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Goto et al.

[11] **3,900,160**

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[54] **PAPER CURRENCY DISPENSING ENVELOPE**

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[21] Appl. No.: **366,084**

Related U.S. Application Data

[62] Division of Ser. No. 188,152, June 12, 1971, abandoned.

[30] **Foreign Application Priority Data**

Oct. 15, 1970 Japan 45-102786

[52] **U.S. Cl.** **229/71;** 229/69; 206/820; 206/525

[51] **Int. Cl.** **B65d 27/04;** B65d 27/10

[58] **Field of Search** ..... 206/56 A, 58, 59 E, 59 F, 206/46 MY, DIG. 22; 229/69, 70, 71

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[57] **ABSTRACT**

The envelope is flat, planar, generally rectangular and defined by a pair of oppositely disposed sheets of pliable material which can be torn asunder to remove the currency therefrom. The mutually opposing faces of the sheets are secured to one another at points along lines coinciding with the margins of the envelope and there is a bill of exchange removably disposed in the envelope so as to be coincident as a whole with the plane thereof. The edges of the bill are disposed adjacent the lines of securement between the faces of the sheets, but the points of securement along these lines are substantially coextensive with the edges so that the bill is substantially surrounded by points of securement and captively enclosed within the envelope. There is a point, however, along one line of securement, at which the faces of the sheets are detached from one another and devoid of all securement means thereon so that an opening is formed between the faces of the sheets at this point. The opening is adapted so that the adjacent edge of the bill is exposed to the naked eye at the outside of the envelope, but the bill as a whole cannot be removed through the opening short of tearing the sheets asunder as indicated. In this way, the customer can determine whether the envelope contains the appropriate number and/or type of bill before he tears open the envelope, and if not, can make a claim for the proper amount of currency without being charged with misappropriating the currency because of the fact that the envelope is torn open.

2 Claims, 7 Drawing Figures

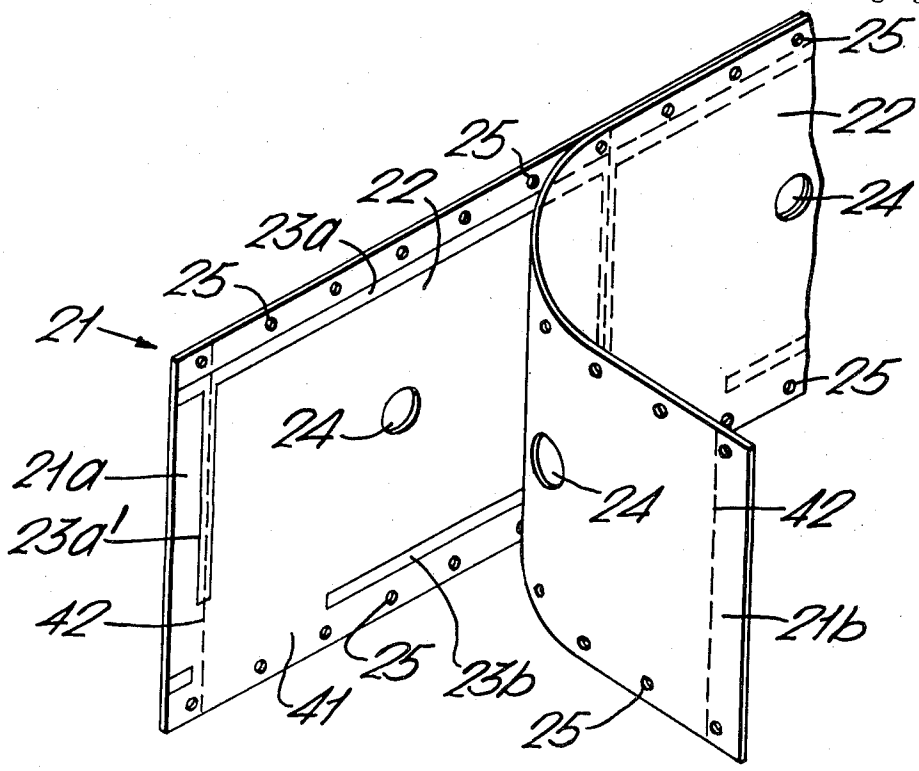


FIG. 1.

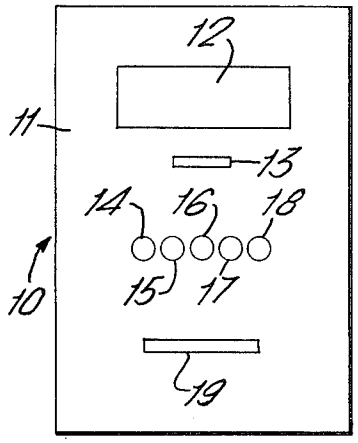


FIG. 3.

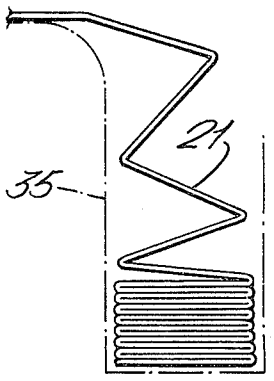


FIG. 2.

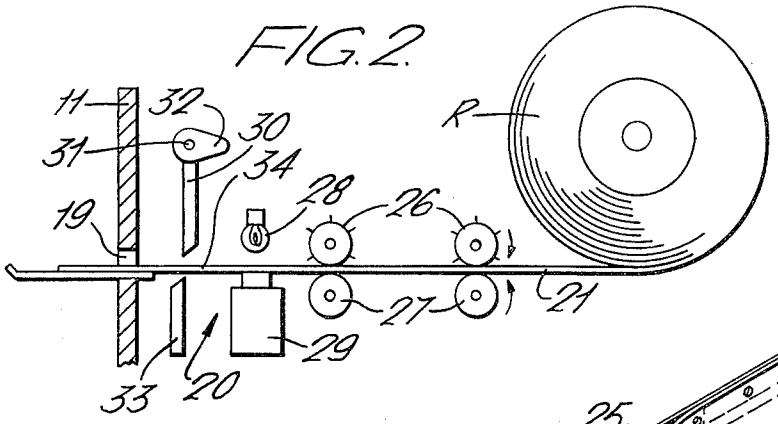


FIG. 4.

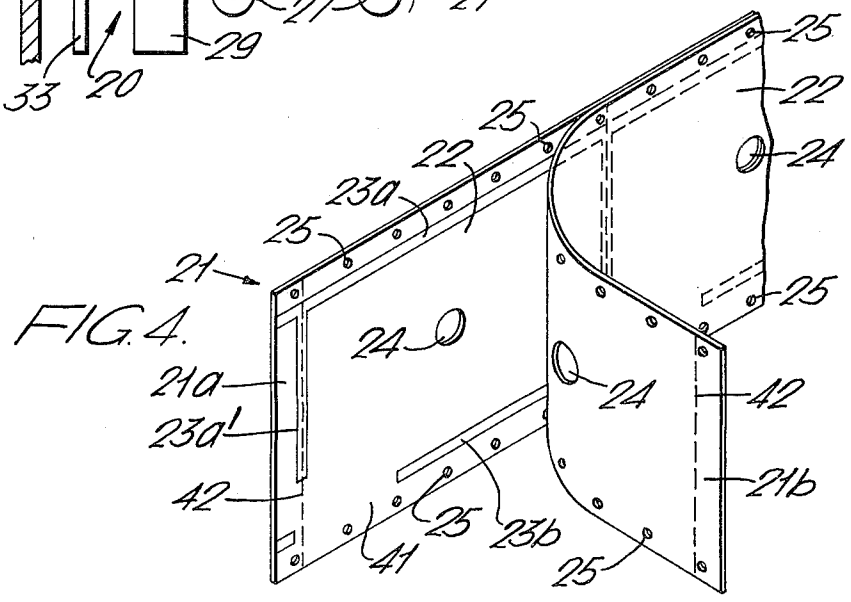


FIG. 5.

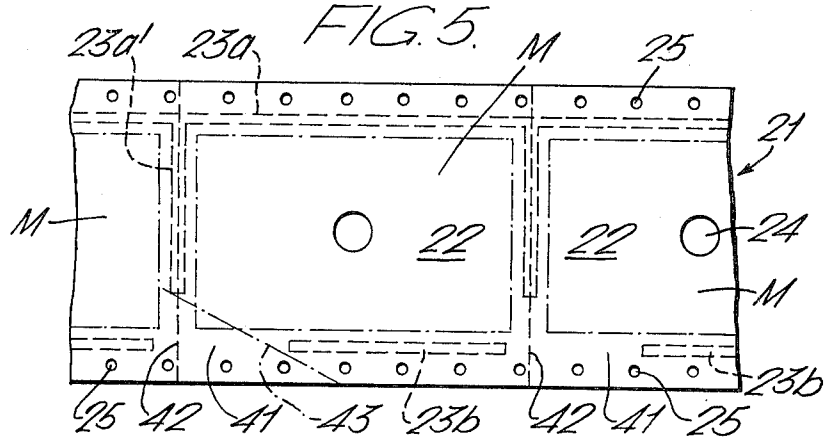


FIG. 6.

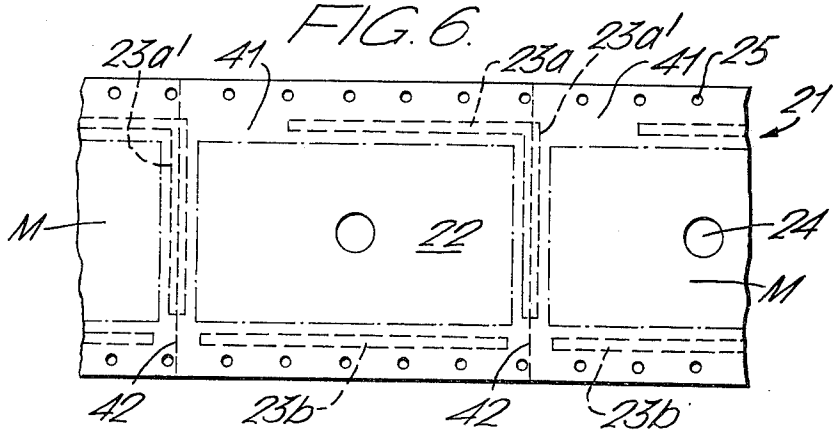
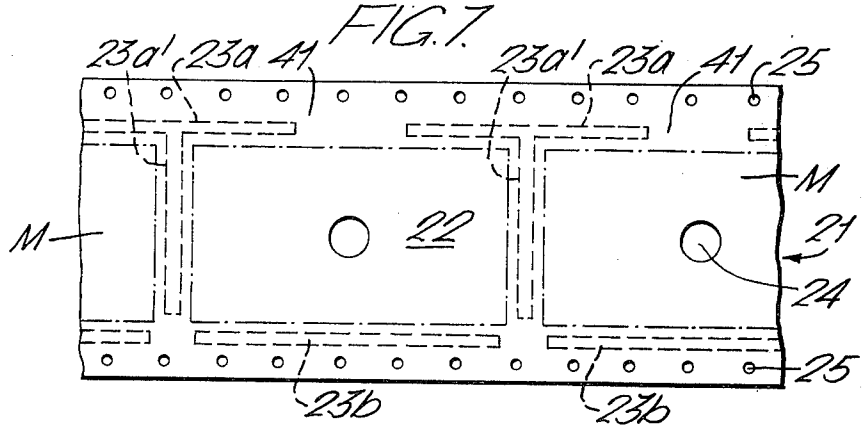


FIG. 7.



PAPER CURRENCY DISPENSING ENVELOPE

This application is a division of application Ser. No. 188,152, filed Oct. 12, 1971 now abandoned.

This invention relates to an apparatus for dispensing a required number of articles.

Automatic vending machines, automatic cash dispensing machines and automatic money exchanging machines are those which require a function to dispense as many articles or bills as are required. In these machines there are many articles or bills stored beforehand, so that as many of them as are required by the user of the machine will be dispensed out of the machine. In transactions with such machines there are cases where the customer makes a claim that the machine has dispensed a less number of articles than he is entitled to receive. The owner of the machine either accepts or rejects the claim. In the former case, the claim may be removed by additionally giving the customer the required number of articles. However, there is a problem if the customer is telling a lie despite that the machine has dispensed the required number of articles. The owner of the machine would suffer an economical loss.

In case the owner of the machine rejects the claim the customer makes, no additional articles will naturally be dispensed. If due to the disorder of the machine, the required number of articles has not been actually dispensed, the customer would suffer an economical loss and the machine will loose the confidence of the customers.

Accordingly, it is the primary object of the invention to provide an article dispensing apparatus which eliminates any trouble or dispute between the users and owner of the machine about the number of articles that have been dispensed out of the machine.

Another object of the invention is to provide such an apparatus as aforesaid, wherein it is easily possible for the owner of the machine to tell whether or not any of the articles that have been dispensed has been concealed by the customer.

Still another object of the invention is to provide such an apparatus as aforesaid, wherein articles to be dispensed are enclosed in an envelope or the like carrier in such a manner that it is easy to check the number of articles in the envelope that has been dispensed, without breaking or cutting the envelope open.

In accordance with the invention, a unit number of articles to be dispensed is enclosed in a carrier such as an envelope having one edge thereof partially open. The opening is of such a size that the articles in the envelope cannot be taken out through the opening but the number of the articles can be checked therethrough.

In one preferred embodiment of the invention, a long tubuler strip is used, which comprises a plurality of carrier sections successively formed along the length of the strip, each section enclosing a unit number of articles therein and having an opening formed along one side edge thereof.

The carrier strip is stored in the machine in a rolled or accordion fold configuration. When the articles are to be dispensed, the carrier strip is withdrawn out of the roll and when as many carrier sections as are required have been withdrawn, they are severed from the remaining strip and handed to the customer. The customer is obliged to check the number of articles contained in the severed strip portion before breaking or cutting it open. Once the strip portion the customer has received has been opened, it is determined that the strip portion contains the correct number of articles. The customer therefore must look at the articles contained in the severed carrier strip portion he received through the opening formed in the side edge in each of the carrier sections and check the number of articles before he breaks or cuts the carrier sections open.

If the customer finds a less number of articles than there should be, he makes a claim to that effect, presenting the carrier sections to the owner of the machine. If the carrier sections presented are not broken or cut, the owner of the machine additionally gives the customer as many articles as are required to make up the shortage. On the contrary, if the carrier sections presented are broken or cut open, naturally no additional articles will be accorded to the customer.

The invention will be described in further detail with reference to the accompanying drawing, wherein:

FIG. 1 is a schematic front view of an automatic cash dispensing machine to which the invention is applied;

FIG. 2 is a side view of a portion of the interior mechanism of FIG. 1, showing an article enclosing carrier strip being withdrawn out of a roll;

FIG. 3 is a schematic side view of a carrier strip as stored in accordion fold configuration in accordance with another embodiment of the invention;

FIG. 4 is a perspective view of the carrier strip partly peeled off to show the construction thereof.

FIG. 5 is a top plan view of the carrier strip of FIG. 4; and

FIGS. 6 and 7 are views similar to FIG. 5 but showing carrier strips of different constructions.

Referring first to FIG. 1, there is shown an automatic cash dispensing machine 10 having a front panel 11 on which there are provided a window 12 for indicating instructions on the operation of the machine, an inlet slot 13 through which a customer inserts his credit card into the machine, a plurality of buttons 14 – 18 by which the amount of money he wishes to withdraw is entered, and an outlet slot 19 through which the card inserted, a receipt and the required amount of cash are dispensed out of the machine.

In accordance with the operational instructions indicated in the window 12, the customer inserts his credit card into the slot 13 and then enters the amount of cash he wishes to withdraw by selectvely pushing the bottones 14 to 18, which may correspond to US $ 200, 400, 600, 800 and 1000, respectively. When the card inserted is genuine and valid, the required amount of cash, the card and a receipt are delivered out of the slot 19. The electrical and mechanical arrangement which enables the above operation is so well known that no further explanation will be given.

FIG. 2 shows a cash dispensing mechanism 20, wherein a long carrier strip 21 enclosing a unit amount, say, $ 200 in each carrier section 22 is stored in a rolled condition on a roller R within the housing 10 of the machine. The carrier strip 21 comprises a pair of superimposed long sheets 21*a* and 21*b* made of paper or suitable plastic film formed into a plurality of carrier sections 22 arranged along the length of the strip. The sheets 21*a* and 21*b* are adhered to each other continuously along one longitudinal side edge as at 23*a*, while along the opposite longitudinal side edge the sheets are partially adhered as at 23*b* so that an opening 41 is left on that side edge in each carrier section 22. The sheets

21*a* and 21*b* are also adhered transversely as at 23*a'* at intervals along the length of the strip so as to define the carrier sections.

In each carrier section 22 there is enclosed cash, which is in the illustrated embodiment two $ 100 bills. Each carrier section 22 is formed with a hole 24 adapted to be closed by the bills therein regardless of their number. The strip 21 is provided along both longitudinal edges thereof with a series of perforations 25 adapted to be engaged by the sprocket wheels of a strip feeding mechanism to be described later in detail.

The carrier strip withdrawn from the roll is passed through two sprocket-and-roller drives each comprising a sprocket wheel 26 and a roller 27 in rolling contact therewith so as to be delivered out of the outlet slot 19.

The cash dispensing operation starts with rotation of the sprocket wheels 26 clockwise in FIG. 2 as indicated by an arrow. The arrangement is such that one revolution of the sprocket wheels causes the carrier strip to move by the length of one carrier section.

When the $ 200 button 14 is pushed, the sprocket wheels will make one revolution so as to move the carrier shrip 21 by the length of one carrier section; when the $ 400 button 15 is pressed, they will make two revoutions so as to move the carrier strip 21 by two carrier sections; and in similar manners when the $ 600, $ 800 and $ 1000 buttons 16, 17 and 18 are pressed, the sprocket wheels make three, four and five revolutions so as to move the carrier strip 21 by three, four and five carrier sections, respectively. As the carrier strip 21 moves, the hole 24 in each carrier section passes between a light source 28 and a photodetector 29. If no bills are contained in the carrier section, the light from the source 28 passes through the hole 24 to enter the photodetector 29, which produces an output. However, if there is a bill in the carrier section, the light cannot pass through the hole so that no output is produced by the detector 29. Thus, it is possible to determine whether the carrier section contains bills or not by the presence or absence of the output from the detector 29.

When the sprocket wheels have stopped after as many revolutions as are required, a cutter is operated. The cutter comprises an upper blade 30 adapted to be vertically moved by an eccentric cam 32 mounted on a shaft 31 relative to a lower blade 33, thereby separating the carrier sections containing the required amount of cash from the remaining carrier strip. In the illustrated embodiment, the carrier strip is cut at the center 42 of the transverse adhered portion 23*a'* between adjacent carrier sections. The separated carrier strip portion is pulled by the hand of the customer through the outlet opening 19.

In FIG. 2 the long carrier strip is stored in a rolled condition. It is also possible to have the strip stored in a box 35 in accodion fold configuration as shown in FIG. 3. In this latter case the carrier sections are piled one upon another so that the bills or articles therein are advantageously prevented from being bent or folded.

In the carrier strip shown in FIGS. 4 and 5, the two component sheets are first adhered along one side edge 23*a* and also transversely at 23*a'* by means of a suitable adhesive material, so that each carrier section is open along the opposite edge of the strip. Under the condition, a unit amount of cash, say, two $ 100 bills M are put into each carrier section.

Along the opposite edge of each section there is formed an adhesive portion or line 23*b* by puting a suitable adhesive material on one of the component sheets of the strip. The adhesive is covered by a slip of a suitable material such as oil paper for prevention of adhesion between the two sheets when they were adhered at the previously mentioned one side edge.

As previously mentioned, the line 23*b* starts from near one end of the length of each carrier section, extends along the length of the section and terminates short of the opposite end of the length thereof so that when, after the bills have been put in each carrier section, the paper is removed from the adhesive line 23*b* so as to adhere the two sheets along this edge, an opening 41 is left, which, as previously mentioned, is of a size enough to enable the customer to count the number of the bills therein but prevent the bills from being taken out through the opening.

A score line 42 may be formed on the transverse adhered portion 23*a'* to define the opposite ends of each carrier section. When a portion of the carrier strip containing a certain number of carrier sections has been dispensed, the carrier sections may be separated from each other by the score line 42 and one corner of the component sheets, turned outside near the opening 41 as shown by a dashed line 43 in FIG. 5. This causes the corner of the bills in the carrier section to be exposed outside the corner and makes it easier to count the number of the bills.

When the customer receives as many carrier sections as are sent out of the machine, he checks the number of bills in each carrier section before he cuts or breaks them open. If any of the sections contains a less number of bills than there should properly be, the customer presents the carrier sections to the owner of the machine without breaking or cutting them open. The latter checks the carrier sections presented and if they are not broken or cut open, as many bills as are required to fill up the shortage are given to the customer.

In FIG. 4 the opening 41 is formed at the side of the adhered portion 23*b*. It is also possible to form the opening 41 at the side of the adhered portion 23*a* near one end of the length of each carrier section 22 as shown in FIG. 6, or at the middle of the length thereof as shown in FIG. 7.

What we claim is:

1. A flat, planar, generally rectangular, paper currency-dispensing envelope defined by a pair of oppositely disposed sheets of pliable material which can be torn asunder to remove the currency therefrom, the mutually opposing faces of which sheets are adhered to one another at points along lines of securement coinciding with the margins of said envelope, there being a plurality of bills of exchange removably disposed in said envelope so as to be coincident as a whole with the plane of said envelope, the edges of said bills are disposed adjacent said lines of securement between said faces, and said lines of securement being substantially coextensive with said bill edges so that said bill is substantially surrounded by lines of securement and is not removable from said envelope without tearing said sheets asunder, there being, however, a section along at least one line of securement at which said faces of said sheets are unadhered and separable from one another so that an opening is formed between said faces of said sheets at said section and said opening being located at one corner of said envelope adjacent corresponding corner

edges of said bills and being constructed so that the bill corners are exposed by said opening whereby the type and number of bills of exchange may be verified by counting the number of bill corners thus exposed before tearing the sheets asunder and removing the envelope contents.

2. The envelope according to claim **1** wherein said opening lies between points on said lines of adherence intersecting one another at said corner, and wherein such points are spaced from the apex of said corner.

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