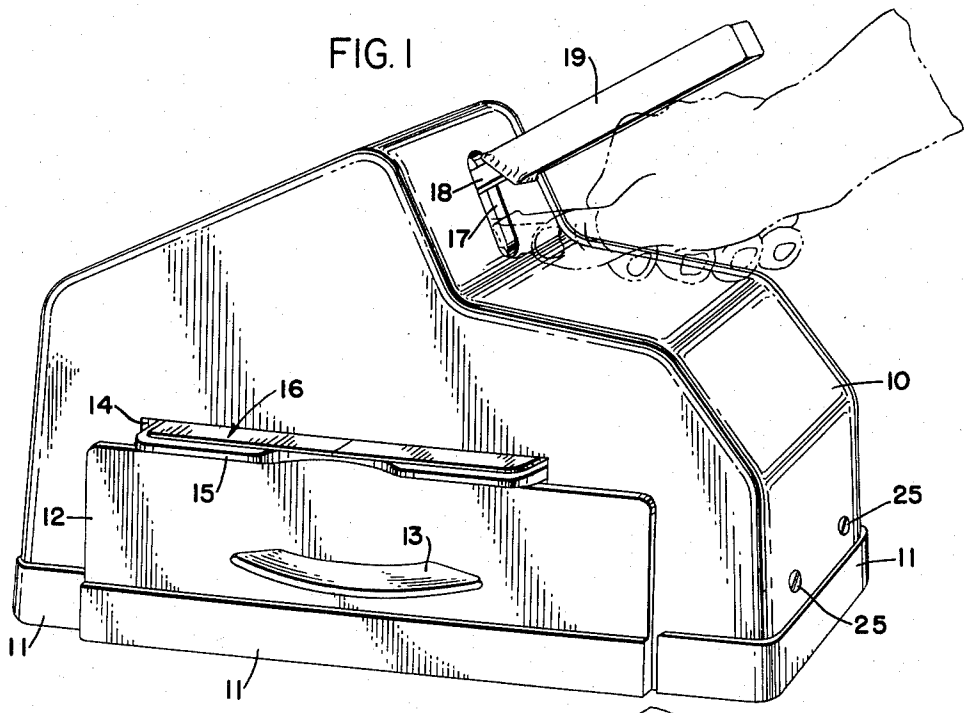
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MULTIPLE COIN EJECTOR

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FIG. 1



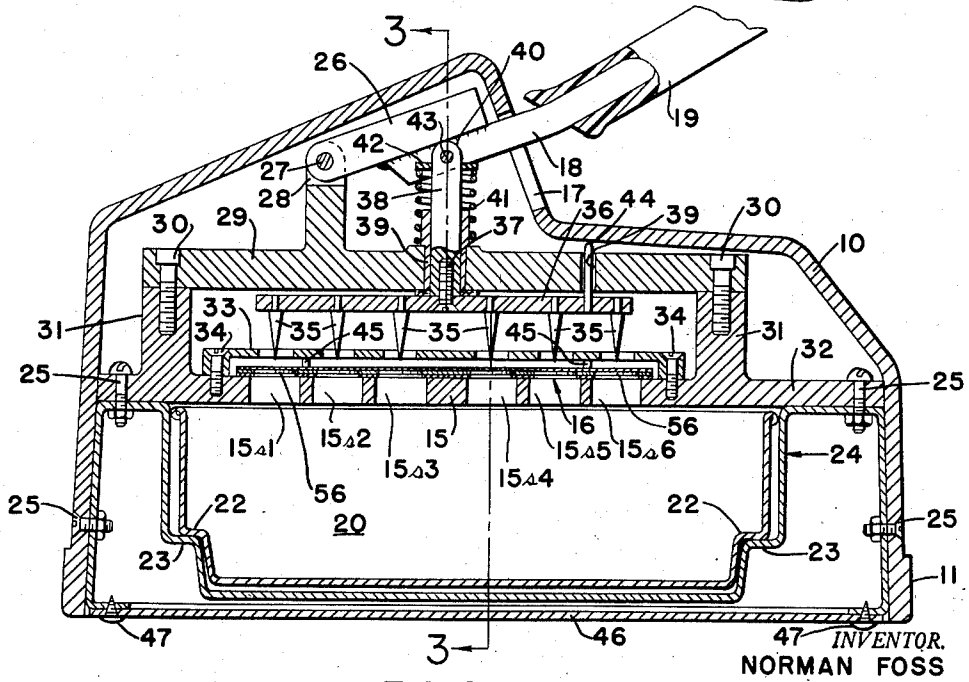


FIG. 2

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MULTIPLE COIN EJECTOR

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FIG. 3

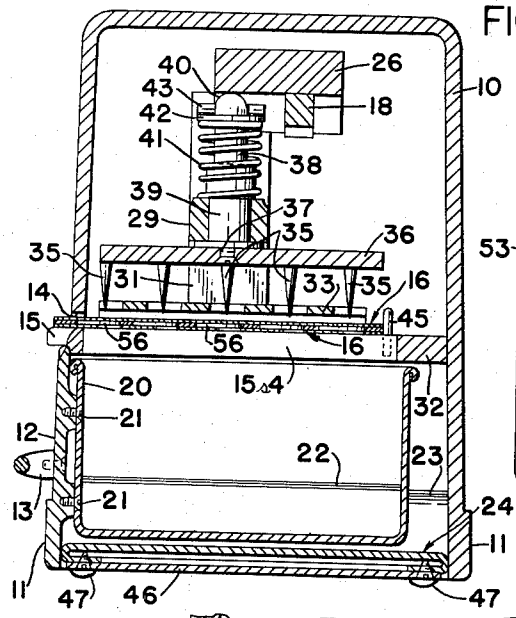


FIG. 5

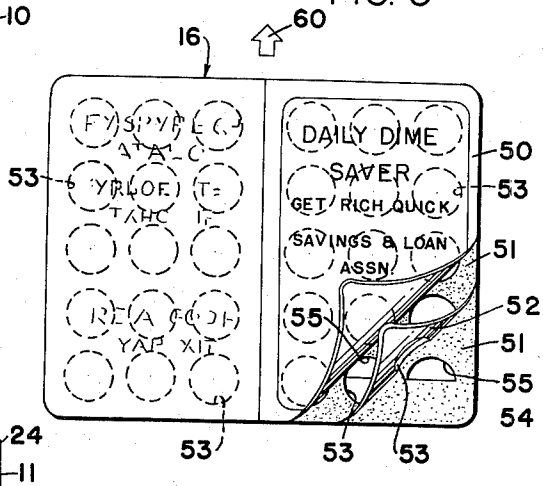
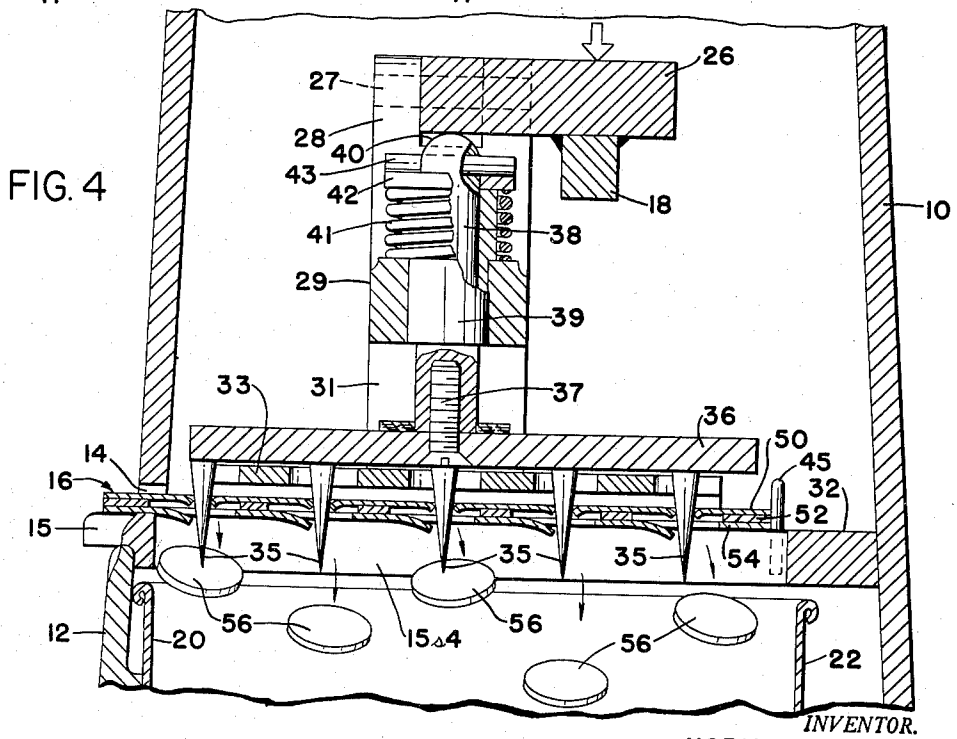


FIG. 4



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United States Patent Office 2,952,372
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2,952,372

MULTIPLE COIN EJECTOR

Norman Foss, Shaker Heights, Ohio, assignor to Gardner Greene, Cleveland, Ohio

Filed Mar. 31, 1955, Ser. No. 498,250

5 Claims. (Cl. 214—310)

This invention relates to coin delivery apparatus and has particular significance in connection with a multiple coin ejector for rapidly processing filled cardboard type coin savers.

Heretofore it has been well known practice for banks, veterans organizations, churches or other groups to provide cardboard type multiple coin savers. For example a savings bank may put out a cardboard two-page folder having openings for collecting 30 dimes, there being suitable advertising and instructive printing on some or all of the pages to promote use of the card for dime-saving daily or to serve other purposes. However, quite a problem arises when the filled books come back to the institution and the coins must be removed from the card. It is only with some effort that the paper or cardboard can be broken so that each coin can be removed and it is, of course, desirable that cardboard or paper fragments not be mixed with the coins. Heretofore the problem has been so serious that individual banks have allowed thousands of dollars worth of such cards to accumulate in filled condition until labor could be spared to remove the coins. Even then, while the manual worker might start out fast in the first five or ten minutes, thereafter the average per worker is only about two cards a minute when the coins are removed by hand, a tiresome and tedious process.

It is an object of the present invention to provide simple and inexpensive means for overcoming the above mentioned difficulties.

Another object of the invention is to provide a machine for simultaneously punching multiple coins out of a cardboard or paper type "coin saver" without intermixing of cardboard or paper fragments with coins as they are punched out.

Other objects and advantages will become apparent and the invention will be better understood from consideration of the following description taken in connection with the accompanying drawing in which:

Fig. 1 is a perspective view of a coin ejector constructed in accordance with the invention;

Fig. 2 is a sectional elevation of the device shown in Fig. 1;

Fig. 3 is a cross-sectional elevation along the line of 3—3 of Fig. 2;

Fig. 4 is an enlargement of a portion of the view as in Fig. 3 but showing coins being removed from a card inserted in the machine; and

Fig. 5 is a plan view of an individual card with some of the parts turned back from normal position to show construction of the card.

Referring to Fig. 1, the device of the invention is shown as comprising a main cover **10**, a base trim **11**, a drawer front **12** having a drawer handle **13**. Above the drawer front is a card receiving slot **14**. A card support plate **15** extends through the slot at its bottom. In Figs. 1–4 an opened card **16**, hereafter described, is shown supported by the plate **15** in the card receiving slot **14**.

As also shown in Fig. 1 the main cover **10** is provided with a vertical slot **17** to accommodate an operating handle stem **18** to which is secured a grip portion **19**. If desired the arrangement may be made attractive by using rounded corners and edges, and providing a gray wrinkled finish for the cover **10** and base trim **11** and drawer front **12**, and chrome plating such parts as the drawer handle **13**, and card support plate **15**.

As most clearly seen in Figs. 2 and 3 the drawer front **12** is attached to an open top receptacle or tray **20** as by screws **21**. Tray **20** has narrow support portions **22** at either side mating with correspondingly shaped portions **23** to provide a low friction track, portions **23** being on or part of a sheet metal member **24** bent around (or stamped bent) to be supported at places such as at the bottoms of the ends of cover **10**, by bolts **25**.

At its inner end the operating handle stem **18** is secured, as by welding to a cam plate **26**. Cam **26** rotates about a pivot provided by a shaft **27** secured in a bifurcated portion **28** of a yoke member **29** secured as by machine screws **30** to uprights **31** of an operating base member **32** which may (as shown) be formed integral with the card supporting plate **15**. Base or plate (**32**, **15**) is provided with a plurality of transversely and vertically extending coin slots (**15***s***1**–**15***s***6** in Fig. 2) to receive coins when punched from the card after having been arranged therein in a predetermined pattern, for example in six rows of five coins per row as in a common type "dime saver" card as shown (without coins) in Fig. 5.

As shown in Figs. 2–4, there is located above card plate **15** an upper card stop plate **33** provided with perforations corresponding in location to the individual coins in a card of the type which the machine is set up to punch. This member **33** is mounted as by screws **34** upon the base **15**, **32** and generally just above the top of the card receiving opening **14**. Extending through the individual perforations of stop plate **33** are shown a plurality of tapered punches **35** supported from a common punch operating plate **36** which in turn is supported by a screw **37** from a vertical operating pin **38** operating through a bearing bushing **39** to pass through the adjacent portion of the yoke **29**. Pin **38** terminates at its upper end in a rounded surface **40** which makes rocking and sliding engagement with a portion of the cam plate **26**. A compression spring **41** surrounds pin **38** and bushing **39** with the spring bottom seated upon a portion of the yoke **29** and its top engaging a washer **42** which through the medium of a pin **43** tends to force the operating pin upwards. For the inoperative position (that is, of no force upon the operating handle grip **19**) pin **38** is urged upwardly by the spring **41** to the position shown in Fig. 2, the individual punches **35** are well above the card **16**, and the pin **38** holds the cam **26** and consequently the handle stem **18** and grip **19** in the upward position shown in Figs. 2 and 3 and in solid lines in Fig. 1. With application of force to the handle grip as shown by dotted lines in Fig. 1, the handle grip and stem move downward and so does the cam plate until it takes the position shown in the enlargement of Fig. 4 where the spring **41** is compressed and the vertical pin **38** has forced the plate **36** and its punches **35** downward until the coins are all ejected from the card, punch movement downward thereafter being stopped as washer **42** hits the upper end of the bushing **39** (see Fig. 4).

If desired various refinements may be added such as a punch plate aligning pin **44** making sliding engagement with a hole **39** provided in the yoke **22** (see Fig. 2), a card backstop pin **45** fixed or adjustable with respect to card support **15** (see Figs. 3 and 4), and a base enclosing plate **46** secured as by rubber headed screws **47** which also serve as feet (see Figs. 2 and 3).

The invention may be better understood by consideration of Fig. 5 which is a view of an ordinary coin saver card (parts broken away) as it exists before it is filled with coins and before it is inserted in the machine of the invention to remove the coins. Normally such a card comprises an ordinary paper backing **50** (shown forwardly in Fig. 5). Backing **50** is generally imperforate, and carries advertising and educational printing, and is secured as by glue **51** to a cardcoard spacer **52** which is provided with a plurality of circular openings or slots **53** for receiving coins. For some reason the cards appear to be mostly of standard size and cards adapted to receive the same type coins seem to have the location and spacing of these openings the same regardless of the manufacturer of the card.

In order to retain the coins within the slots after they are inserted, the card of Fig. 5 is provided with a paper facing **54** (shown farthest from the viewer in Fig. 5) which likewise is secured as by glue **51** to the spacer **52**. Paper **54** is provided with half circle openings **55** which are in alignment with the top halves of the slots **53** in the cardboard spacer **52** so that a coin may be inserted through the half openings to be kept within the full circular openings of the spacer. Usually the paper facing **54** is provided with advertising or other printing to indicate, for example, the monetary value of sequential accumulations as coins are put in in a certain order, for example across the card row by row.

The showing in Fig. 5 differs from the showing in Figs. 2–4 in that in Fig. 5 no coins are shown whereas in the figures showing the card **16** inserted in the machine the coins themselves are shown at **56**. It is desirable to make the punches somewhat off-center with respect to the coins to obtain best leverage on them since the coins may pivot around the half circle openings. For example, punches may be located towards the back of the machine as viewed in Figs. 3 and 4 (where the front of the machine is considered to be the side having the card receiving slot **14**). Whether punches are off-center or not, the card can either be inserted with the top of the printing solid backing **50** uppermost (as shown in the drawings) or with this solid backing downward and the coins will still push out of the paper backing or facing. Further the card either be inserted with the top of the printing toward the back of the machine (as indicated by the arrow **60** in Fig. 5) or opposite end with the top of the printing towards the front and the machine will operate almost as well in any of the four cases perforating or splitting the solid backing **50** with or without splitting and pushing aside portions of the half-round perforated facing **54** and forcing the individual coins **61** downward into the tray as shown in Fig. 4, with the result that better than 20 cards per minute can be processed with the machine of the invention whereas it is only possible to process some two cards per minute by hand or with a hand pick or punch.

I have found it quite essential that the individual punch members **35** be pointed or tapered to a point as shown in order that they will not blank out paper to become mixed with the coins in the tray and then have to be separated from them. A straight shank would either blank out such paper, or else be too small and fragile particularly since the punches are preferably hardened, e.g. to about Rockwell 53.

In operation of the device in accordance with the invention, the plates may readily be changed to adapt the machine to different denomination coin cards. Thus, if a quarter card is to be punched instead of a thirty dime card the main cover is removed, and a new operating base **32** complete with card supporting plate **15**, punch carrying support **36**, and upper card stop **33** may be substituted to punch out quarters which will be arranged in a different pattern and with different spacing (to accommodate some twenty quarters per card in usual practice). Additional plates, punches and dies may be supplied to punch out other arrangements as of cards each holding one quarter, one dime, and one nickle.

The machine of the invention is quite universal and can accommodate most any type coin saver from any bank or other organization, even if as it is odd shaped as its outer limits (for example to simulate a piggy) and if different type cards are for the same denomination of coins this accommodation may usually be made by just taking the top off and adjusting the backstop. The punch plate spring retraction feature allows easy withdrawal of the coin saver card after it has been punched, and the employment of pivot means offset from the point of application of pressure to the vertical punch moving pin has great advantages of easy operation. For example a simple hinged lid (e.g. having nails for punches) would hardly be operative at all because the nails or pins would move through an arc and dig into the cardboard from an angle and not be very effective in removing coins from a card with rapidity and precision.

While I have illustrated and described a particular embodiment of the invention, various modifications can obviously be made, for example the lower base could be a casting instead of stamped, or it could be of wood, and I desire it to be understood that modifications can be made without departing from the true spirit and scope of the invention which I intend to define in the appended claims.

I claim:

1. Coin delivery apparatus and for the use with coin filled multi-layer paper and cardboard type multiple coin saver cards of the type having full circular round coin holding apertures and adjacent half circular apertures for introducing coins into the full circular apertures, said apparatus comprising an operating member base, a horizontal card support plate associated with said base and having vertical openings therethrough at least coextensive with the coins in a card when placed thereabove, a punch operating plate member located generally above the card support plate and journaled with respect to a portion of the operating member base for vertical movement with respect to the card support plate, said punch operating plate member having a plurality of individual tapered punches having pointed lower ends and arranged to be horizontally aligned with predetermined portions of said full circular apertures when a predetermined type card is in position on the support plate and for passing out coins without blanking out paper or cardboard from the card, offset pivoted cam means pivoted upon a portion of said operating member base and having a surface arranged to cause downward vertical movement of the punch operating plate member, operating handle means associated with the cam means and for forcing the punch operating plate member downwardly, and spring means bottomed upon a portion of the operating member base and having an upper end secured to normally force the punch operating plate member upwardly to permit free insertion or withdrawal of cards when the punch is not being made operative through application of outside force to the handle means, whereby filled coin saver cards may be rapidly processed without cardboard or paper fragments becoming intermixed with ejected coins.

2. Coin delivery apparatus as in claim 1 further characterized by an upper card stop plate comprising a plate secured to a portion of the base and arranged to extend above a card when inserted in the machine, said upper card stop plate having a plurality of perforations to accommodate the punches in their downward travel while acting to limit upward movement of card during upward travel of punches thereby to permit of easy removal of processed cards.

3. Coin delivery apparatus as in claim 1 further characterized by an aligning pin attached to the punch operating plate member and journaled in a portion of the operating member base.

4. Coin delivery apparatus as in claim 1 further char-

acterized by an outer cover for the apparatus, said cover having an aperture for the operating handle means, an aperture for receiving cards above the card support plate, and an aperture below the card support plate and for a coin receiving tray, and a tray arranged to be slideable through said last mentioned aperture.

5. Coin delivery apparatus as in claim 1 further characterized by the horizontal card support plate vertical openings being round so as to have individual centers, and the arrangement of individual tapered punches being such that they pass through the half circular apertures

of the card and are off center with respect to said card support plate individual opening centers whereby to provide a leverage action upon coins with respect to associated card portions during coin delivery.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 2,952,372 September 13, 1960

Norman Foss

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 3, line 9, for "cardcoard" read -- cardboard --; line 40, for "the card can either be inserted with the top of the printing" read -- the card can apparently be equally well inserted with the --; line 44, after "card" insert -- can --; column 4, line 46, for "passing" read -- pressing --.

Signed and sealed this 4th day of April 1961.

(SEAL)

Attest: ERNEST W. SWIDER

XXXXXXXXXX

Attesting Officer

ARTHUR W. CROCKER

Acting Commissioner of Patents