B. C. HOEFER.

COIN DELIVERING MACHINE.

APPLICATION FILED MAR. 14, 1910.

1,093,052.

Patented Apr. 14, 1914.

3 SHEETS—SHEET 1.

Fig. 1.

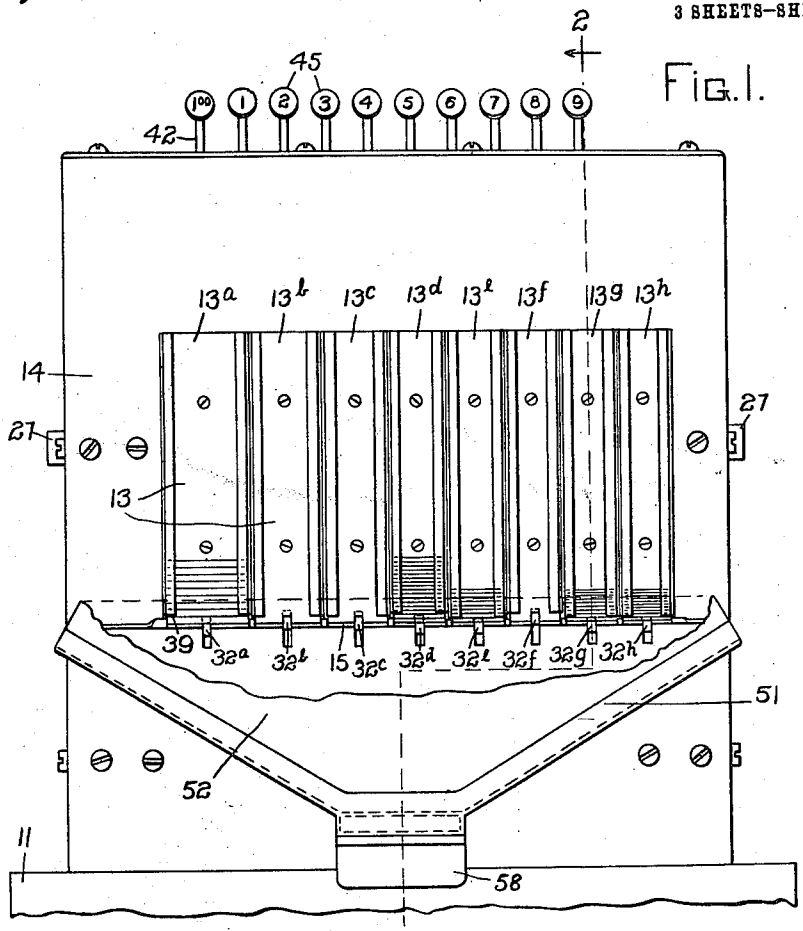
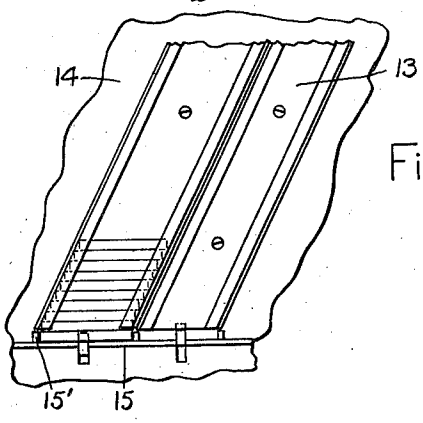


Fig. 7.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 2.

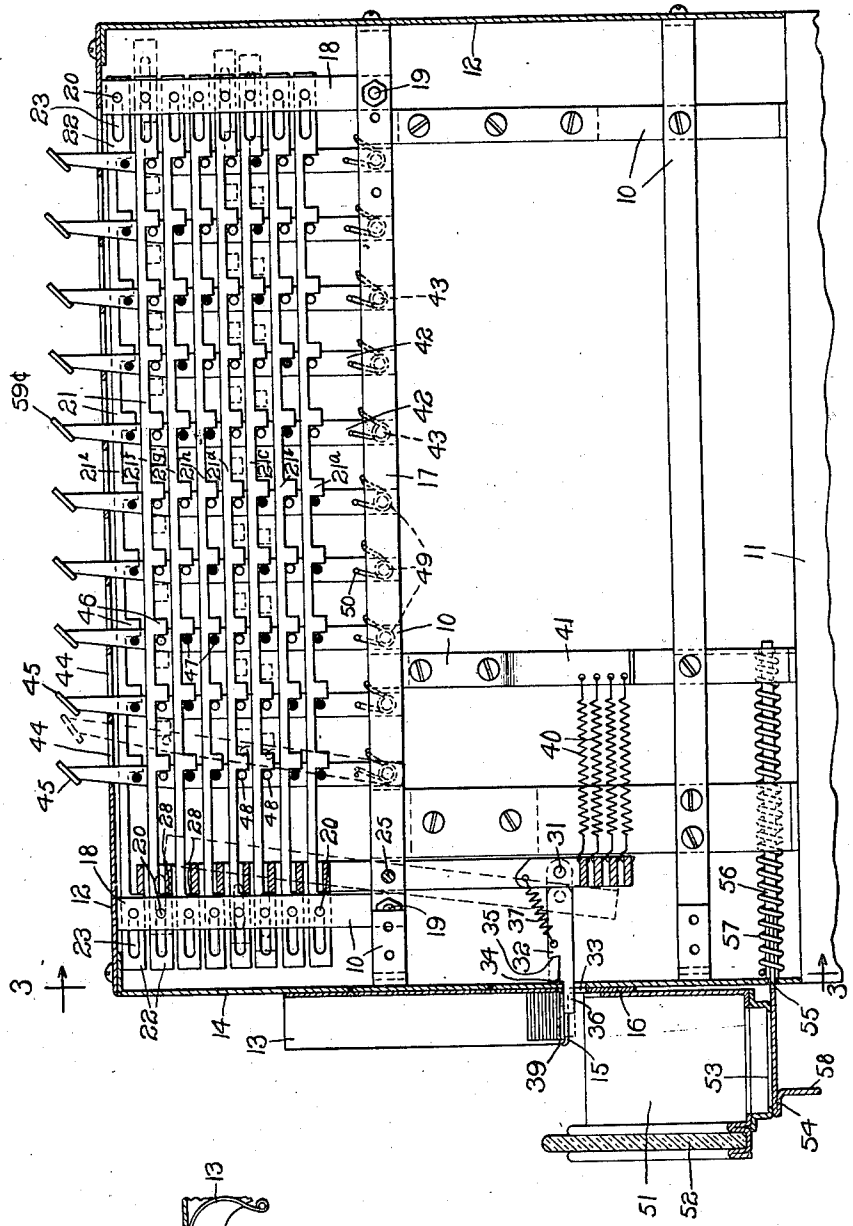
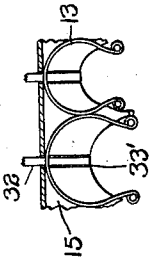


Fig. 5.



Witnesses

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3 SHEETS—SHEET 3.

Fig. 3.

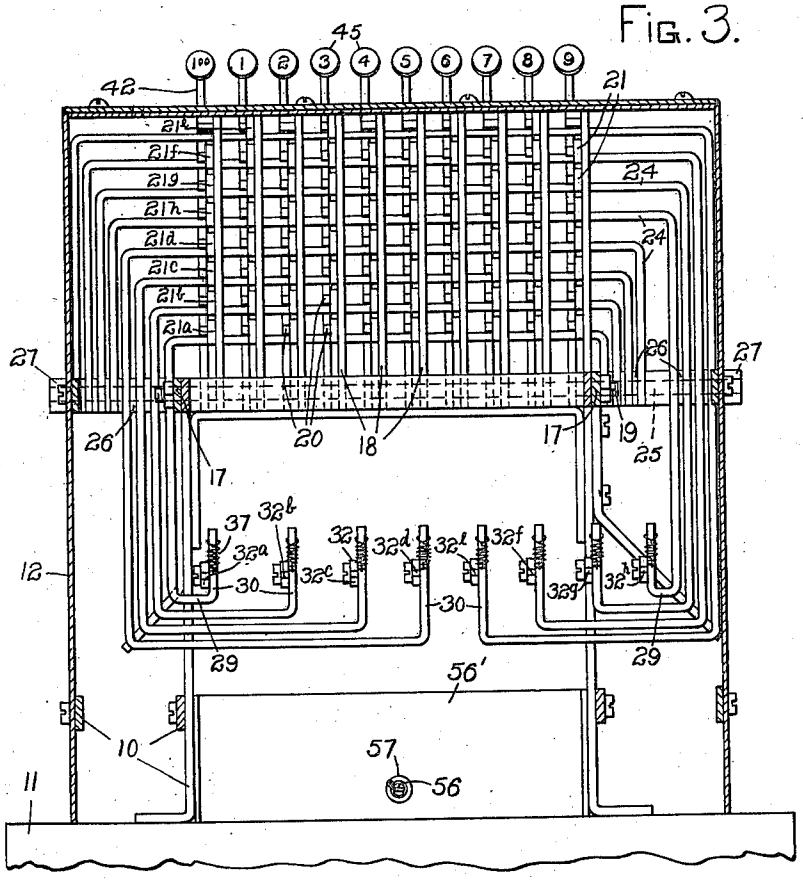
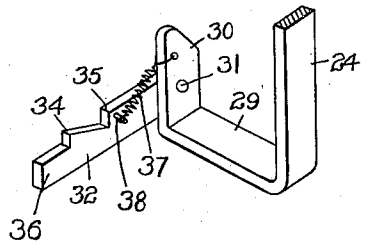


Fig. 4.



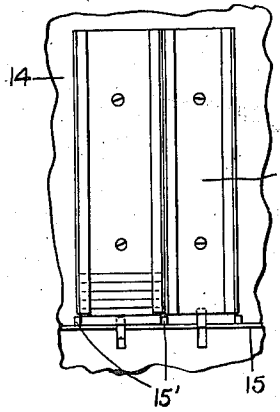


Fig. 6.

Witnesses

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UNITED STATES PATENT OFFICE.

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COIN-DELIVERING MACHINE.

1,093,052. Specification of Letters Patent. Patented Apr. 14, 1914.

Application filed March 14, 1910. Serial No. 549,226.

To all whom it may concern:

Be it known that I, BENJAMIN C. HOEFER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Coin-Delivering Machines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to coin delivery machines, that is, devices of that class wherein selective ejecting mechanism is associated with a magazine for coins or other tokens. I am aware that in the prior art there are machines coming within the terms of this definition and I properly refer to my invention, therefore, as an improvement in the structure, and consequently in the operation, of such devices. The difficulty heretofore has been that the capacity of machines of this kind, not structural as to the number of tokens it may hold, but rather as to the number of selections it may make, has been quite limited, not only because of the intricacy of the mechanism but also because the expense of construction prohibited their use. This difficulty can be further explained by pointing out that in machines of the prior art the intricacy of the mechanism increased quite in proportion to the number of selections that the machine could make.

It is the object of my invention to eliminate the difficulties of the art as now known and, consistently, to provide a simply constructed, simply assembled, inexpensive structure which can be operated in a simple and reliable manner to secure the desired result. To this end I have provided a structure which, broadly and essentially, comprises kinematic elements in the form of units or standard entities, so that to increase the selective capacity of the machine a mere duplication of these standard parts is involved. In fact so truly is the machine of my invention built along these lines that it could be adequately specified and claimed by the proper description of a single "bank" comprising sufficient mechanisms to be capable of ejecting a plurality of coins or tokens at substantially the same time or, at least, with the same operation. The simplicity and commercial adaptability of my machine at once manifest themselves when it is considered that any number of such structural units which have been referred to, once prepared, may be employed to assemble a machine of any desired selective capacity.

My invention also provides, in a modified form thereof, means whereby the cubic capacity of the magazine may be increased without interfering with the proper operation thereof.

My machine, like all of the commercially successful machines on the market, ejects a selected coin or other token from the bottom of a stack or pile of such coins or tokens, but, unlike previous proposals, my invention provides means whereby the weight of the coins or tokens does not interfere with the ejection of the lowermost coin or token. That is, the cubic capacity of the prior art has been limited considerably because the weight of the stacked coins or tokens often prevented the ejection of the lowermost, and in this way it was necessary to limit the number of coins or tokens arranged in piles or stacks and, consequently, to frequently refill the magazine.

My invention contemplates means for raising the limit thus imposed.

My invention also provides means for preventing the making of a certain selection if the contents of the magazine or any part thereof have become exhausted so that the particular selection contemplated cannot be satisfied. And in this way not only is the operator warned that the magazine must be replenished, but any inaccuracy in delivery is absolutely avoided.

It is, of course, to be understood that the device of my invention is not limited to use with any particular kind of coins or, in fact, any particular kind of tokens, slugs or checks. What my machine does is to store such articles of different kinds and to provide for the selection and delivery of any combination of them. It will facilitate description of my invention, however, to refer to my machine as adapted for use in connection with the usual United States metallic coins, such as the half dollar piece, quarter dollar piece, nickel, dime and penny, and from this description the adaptability of the machine to use in connection with

other coins, checks, slugs or tokens will be readily apparent.

My invention is embodied in the structure illustrated in the accompanying drawings, in which—

Figure 1 is a front elevational view of the device, parts being broken away to reveal the construction; Fig. 2 is a longitudinal sectional view taken on the planes indicated by the line 2, 2 of Fig. 1, and looking in the direction indicated by the arrows; Fig. 3 is a view similar to Fig. 1, the casing, however, being shown in section taken on the plane 3, 3 of Fig. 2; Fig. 4 is a detail view, in perspective, showing the ejector arrangement; Fig. 5 is a detail showing a part of the coin magazine in plan; Fig. 6 is an elevational view showing a modified construction of the coin magazine, and Fig. 7 illustrates, in elevation, a still further modification.

Like reference numerals are applied to the same and analogous parts throughout the various figures.

Referring first to the form of my invention illustrated in Figs. 1 to 5, inclusive, it will be seen that the various operating parts are mounted in and upon a mechanically resistant supporting structure in the way of a framework 10 which, in turn, is mounted in any convenient manner upon a suitable base 11. A suitable casing 12 is secured to the framework and incloses the various mechanisms with the exception of the keys or actuating buttons, which are left exposed for manipulation, and the coin magazine and chute which are open to view and access.

The coin magazine, as shown in Figs. 1, 2 and 5, comprises means for suitably containing assorted coins, each kind of coin having a certain definite place, and, specifically, consists in a plurality of vertical channel pieces 13, 13 secured in a row, by means of suitable screws, to the front wall 14 of the casing 12 directly above the horizontal shelf 15, which is part of an angle piece, the vertical portion 16 of which is also secured to the front wall 14. The channel members 13 are partially tubular or circular in form, being greater than a half circle, as indicated in Fig. 5, in order that the stack of coins contained thereby may be properly kept in place. As shown in Fig. 1, I have indicated the channel pieces by the characters 13^a, 13^b, 13^c, 13^d, 13^e, 13^f, 13^g and 13^h, it being, of course, understood that this description is specific and that my invention is not limited to the arrangement particularly shown. A number of channel members are provided so that coins of different sizes, and consequently of different denominations, may be accommodated, it being understood that it might be desirable and probably necessary to provide two or more channels for coins of the same size and denomination not only so that the proper selections may be made, but also to increase the cubic capacity of the machine. Thus, in the arrangement herein particularly shown the channel 13^a may be for half dollar pieces, the channel 13^b for quarter dollar pieces, the channel 13^c for nickels, the channels 13^d, 13^e and 13^f for pennies, and the remaining channels for dimes. This combination has been found ample for selecting change to any amount from one cent to one dollar, and it is clear that the selective capacity of the machine could be increased to include greater amounts by the mere addition of further channels for the accommodation of silver dollars.

Extending upwardly from the parts 17, 17 of the framework, which parts constitute really the main supporting arrangement, are a plurality of standards 18, 18 disposed near each end of the parts 17, 17 and arranged in pairs and, preferably, in lateral registration. As thus arranged, all the standards at each end are securely held in place by means of a bolt 19, which conveniently and efficiently provides a rigid construction. Each one of the standards 18 is provided with a plurality of short studs 20, 20 arranged in vertical alinement and registering with the similar studs on the other member of the pair. Upon each pair of studs 20, 20 a sliding shift bar 21 is mounted, this shift bar being provided at each end with an enlargement 22, which is provided with an elongated slot 23 in which the stud may engage. It is clear that this arrangement provides for the horizontal shifting of the bar 21. It is thus seen that there are a plurality of banks each of which constitutes a plurality of shift bars, and these banks are arranged to correspond with the arrangement of the selector keys, as will hereinafter be clearly pointed out. It is essential that there be a shift bar for each kind of token contained in the magazine, but, for the purposes of efficient mechanical construction, a number of such shift bars are provided for each kind of token. This duplication is merely to facilitate the arrangement of the selector mechanism, as will more clearly appear hereinafter. Thus there are a plurality of sets of shift bars, one set for each kind of token in the magazine and each set being represented in each bank of shift bars unless such representation is unnecessary to secure the selections provided for by that bank.

In the present embodiment of my invention each of the "sets" referred to comprises a horizontal row of shift bars, while each of the "banks" comprises a vertical row of shift bars. This is the ordinary rectangular arrangement and it is clear that it is necessary that means be provided whereby the actuation of any one of the shift bars of a horizontal row will result in the ejection of a coin of the same kind. Thus,

using corresponding lettering, any one of the shift bars 21^a will result in the ejection of a coin from the channel 13^a, in this case a fifty cent piece. Similarly, any one of the shift bars 21^b will result in the ejection of a token from the channel 13^b, etc. In order that this result may follow, I provide a plurality of U-bars or levers 24, nested or one arranged within the other, as indicated in Fig. 3, said levers being pivotally mounted on a rod 25 mounted in the parts 17, 17 and extending transversely of the device, as indicated in Fig. 3. The U-bars are separated by suitable washers 26, 26 and are confined to the rod 25 by means of collars 27, 27 rigidly secured, in some suitable manner, to the ends of the rod. The U-bars are thus free to swing upon the pivot and, as is clear from Figs. 2 and 3, the horizontal portion of each of them passes along in front of the shoulders 28, 28 formed by the enlargements 22, 22 on the shift bars 21, 21 of some particular row. Thus the movement of any shift bar of any particular row will result in the swinging of the U-bar associated with that row. One of the vertical arms of each of the U-bars is extended downwardly beyond the pivot and is then bent inwardly, as indicated at 29, to form a support for the ejector which is to be associated with the corresponding channel of the magazine. Each part 29 is supplemented by an upwardly extending part 30, clearly shown in Fig. 4, and to this part 30, at 31, the ejector piece 32 is pivoted. As best shown in Fig. 2, this ejector piece is mounted in approximately the plane of the lowermost coin of the stack in the associated channel and the forward end of this piece passes through an opening 33 in the front wall 14 of the casing, in the shelf member comprising the parts 15 and 16 and in the channel piece. Each ejector piece 32 is provided with two shoulders 34 and 35, each of these shoulders having a distinct function. When the U-piece 24 is in normal position, that is the position shown in full lines in Fig. 2, the shoulder 34 is substantially in alinement with the inner face of the wall 14 of the casing. The part 36 of the ejector piece, however, extends forwardly through the opening 33 in the casing and shelf piece and into the slot 33′ in the shelf 15. A spring 37 extends from the upwardly extending part 30 of the U-piece 24 to a pin 38 on the ejector piece and exerts an upward pull on the ejector piece, tending, when the U-piece is in normal position, to hold the shoulder 34 out of register with the opening 33 in the wall 14 so that, if it were attempted to actuate the ejector, its movement would be arrested by the engagement of said shoulder with the wall. When, however, a stack of coins is disposed in the corresponding channel, the weight thereof, resting upon the part 36, which would otherwise be held slightly above the plane of the shelf 15, overcomes the tension of the spring 37 and brings the shoulder 34 into register with the opening 33. Should actuation follow, the ejector piece 32 may pass through the opening 33 and, the shoulder 34 being of just sufficient height, a coin will be ejected from the channel.

As best shown in Figs. 3 and 5, the channels 13 are, in their greater part, slightly more than semicircular, but the bottom of the channel piece is notched, as indicated at 39, to permit the ejection of just one coin or two coins if the shoulder 34 is made for that purpose, as in the case of pennies. The notch is of just sufficient height to permit the passage of one coin or, as the case may be, two coins, and the remainder of the coins are effectively retained within the channel. Thus the ejector piece 32 is held in operative position by the weight of the coins in the associated channel and, should it occur that the channel becomes empty, or nearly so, as the channels 13^b, 13^e and 13^f, Fig. 1, the spring 37, which is sensitive, will raise the ejector 32 to bring the shoulder 34 out of register with the opening 33, so that actuation of that particular ejector will be impossible. Thus, if it were desired to make a selection involving that particular ejector, actuation will be prevented and the operator will be warned that that particular channel must be replenished. The shoulder 35 acts to limit the forward movement of the ejector piece 32, by engaging the inner face of the wall 14, although this movement may be limited by other means as will be hereinafter apparent.

The U-pieces are held in normal position, against the shoulders 28, as shown in full lines in Fig. 2, by means of the springs 40, 40, one of which extends between each of the U-pieces and a part 41 on the framework 10. It is, of course, apparent that the ejector pieces 32 must be spaced in accordance with the channels 13, and preferably in accordance with the axes thereof and it is clear, particularly from Fig. 3, that this spacing is obtained merely by giving the part 29 of the U-pieces the proper length. As a feature of simple construction the left-hand members of four of the U-pieces are extended to support the ejectors and the right-hand members of the remaining U-pieces are extended to support the ejectors, as clearly shown in Fig. 3. The ejector pieces are all brought substantially into the same plane by the proper formation of the upwardly extending ends of the U-pieces.

Associated with each bank of shift bars are a plurality of arms 42, 42 mounted to oscillate upon pivots 43, 43 suitably set in the parts 17, 17 of the framework. The arms 42 are preferably equally spaced along

the length of the shift bars and extend upwardly along the side of each set, as shown in Figs. 2 and 3, passing out of the casing through properly disposed slots 44, 44 and terminating in finger pieces or buttons 45, 45. Each of the shift bars is provided with a plurality of projections 46, 46, these projections being preferably equally spaced and corresponding in number and position to the associated arms 42. Each of the arms 42 is provided with a number of small openings 47, 47, corresponding in number and spacing with the pins 20, 20 in the standards 18, 18. These apertures 47 are intended for the reception of pins 48, 48, and it is clear that the arms 42 may, of themselves, be uniform and that pins 48, 48 may be disposed wherever desirable. The apertures just referred to and, consequently, the pins disposed therein, are proximate to the projections 46 of the shift bars in such a way that a pin may engage the corresponding projection of a shift bar when the arm 45 is oscillated to move the shift bar. It is to be noted that the pivot member 25 and the pivots 43 are in substantially the same horizontal plane and in this way the greater movement required by the longer U-pieces is met by the greater resulting movement of the shift bar. In this way the arms 42 and the associated parts become keys which normally rest at the forward ends of the slots 44 in the top of the casing, as indicated in full lines in Fig. 2. They are held in this position primarily by the springs 40, 40, which exert their tendency through the U-pieces and the shift bars and secondarily by the springs 49, 49, which are coiled about the pivots 43, 43 and, at one end, pass through and catch in small openings 50, 50 in the arms 42 and at the other end rest upon the framework, as shown in Fig. 2.

Normally the shift bars are adapted to remain at the forward end of their strokes, that is, with the pins 20, 20 at the right-hand end of the slots 23, referring to Fig. 2. It is desirable, but not necessary, as will be clear, that the projections 46, which have pins 48 associated with them, engage these pins, or nearly so, when the parts are in normal position, as shown in Fig. 2, and it is by this engagement that the springs 40, 40 normally hold the keys 42 in their forward positions. The springs 49 are really secondary and operate only when a bar, operated by one key, affords the only other retaining means for another key. It is now apparent that the disposition of the pins 48 provides for the selecting when a certain key is operated. Only those projections on a shift bar which are associated with pins are effective and, other things being equal, the other projections could be dispensed with. In fact, if it should occur that in connection with a row of selector keys a certain bar would not have any projections in association with pins, the entire bar could be disposed of. However, the structure proposed is followed out for the convenience of construction. It is clear that all the shift bars may be alike and that, primarily, all the selector keys may be alike, the only difference being in the disposition of the pins. As shown in Figs. 1 and 3, the buttons 45, which are mounted at the ends of the keys, are provided with indicative characters so that the selection made by that key may be known. For instance, in the present machine, there are one hundred buttons employed and the selections range from one cent to one dollar. The arrangement is consecutive, of course, and it is preferable that the units orders be arranged in rows from front to back, the rows from right to left then representing the "tens".

In the machine as shown herein, the channels 13^d and 13^f of the magazine, as before stated, are adapted to contain pennies and the shoulders of the associated ejector pieces are such that two pennies will be thrust from the channels with each actuation. The notches at the fronts of these parts are also sufficient for this purpose. Thus, actuation of the ejector associated with either the channel 13^d or the channel 13^f will result in the ejection of two cents. The actuation of the ejector associated with the channel 13^e results in the ejection of but one cent. In Fig. 2 the ninth order of selector keys is shown foremost and the omission of the uppermost shift bar will now become apparent. It is clear, of course, that any selection of the ninth order will require four cents and it is necessary in such a selection, therefore, to operate both the ejectors of the channels 13^d and 13^f. Consistently, it is never necessary to eject a single cent in such a selection and therefore a shift rod associated with the U-bar carrying the ejector for the one cent channel is not necessary. As clearly indicated in Fig. 3, where the ejector pieces are designated by characters given exponents to correspond to the exponents of the characters of the channels, it will be clear that a one cent rod is unnecessary in the zero order, in the second order, in the fourth order, and in the fifth, seventh and ninth orders.

One or two instances will suffice to illustrate the mode of the selections: For instance, the left end key, Fig. 2, is provided with three pins, one associated with the bar 21^f, one associated with the bar 21^d, and one associated with the bar 21^c. If this key were depressed, as indicated in dotted lines, the three bars just enumerated would be shifted and the corresponding ejectors 32^f, 32^d and 32^c would be operated. As is clear from Fig. 1, a five cent piece would be thrust from the channel 13^c, two cents from the

channel 13^d and two cents from the channel 13^f, making a total of nine cents, which corresponds with the indication in Figs. 1 and 3. If it were desired to select fifty-nine cents, the sixth key from the left, Fig. 2, indicated by the character 59¢. would be actuated. It is noted that this key is provided with four pins, one in association with the bar 21^f, one in association with the bar 21^d, one in association with the bar 21^c, and one with the bar 21^a. This actuation will result in the operation of the ejectors 32^f, 32^d, 32^c and 32^a and will thrust a fifty cent piece from the channel 13^a, a five cent piece from the channel 13^c and two cents from each of the channels 13^d and 13^f, making a total of fifty-nine cents.

In Fig. 6 I have shown a modified form, particularly of the magazine arrangement, wherein the channel pieces 13 are cut off square at the bottom so as to do away with the necessity of notching. In this case the shelf 15 is provided with properly spaced pins 15′ to prevent the coins from shifting out of place, the channel proper being raised sufficiently above the shelf 15 to permit of the ejection of a coin. One of the difficulties frequently incurred in the prior art is the limited cubic capacity of the magazine. Where the operation is such that coins are ejected from the bottom of the stack, it is clear that the height of the stack is limited, since the weight of the coins might interfere with the operation of the ejecting mechanism. In this way, particularly in a busy establishment, it has been necessary to refill the magazine more than was convenient. In order that more coins may be stacked in the magazine without interfering with the operation of the ejecting mechanism, I propose the arrangement shown in detail in Fig. 7. Here it is seen that the channels 13 are oblique and that the coins are placed therein horizontally, so that the planes of the coins, parallel to each other, are oblique to the axis of the channel. In this way most of the weight of the coins, after a certain number have been placed in the channel, is taken up by the side wall of the channel, the remaining pressure on the first few coins being very considerably diminished, so that the ejector may operate without interference even though a large number of coins be placed in the associated channel.

In order that the coins may be properly gathered after ejection from the magazine and delivered to the hand of an operator, I provide a chute or hopper 51 which is secured to the front wall 14 of the casing below the channels 13, being, of course, more than co-extensive therewith. The front of this chute or hopper is provided with a glass wall 52 so that the coins may be readily seen by the operator as they drop from the channels into the hopper. As best shown in Fig. 2, the hopper opening, indicated at 53, is provided with a gate 54 which is adapted to pass through a slot 55 in the front wall 14 and is carried upon a rod 56 which passes through the supporting wall 56′ supported in the framework, between which wall and the gate part proper a helical spring 57, surrounding the rod 56, extends. The front of the gate 54 is provided with a finger piece 58 and it is clear that when the finger piece is engaged by the hand of an operator the gate may be opened so that coins in the hopper will drop directly into the hand of the operator. Upon release the coiled spring 57 returns the gate to its normal position and the hopper is ready for the reception of another selection of coins.

I claim as new and desire to secure by Letters Patent:

1. In a coin delivering machine, in combination, a magazine for containing assorted tokens, a plurality of oscillating exposed selector keys, a sliding shift bar for each kind of token disposed in proximity to said keys, means for mechanically connecting a certain combination of said shift bars with each of said keys, said connecting means being effective only in an actuated key, an ejector for each kind of token, and means for mechanically connecting each ejector with one of said shift bars.

2. In a coin delivering machine, in combination, a magazine for containing assorted tokens, a sliding shift bar for each kind of token, an ejector for each kind of token, means for connecting each ejector with one of said shift bars, the movement of any one of said shift bars causing the ejection of a corresponding token, and a plurality of oscillating exposed selector keys each operating in proximity to said shift bars to actuate a certain combination of them.

3. In a coin delivering machine, in combination, a magazine for containing assorted tokens, selecting ejector mechanism associated with said magazine, a plurality of independent banks each comprising a plurality of similarly shaped sliding shift bars, means for mechanically associating each ejector mechanism with a shift bar in each bank, and a plurality of selector keys each operating in proximity to a bank of shift bars to actuate a certain combination of them.

4. In a coin delivering machine, in combination, a magazine for containing assorted tokens, an ejector for each kind of token associated with said magazine, multiple shift bars of identical shape for each ejector, means for mechanically associating each ejector with a shift bar in each bank so that the movement of any one of said shift bars will cause movement of the corresponding ejector, and a plurality of se-

lector keys distributed among the multiple shift bars and operating to move a certain combination of said shift bars.

5. In a coin delivering machine, in combination, a magazine for containing assorted coins, selecting ejector mechanism associated with said magazine, a plurality of independent banks each comprising a plurality of similarly shaped shift bars, means for mechanically connecting each ejector mechanism with a shift bar in each bank, said connection being in the form of a mechanical engagement, whereby the movement of any one of said shift bars will cause the proper operation of the ejecting mechanism without the operation of any of the other shift bars, and a plurality of selector keys mounted for actuation in proximity to said shift bars and having parts for engagement with said shift bars, whereby each key may actuate a certain combination of them.

6. In a coin delivering machine, in combination, a magazine for containing a stack of tokens, an ejector associated with said magazine, a sliding shift bar, a pivoted lever for transmitting the motion of said shift bar to said ejector, and an exposed selector key in the form of an oscillating arm arranged to move said shift bar upon actuation, the axes of the two pivots lying in substantially the same plane parallel to the shift bar.

7. In a coin delivering machine, in combination, a magazine for containing a stack of tokens, an ejector mechanism associated with said magazine, a plurality of sliding shift bars, a pivoted lever for transmitting the motion of each of said shift bars to said ejector mechanism, and a plurality of exposed selector keys each in the form of an oscillating arm arranged to move any one or any combination of said shift bars upon actuation, the axes of the two pivots lying in substantially the same plane parallel to the shift bar.

8. In a coin delivering machine, in combination, a magazine for containing a stack of tokens, a sliding shift bar, a pivoted lever arranged to be engaged by said sliding shift bar upon actuation thereof, means tending to maintain said lever and shift bar in normal position, an ejector carried by said lever and associated with said magazine, and an exposed selector key mounted in proximity to said shift bar and arranged for engagement therewith upon actuation, said shift bar being capable of movement against said maintaining means without moving the corresponding key.

9. In a coin delivering machine, in combination, a magazine for containing a stack of tokens, a sliding shift bar, a pivoted lever adapted to be actuated by said shift bar, an ejector resiliently carried against gravity by said pivoted lever, a selector key mounted in proximity to said shift bar and arranged to move it upon actuation, and means for limiting the movement of said ejector.

10. In a coin delivering machine, in combination, a magazine for containing a stack of tokens, a sliding shift bar, a pivoted lever adapted to be actuated by said sliding shift bar, an ejector resiliently carried against gravity upon said pivoted lever and passing through the wall of said magazine, a selector key for actuating said shift bar, and a shoulder on said ejector for engaging the wall of said magazine to limit the movement of said operating parts.

11. In a coin delivering machine, in combination, a magazine for containing assorted tokens, a plurality of banks of sliding shift bars, all of said shift bars having a plurality of definitely disposed lugs and each bank having a shift bar for each kind of token, an ejector for each kind of token, means for mechanically connecting each ejector with the corresponding shift bar of each bank, and a plurality of selector keys for each bank of shift bars arranged to independently engage the lugs on any one or any combination of them.

12. In a coin delivering machine, in combination, a magazine for containing a stack of tokens, a sliding shift bar, a pivoted lever actuated by the movement of said sliding shift bar, an ejector pivoted to said lever and projecting into said magazine, said ejector being limited in its oscillatory movement, and a spring permanently tending to raise said ejector.

13. In a coin delivering machine, in combination, a magazine for containing a stack of tokens, a pivoted reciprocating ejector associated with said magazine, a shoulder on said ejector, and a spring tending to maintain said shoulder in engagement with the wall of said magazine to lock said ejector against movement, said shoulder being adapted to be held out of engagement with said wall by the weight of coins upon said ejector.

14. In a coin delivering machine, in combination, a magazine for containing assorted tokens, a plurality of banks of similar sliding shift bars, each bank having a shift bar for each kind of token, an ejector for each kind of token, means for mechanically connecting each ejector with the corresponding shift bar of each bank, and a plurality of similar selector arms mounted in proximity to said shift bars, each of said arms having an opening for each shift bar, and pins in certain of said openings for engagement with the corresponding shift bar, whereby the motion of said arm may be transmitted to said ejector.

15. In a coin delivering machine, in combination, a magazine for containing assorted tokens, a plurality of independent banks

of identically similar sliding shift bars, each bank having a shift bar for each kind of token, an ejector for each kind of token, means for mechanically connecting each ejector with the corresponding shift bar of each bank, and a plurality of selector keys for each bank of shift bars each arranged to actuate a certain combination of them.

16. In a coin delivering machine, in combination, a magazine for containing assorted tokens, a plurality of banks of sliding shift bars, each bank having a shift bar for each kind of token, each shift bar having a plurality of projections thereon, an ejector for each kind of token, means for mechanically connecting each ejector with the corresponding shift bar of each bank, and a plurality of selector keys for each bank of shift bars having differently disposed pins thereon arranged to independently actuate any one or any combination of said shift bars.

17. In a coin delivering machine, in combination, a magazine for containing assorted tokens, a plurality of banks of sliding shift bars, each bank having a shift bar for each kind of token, an ejector for each kind of token, a pivoted U-piece for mechanically connecting each ejector with the corresponding shift bar of each bank, and a plurality of selector keys for each bank of shift bars arranged to independently actuate any one or any combination of them.

18. In a coin delivering machine, in combination, a magazine for containing assorted tokens, a plurality of banks of sliding shift bars, each bank having a shift bar for each kind of token, each bar having a projection thereon, a pivoted U-piece adapted to be engaged by the projections of each set of corresponding shift bars in said banks, an ejector carried by each of said U-pieces and associated with said magazine, and a plurality of selector keys for each bank of shift bars arranged to independently actuate any one or any combination of them.

19. In a coin delivering machine, in combination, a magazine for containing a stack of tokens, a sliding shift bar, a pivoted lever arranged to be actuated by said shift bar, an ejector pivoted to said lever and projecting into said magazine, the oscillatory movement of said ejector being limited, a reciprocating movement thereof being limited by a shoulder thereon for engagement with the wall of said magazine, and a spring extending from the lever proper to said ejector to hold it in its raised position.

20. In combination, a plurality of similar sliding shift bars having sets of alining projections thereon, a selector key mounted to oscillate in proximity to each set of projections, each of said keys having an opening for such projection in the associated set, and pins in certain of said openings in each key for engagement with the corresponding projections upon actuation of said key.

21. In a coin delivering machine, a magazine comprising a shelf, a channel piece the bottom of which lies in substantially a single plane mounted above said shelf at a distance therefrom, and pins extending upwardly from said shelf at the sides of said channel piece.

In witness whereof, I hereunto subscribe my name this 10th day of March, A. D. 1910.

BENJAMIN C. HOEFER.

Witnesses:

ARTHUR H. BOETTCHER,
LEONARD W. NOVANDER.