C. E. BRIDGES.

VENDING DEVICE.

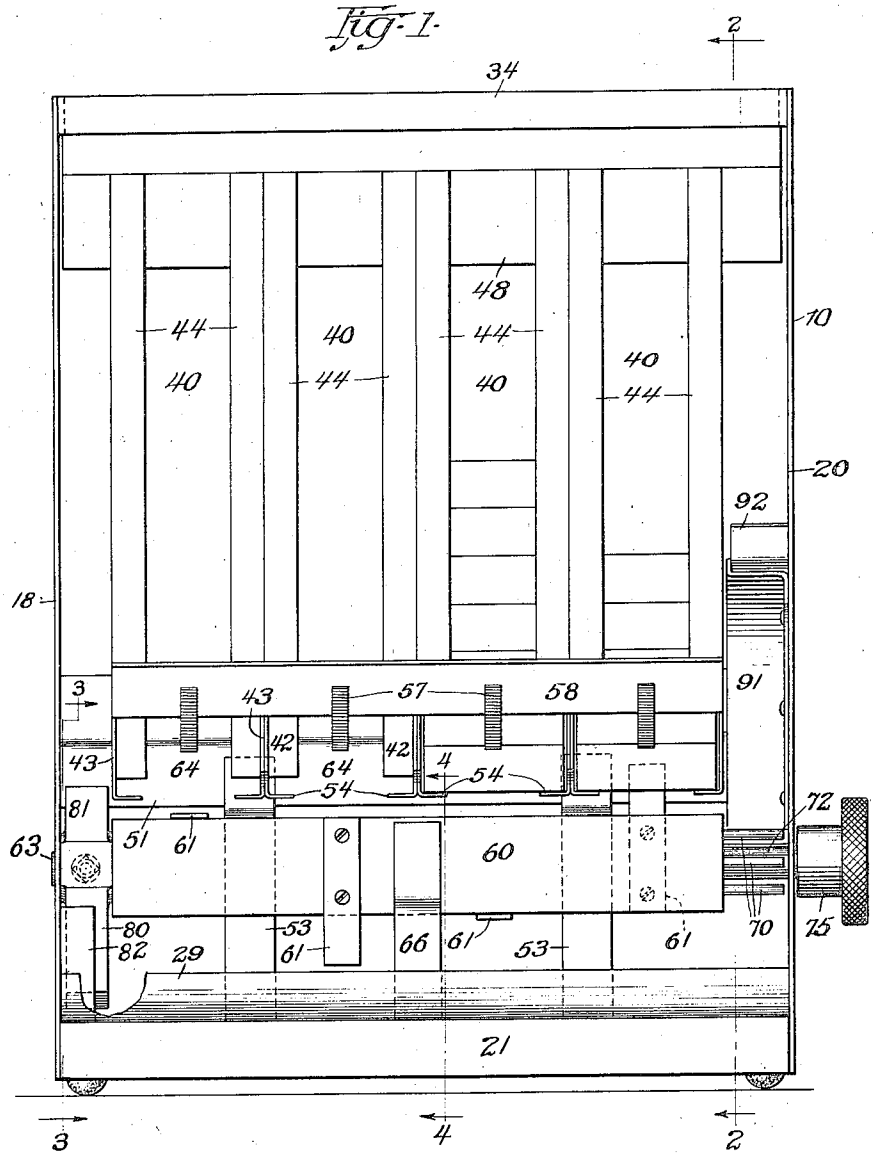
APPLICATION FILED JULY 27, 1910.

1,240,413.

Patented Sept. 18, 1917.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
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Alfred Livingston

Inventor:
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by Samuel D. Hirschl.
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3 SHEETS—SHEET 2.

Fig. 3.

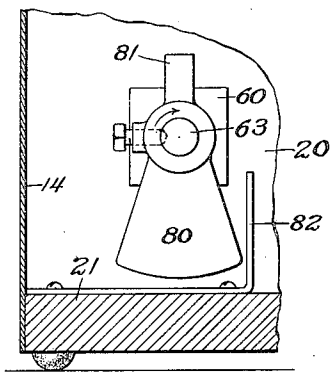


Fig. 4.

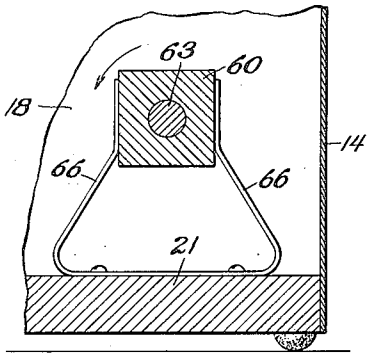
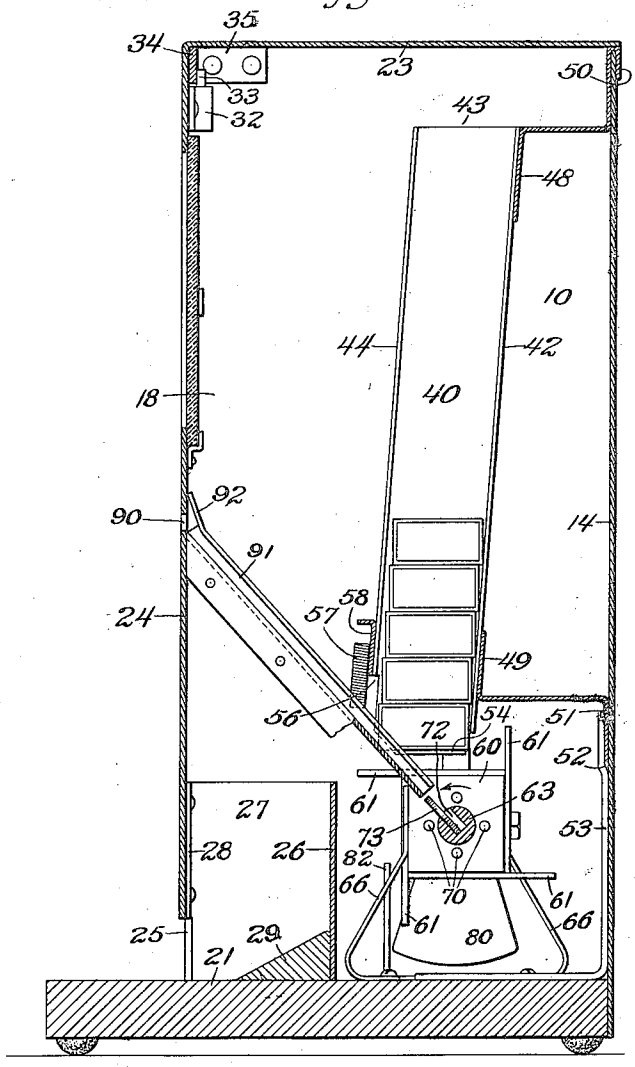


Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 5.

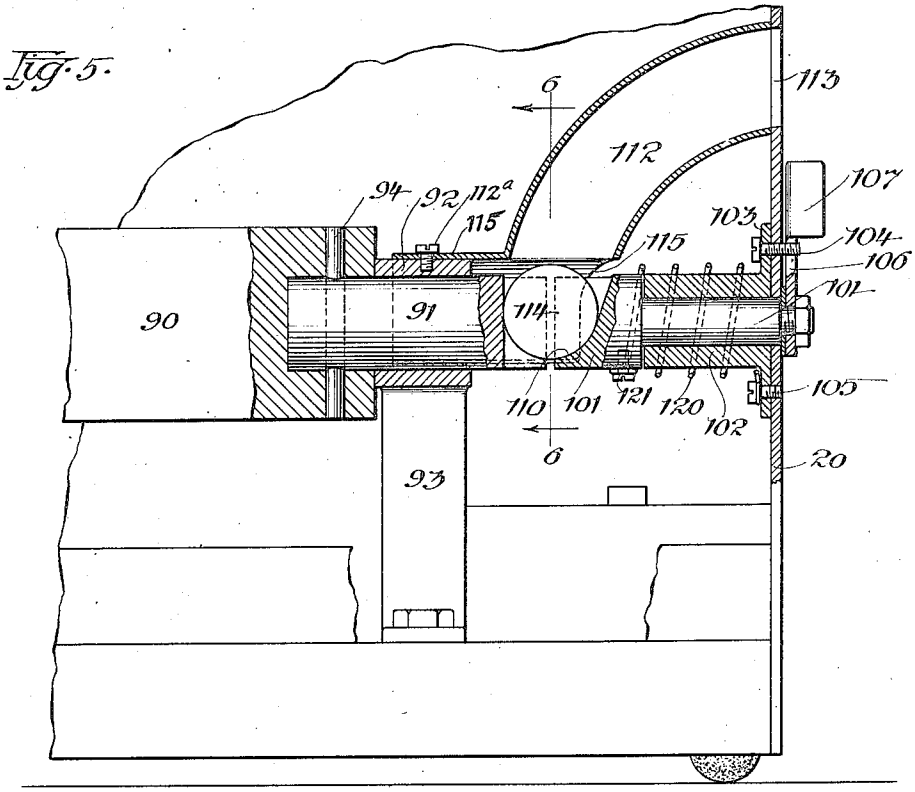


Fig. 6.

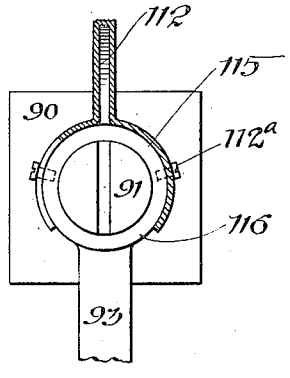
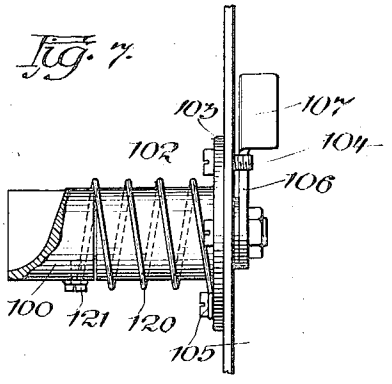


Fig. 7.



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UNITED STATES PATENT OFFICE.

CHARLES E. BRIDGES, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO AUTOSALES GUM AND CHOCOLATE COMPANY, A CORPORATION OF NEW YORK.

VENDING DEVICE.

1,240,413. Specification of Letters Patent. Patented Sept. 18, 1917.

Application filed July 27, 1910. Serial No. 574,187.

To all whom it may concern:

Be it known that I, CHARLES E. BRIDGES, a citizen of the United States, residing at 4537 North Whipple St., Chicago, in the county of Cook and State of Illinois, have invented a new and useful Vending Device, of which the following is a specification.

This invention relates to mechanical vending devices, and has for one of its objects the production of a device which will fulfil all of the requirements of the vending machines in common use, but which can be more cheaply and simply manufactured than many of the vending machines of ordinary form, and which also, by reason of its very simple mechanism, presents a minimum susceptibility to mechanical derangements. Likewise, it is practically impossible for a machine operating upon the principle of the device hereinafter described to "make mistakes," which not only impair the usefulness and efficiency of the more complicated machines, but also entail some little expense in their maintenance. A further object of the invention is the production of a device which is neat and attractive in its appearance, and strong and durable in its construction, and which occupies a minimum amount of space upon a wall or counter, or other place where it may be used.

A vending device embodying the principles of the present invention is hereinafter described, and pointed out in the appended claims, and is illustrated in the accompanying drawings, in which:

Figure 1 is a view in front elevation showing the arrangement of the interior parts of the device, a part of the housing for such parts being removed for such purpose.

Fig. 2 is a view showing the device in transverse vertical section, said section being taken on line 2—2 of Fig. 1.

Fig. 3 is a transverse vertical section through a portion of the device, being taken on the line 3—3 of Fig. 1.

Fig. 4 is a similar view, being taken on the line 4—4 of Fig. 1.

Fig. 5 is a partial longitudinal section, showing a modified form of the device.

Fig. 6 is a section on line 6—6 of Fig. 5.

Fig. 7 is a detached view, in elevation of one of the parts shown in Fig. 5.

As shown in said drawings, the device consists of a receptacle or casing inclosing the vending mechanism, and the articles to be vended, and means therein for operating said vending mechanism to feed out, or vend, the articles one at a time, said means being controlled by the insertion of coins into the device. Within the spirit of the present invention, as pointed out in the appended claims, said case may assume various forms, and the feeding mechanism is also capable of wide variation, but as here shown, said case consists of a rectangular sided box or housing, 10, conveniently made of sheet metal, comprising a back wall 14, and side walls, 18 and 20 respectively, which are mounted upon a wooden base, 21.

The housing is completed by a removable cover, 22, which is bent to form integral top and front walls, 23 and 24 respectively. Said front wall, 24, is cut away at its lower margin through substantially its entire width to form an opening, 25, through which the articles are delivered. Secured to said wall, 24, and arranged parallel therewith is a low inner wall, 26, which protects the interior of the device from implements which might be inserted through the slot, 25, and also, together with the wall, 24, forms a trough into which the articles are dropped, to be delivered through the opening 25. Said wall 26 is bent to form integral end walls, of which one is shown at 27, said end walls being bent over and riveted to the front wall, as shown at 28. Said inner wall, 26, engages with a long triangular strip of wood, 29, by means of which its lower end, as well as the lower portion of the front wall, is held in place. Said triangular strip also facilitates delivery of the articles through the opening 25, by causing them to slide forward. The upper portion of the front wall, 24, is held in place by a lock, 32, having a bolt 33, which engages with a cross-bar 34, which is bent over at its ends and riveted to the side walls 18 and 20 of the casing, as shown at 35. By these means the cover is secured against removal except upon disengaging the bolt, 33, by unlocking the lock. In the upper part of the front wall, 24, is an opening covered by a pane of glass 36, through which the interior of the device may be observed.

Within the casing 10, the articles to be vended are arranged in four vertical tubes

or chutes, one of which is indicated in Fig. 2 at 40; and below said tubes is arranged the mechanism for removing said articles, one at a time, from the tubes and delivering them into the delivery trough above described. Said tubes as here shown are adapted to contain small boxes of safety matches of familiar form, and each tube is therefore rectangular in horizontal cross section. Each comprises a back wall 42, and integral side walls 43, 43, which latter are bent toward each other at their forward margins to form vertical front flanges, 44, 44. Through the slot or opening formed between such flanges, 44, the contents of the tube may be observed. The four tubes 40 are secured to substantially vertical plates, 48, and 49, the former being bent horizontally backward and again vertically upward, and at its upper margin into the form of a hook, 50, as viewed in transverse vertical section (Fig. 2) to engage with the upper edge of the rear wall 14 of the casing, and thus support the tubes. The plate 49 is bent horizontally backward, and then vertically downward to form a tongue, 51, engaging with a narrow slot, 52, formed by a plate 53, secured to the wall 14, and to the base board 21 said plate being bent at its upper margin away from the wall 14 in order to form such slot.

Referring now more particularly to the construction of each tube 40, each of the side walls 43, 43, is bent horizontally toward its mate at its lower end, forming horizontal flanges, 54, 54, which support the weight of the columns of articles in the tubes. The front flanges, 44, 44 are cut off at their lower ends for a distance a little more than the vertical dimension of one of the articles, as seen at 56 (Fig. 2), whereby the bottom article in each tube may be pushed forward beneath such flanges 44, and out of the tube. They are yieldingly restrained from being so pushed forward by means of four coiled springs, 57, 57, projecting downward from a horizontal bar, 58, secured to the lower portions of the flanges, 44. These springs are bent forward when the bottom articles are pushed forward by the vending mechanism, in the normal operation of the device, but have sufficient rigidity to restrain the bottom articles from sliding forward if the device is upset or shaken.

In the form of the device illustrated in Figs. 1 to 4 inclusive, the vending mechanism by means of which the bottom article in each tube is successively pushed forward out of the tube and into the delivery trough comprises in general a horizontal rotative block, 60, carrying four pushing devices or "knock-outs" 61, 61, which act in succession upon the bottom article of one tube after another, together with coin-controlled means for rotating said block one-quarter turn at each operation of the device. Said block, 60, which is here shown as square in cross-section, is rotatively mounted upon a horizontal shaft, 63, which shaft is mounted, also rotatively, in the side walls 18 and 20 of the casing 10. To each of the four faces of said block 60 is secured one of the pushing devices 61, the latter comprising flat strips or arms which, in the rotation of the block, project radially into the lower end of each tube in succession, and engage with the bottom article therein to push it forward. In order to permit of the arms 61 thus entering the tubes, the back walls 42 are recessed at their lower ends, as shown at 64, 64, in Fig. 1, where for convenience two of the tubes are shown emptied of their articles. Flat springs 66, 66 engage with the flat faces of the block 60, acting as spring detents to cause said block to advance an even quarter turn at each operation of the device, and to remain in the correct angular position until a subsequent operation.

The means for rotating the block 60 comprise four horizontal pins, 70, 70, projecting from one end of said block and arranged concentrically in a circle at equal angular intervals about said shaft, 63; and a radial slot 72 in said shaft, which slot is adapted to receive a coin 73 (Fig. 2). A coin so placed will, in the forward rotation of the shaft as indicated by the arrow in Fig. 2, engage with one of the pins and rotate the block with the shaft. The shaft may be thus rotated by means of a wheel or handle, 75, fixed to one of its ends, which projects through the side wall 20. Means are provided for limiting the rotation of the shaft 63, to approximately one-quarter turn, said means comprising a weight 80, fixed to the shaft 63, and made in such form as to include a radial arm 81. Said arm, in the forward rotation of the shaft, will strike a vertical stop 82, rising from the base 21, and limit further rotation of the shaft, while the downward pull of the weight will act to restore the shaft 63 to its original position, upon the handle 75 being released.

Coins are introduced into the device through a slot 90, in the front wall 24 of the device, whence they pass through a diagonal chute 91, secured to the wall 20, and fall into the slot 72. The slot 90 is made of such proportions as to admit the desired coin. The chute 91, consists of a piece of sheet metal bent to form three sides of a rectangular tube, the fourth side being formed by the wall 20. The top wall of said chute is bent outward at its upper end, as shown at 92, in order to facilitate the entrance of coins thereinto.

The operation of the device is as follows: It being assumed that articles to be vended have been placed in the tubes 40, 40, the operator inserts a coin into the chute 91, whence it slides downward into the slot 72,

which, through the action of the weight 80, is normally retained in the position shown in Fig. 2. The operator then grasps the handle 75, and rotates the shaft 63 forward, or in the direction indicated by the arrow, whereupon the coin engages with one of the pins 70, and rotates the block 60, to cause one of the arms 61 to act upon one of the articles to be vended and push it out of its tube. When the block 60 has made nearly a quarter of a turn, the springs 66 will act to quickly rotate it the further distance required to complete a quarter turn, releasing the pin from engagement with the coin, and since in this position the radial slot 72 will be in such angular position as to open substantially vertically downward, the coin will fall out and into the bottom of the case 10. Further rotation of the block 60 is thereby prevented, and upon the wheel 75 being released, the shaft 63, through the influence of the weight 80, will return to its original position with the slot 72 ready to receive another coin. It is evident that successive operations of the device will displace one article at a time from one tube after another until all of the articles are vended, when the removable cover to the case 10 may be removed, the coins collected, and more articles placed in the tubes.

Within the spirit of the present invention, the parts may be otherwise proportioned and otherwise arranged; as for example, there may be a greater or smaller number of the tubes, 40, than are here shown—it being evident that in such case there would be a corresponding number of arms on the block 60, and that the latter would be arranged to rotate at each operation through the distance necessary for one of the arms to remove one of the articles from one of the tubes. The number of these parts would also probably be so chosen that upon a complete revolution of the block 60 at least one article would have been removed from each tube, so that all the tubes would be emptied at about the same time and there would be no idle movement of the block until the last article had been vended.

It is evident also that the device may be easily adapted to vend more than one article at each operation, as for example, two, or three, or more articles for each coin introduced. In such case, a correspondingly larger number of pushing devices, or arms, is placed upon the rotating block 60, so that at each movement two or more of the arms may engage with the articles in the tubes and push them into the delivery trough 27. Thus, for example, the device here illustrated may be provided with eight arms instead of four, so that at each operation one article may be removed from each of two tubes, or a device with six vending tubes might be provided with twelve or eighteen arms, arranged to vend two or three articles at each operation; and other combinations might be used.

In the modified form of the device illustrated in Figs. 5 to 7 inclusive, the rotative block 60 is replaced by a similar block 90, which is rigidly secured at one end to a short shaft 91 supported in a bearing 92 at the upper end of a post or standard 93. As here shown, the shaft 91 is inserted into an opening at the end of the block 90, and secured by means of a pin 94 passing through openings in such parts. The other end of said block is similarly supported in a bearing not shown. 100 indicates a short rotative shaft, a portion of which 101 is reduced in diameter and has a bearing in a tubular member 102 provided with an integral flange 103 which is attached to the wall 20 by means of screws 104 and 105. To the outer end of said shaft 100, which passes through the wall 20 is attached a crank 106 with a handle 107, by means of which said shaft may be rotated. The ends of said shafts 91 and 100 which are adjacent to each other are each diametrically slotted as best shown in Fig. 5. The slot in the shaft 91 passes entirely through said shaft, but the slot in the shaft 100 does not extend the entire length of a diameter, being formed with a curved bottom wall 110. 112 indicates a curved chute leading from an opening 113 in said wall 20 to a point above said adjacent ends of the shafts 91 and 100. By this means, when the two shafts are arranged as shown, with the slots opening upward, a coin 114 may be introduced into the two slots, and may rest upon the bottom wall 110, whereupon, by reason of its engagement with the two shafts, rotation of the shaft 100 will impart rotation to the shaft 91 and the block 90. The lower end of the chute 112 is pressed into the form of a horizontal cylindric guard 115, surrounding the adjacent ends of the two shafts and open upon its lower side, as shown at 116 in Fig. 6, the purpose of which guard is to retain the coin in position in the two shafts until they have been rotated through approximately 180°, when the coin is permitted to drop out into the bottom of the case 10. The coin-chute 112 is secured to the standard 93 by screws or bolts 112^a or otherwise. Flat springs, not here shown but similar to the springs 66 shown in Figs. 1, 2, and 4, engage with corresponding flat faces, or cam faces, upon the block 90 in order to quickly rotate it through the necessary distance in each case to complete a rotation of 180°, after the shaft 102 has been rotated through the greater part of such distance, whereby the frictional engagement of the coin with the two slots is lost and the coin allowed to drop out. It will be seen therefore that at each operation

the block 90 is rotated through 180° and is then yieldingly restrained in one of its two positions with the slot through the shaft 91 arranged vertically as shown. The shaft 100 is limited in its rotation by the engagement of the crank 106 with the screw 104 which is extended through the wall 20 to form a stop; and also by its engagement with another similar stop not shown, said two stops being arranged to permit the crank 106 to be rotated approximately only 180° in each direction in order to prevent any one from rotating the crank continuously in one direction so rapidly as to retain the coin in the two slots by its frictional engagement therewith, and thus permit more than one operation of the device. Said shaft is returned to its original position upon the release of said crank, by means of a coiled spring 120 which surrounds the tubular member 102 and is attached at one end to the screw 105 and at its other end to a screw 121 inserted into said shaft 100. The operation of the device is the same as the operation of the device shown in Figs. 1 to 4 inclusive, except that upon each operation of the device the block 90 is rotated through 180°, instead of through 90°, and the number of vending tubes and the number of pushing devices, or arms upon the block 90 are correspondingly arranged to vend the number of articles desired, upon each operation of the device.

I claim as my invention:—

1. In a coin-controlled mechanism, a casing, a pair of separate and axially alined shafts within said casing, the adjacent ends of said shafts being slotted to receive the deposited coin which forms an operative connection between said shafts, a standard for supporting the slotted end of one of said shafts, a sleeve for supporting the second shaft, means for securing said sleeve to one wall of said casing, and an operating member connected to the outer end of said second shaft, said securing means for the sleeve projecting out of the casing into the path of movement of said member to form positive stops therefor.

2. In a coin-controlled mechanism, a casing, a pair of separate and axially alined shafts within said casing, the adjacent ends of said shafts being slotted to receive the deposited coin which forms an operative connection between said shafts, a standard for supporting the slotted end of one of said shafts, a sleeve for supporting the second shaft, means for securing said sleeve to one wall of said casing, an operating member connected to the outer end of said second shaft, said securing means for the sleeve projecting out of the casing into the path of movement of said member to form positive stops therefor, a coin-chute arranged to guide the deposited coin into the slotted ends of said shafts, and a cylindrical guard extending from the lower end of said chute and arranged to partially surround said slotted ends, whereby the coin is retained in said slotted ends until the shafts have been rotated the required distance.

3. In a coin-controlled mechanism, a casing, a pair of separate and axially alined shafts within said casing, the adjacent ends of said shafts being slotted to receive the deposited coin which forms an operative connection between said shafts, a standard for supporting the slotted end of one of said shafts, a sleeve for supporting the second shaft, means for securing said sleeve to one wall of said casing, an operating member connected to the outer end of said second shaft, said securing means for the sleeve projecting out of the casing into the path of movement of said member to form positive stops therefor, a coin-chute secured at its lower end to said standard to guide the deposited coin into the slotted ends of said shafts, and a cylindrical guard extending from the lower end of said shaft and arranged to partially surround said slotted ends, whereby the coin is retained in said slotted ends until the shafts have been rotated the required distance.

4. In a coin-controlled mechanism, a pair of axially alined shafts having the adjacent ends slotted to receive a deposited coin which forms an operative connection between said shafts, a standard for supporting the slotted end of one of said shafts, a coin-chute secured at its lower end to said standard and arranged to guide the deposited coin into said slotted ends, and a cylindrical guard extending from the lower end of said chute and arranged to partially surround said slotted ends, whereby the coin is retained in said slotted ends until the shafts have been rotated the required distance.

5. In a coin-controlled mechanism, a casing, a pair of separate and axially alined shafts within said casing, the adjacent ends of said shafts being slotted to receive the deposited coin which forms an operative connection between said shafts, an upright standard having a hub portion for supporting the slotted end of one of said shafts, a sleeve for supporting the second shaft, means for securing said sleeve wholly within said casing, an operating member connected to the outer end of said shaft and mounted in close proximity to the side wall of said casing, means for limiting the movements of said member, and a coin-chute secured at its lower end to said standard to guide the deposited coin into the slotted ends of said shafts.

6. In a coin-controlled mechanism, a casing, a pair of separate and axially alined

shafts within said casing, the adjacent ends of said shafts being slotted to receive the deposited coin which forms an operative connection between said shafts, a standard for supporting the slotted ends of one of said shafts, a sleeve for supporting the second shaft, means for securing said sleeve to one wall of said casing, an operating member connected to the outer end of said second shaft, a coin-chute secured at its lower end to said standard to guide the deposited coin into the slotted ends of said shafts, and a cylindrical guard extending from the lower end of said chute, and arranged to partially surround the slotted ends of said shafts, whereby the coin is retained in said slotted ends until the shafts have been rotated the required distance.

In witness whereof, I have hereunto set my hand in the presence of two witnesses, this 22nd day of July, 1910.

CHARLES E. BRIDGES.

Witnesses:
MARCUS A. HIRSCHL,
J. L. WILSON.