

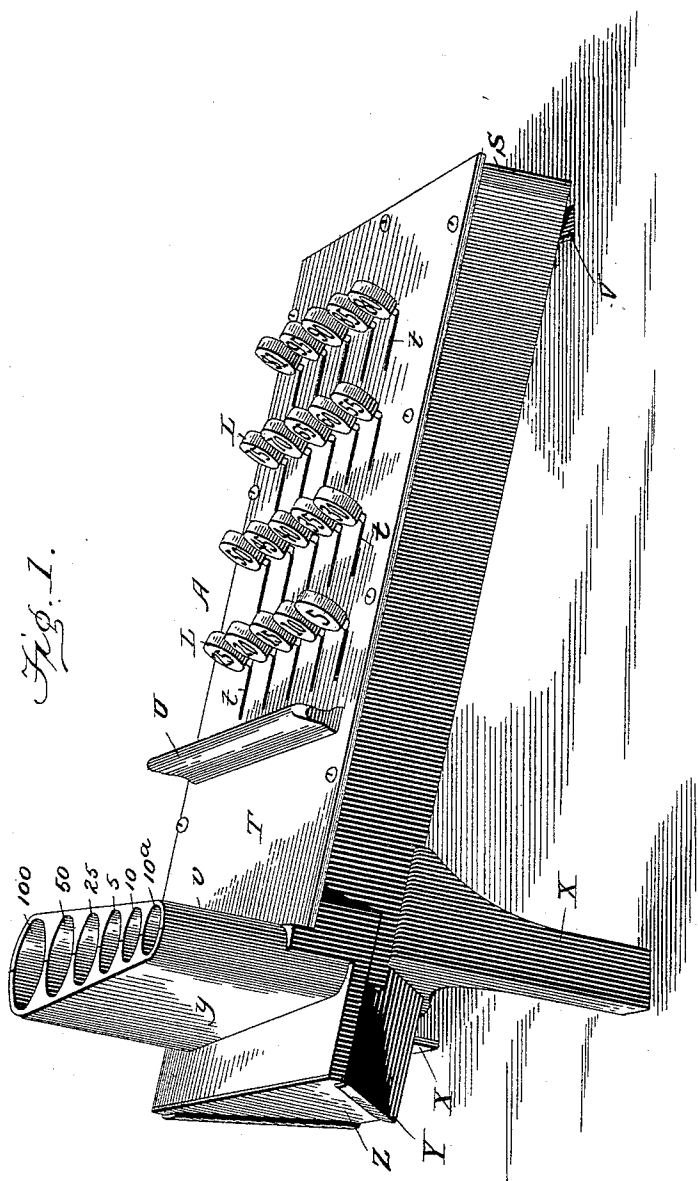
(No Model.)

4 Sheets—Sheet 1.

A. L. LEVIN.
COIN CHANGING DEVICE.

No. 569,214.

Patented Oct. 13, 1896.



Witnesses

Edwin L. Bradford
H. J. Goodhull

Inventor

Adolph L. Levin,
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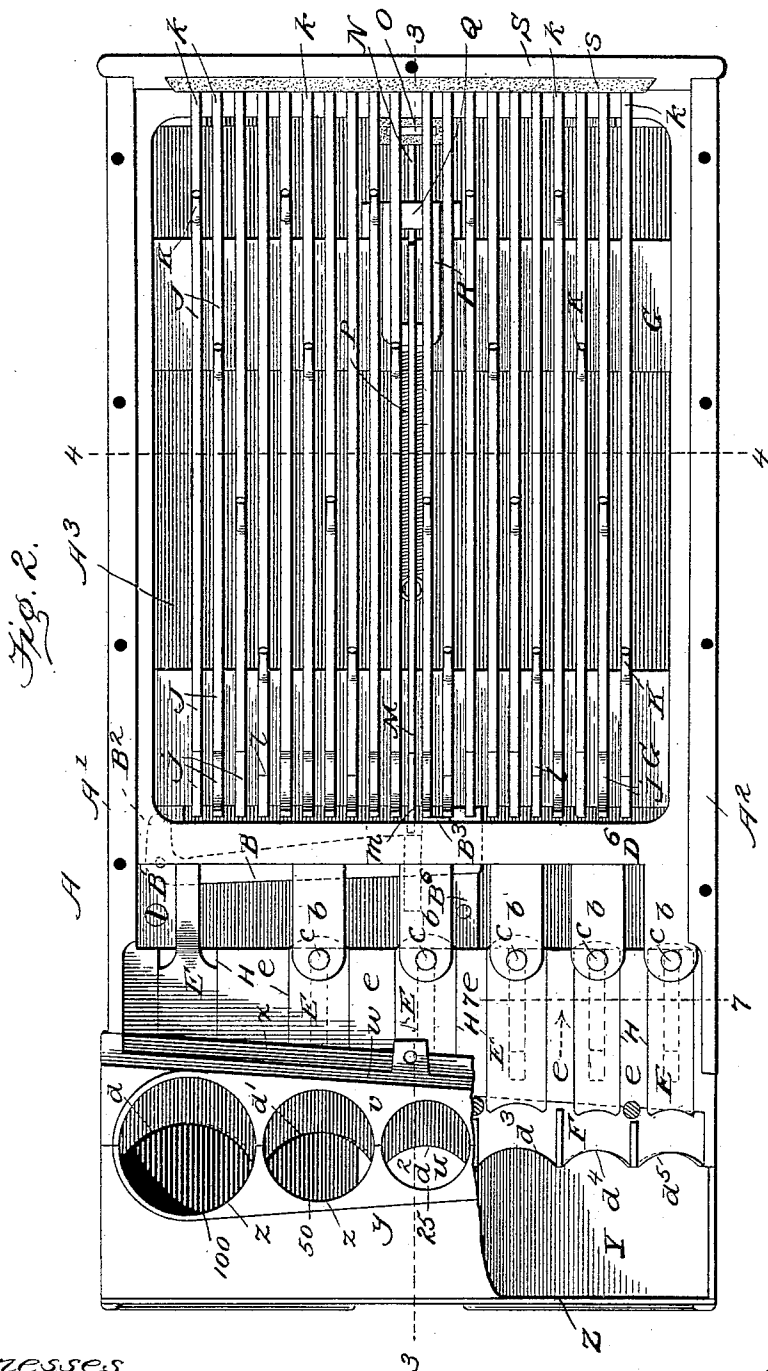
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4 Sheets—Sheet 2..

A. L. LEVIN.
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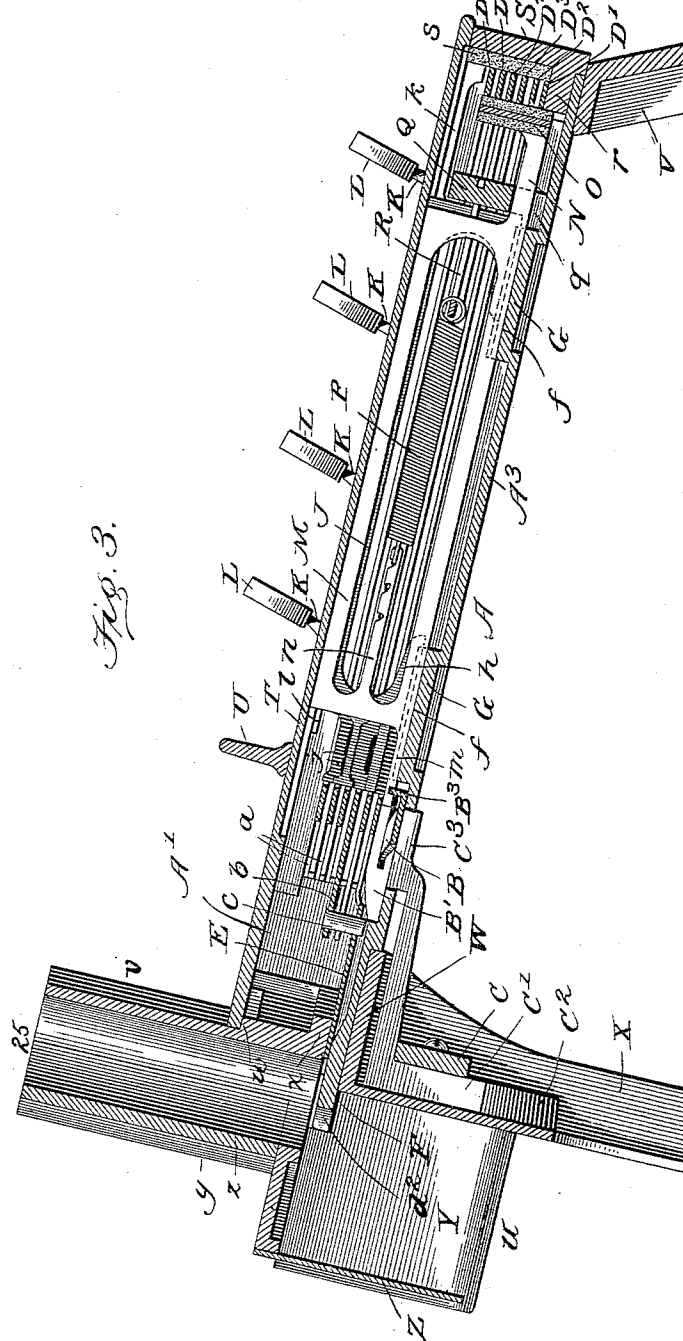
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4 Sheets—Sheet 3.

A. L. LEVIN.
COIN CHANGING DEVICE.

No. 569,214.

Patented Oct. 13, 1896.



Witnesses
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UNITED STATES PATENT OFFICE.

ADOLPH L. LEVIN, OF DENVER, COLORADO.

COIN-CHANGING DEVICE.

SPECIFICATION forming part of Letters Patent No. 569,214, dated October 13, 1896.

Application filed March 25, 1896. Serial No. 584,799. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH L. LEVIN, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Coin-Changing Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to money-changing or coin-delivering devices, and has for its object certain improvements upon this class of appliances in general, and upon United States Letters Patent No. 506,195, issued to me on the 3d day of October, 1893, in particular.

The invention resides, therefore, in a machine which is designed, arranged, and adapted to deliver into the hand of an operator, with accuracy and precision, change in predetermined amounts and coin denominations; a machine possessing among its characteristic features compactness and simplicity of construction to a marked degree, coupled with durability and ease of manipulation; a machine freely actuated in its delivery by a system of finger-keys, and a machine embracing means whereby any particular key may be caused to increase its normal delivery in a stated amount at will of the operator by a single stroke of the key.

More particularly stated, the invention contemplates and includes sliding push-bars of peculiar form bearing exposed keys configured by coin designations, a systematic and specially accessible arrangement of such keys upon a keyboard or top plate, reciprocating frames adapted to be actuated by said bars and provided at their advance end with swiveled coin-ejecting slides, a yoke common to all frames for returning them to their normal position after each forward thrust, the construction of a common discharge-chute, and an auxiliary shift-lever under control of the operator adapted to actuate an additional frame and to increase in a stated amount the normal delivery of any particular key.

The invention will be hereinafter more fully described, and definitely pointed out in the claims following.

In the accompanying drawings, whereon similar reference-letters indicate like parts wherever employed, Figure 1 is a perspective view of my invention in its entirety. Fig. 2 illustrates a plan view with the operating-keys and keyboard or top plate removed, a portion of the coin-receptacle also being broken away. Fig. 3 is a longitudinal central section taken on the line 3 3 of Fig. 2. Fig. 4 is a transverse vertical section on the line 4 4 of Fig. 2. Fig. 5 illustrates in perspective the push-bars employed and their surrounding frames in relative position, the latter being broken away at their advance end, exposing to view the corresponding and coacting ends of the former. Fig. 6 is a detached perspective view representing the advance end of one frame having a coin-ejecting slide in swiveled connection. Fig. 7 is a transverse sectional view in detail, taken on the line 7 7 of Fig. 2, showing three of the ejecting-slides located in their respective slideways. Fig. 8 is a fragmentary plan view illustrating the auxiliary shift-lever in its relation to the central yoke by which actuated and the lowermost reciprocating frame, indicated in this figure by dotted lines. Fig. 9 is a vertical transverse section on the line 9 9 of Fig. 8, showing a portion of the reciprocating frames in full lines. Fig. 10 is a detached detail perspective view showing a stationary lug, a fragment of the returning yoke with its spring, and a slotted link for securing the latter to said lug; and Fig. 11 is a modification in perspective of parts shown by Fig. 10.

Reference being had to the accompanying drawings and letters thereon, A indicates the casing or body of the machine, which is, by preference, rectangular in form, and in the present illustration is shown open-ended, with sides A^1 A^2 and bottom A^3 cast integral, though obviously the ends might be integral, if desired, or the bottom detachable without in the least detracting from their respective functions. Likewise various changes of form and arrangement of parts may be made and substituted for those hereinafter set forth without in the least departing from the spirit of my invention, it being the purpose of this specification to fully describe one desirable

form of construction which may easily be varied to produce a machine of increased or decreased capacity.

Within casing A is located a series of six rectangular frames $D^1 D^2 D^3 D^4 D^5 D^6$, superimposed one above the other and adapted to reciprocate in longitudinal tracks or grooves a , milled into the inner surface of sides $A^1 A^2$. At their forward or advance ends these frames are equipped with integral pilot-arms b , each in the same plane with its respective frame and consequently in different planes with each other, bearing at their distal ends downwardly-extending pintles c of varying lengths, upon the lower end of which is loosely swiveled a flat coin-ejecting slide E, the use whereof will later appear.

Crossing the bottom A^3 transversely are three raised beds F and G G, which may be cast solid, and, if desired, lightened by the removal of metal from beneath, as shown by Fig. 3. The first-mentioned bed F projects beyond the confines of case A, serves as a counter upon which the several columns of coins directly rest, and is finished in a series of adjacent concave indentures or escallops $d d^1 d^2 d^3 d^4 d^5$, the edges whereof are beveled in opposite directions from center of the structure, for purposes that will later appear. Indentures $d d^1 d^2 d^3 d^4$ are of gradually-decreasing diameter in the order named, the remaining one, d^5 , corresponding with that last mentioned, and are separated by slight partitions e , raised to the general level of said counter. Immediately back of each indenture and in alinement therewith the counter F is crossed by a series of slideways H, corresponding in width and length with the coin-ejecting slides E, which they receive, while the ways H are themselves broken by central longitudinal depressions or slots I, affording clearance-space for the lowermost ends of pintles c , projecting in swiveled connection through their respective coin-ejecting slides E.

The raised beds G G, crossing bottom A^3 , as mentioned, are each divided by a central channel or depression f , formed in the surface thereof, and both sides of channel f are likewise indented by a corresponding series of ten such channels g , adapted to receive and direct the reciprocal movement of a system of operating-bars now to be described.

J indicates the operating-bars, of which there are twenty, being counterparts one of the other with the exception only of their advance or leading ends. These flat bars are by preference of light skeleton form provided with downwardly-extending front and rear shoes $h i$, resting and adapted to reciprocate in the channels g of beds G G, in which location they are at all times surrounded by each of the rectangular frames D, before described. This relation of bars and frames is most clearly illustrated in Fig. 5 of the drawings, by inspection of which it will be ob-

served that the finger extremities j of said bars are variously configured to engage, upon forward movement, one or more of the frames D for the purpose of advancing it or them, as the case may be. Integral with said bars or otherwise secured thereto at an angle are a series of tapering key-stems K, which, rising above the case A, describe in outline a parallelogram and are capped by controlling-keys L, bearing correct coin designations to the amount of one dollar in multiples of five. Back of the shoes i each bar J has a rearwardly-projecting buffer k of uniform length, and in corresponding position forward of its shoe h each bar fourth in number bears a short projection l , serving the purpose of a dust-guard in a manner hereinafter described.

In the central channel f of beds G G is located a sliding return-yoke M, also of skeleton form, bearing an advance spur m in a plane below the lowermost frame D^1 , beneath which it may therefore be projected, and at its opposite end a corresponding rearwardly-extending arm N, terminating in an angular cushioned knee O, normally in engagement with each of said frames at their inner rear ends. At its leading end yoke M is equipped with central inwardly-projecting notched tongue n , to which is secured a tension-spring P, the opposite end whereof is attached to a fixed lug Q by a split link R, surrounding the closed end of said yoke and embedded in a horizontal slot o , formed in the reduced portion p of the lug. This lug Q, secured to the bottom A^3 , is slotted in its base, as at q , to permit passage of the yoke-arm N, and in addition to the function ascribed thereto serves as a stop for the cushioned knee O, as also for the reciprocating frames D when thrust forward.

S represents the end wall of case A, which in the present illustration is shown detachable and secured to the bottom A^3 by screws entering the flange r thereon, the inner face of said wall S being equipped with a continuous cushion s , of leather or similar material, having a dovetailed connection with the wall, as shown by Figs. 2 and 3, and serving to receive the impact of buffers k upon the operating-bars J. The top of case A is closed by a keyboard or top plate T, secured to sides $A^1 A^2$ and end wall S by means of screws, and broken by a series of surface slots t at suitable points to receive the protruding ends of key-stems K, while its under surface is configured by a series of continuous parallel channels T' immediately above the channels f and g and, like the latter, serving to receive and guide the operating-bars J and the yoke M in their reciprocal movement, and the said keyboard is crossed transversely at its upper end by a rigidly-affixed raised thumb-rest U, affording a support for the thumb of an operator while using the uppermost or first row of controlling-keys L.

At its rear end case A rests upon a central

foot V, its forward end being raised and supported upon a table W, positively secured in the under side of bed or counter F and cast integral with downwardly-extending legs X X and front coin-chute Y. The chute Y is formed of flaring sides slotted at their outer edges for reception of a slide Z and open at its bottom to afford a coin discharge or outlet *u*.

The front end of case A is closed by the lower portion of an upstanding coin-receptacle *v*, configured upon its outer face by a graduated series of six parallel semicircular depressions or coin-holders 100, 50, 25, 5, 10, and 10^a, conforming in diameter with coins of denominations corresponding in value with the reference-characters last above used.

Cast integral with the receptacle *v* is a back flange *w*, extending into the case A, and an angular base *x*, which latter rests upon the partitions *e* of bed or counter F, and extending forward serves to house or cover the coin-chute Y, as most clearly shown by Fig. 3. Thus it will be observed that coins of the several denominations having been stacked in their respective coin-holders will remain securely therein until expelled by the ejecting apparatus, owing to the angle of inclination afforded the receptacle *v* by the height of legs X X and consequent angle of the entire machine. If desired, however, a face-plate or guard *y* may be located upon the projecting surface of base *x*, bearing upon its inner face a graduated series of semicircular depressions *z*, corresponding and registering with those in receptacle *v*, the two combining to produce a circular opening, and, furthermore, the face-plate *x* may, if desired, be broken at intervals by perpendicular slots opening into the depressions *z* for the purpose of displaying the edges of coins therein and indicating when they have become exhausted.

As thus far described the invention contemplates and satisfactorily provides for the delivery of a coin or combination of coins in exact conformity with the amount indicated upon the particular key or keys L employed, but as a means of augmenting or increasing the delivery resulting from a single operation of any one key the following-described mechanism is used.

An auxiliary shift-lever B is loosely pivoted in a fixed slotted support B' at the side of case A, and extending transversely across said case is adapted to oscillate between the raised counter F and forward raised bed G. The pivotal end of said lever is provided with a flat angular foot B², resting in the slot of support B' and serving to prevent rotation of the lever, which, near its opposite end, bears an upturned tooth B³, adjacent to which is a squared surface B⁴, for purposes to be shortly described. In connection with and immediately below said lever the bottom A³ of case A is broken in its longitudinal center by a

slot B⁵, and to one side of this is provided a raised track B⁶ for the outer end of lever B during its oscillations.

Beneath table W and secured to the angular end thereof midway between its legs X X is a bracket C, in which is located a vertically-reciprocating angular arm C', weighted upon its lowermost end by an enlargement C², serving the double purpose of retaining the arm normally in a depressed or lowered position, as shown by Fig. 3, and at same time presenting a liberal surface for engagement by the fingers of an operator, when required. At its angular or distal end arm C' is equipped with an upstanding shoe C³ of a size corresponding neatly with the slot B⁵ in bottom A³, through which it is at all times adapted to impact against the under side of shift-lever B for the purpose of elevating the latter to the plane of its track B⁶.

This being substantially a description of my invention I will now proceed to set forth its operation, presuming for the purposes of such operation that the coin-receptacles 100, 50, 25, 5, and 10 10^a have been supplied with coins in the denominations, respectively, of silver dollars, half-dollars, quarters, nickels, and dimes.

It being desired to deliver one-quarter of a dollar the operator places one hand beneath the discharge *u* of chute Y, with the other draws forward key L, numbered "25," using in the meantime rest U upon the keyboard as a support for the thumb on the operating-hand. This movement serves, through the key-stem K, to advance bar J, (in this instance the fourth from side A' of the case,) its finger *j* engaging the end of surrounding frame D³, which latter, together with its integral pilot-arm *b*, is advanced in its tracks *a* a distance equal to the throw of the controlling-key. Thus the coin-ejecting slide which is in pivotal connection with said arm *b* is forced through its particular slideway H until its curved extremity engages the edge of the lowermost quarter stacked in receptacle 25 and forces same over the indenture *d*² of counter F into the hand of an operator through the chute Y. Simultaneously with this movement said frame D³ engages by its opposite end the angular cushioned shoulder O on the return-yoke M and advances said yoke in its channel *f*, thus placing spring P under tension, which reacts when pressure is relieved from the controlling-key L to replace the frame D³ and its coacting parts. Likewise if the amount of seventy-five cents is desired in change the controlling-key bearing a corresponding number may be caused to advance its respective operating-bar J, the finger end *j* of which in this instance is constructed to engage or pick up two of the frames—viz., D² and D³—which, operating through their respective pilot-arms *b* and ejecting-slides E, deliver a half and a quarter of a dollar in the manner before described, and are promptly re-

turned to their normal position by the spring-actuated yoke M. There being occasion now to augment or increase the normal delivery of any particular controlling-key L in the amount of one dollar, this is accomplished by the single stroke of such key, as follows: Enlargement C² having been elevated by the hand of an operator—beneath the coin-chute Y in position to receive ejected coins—lifts its angular arm C' and projects its shoe C³ through the slot B⁵ in base A³ of the machine's case. By this movement the free end of shift-lever B is lifted to the plane of its track B⁶, introducing its tooth B³ behind the advance end of the lowermost frame D' and bringing its squared surface B⁴ into alignment with the spur *m* on yoke M, projecting beneath said frame. In this relation of parts it is obvious that an advance movement of the yoke M operates through its spur *m* upon the surface B⁴ to pull forward the frame D', engaged by the tooth B³, as aforesaid. Now as the yoke M must advance to the full extent of its stroke with each movement of any particular key or keys L it is equally apparent that the lowermost frame D' will be projected each time the lever B has been lifted, as described, into the line of travel of the spur *m*, and as a consequence that its slide E enters the coin-holder 100 of receptacle *v* to eject therefrom one dollar in addition to the regular delivery of the key last employed. Thus the operation may be repeated as long as there are coins in the receptacle *v*, the auxiliary mechanism being readily thrown into or out of action according to requirements, and the combination of keys used being varied indefinitely.

This being a description of my invention, its use, and operation, it will be observed that many changes of construction and arrangement of parts may be made and substituted for those herein shown and described without in the least departing from the spirit of the invention, as set forth in the following claims.

I claim—

1. In a coin-delivering device the combination with coin-receptacles, of coin-ejecting slides adapted to enter the receptacles, and reciprocating frames in different horizontal planes but in pivotal connection with said slides, substantially as described.

2. In a coin-delivering device the combination with coin-receptacles, of coin-ejecting slides adapted to enter the receptacles in a common plane, and a series of superposed reciprocating frames each bearing a pilot-arm in different planes having pivotal connection with said slides, substantially as described.

3. In a coin-delivering device the combination with coin-receptacles, of coin-ejecting slides adapted to enter the receptacles, a series of reciprocating frames in pivotal connection with said slides, and a series of operating-bars arranged to directly engage one or more of the frames, substantially as described.

4. In a coin-delivering device the combination with coin-receptacles, of coin-ejecting slides adapted to enter the receptacles, a series of reciprocating frames in pivotal connection with said slides, a coacting series of operating-bars arranged to engage one or more of said frames, and suitable means common to all of the frames for returning them to normal position after each forward thrust, substantially as described.

5. In a coin-delivering device the combination with coin-receptacles, of reciprocating frames adapted to eject coins therefrom, operating-bars of skeleton form having supporting-shoes and arranged to impinge against one or more of the frames for the purpose of advancing same, and a yieldingly-retained reciprocating yoke bearing upon each of said frames to return them to their normal positions, substantially as described.

6. In a coin-delivering device the combination with coin-receptacles, coin-ejecting frames and their operating-bars of skeleton form having depending supporting-shoes, of a yoke yieldingly connected with a fixed support and having a buffer-arm projecting in the path of said frames for the purpose of returning them to their normal position, substantially as described.

7. In a coin-delivering device the combination with coin-receptacles, coin-ejecting frames and their operating-bars of skeleton form having front and rear supporting-shoes, of a skeleton yoke having an adjustable spring connection with a fixed support and a buffer-arm projecting in the path of said frames to return them to their normal position, substantially as described.

8. In a coin-delivering device the combination with coin-receptacles, coin-ejecting frames and their operating-bars, of a yoke bearing a buffer-arm projecting in the path of said frames, and a tension-spring having an adjustable connection with the yoke and a link connection with a fixed support, substantially as described.

9. In a coin-delivering device the combination with coin-receptacles, coin-ejecting frames and their operating-bars, of a skeleton yoke bearing a buffer-arm projected in the path of said frames, a slotted fixed lug affording a guide for said arm, and a tension device having an adjustable connection with the yoke and a link connection with the lug aforesaid, substantially as described.

10. In a coin-delivering device the combination with coin-receptacles, coin-ejecting frames and their operating-bars, of a skeleton yoke bearing a buffer-arm projecting in the path of said frames, a notched tongue extending into the yoke, a slotted lug affording a guide for the arm, and a tension-spring interposed between said tongue and lug being connected to the latter by a slotted link, substantially as described.

11. In a coin-delivering device the combi-

nation with coin-receptacles, coin-ejecting frames and their operating-bars, of a skeleton yoke bearing a buffer-arm with an angular cushioned shoulder projecting in the path of said frames, a slotted fixed lug affording a guide for the buffer-arm, and a tension-spring interposed between said yoke and lug being connected with the latter by an embedded slotted link, substantially as described.

12. In a coin-delivering device the combination with coin-receptacles, coin-ejecting frames and their operating-bars, of a shift-lever adapted to interlock at suitable intervals with one of said frames, and suitable means interposed between said bars and lever whereby the latter together with its interlocked coin-ejecting frame is advanced, substantially as described.

13. In a coin-delivering device the combination with coin-receptacles, coin-ejecting frames and their operating-bars, of an oscillating lever bearing a surface tooth adapted to interlock at suitable intervals with one of said frames, and suitable means interposed between all of said bars and the lever whereby the latter together with its interlocked coin-ejecting frame is advanced, substantially as described.

14. In a coin-delivering device the combination with coin-receptacles, coin-ejecting frames and their operating-bars, of an auxiliary shift-lever adapted to interlock at suitable intervals with one of said frames, and a yieldingly-supported yoke for engaging the shift-lever to advance it and subsequently return all of the parts to their normal positions substantially as described.

15. In a coin-delivering device the combination with coin-receptacles, coin-ejecting frames and their operating-bars, of an auxiliary shift-lever adapted to interlock at suitable intervals with one of said frames, and a spring-retained yoke for returning the parts to their normal positions having an advance spur for engaging the shift-lever to actuate it, substantially as described.

16. In a coin-delivering device the combination with a casing having coin-receptacles at one end and a transversely-located cushion at the other, of reciprocating coin-ejecting frames, operating-bars engaging the frames, a return-yoke also engaging the frames bearing an advance spur, an auxiliary shift-lever, and means for interposing the lever in the path of said spur on the yoke, substantially as described.

17. In a coin-delivering device the combination with a casing having coin-receptacles, coin-ejecting frames and their operating-bars, of an auxiliary shift-lever normally located below the plane of said frames, a vertically-movable arm for elevating the shift-lever into engagement with one of the frames, and a return-yoke bearing a spur on its leading end for impinging upon the shift-lever to advance it, substantially as described.

18. In a coin-delivering device the combination with a casing having coin-receptacles, coin-ejecting frames and their operating-bars, of an auxiliary shift-lever transversely located in the casing and normally occupying a plane below that of the frames, a vertically-movable arm for elevating the lever into engagement with one of the frames, a return-yoke bearing a spur on its leading end for impinging upon the shift-lever to advance it, and a raised track onto which the lever moves, substantially as described.

19. In a coin-delivering device the combination with a casing having coin-receptacles, coin-ejecting frames and their operating-bars, of an auxiliary shift-lever transversely located in the casing and normally occupying a plane below that of the frames, a vertically-movable weighted arm for elevating the lever into engagement with one of the frames, and a return-yoke bearing a spur on its leading end for actuating the lever together with its interlocked frame simultaneously with a movement of any other frame or frames, substantially as described.

20. In a coin-delivering device the combination with a casing having coin-receptacles, coin-ejecting frames and their operating-bars, of an auxiliary shift-lever transversely located in the casing and normally occupying a plane below that of the frames, a vertically-movable weighted arm bearing a shoe for elevating the lever into engagement with one of the frames, and a return-yoke bearing a spur on its leading end for impinging upon the shift-lever to advance it, substantially as described.

21. In a coin-delivering device the combination with a casing having coin-receptacles, coin-ejecting frames and their operating-bars, of an auxiliary shift-lever transversely located in the casing and normally occupying a plane below that of the frames, an angular vertically-movable arm terminating in a shoe which penetrates the casing for elevating the lever aforesaid into engagement with one of the frames, and a return-yoke bearing a spur on its leading end for impinging upon the shift-lever to advance it, substantially as described.

22. In a coin-delivering device the combination with coin-receptacles, of suitable means for ejecting coins therefrom, a coin-chute in common communication with the receptacles, and a counter located between said receptacles and chute finished in horizontal escallops the edges whereof are beveled in opposite directions from center of the counter, substantially as described.

23. In a coin-delivering device the combination with a graduated series of coin-holders, suitable means for ejecting coins therefrom, a coin-chute in common communication with the holders, and a counter located between said holders and chute finished in a series of escallops in register with the coin-

holders the edges whereof are beveled in opposite directions from center of the counter, substantially as described.

24. A casing for a coin-delivering device
5 having a top plate or keyboard crossed transversely by a thumb-support and broken by a series of key-stem slots, in combination with a corresponding series of tapering key-stems protruding from said slots, and an equal num-

ber of controlling-keys detachably secured to upon their respective key-stems, substantially as described.

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

ADOLPH L. LEVIN.

Witnesses:

CAESAR A. ROBERTS,
GEO. W. PETTIT.