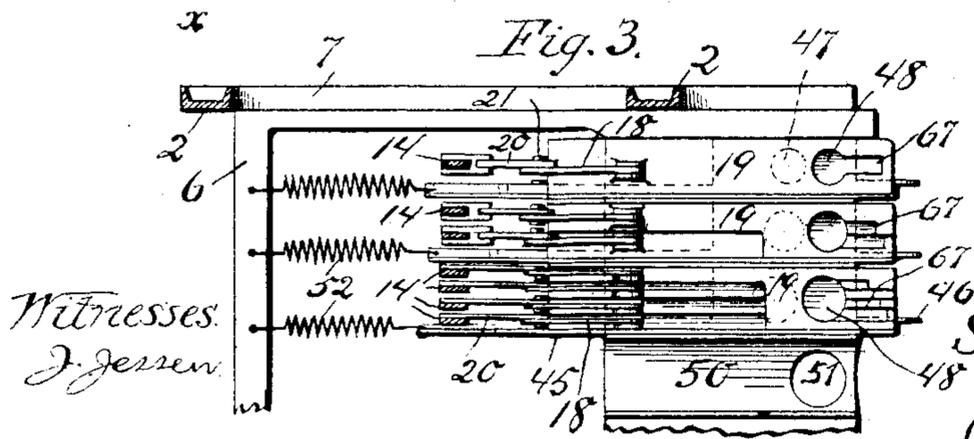
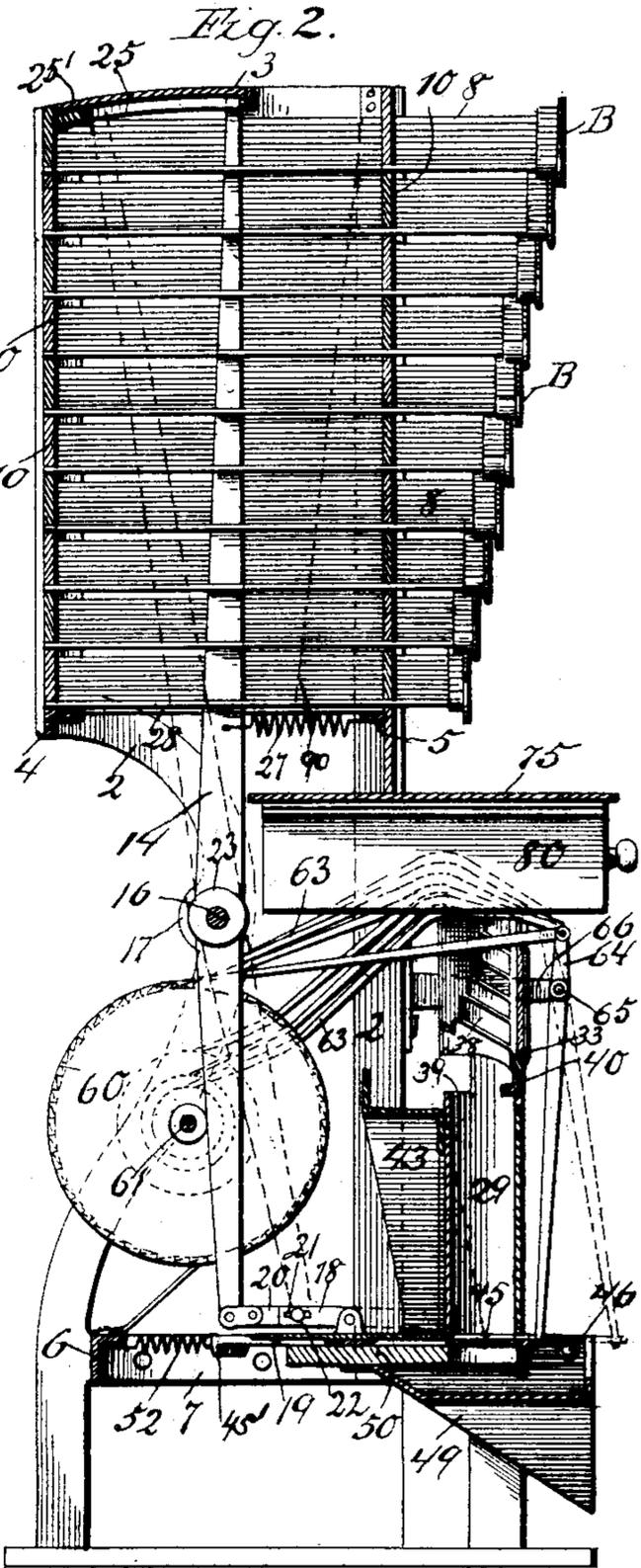
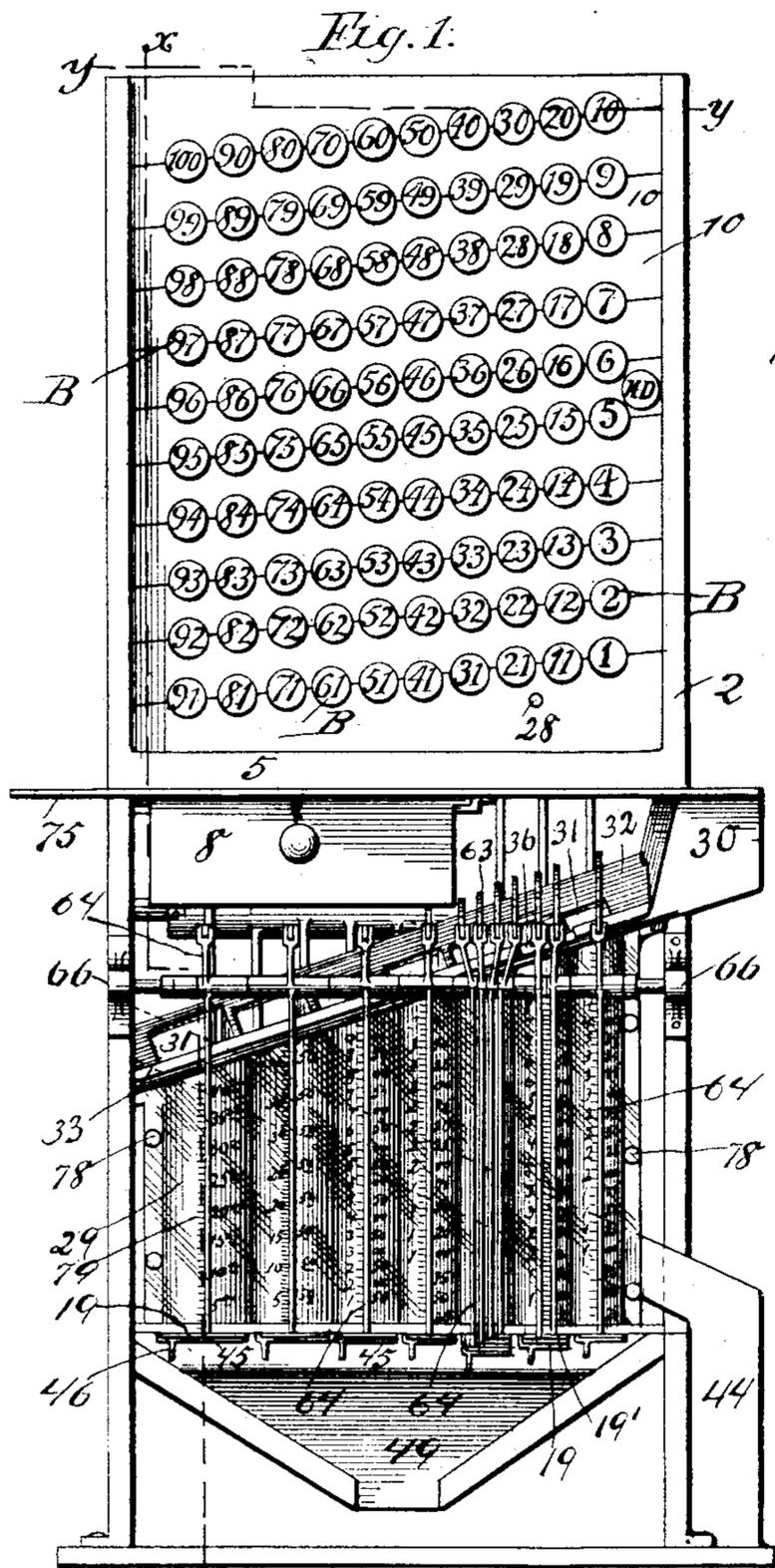


S. J. TAYLOR.

REGISTERING CHANGE MAKER AND COIN ASSORTER.

No. 539,885.

Patented May 28, 1895.



Witnesses:  
J. Jensen.

Inventor:

Samuel J. Taylor.

By Paul Merum

Attorneys.

*C. Hawley*

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Fig. 4.

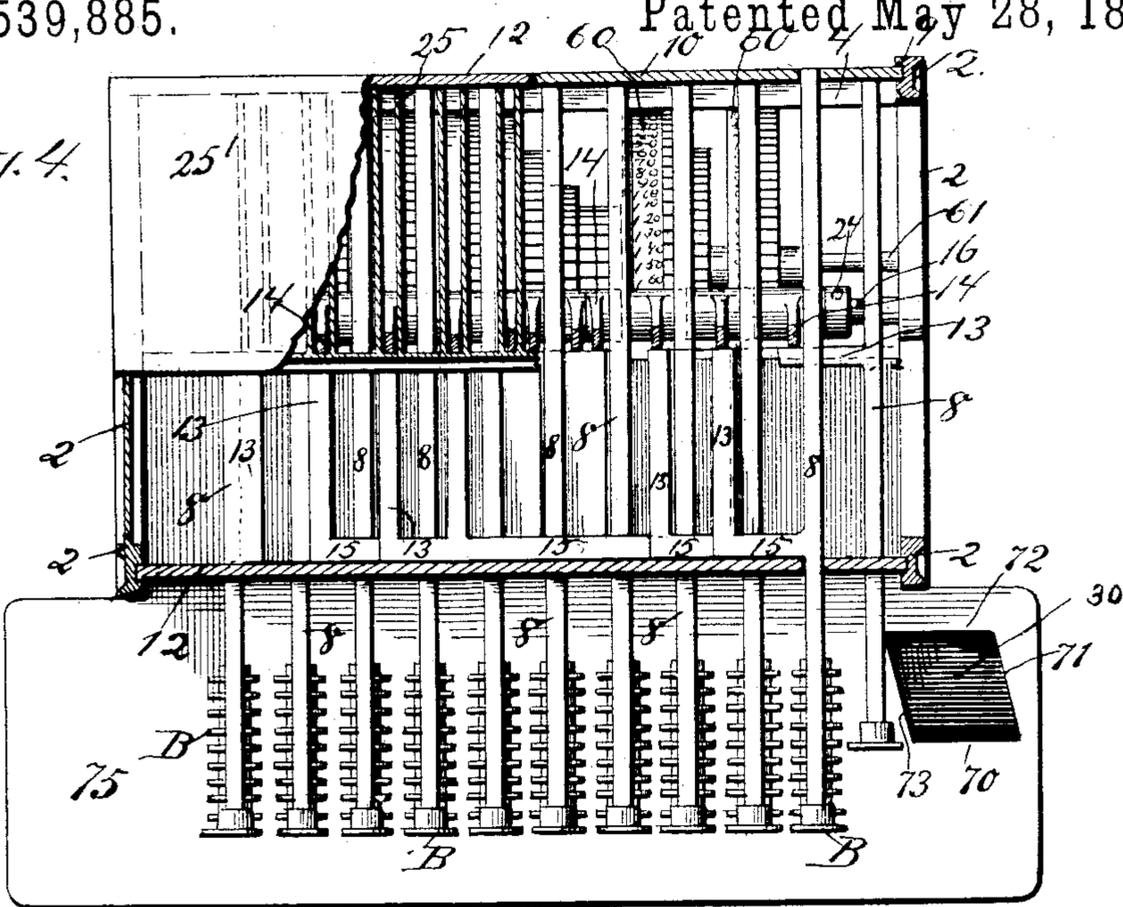


Fig. 5.

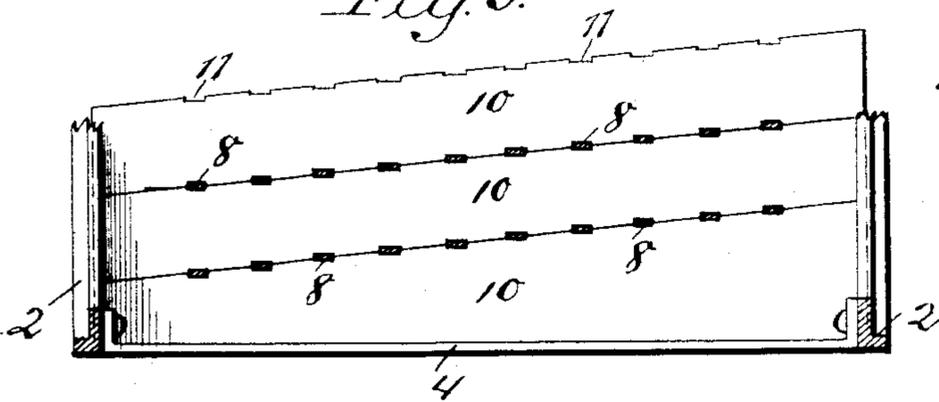


Fig. 6.

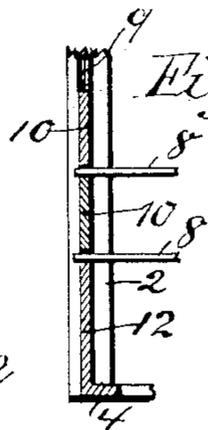


Fig. 7.

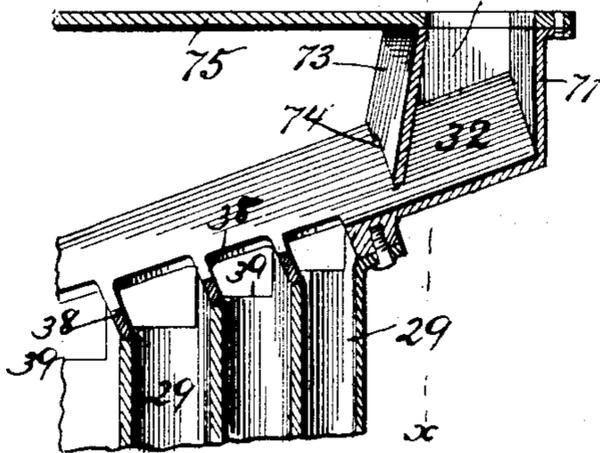


Fig. 8.

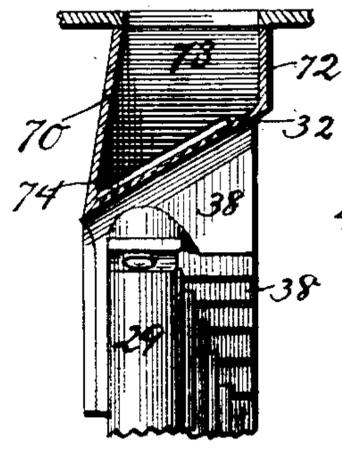
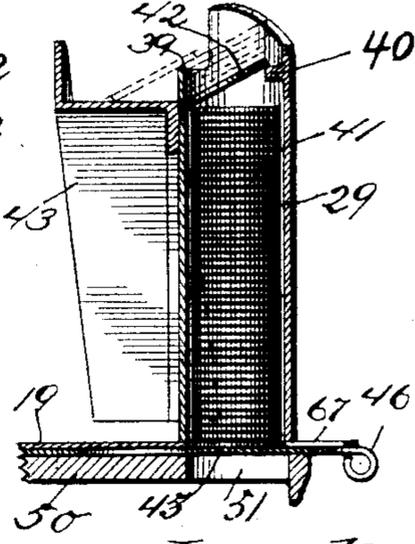


Fig. 9.



Witnesses.

J. Jensen.  
 O. Hawley.

Inventor:

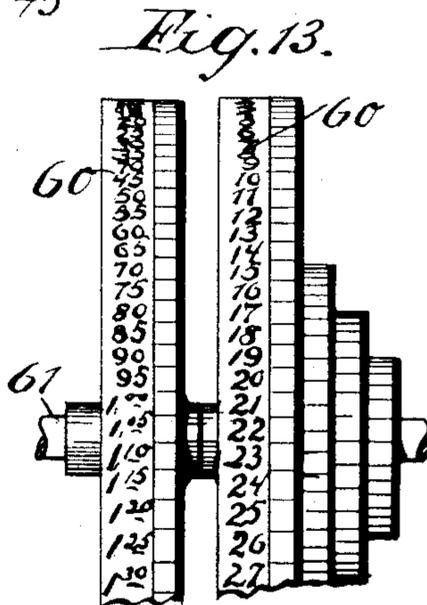
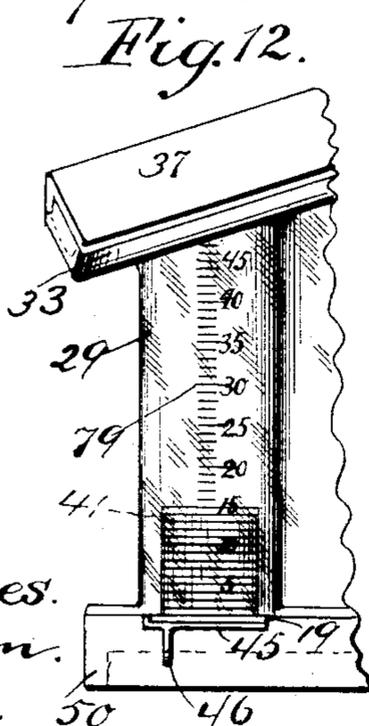
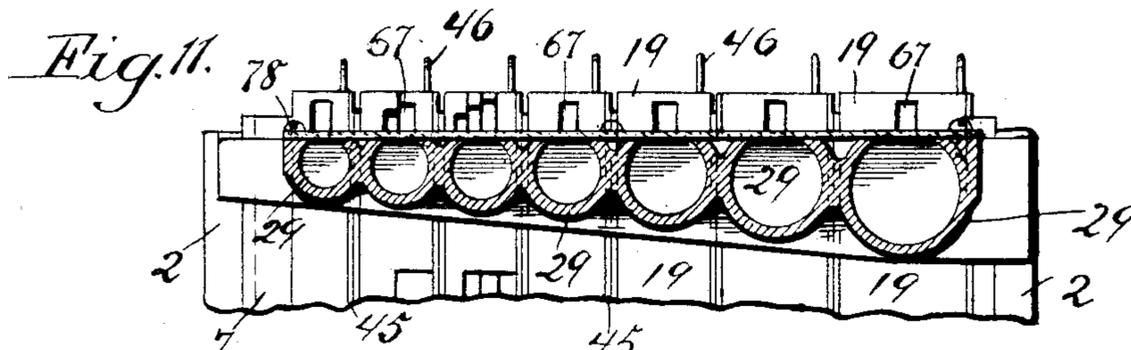
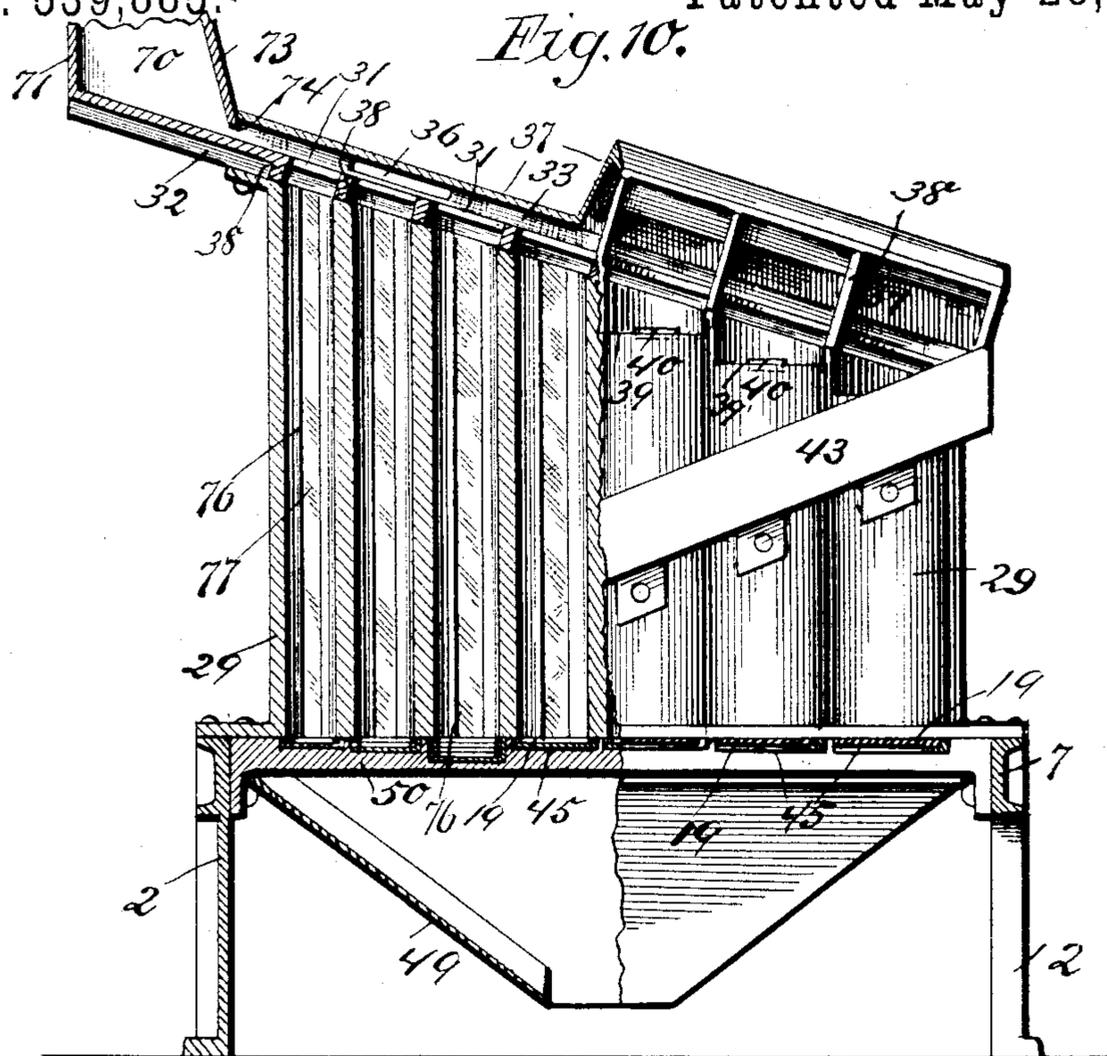
Samuel J. Taylor.  
 By Paul & Merwin attys.

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Witnesses:

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# UNITED STATES PATENT OFFICE.

SAMUEL J. TAYLOR, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF  
TO ELI A. TAYLOR, OF ST. THOMAS, NORTH DAKOTA.

## REGISTERING CHANGE-MAKER AND COIN-ASSORTER.

SPECIFICATION forming part of Letters Patent No. 539,885, dated May 28, 1895.

Application filed April 27, 1891. Renewed October 16, 1894. Serial No. 526,105. (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 Improvements in Change-Makers, of which the following is a specification.

My invention relates to means for receiving and assorting coins and for automatically making change therewith.

The object of my invention is to provide such a machine which will be of cheap and simple construction and which will present a neat and attractive appearance and further to provide a machine, the action of which will be certain, rapid and accurate.

My invention consists in a particular arrangement of operating keys and plates or lugs with levers adapted to be actuated thereby to operate slides and eject coins from a series of peculiarly constructed receptacles and generally my invention consists in details of construction and in combination of parts hereinafter described and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a front view of a machine embodying my invention, the top of the coin-assorter slide being removed to more plainly show the construction of the slanting shelf. Fig. 2 is a sectional elevation of the same on the line  $x x$  of Fig. 1. Fig. 3 is a detail plan view showing a portion of the movable slide-floor of the machine. Fig. 4 is a horizontal sectional view taken from the line  $y y$  of Fig. 1. Figs. 5 and 6 are detail elevations showing the construction of the removable key-rod guides forming the front and back of the upper portion of the machine. Fig. 7 is a vertical section showing the construction of the coin-receiving receptacles and coin-cup and the slide connecting the same. Fig. 8 is a vertical section of the same on the line  $x x$  of Fig. 7. Fig. 9 is an enlarged cross-section of one of the coin-receptacles, showing the means for disposing of coins placed in the assorter after the receptacle of the particular coin has been filled. Fig. 10 is an enlarged view showing the receptacles, coin-slide, and the slide-floor partly in section, as seen from behind

the receptacles. Fig. 11 is a horizontal sectional view of the receptacle, showing the glass front arranged in connection therewith. Fig. 12 shows a receptacle made entirely of transparent glass. Fig. 13 is a detail view of the registering-wheels.

As shown in the drawings, the whole device is arranged in a frame consisting in the side castings 2 connected by the top plate 3 and the cross bars 4, 5 and the rectangular floor casting having cross pieces 6 and side bars 7, the whole being firmly fastened together. In the upper part of the machine the keys B are arranged, the same being numbered from 1 to 100 in representation of sums from one cent to one dollar. Each key B is arranged on a long rod 8 of rectangular form as indicated in Fig. 5 and slides horizontally through bearings in the back and front of the machine. The upright corner pieces of the frame 2 are provided with vertical grooves 9 adapted to receive the notched sections 10 arranged between each row of keys. These sections are provided with notches 11 arranged at equal distances from centers and so that with the exception of the upper and lower sections 12 they are interchangeable one with the other so that in whatever positions the sections 10 are placed the notches in the lower edge thereof coincide with those in the adjoining edges of the sections above and below. The rear guide or notched wall is exactly the counterpart of the front one. In assembling the parts the guides 10 are severally placed in position after the setting of a bank or rods. Shoulders are provided as shown in Fig. 4 upon all of the key-rods 8 to prevent the same from being pushed forward so far as to draw the rear ends of the same from the guide notches or openings in the rear wall. Each key-rod is provided with a lug or series of lugs 13 adapted to engage the upper end or ends of the vertical levers 14. When there are two or more lugs 13 they are connected by stout lateral bars 15 which serve as the shoulders on the rods and engage the inner face or guide plates 10 to prevent the rods from being pulled out. Toward the bottom of the banks of keys I prefer to widen the reaches 15 to strengthen the same against the heavier work done by the same owing to the

shorter leverage on the levers 14. This widening of the lateral bars or reaches is indicated in the dotted line 90, Fig. 2. The long levers 14 are pivoted on the stationary shaft 5 16 provided in bearings 17 on the frame sides 2, and their lower ends are linked to the pivot blocks 18 on the money discharge slides 19 by the adjustable links 20 (Figs. 2 and 3). The two different parts of each link are provided 10 with slots 21 through which a bolt 22 passes and is securely fastened. The throw of the discharge plates 19 may thus be changed by loosening the bolts or screws 22. The large levers 14 are provided on sleeves 23 which 15 abut against one another. Fixed collars 24 hold all the levers in place on the shaft. The upper ends of the long levers 14 are held against lateral movement by guides or ridges 25. Shown in Figs. 2 and 4. A solid curved 20 plate 25' forming the top of the machine extends across between the sides of the frame to which it is bolted and also half way forward. The ridges 25 are formed on the under surface of this top plate the cross bar 3 and the 25 back plate forming stops for limiting the forward and backward movement of the levers. The plate 25' and the guides are curved to conform to the arc described by the end of a lever. A coiled spring 27 extends between a 30 fastening on the cross bar 5 and each lever 14 to normally hold the same in its forward position. In order to get the handle bars or reaches and the lugs into the smallest space possible and so that they will support one another I incline the banks of keys as indicated 35 in Figs. 1 and 2. The space between the lower key rod and its cross bar, of one bank, and the upper one of the bank below is very slight in each case, the entire spaces between 40 the several banks of keys being practically filled by the thin rods and lugged cross bars of the keys, which thus form horizontal guides for one another. The outer end of the cross bar belonging to the lowest key is supported 45 and guided by a bar or wire 28. Shown in Figs. 1 and 2.

My key board is numbered in a peculiar manner. Starting with 1 at the lower right hand corner the numbers run up to 10 in the 50 upper right hand corner and then beginning at 11 at the bottom of the next vertical row the numbers range to 20. In this way it will be seen that the last figures of the numbers in a given bank are all the same, as for instance on the fifth row from the bottom the 55 keys are numbered, 5, 15, 25, 35, 45, 55, 65, 75, 85, and 95. This arrangement of the keys has proved a great advantage for with the right-hand row as a vertical index and the left hand 60 figures of the numbers on the upper bank of keys, as a horizontal, a person may very readily find the position of any one of the hundred keys which otherwise would be quite confusing. In addition to the one hundred 65 keys arranged in regular banks I provide an additional key marked H. D. (half dime) in connection with an extra lever 14 adapted to

eject silver five cent pieces from a receptacle 29 arranged to receive the same.

Coin receptacles 29 are arranged as shown 70 in Figs. 1 and 2 in connection with the inclined coin chute. These receptacles diminish in size toward the right, the smallest receptacle being nearest the coin cup 30. Holes or slots 31 are provided in the slanting floor 75 32 of the chute, a particular opening being slightly larger than the diameter of the coin intended for the receptacle 29 beneath the same. As shown the width of these openings 80 increases toward the lower end of the slide whereby a small coin drops through near the upper end of the chute while a large coin passes over all the holes smaller in diameter than itself before arriving at an opening large 85 enough to admit its dropping through into a receptacle. The floor of the chute or slide is not only tilted lengthwise but is thrown up into a crosswise angle of from thirty to forty 90 degrees whereby the coins are kept down close to the ridge 33 formed on the lower and forward edge of the floor 32. A slot 36 is arranged in the upper part of the rib or ridge 33 so that when two coins start down the slide together one upon the other the upper one 95 will drop or be thrown out over in front of the receptacles instead of being carried down into the wrong money cylinder or receptacle. A cover or top 37 is arranged over the chute as shown in Figs. 10 and 12. The floor 32 is 100 provided with the depending bracket portions 38 adapted to rest on the square tops or walls of the receptacles to support the floor in its slanting position. These brackets really form 105 angular continuations of the receptacles and the coins ordinarily strike against them as they fall through the openings in the slide or floor.

In Figs. 2, 7 and 9 I have shown means for preventing the choking of the coin slide or chute on account of a receptacle becoming 110 filled with coins to such an extent that the upper one would project above the floor 32 and prevent the downward passage of the other coins. First the backs of the receptacles, tubes or cylinders are notched or cut out 115 so as to form in each instance the low shoulders 39 a considerable distance below the slide. About on a level with this shoulder I provide a lug 40 within the receptacle, (Figs. 2 and 9.) As indicated in Fig. 9 the coins 41 may be 120 piled up in the receptacle until the distance between the back of the same and the end of the lug becomes less than the diameter of the coin whereupon a coin is left standing in position of the coin 42. Successive coins pile 125 up on this coin until the top of the pile rises higher than the shoulder 39 whereupon the following coins slide over and into the trough or chute 43 down which they roll or slip into a suitable receptacle or box 44 from whence 130 they are afterward removed and again placed in the cup 30, after a considerable number of the coins have been first extracted from the overloaded receptacle.

The coin cup 30, which I employ in connection with the top of the chute, is of a novel construction particularly adapted for use with the slanting floor 32 of the same. This cup is shown in Figs. 1, 4, 7, and 8. The forward side or face 70 is slanted to the perpendicular as shown in Fig. 8. The slant of the floor 32 has been described. The end and back walls 71 and 72 may be perpendicular. The wall 73 occupies a considerable angle to the vertical and is provided with a slot 74 through which a coin lying flat on the floor 32 may pass. This slot is just high enough to allow the largest coin to pass through. As shown in Fig. 4 the walls 71 and 72 and the walls 73 and 70 are arranged at obtuse angles one with the other respectively thereby giving the opening in the top of the horizontal disk plate 75 a diamond shaped form. The reason for making the cup in this particular form is to insure the falling of every coin flat upon the chute floor and it will be seen that a coin first lodging against the upright walls will either topple over owing to the inward slant of the top portions of the walls 70 and 73 or the bottom of the cup will cause the coins to immediately slip down the same. It will be thus seen that there are no right angles or plane surfaces upon which the coin may remain standing in an upright position. Hence there can be no clogging of the chute or cup.

In the drawings I have shown two different devices for removing the coins from the receptacles 29. One device consists in an arrangement of slides 45 operating beneath the several receptacles in slots provided therefor in the base or floor 50. Rings or hooks 46 are arranged for the easy operation of the slides. Springs 52 extending from fastenings on the cross bar 6 normally hold and draw back the slides 45. Each hand slide 45 is provided with a circular opening 47 adapted to coincide with the opening in the bottom of the receptacle when the slide is drawn out thereby allowing all of the coins therein to fall through a hole 51 arranged in the floor 50 and in coincidence with the receptacle. The forward movement of each slide is limited by a lug 45' (see Fig. 2) formed thereon and adapted to engage the rear edge of the floor 50. The other device for extracting the coins consists in the slides 19 adapted to be operated by the movement of certain keys B operating special levers 14. One or more of these slides may be provided under each receptacle, the slots containing the slides 45 being deep enough to also accommodate these. In each slide 19 or 19' is a hole or opening 48 of the same diameter as the receptacle to which a particular slide belongs and these holes are all normally concentric with their receptacles, so that coins placed in the latter will be supported by the bottom plates or slides 45 and not by the slides 19, the lower coin or coins in each receptacle being merely embraced within the circular walls of the openings 48 thereof in readiness to be pushed

out by the movement of the slides 19. The slides 19 are in each case as thick as the coin to be handled. Hence whether there is one or four slides 19 when one is pushed out only the coin embraced thereby is ejected.

It will be seen that the bottoms of all the receptacles are in the same plane, the grooves or slots being cut in the floor 50 only. Now when a key B is pressed back a lever (or levers) 14 is operated to push the coin which has fallen into its opening 48 out from under the end of the receptacle and over the edge of the slide 45 from whence the coin drops into the delivery chute or pan 49. When several levers are operated as would be the case when the key 85 was pushed back several coins would be ejected at once.

In connection with the dime receptacle I provide two slide 19 and 19' adapted to operate on the plate 45 arranged in a groove of suitable depth provided in the floor 50. When the ten cent key is operated the lower plate 19 is worked to throw out a single dime. When the twenty cent key is operated both the slides 19 and 19' are worked thus throwing out two dimes. In connection with the one cent receptacle are arranged four slides, and I provide four levers 14, one of which moves one of said slides, another moves two of them, another three and the other four. Then by operating these levers through the appropriate keys the machine will eject one, two, three or four cents as required.

In connection with the coin receptacle and the slides 19 and 19' thereof I provide wheels 60 working loosely on the shaft 61 and having figures upon their faces (Fig. 5) adapted to indicate the amounts of money passed out into the chute 49. By adding the totals of all the registering wheels the sum total of the money handled by the machine is determined. These registering wheels are operated by ratchets on their sides or faces and pawls 63 are adapted to engage the same and to be operated by the levers 64 pivoted on the stationary shafts 65 secured in the arms 66 extending out from the frame 2. The lower ends of the levers 64 enter slots 67 provided therefor in the outer ends of the slides 19. The forward ends of the slots are closed so that the lower ends of the levers 64 are drawn back and held close to the front of the receptacle by the tension communicated to the same through the slide 19 and lever 14 from the spring 27. The slots 67 are extended back into the round openings 48 in the slides. Hence when a slide with a coin is pushed forward the coin strikes the lower end of the lever 64 and throwing out the same revolves a registering wheel the required distance.

In connection with the dime and cent receptacles I provide two and four levers 64 adapted to operate on dime and cent registering wheels. Such wheels are required to be of a special construction in order to allow the registering of all the dime or cent amounts on a single wheel appropriated to each. Such

a wheel I have shown in Figs. 2, 4, and 13. The face or periphery of the larger disk is provided with figures and a ratchet, a movement of one notch on which moves the wheel one space. The pawl from this wheel connects with the lower slide 19. In addition to this ratchet there are others decreasing in circumference but all attached to the large wheel whereby the same throw of each pawl moves the registering disk a long or short distance accordingly as the pawl extends from a four cent lever 64 or from a smaller sum slide.

The receptacle 29 may be cast with solid fronts but I prefer to employ the construction shown in Figs. 1, 10 and 11 or the glass receptacle shown in Fig. 12. In the former case the forward face of the receptacle is planed down so as to make a vertical slot 76 in the front of each receptacle. These slots are closed by the broad plate or pane of glass 77 suitably secured to the front of the casting as by screws 78. The glass conforms to the face shape of the receptacles. Graduations are provided at the edges of the slots for more readily counting the coins.

In place of employing metal receptacles having vertical slots through which the number of coins in each part of the same may be observed I sometimes use a receptacle made entirely of transparent glass as indicated in Fig. 12 thereby making unnecessary the use of the slots described and also the glass plate. The graduations 79 are arranged directly on the front of each glass receptacle or coin compartment. The receptacles whether of metal or glass are provided on a long level foot screwed to the floor 50 whereby the bottoms of the same are all arranged in the same horizontal plane resting on the top of the said floor. A drawer 80 is provided beneath the shelf or plate 75 for holding bills or checks, &c.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination in a device of the class described, of a frame having side pieces 2, with cross bars, top, and floor therefor, slots 9 arranged in the said side pieces, key rods, and the removable notched guide plates arranged in sections and adapted to be held in the slots of said frame, substantially as described.

2. The combination in a device of the class described, of a supporting frame having high sides 2, with cross and brace bars therefor, the top 25' having guide ribs 25, the keys and key rods, guide plates 10 and 12 notched to receive said rods, said plate being removably secured in said frame, the levers 14 having their upper ends confined by said guide ribs 25, lugs 13 in connection with said key rods and adapted to engage said levers, coin receptacles arranged beneath said keys, slides 19 arranged directly beneath the several compartments thereof, adjustable links connecting the lower ends of said levers 14 and said slides 19, and a grooved floor 50 wherein said slides

are adapted to operate, substantially as described.

3. The combination in a device of the class described, of levers 14 with coin receptacles having ejecting slides 19 adapted to be operated by said levers, guides 25 for the upper ends of said levers, keys B arranged in the upper part of the machine key, rods 8, lugs 13 arranged in connection therewith and adapted to engage said levers 14, the frame sides and the notched sections 10 arranged in the front and back of the frame and adapted to support said key rods, substantially as described.

4. The combination in a device of the class described, of the frame with the notched sections 10 and 12 arranged in the front and back of the same, the key rods 8 having a rectangular cross section and held in the notches or openings 11 of said sections, keys B on the forward ends of said rods, coin receptacles slides 19 therefor, levers 14 linked thereto and extending up between said key rods, the lugs 13 formed upon said keys, the reach connections 15, said keys and rods being arranged in inclined banks as described, whereby space is economized, substantially as described.

5. The combination in a device of the class described, of the key rods and keys arranged thereon, with longitudinal guides for said rods, levers 14 adapted to be operated by the movement of said keys, and means for holding said keys in the forward positions, said keys being one hundred in number and in a group numbering ten on a side, the arrangement being such that the last figures of the numbers on any given bank of keys are the same whereby an index of position is established, substantially as described.

6. The combination in a device of the class described, of a supporting frame with keys, and rectangular key rods, guides therefor in the sectional front and rear plates, levers 14, lugs arranged on said rods and adapted to engage said levers, reaches 15 springs 27 extending between the frame and said levers 14, slides 19 and adjustable links 20 connected therewith and with the lower ends of said levers 14, as and for the purpose specified.

7. The combination in a device of the class described, of levers 14 pivoted on the shaft 16, coin receptacles 29 having their lower ends in the same plane, means for distributing coins to said receptacles, the solid floor 50 having openings 51 coincident with those of the receptacles, grooves in said floor, and slides 45 having openings 47, means for drawing the same forward, springs 52 and slides 19 having holes normally coincident with said receptacles, said slides 19 arranged upon the slides 45 and linked to said levers, substantially as described.

8. The combination in a device of the class described, of the frame made up of the side pieces 2, and cross portions 3, 4, 5 and 6, and the solid top 25' and floor 50, with levers 14 pivoted on the shaft 16, guides 25, coin recep-

tacles and coin assorter in connection therewith, the sides 19 and 45 adjustable links 20 springs 52, openings 51 in said floor 50, and a discharge pan or chute 49, substantially as described.

9. The combination in a device of the class described, of coin receptacles 29, the coin chute having openings 31 in its lower portion and arranged above said receptacles, the ridge 33, and a slot or opening 36 therein, substantially as described.

10. The combination in a device of the class described, of the series of receptacles 29, the chute provided with the inclined floor 32 having a series of openings 31 of varied widths, and with the ridge 33 arranged at the lower edge of said floor and provided with a series of depending bracket portions or partitions 38 arranged upon the under side of the chute floor and adapted to rest upon the tops of the receptacles said partitions being arranged between said openings, substantially as described.

11. The combination in a device of the class described, with receptacles 29, adapted to receive different sized coins, with the coin chute 32 having openings 31, said chute being slanted or inclined as described, partitions and brackets 38, said chute secured upon the tops of said receptacles, the upper and rear walls of the receptacles being cut down to form shoulders 39 and lugs 40 arranged upon the inner walls of said receptacles, substantially as described.

12. The combination in a device of the class described, of the receptacles, with the coin assorter chute arranged above the same, shoulders 39 lugs 40 and the chute 43, substantially as described.

13. The combination in a device of the class described, of the coin assorter chute provided with the inclined floor 32 having the series of openings 31 and the coin cup arranged upon the upper end of said coin chute, an extension of the floor 32 forming the bottom of the said cup, said cup being provided with the walls 70 and 73 that are inclined and flared outward from the top of the cup toward its bottom, the wall 73 being provided with the slot 74, substantially as described.

14. The combination in a device of the class

described, of the frame 2, with the keys and key rods, guide sections 10 and 12 notched to receive said rods, and arranged in the front and rear of said frame, levers 14, guides 25 therefor, lugs on said rods adapted to engage said levers, springs 27, coin receptacles, and coin chute having openings 31, the ridge 33, the top for said chute, the coin cup 30, the perforated floor 50, slides 19 and 45 arranged in grooves therein and having openings 47 and 48 respectively, said slides 19 adjustably linked to said levers 14, a chute or pan 49, registering devices and levers 64 connected therewith and adapted to be operated when the coin or coins are ejected from beneath said receptacles, substantially as described.

15. The combination in a device of the class described, with the sides 2, of the removable and interchangeable sections 10 and 12 arranged in vertical slots 9 therein, key rods 8 of a rectangular form arranged in horizontal notches or openings in said sections, shoulders thereon adapted to engage the same, levers 14, lugs 13 rods 15 and the rod 28 adapted to support the lower tier or bank of lugs and reaches, said key rods being arranged in inclined banks, substantially as described.

16. The combination in a device of the class described, with the coin chute, of the coin cup provided with an inclined bottom and with one or more of the walls of the cup inclined or flaring outward from the top of the cup toward the bottom.

17. The combination in a device of the class described, of key and key rods, with levers 14, lugs on said rods adapted to engage the same, the floor 50 the slides 19, 19' and 45 arranged in grooves in said floor and beneath the lower ends of said receptacle said slides 19, 19' adapted to be operated by the movement of said levers 14 and said slides 45, to be operated by hand.

18. The coin receptacle provided with the lug 40 upon its inner surface for the purpose specified.

In testimony whereof I have hereunto set my hand this 23d day of April, 1891.

SAMUEL J. TAYLOR.

In presence of—

F. S. LYON,

C. G. HAWLEY.