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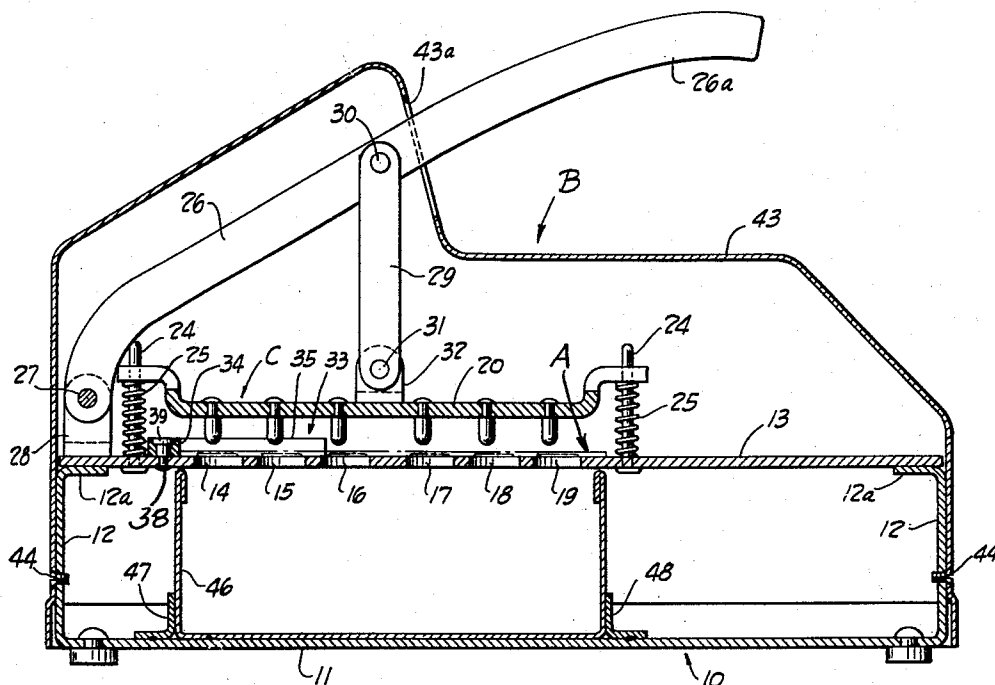
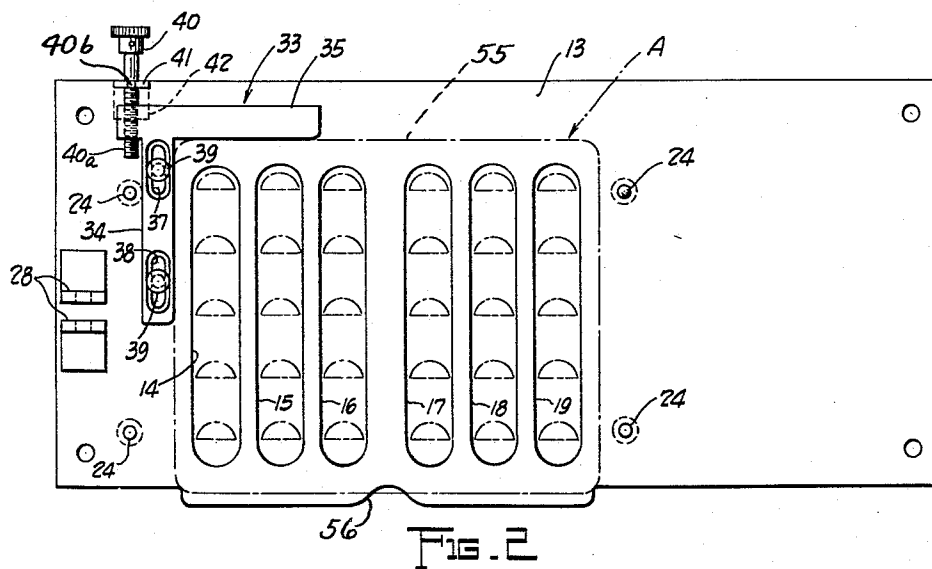
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APPARATUS FOR EJECTING COINS

Filed March 25, 1955

2 Sheets-Sheet 1



INVENTOR.
W. P. EXLINE

BY

Robb & Robb
attorneys

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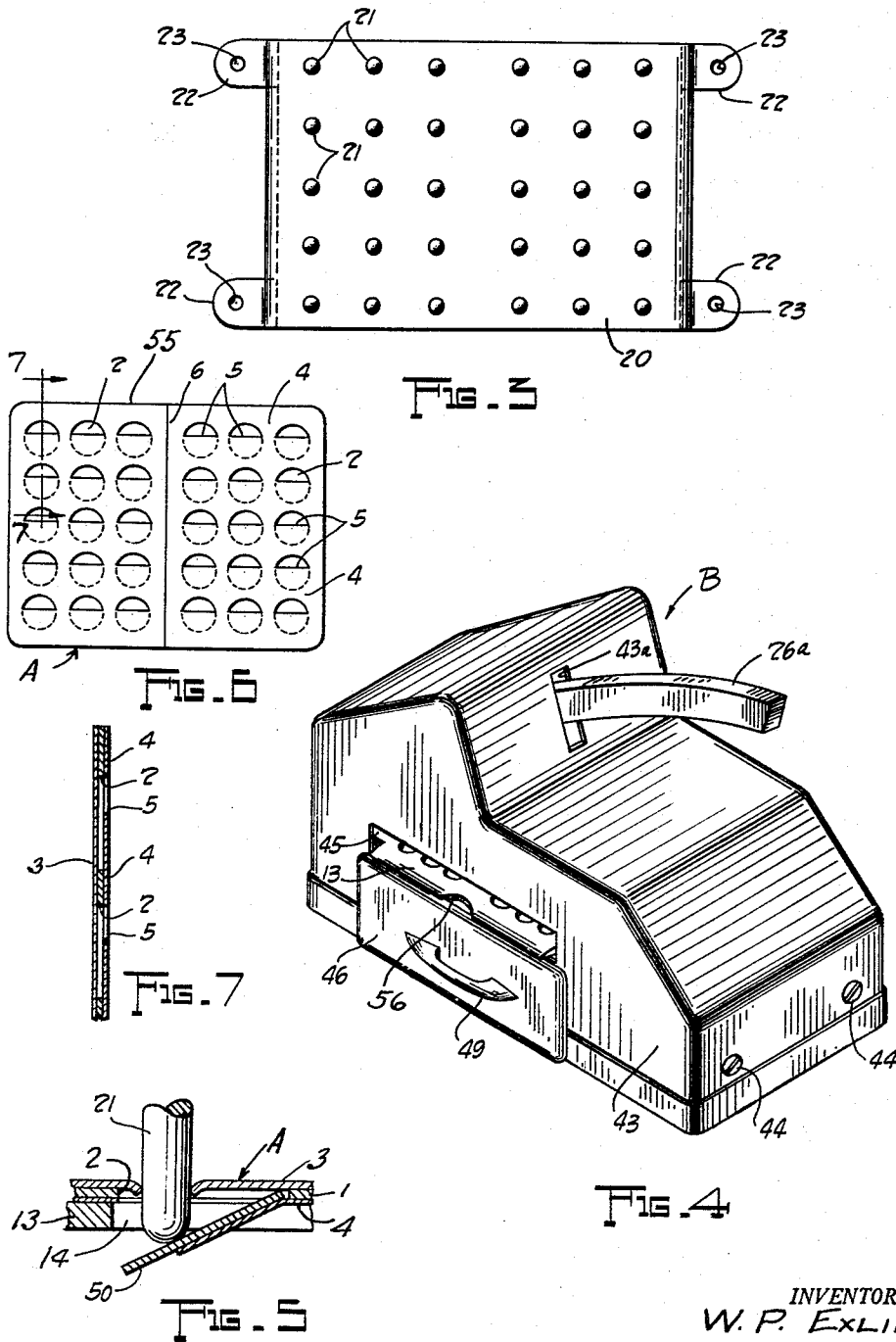
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INVENTOR.
W. P. EXLINE
BY
Robb & Robb
attorneys

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APPARATUS FOR EJECTING COINS

William P. Exline, Cleveland Heights, Ohio, assignor to
William Exline Inc., Cleveland, Ohio, a corporation of
Ohio

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4 Claims. (Cl. 214—310)

This invention relates to method and apparatus for ejecting coins, and more particularly to such method and apparatus designed particularly for ejecting or removing coins from coin saver container books of the type commonly employed by customers or patrons of savings banks.

Coin saver container books of the type referred to generally comprise a book-like container having a plurality of pockets therein for receiving coins of a certain denomination. When all of the pockets of such a coin container book are filled with coins, the customer takes the same to his savings bank for deposit in this account. The removal of the coins from the pockets of such coin containers at the bank involves a relatively timestaking hand operation on the part of the teller or other bank employee to whom the task is assigned and the total time of bank employees devoted to this task is very considerable in view of the large number of such coin containers which are required to be processed for removal of the coins therefrom, so that the hand operation of removal of the coins from such coin containers involves a very relatively large item of expense in reference to the time of the bank employees required for this purpose.

It is therefore the principal object of the present invention to provide novel method and apparatus for ejection or removal of the coins from such coin containers in a more efficient and expedient manner and at a considerable saving of time and expense, as compared with methods previously employed for this purpose.

My invention aims to provide mechanical means for removing the coins from coin containers and contemplates the application of ejector means to coin containers in such a manner as to deform the container at the locations of the coins in the pockets and/or to coact with individual coins in the container to exert pressure upon such coins so as to force the same out of the pockets of the container and into a suitable receptacle for accumulation thereof.

In carrying my invention into practice, I preferably employ a supporting platform upon which the coin container may be disposed for removal of the coins therefrom, which platform is provided with openings there-through through which the coins ejected from the container may pass. I further avail of ejector means arranged for movement toward and away from said platform and adapted to apply pressure to said coin container at the locations of the coins in the pockets thereof in such a manner as to force the coins out of the pockets of the container through said openings in the platform. Preferably the ejector means, according to my invention may comprise a plurality of ejector elements carried by a suitable platen arranged for movement toward and away from the platform, and said ejector elements may comprise a plurality of prong like elements projecting downwardly from the platen and arranged to individually engage the coin container disposed on said platform at the respective locations of the coins in pockets of said coin container, whereby movement of the platen toward the

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supporting platform upon which the coin container is disposed will serve to cause the ejector elements to engage the coin container at the locations of the coins contained in the pockets thereof whereby to cause the portions of the coin container so engaged to be pushed into the openings in the supporting platform whereby to deform the material of the container and force the coins in the pockets thereof out of the same through the openings in the platform.

The invention further contemplates the provision of a receptacle beneath the supporting platform for receiving the coins so ejected from the pockets of the coin container processed in the manner above indicated.

The invention further contemplates the provision of means for effecting movement of the ejector elements toward and away from the supporting platform and the provision of means for automatically restoring the ejector means to its position of movement away from the supporting platform after operation thereof for removal of coins from a coin container.

The invention further contemplates the provision of guide means for positioning the coin containers on the supporting platform in such a manner that the coins contained in the pockets thereof are in register with the openings through the supporting platform and aligned for coaction with the ejector elements.

The invention further contemplates the provision of means for adjusting the said guide means so as to accommodate different coin containers in which the coin pockets are differently positioned with respect to the container.

For a detailed description of the invention, reference is made to the accompanying drawings in which:

Figure 1 is a vertical sectional view through a machine embodying the invention.

Figure 2 is a top plan view of the supporting platform of the machine illustrated in Figure 1.

Figure 3 is a bottom plan view of the platen and associated ejector elements as embodied in the machine depicted in Figure 1.

Figure 4 is a perspective view of said machine.

Figure 5 is an enlarged detail sectional view through a portion of the supporting platform and a coin container disposed thereon and showing one of the ejector elements, illustrating the action thereof in the ejection operation.

Figure 6 is a plan view of an exemplary coin container, looking toward the inside face thereof; and

Figure 7 is a sectional view taken on the line 7—7 of Figure 6.

Referring first to Figures 6 and 7 there is shown an example of one type of coin container to which the present invention is applicable for purposes of removing the coins therefrom. The coin container of Figures 6 and 7 comprises a book-like container of laminated construction, generally designated by the letter A and consisting of a body sheet of relatively stiff, shape retaining and somewhat resilient material indicated by the numeral 1 having circular openings 2 therethrough of slightly larger diameter than the coins to be received therein. The body sheet 1 is covered with a relatively thin backing sheet 3 on one side and on the other side the body sheet is covered with a similar relatively thin inner sheet 4 provided with semi-circular openings 5 whereby to form in conjunction with the body sheet 1 coin receiving pockets in which the coins may be inserted and retained. In other words the coins are inserted through the semi-circular openings 5 of the sheet 4 so as to be received within the circular opening 2 of the body sheet and retained therein between the sheets 3 and 4 as will be apparent. The coin containers A of the type referred to may be made of any suitable material which is relatively stiff or shape retaining yet somewhat deformable under pressure. For example the body sheet may consist of

cardboard, fiberboard or the like and the sheets 3 and 4 may consist of paper adhesively secured to the body sheet 1. Of course the coin saver books or containers A may be made of other suitable material and they will preferably be suitably creased along a median line 6 so that they can be folded into book form for convenience in carrying.

The coin containers A will preferably carry on the inside sheet 4 adjacent the respective pocket suitable indicia such as "ten cents," "twenty cents," "thirty cents," etc. indicating the amount of money contained in the container, the said indicia being suitably varied according to the denominations of coins for which the coin containers are adapted. The pockets in the coin container will be preferably equidistantly spaced from one another and arranged in parallel rows horizontally and vertically relative to the container, although of course such arrangement is not essential.

A coin saver such as disclosed by the example given herein may be designed so as to have its pockets receive dimes and provided with a sufficient number of pockets so as to receive when full, say thirty dimes for a total of \$3.00. The savings bank customer takes the coin saver, when full, to the bank for deposit of the coins contained therein and the teller or other bank employees assigned to such task will be required to empty the coins from the coin container which obviously is a time-taking process when such operation is performed by hand and involving a large number of such coin containers to be so processed.

The coin ejector apparatus disclosed in the drawings while designed particularly for processing coin containers of the type shown in Figures 6 and 7 for removal of the coins therefrom, is nevertheless merely exemplary for the purposes of disclosing the principles of my invention as to both the method and apparatus phases thereof.

Referring now to Figures 1 to 5 inclusive, the apparatus exemplary of my invention as disclosed therein is generally designated by the letter B and comprises a suitable base generally designated by the numeral 10 which may be formed of sheet metal to form a bottom element 11 and side elements 12, the latter bent angularly at their upper ends as at 12a to form supporting flanges for the shelf or platform 13 suitably secured thereto. The shelf or platform 13 is provided with a plurality of openings therethrough which may comprise elongated slots 14, 15, 16, 17, 18 and 19 arranged for alignment with the vertical rows of coin pockets in a coin container book such as designated by the letter A. Positioned for movement relative to the platform 13 is a coin ejector means generally designated by the letter C and comprising a platen 20 carrying ejector elements 21 arranged in alignment with the openings 14, 15, 16, 17, 18 and 19 in the platform 13.

In the embodiment of the invention herein illustrated, the ejector means B is arranged above the platform 13 for movement relative thereto upwardly and downwardly toward and away from the platform 13. As shown in the drawings, the platen 20 is provided with lugs 22 at each of the four corners thereof, said lugs 22 having respective apertures 23 through each of which extends one of the studs 24 secured to and extending upwardly from the platform 13 whereby the platen 20 is guided in this up and down movement by virtue of the studs 24. Interposed between the platform 13 and the platen 20 are spring means comprising the individual springs 25 encircling the respective studs 24 and acting normally to position the platen 20 at its upper limit of movement relative to the platform 13.

Suitable means is provided for effecting movement of the platen 20 downwardly relative to the platform 13 against the action of the springs 25 and as shown such means may comprise a lever 26 pivoted at one end to a suitable support as by means of a pivot pin 27, the said end of the lever 26 being disposed between suitable bear-

ing lugs 28 secured to the platform 13, the pivot pin 27 extending between the upstanding bearing portions of the lugs 28. Secured to the lever 26 is a hanger link 29 the lower end of which is connected to the platen 20. The upper end of the hanger link 29 is shown as pivotally connected as at 30 to the lever 26 intermediate the ends of the latter. The lower end of the hanger link 29 is shown as pivotally connected as at 31 to a suitable lug 32 secured to and upstanding from the platen 20. While the hanger link 29 is shown as having pivotal connection with the lever 26 and with the platen 20, said hanger link may under some conditions desirably be non-pivotally or rigidly connected both to the lever 26 and the platen 20 under which condition the platen would have a fixed relation to the lever 26.

Guide means is provided on the platform 13 for guidingly engaging a coin container disposed thereon for coin ejection processing in such a manner that the coin pockets of the coin container are caused to be disposed in registry with the respective openings 14, 15, 16, 17, 18 and 19.

The said guide means may comprise a right angular guide member generally designated by the numeral 33 said guide member 33 having right angularly disposed legs 34 and 35. As shown in the drawings, the guide member 33 is arranged so that the leg 34 is disposed parallel to the major axes of the slots 14 to 19 inclusive and is disposed to one side of or leftwardly of the left hand slot 14, referring to Figure 2. Means is provided for facilitating adjustment of the guide means 33 providing for adjusting movement thereof in the direction of the major axes of the slots 14 to 19 inclusive. Leg 34 of the guide member 33 has slots 36 and 37 extending therethrough which are elongated so that their major axes are arranged in a direction parallel to the major axes of the slots 14 to 19 inclusive. Headed guide studs 38 and 39 are secured to the platform 13 and have their shank portions extending respectively through the slots 36 and 37 with the head portions of said studs serving to retain the guide member 33 in association with the platform 13 while permitting movement of the guide member 33 relative to the platform 13 in the direction of or parallel to the major axes of slots 14 to 19 inclusive within the limits of the elongated slots 36 and 37.

For facilitating the adjusting movement of the guide member 33, there is provided an adjusting screw 40, the threaded shank 40a of which threadingly cooperates with and extends through the screw threaded boss 42 secured to the guide 33 and is provided with a necked-down portion 40b which cooperates with a corresponding opening in the boss 41 secured to platform 13, whereby rotation of the adjusting screw 40 serves to effect the aforesaid adjusting movement of the guide member 33 relative to the platform 13.

A suitable covering casing or housing 43 is provided for the apparatus of Figure 1, the same being suitably formed of metal or other suitable material and being secured to the base 11 as by means of screws 44. The covering casing 43 is provided with a slot or opening 43a therethrough through which the lever 26 extends, the outwardly extending portion 26a thereof comprising a handle portion for manipulation thereof.

On one side of the casing 43 there is provided an opening 45 affording access to the interior and to the platform 13 for insertion of a coin container such as A through the opening 45 for disposition upon the platform 13 in condition for coin ejection operation to be performed upon the coin container by the apparatus.

Below the slots 14 to 19 of the platform 13 is positioned a coin receiving receptacle which may comprise a drawer 46 which may be guided for movement relative to the base by suitable guide flanges 47 and 48, the side of the casing 43 provided with a suitable opening for reception and removal of the drawer therethrough, the drawer being provided with a suitable handle 49 for facilitating manipulation thereof.

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In the use of the described apparatus for removal of coins from a container A, the latter is inserted in open flat condition through the access opening 45 so as to be disposed upon the platform 13 in engagement with the guide member 33 in the manner indicated by dotted lines in Figure 2. The coin container A is disposed on the platform 13 with the inside sheet 4 thereof facing downwardly in engagement with the platform 13 and with the rows of coin pockets in register with the slots 14 to 19 inclusive of the platform 13. The guide member 33 is adjusted by means of the guide screw 40 so as to position the coin container so that the coin pockets are in register with the slots 14 to 19 and also so that the coin pockets are in proper alignment with the ejector members 21, there being provided on the platen 20 an ejector element 21 for each of the coin pockets of a coin container A to be processed.

Adjustment of the guide member 33 is made so that the coin container A disposed on the platform 13 will be positioned for proper alignment of the coin pockets with the ejector elements 21. In this connection it is preferable, though not essential, that the semi-circular openings of the coin pockets in the coin container A be positioned for alignment with the ejector elements 21. When a coin container A whose pockets are filled with coins is thus properly disposed on the platform 13, the operator may push downwardly on the handle portion 26a of the lever 26 causing the platen 20 and associated ejector elements 21 to be moved downwardly toward the platform 13 and the coin container A disposed thereon so that the ejector elements 21 are caused to engage the outside layer 3 of the coin container A at the location of the coin pockets thereof and as the ejector elements press thereagainst as the platen continues its downward movement so that the ejector elements 21 enter the slots 14 to 19 inclusive the engagement of the ejector elements 21 with the coin container A at the location of the coins in the pockets thereof serves to exert pressure on the coins and to cause the same to be pushed out of the pockets of the coin container A through the slots 14 to 19 inclusive into the coin receptacle 46 below the platform 13.

In the ejection process above described the action of the ejector elements 21 is to deform the coin container A and where the same is formed of layers of paper 3 and 4 and its intermediate layer of cardboard 1 as in the specific example, the coin ejection process performed by the apparatus described involves the perforation of the paper sheet 3 of the coin container A by the ejector elements 21 as they pass into the openings 2 whereupon the ejector elements 21 engage and push the coin such as 50 out of the coin pocket of the coin container A and through the slots 14 to 19 inclusive into the receptacle or drawer 46 below the platform 13, this action serving also to tear but not sever the portion of the paper layer 4 forming the coin pockets, all in the manner of the action illustrated by Figure 5.

It is notable that the prong-like ejector elements 21 are of a diameter not larger than the diameter of the openings 2 in the body sheet 1 and, preferably, the ejector elements are of a smaller diameter as shown so that they can be arranged to pass through the container A at the pocket-opening portions thereof.

It is further notable that the coin container book A is preferably inserted through the opening 45 with its upper edge 55 foremost so that said edge 55 is caused to engage the leg 35 of the guide member 33 when disposed on the platform 13 for coin ejection processing. In this connection, it is noted that pocket openings of the coin container A face the upper edge 55 thereof. When the coin container A is thus disposed for processing, if portions of inside sheet 4 forming the coin pockets are torn during the coin ejection processing they are not so likely to catch or hang up on the edges of the openings 14 to 19 inclusive when the coin container is withdrawn

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from the apparatus after processing. This results in less likelihood of bits of paper being severed from the coin container so as to pass into the receptacle 46 which would be undesirable.

The edge of platform 13 adjacent the access opening 45 is provided with a cut-out 56 for facilitating grasping of the protruding edge of coin container A for withdrawal from the apparatus after processing.

After manual operation of the lever 26 to move the ejector means C downwardly for ejection operation as above described, the operator subsequently releasing his hand from the handle 26a will result in automatic restoration of the platen 20 to its upper limit of movement away from platform 13 by the action of the springs 25.

The slots 14 to 19 inclusive are of a length at least as long as the corresponding vertical rows of coin pockets of the coin containers A, but in some cases the vertical rows of coin pockets may be positioned higher or lower relative to the top edge 55 of such container A. Suitable adjustment of the guide means 33 is made so as to adjust the position of the container A being processed so that the vertical rows of coin pockets of the particular container A are properly aligned with the slots 14 to 19 inclusive as well as properly aligned with the coin ejector elements 21.

I claim:

1. In apparatus for ejecting coins from a coin container, in combination, a platform for receiving and supporting such coin container thereon, said platform having openings therethrough through which coins ejected from such coin container may pass, ejector means arranged for movement toward and away from said platform, said ejector means including ejector elements smaller than the openings arranged to coast with individual coins in said container and with said openings for ejection of said coins from said container through said openings in said platform upon movement of said ejector means toward said platform, and means for effecting said movement of said ejector means, said supporting means being arranged to receive and support such coin container in a position disposed between said supporting means and said ejector means, and a receptacle arranged to receive the coins so ejected from the coin container.

2. Apparatus as claimed in claim 1, combined with guide means on said supporting means cooperable with said container for positioning the same for cooperative alignment of the coin pockets of the coin container with said ejector elements and with the openings in said platform, and adjusting means for said guide means for effecting adjusting movement of said guide means relative to said supporting means.

3. In apparatus for ejecting coins from a coin container having a plurality of coin receiving pockets arranged in parallel rows in a common plane, in combination, a platform for receiving and supporting such coin container thereon, said platform having elongated openings therethrough, each elongated opening being co-extensive with and alignable with one of said parallel rows of coin receiving pockets of such container and through which openings coins ejected from such container may pass when said openings are so aligned, ejector means arranged for movement toward and away from said platform, said ejector means including ejector elements smaller than the openings arranged to coast with individual coins in such container and with said openings for ejection of coins from said container through said openings in said platform upon movement of said ejector means toward said platform, said supporting means being arranged to receive and support such coin container in a position disposed between said supporting means and said ejector means, means for effecting such movement of said ejector means, and a receptacle arranged to receive the coins so ejected from the coin container.

4. In apparatus for ejecting coins from a coin con-

tainer having a plurality of coin receiving pockets, in combination, a platform for receiving and supporting such coin container thereon, said platform having elongated openings therethrough, each elongated opening being co-extensive with and alignable with a respective group of coin receiving pockets of such container and through which openings coins ejected from such container may pass when said openings are so aligned, ejector means arranged for movement toward and away from said platform, said ejector means including ejector elements smaller than the openings arranged to coact with individual coins in such container and with said openings for ejection of coins from said container through said openings in said platform upon movement of said ejector means toward said platform, said supporting means being arranged to receive and support such coin container in a position disposed between said supporting means and said ejector means, means for effecting such

movement of said ejector means, a receptacle arranged to receive the coins so ejected from the coin container, guide means on said supporting means cooperable with said container for positioning the same for cooperative alignment of said rows of coin pockets of such container with said ejector elements and with said elongated openings in said platform, and adjusting means for said guide means for effecting adjusting movement of said guide means relative to said supporting means.

References Cited in the file of this patent

UNITED STATES PATENTS

1,597,950	Baynes	Aug. 31, 1926
2,366,886	Van Tuyl	Jan. 9, 1945
2,386,076	Taylor et al.	Oct. 2, 1945
2,558,044	Emmer	June 26, 1951
2,715,469	Burt	Aug. 16, 1955