinged cover 15 and with a suitable cover-holder 17, pivoted to said cover and provided with a long slot having an offset portion at its lower end. A pin 19 passes through this slot and when the cover is opened said pin is adapted to engage the offset portion of said slot whereby said door may be held open, if preferred.

21 represents the coin-assorter-chute. This chute is arranged in an inclined position, being inclined both as to its length and in the opposite direction so that coins passing down therein roll along with their lower edges resting against the front side of the chute. The chute is provided with a series of openings 23 of different sizes, the smallest opening being near the upper end of the chute and the other openings being arranged in order thereafter.

For convenience I prefer to provide two of the smallest size openings and two of the second size openings so that in case a coin of the smallest size passes the first opening it will fall into the second and in case a coin of the second size passes the first opening designed to receive it it will fall into the second one.

While I have shown two openings of the same size for each of the first and second sized coins, I may provide more than one opening of the same diameter for some or all of the other sized coins.

It frequently happens that one of the small sized coins in passing down the chute will rest upon a coin of a larger size and be carried along thereby over the first opening for which it is designed, but the larger coin as it rolls along with its lower edge resting against the front side of the chute will dip a little as it passes over the opening above referred to, there being no support for the lower side of the coin as the opening extends to the extreme front side of the chute, and there being but a slight difference between the diameter of the opening and the coin, the dip of the larger coin will throw the smaller coin forward so that it will pass down through the next opening for which it was designed, thereby reducing the overflow.

A series of coin-receptacles 25 are provided, there being one receptacle for each size of coin. These receptacles are connected by the transverse chutes 27 with the space beneath the chute 21 so that the coins falling through their appropriate openings 23 will pass down the inclined chutes 27 and thus enter the corresponding coin-receptacles 25. Arranged in the floor or bottom of each of the chutes 27, between the chute 21 and the receptacle 25, is an opening 29, each of said openings being too small to permit the passage through it of the coin that should pass through the corresponding chute but being large enough to permit the passage through it of any coin of a smaller size. These openings may be of any preferred size or shape, though I prefer to make them of circular form, with the exception of the first two and these are made preferably with the two straight sides as shown in Fig. 3, the purpose being to more surely cause the passage through them of any smaller coin which may have passed beyond its proper receptacle and to insure the passage over them of coins that should pass into the receptacles. Beneath the openings 29 is a chute 31 into which all of the coins that pass through the openings 29 fall, and from which they are conducted by the spout 33 into the overflow receptacle 7, before referred to. The tops of the coin-receptacles 25 are preferably of inclined form and a chute 35 extends along the front of all said receptacles so that if a coin or coins are put into the machine after the receptacles are full or after any of them are full the coins that reach any full receptacle will pass over the top thereof into the over-

flow chute 35 and will pass from this into the overflow receptacle 7.

The chute 21 is preferably provided with the depressed ledges 24 arranged upon the under side of the chute and extending across the upper side of each of the openings therein. The effect of this ledge is to cause the coins to tip down at their opposite edges and thus pass through the openings 23 with a sliding movement toward the chute 27, thus insuring the passage of practically all of the coins into the appropriate receptacles. This ledge also causes the coins, that pass over the openings, to travel more smoothly, as it prevents them from dipping down into the openings while passing over them.

A hinged cover 41 is preferably arranged over the chute 21 and a hinged cover 43 is preferably arranged over the chute 27 and the tops of the coin-receptacles.

The several coin-receptacles are preferably all supported upon a suitable slotted plate or frame 45 and beneath each receptacle are two slides, one of which provides means for ejecting the coins, while the other forms a support for the coins at all times, and can, when desired, be drawn out so as to permit all of the coins in the receptacle to fall into the appropriate compartment in the money-drawer. The slides 47, which are for ejecting the coins, are arranged on top of the other slides and move back and forth in suitable ways upon the plate 45. Each of these slides is provided with a suitable opening 49, across one side of which extends the depressed ledge 51. When the slide is in its retracted position the bottom coin rests in the opening 49, its forward edge resting upon the ledge 51 and the remaining portion of the coin resting upon the lower slide 53, hereinafter described. The slides 53, which are also supported in ways on the plate or frame 45, do not extend the full diameter of the coin-receptacles but their forward edges abut against the edges of the depressed ledges 51 and are on a level with said ledges. The slide 53 therefore forms a bottom for the receptacle and prevents the coins from dropping through except when this slide is drawn out for the purpose of emptying the receptacle. After the coins have been ejected by the movement of the slides 47, the slides are drawn back to their original position by the springs and the depressed ledges 51 on said slides will strike the ends of the slides 53 and thereby form a stop for the slides 47.

A series of key-levers 55 are mounted upon a shaft 57 and each of said levers is provided with a suitable button 59 which is appropriately marked to designate the coins contained in the corresponding receptacle. These levers are provided with the depending arms 61 which pass through the holes in the slides 47 and through slots 63 in the slides 53. Suitable springs 65 are connected to the arms 61 and to pins 67 upon a rod 69. These springs tend to hold said levers in the elevated posi-

tion shown by dotted lines in Fig. 4, thus holding said slides in a retracted position. The slots 63 are of sufficient length so that the movement of the arm 61 does not in any way interfere with said slides. When the slides 53 are drawn back to empty the receptacles of all the coins contained therein the depending arms 61 of the key levers engaging the openings in the slide 47 will prevent these slides from being drawn back with the slides 53. The slide 53 is provided with a pin-opening 71 and the plate 45, on which said slide moves, is provided with a lug or projection 73 and said lug or projection is normally in engagement with said opening. The slide 53 is also preferably provided with a knob or handle 75 and when it is desired to withdraw said slide for the purpose of emptying the receptacles said knob is clasped and the slide is raised sufficiently to free it from said projection 73 and it is then drawn back into the position indicated by dotted lines in Fig. 4 when there will be no support for the coins in the receptacles and hence all of said coins will drop through into the corresponding coin compartments in the cash-drawer. When the coins are ejected by the movement of the slide 47 their forward edges being supported on the ledge 51 and their rear portions lying on the top of the slide 53 said coins do not drop until they have been pushed so far that their rear edges pass off from the forward ends of the slides 53. At this time they will have been carried over the chute 9 into which they will drop. In case the slides are withdrawn before the edges of the coins pass off the end of the slides 53, the coins having their opposite edges supported by the ledge 51 will be carried back to their original position in the receptacles.

I also prefer to provide a locking device for locking all of the slides. This device consists preferably of the vertically sliding bar 77 provided with the series of pins 79 and with the upwardly extending rod or handle 81, which extends to a point near the under side of the cover 15 and is preferably provided with a bent end 83. Suitable holes 85 are provided in the slides 47 and 53 so that when said bar with its pins is depressed said pins engage said holes as shown in Fig. 6 and all said slides are locked. I prefer to provide a spring pin 89 passing through the cover 15 so that by depressing said pin its lower end will engage with the upper end of the rod 81 whereby said bar 77 and its locking pins may each be depressed without opening said cover 15. When however it is desired to again operate said slides said cover must be opened to permit said rod 81 to be grasped for the purpose of raising it up and releasing said slide. The guide in which the rod 81 moves is preferably slightly out of a perpendicular line so as to cause sufficient friction between it and the rod 81 which moves therein to hold said rod normally in any position into which it may be moved. Said key-levers are each preferably provided

with a hub 91 having a central hole there-
through and this hub, being mounted upon
the stationary rod 57, forms a firm bearing
for said key-lever. It is preferably to arrange
5 the key-levers in numerical order as shown
in Fig. 3 but as this would bring the dime or
ten-cent slide and receptacle beyond the one-
cent and five-cent slides and receptacles I
make special provision for placing the ten-
10 cent key between the five-cent key and the
twenty-five cent key while the ten-cent chute
and receptacle and the corresponding slide
are located first in the machine. For this
purpose I construct the hub of the ten-cent
15 key-lever of unusual length and let it pass
through the hub of the one-cent and five-cent
levers, as shown in Fig. 3. This enables me
to arrange the receptacles and levers as shown
in Fig. 3 of the drawings. It will also be
20 noted that the coin-receptacles, the slides and
chutes and the coin-hopper are all supported
upon the plate or frame 45 and that said plate
or frame is supported upon suitable rails or
side pieces 46, in the casing 2. This enables
25 me to readily remove all of the operative
parts of the mechanism from the casing when-
ever desired. It will be readily seen that any
desired amount of change may be quickly
and easily obtained from the machine and
30 that the coins may be placed by the handful,
unassorted, in the hopper 13 and that they
will pass from this hopper into the chute 21
which will automatically distribute them into
their appropriate receptacles.

35 Having thus particularly described my in-
vention, I claim as new and desire to secure
by Letters Patent—

1. In a machine of the class described, the
combination with a series of coin receptacles,
40 of a coin hopper, an inclined chute con-
nected therewith and provided with a series
of openings in its bottom corresponding in
size to the respective coins to be distrib-
uted, some of the openings being duplicated
45 whereby if a coin rests upon another of larger
size in passing down the chute, and is thereby
carried over the first opening for which it is
designed, the larger coin will dip in passing
over said first opening thereby throwing for-
50 ward the smaller coin so that it will pass
through the second opening of the same size
whereby the overflow will be reduced, and a
series of transverse or lateral chutes also in-
clined and extending from the space beneath
55 the openings in said first named chute to the
tops of said coin receptacles, substantially as
described.

2. In a machine of the class described, the
combination, with a series of coin-receptacles,
60 of a coin-distributing chute provided with a
series of openings, corresponding in size to the
coins to be distributed, a series of transverse
or lateral chutes, extending from beneath said
openings to the coin receptacles, each of said
55 transverse chutes being provided with an
opening smaller in size than the coin for which
said chute is designed, but larger in size than

the coin destined for other preceding chutes
and receptacles, substantially as described.

3. The combination, in a machine of the 70
class described, with the coin-distributing
chute, provided with a series of openings cor-
responding in size to the diameter of the coins
to be distributed, a series of receptacles de-
signed to receive said coins, a series of trans- 75
verse or lateral chutes extending from be-
neath the holes in said coin-distributing chute
to the tops of said receptacles, each of said
transverse chutes being provided with an
opening smaller than the diameter of the coin 80
that should pass through said chute but larger
than the diameter of the coin which should
pass into the preceding transverse chute and
receptacle, and an overflow chute arranged to
receive all the coins that pass through the 85
openings in said chutes, substantially as and
for the purpose set forth.

4. In a machine of the class described, the
combination, with a series of coin-receptacles
provided with inclined tops, the longitudi- 90
nally and transversely inclined coin-assorter-
chute provided with a series of openings cor-
responding to the diameters of the coins to be
distributed, a series of inclined transverse
chutes extending from beneath the openings 95
in said assorter-chute to said receptacles, and
an overflow chute arranged in front of said
receptacles to receive the coins which pass
over the top of any receptacle that is already
full of coins, substantially as described. 100

5. The combination, with the coin recepta-
cles and the individual chutes leading thereto,
of the longitudinally and transversely in-
clined assorter chute, provided with a series
of openings corresponding in size with the di- 105
ameters of the coins to be distributed, and
provided with the depressed ledges 24 ar-
ranged upon the under side of the chute and
extending across the upper side of each of the
openings therein, for the purpose set forth. 110

6. The combination, with the coin-recepta-
cles, of the dumping slides 53 arranged be-
neath said receptacles to empty them of all
the coins contained therein at one operation
of the slides and the ejector slides 47 arranged 115
upon said slides 53 and provided with open-
ings corresponding in size to the diameter of
the coins in the corresponding receptacle and
each provided with a depressed ledge 51 ex-
tending across said opening for the purpose 120
set forth.

7. The combination, with the coin-recepta-
cles, of the dumping slides 53 arranged be-
neath said receptacles to empty them of all
the coins contained therein at one operation of 125
the slides, the ejector slides arranged above
the slides 53 and provided each with an open-
ing to receive a single coin and with a de-
pressed ledge 51 extending partially across
said opening, the key-levers 55 provided with 130
arms engaging said slides 47 and the retract-
ing springs engaging said arms, for the pur-
pose set forth.

8. The combination, with a series of recep-

tacles and the slides therefor, said slides being provided with vertical openings or holes, of a suitable casing inclosing said receptacles, a vertical sliding bar 77 provided with the pins 79 adapted to engage the holes in said slides, an upwardly extending arm 81, and suitable means extending through said casing for engaging and depressing said arm and thereby locking said slides, substantially as described.

9. The combination, with the casing provided with the coin-delivering-chute 9 and with the cash-drawer, having the overflow compartment 7 and the separate compartments 5, of the removable frame-work arranged to be placed in said casing and provided with a series of coin-receptacles having ejector slides arranged to deliver coins from all of said receptacles into said chute 9 and having slides adapted to be moved to empty the coins in any receptacle into their appropriate apartment 5, and overflow chutes leading to said overflow receptacle 7.

10. The combination, with the coin-receptacles and slides, of the stationary shaft 57, the key-levers provided with hubs mounted upon said shaft and having projecting arms engaging said slides, one of said key-levers being provided with a long hub passing through one or more of the hubs of the other levers, for the purpose set forth.

11. The combination, with the coin-receptacles and slides, of the coin-delivering chute having a narrow groove therein and provided with a vertical and an outwardly curved side wall and arranged to receive coins from all of said receptacles, whereby said coins fall into said chute and roll on edge along therein, substantially as described.

12. The combination, with the coin receptacles and slides, of the coin delivering chute having a narrow groove therein, the side walls of said chute spreading slightly longitudinally from the starting point to the orifice thereof, and said chute being arranged to receive coins from all of said receptacles, substantially as described.

13. The combination, with the coin receptacles and slides, of the coin delivering chute having a narrow groove therein, and provided with a vertical and an outwardly curved side wall, the bottom of said chute being curved upwardly at its upper end, and arranged to receive coins from all of said receptacles, substantially as described.

In testimony whereof I have hereunto set my hand this 3d day of April, A. D. 1894.

SAMUEL J. TAYLOR.

In presence of—

JOHN SAUSSH,
A. C. PAUL.