

Feb. 20, 1923.

1,445,666

J. O. DAVIS ET AL

LEGAL BLANK VENDING MACHINE

Filed Jan. 25, 1922

4 sheets-sheet 1

Fig. 1

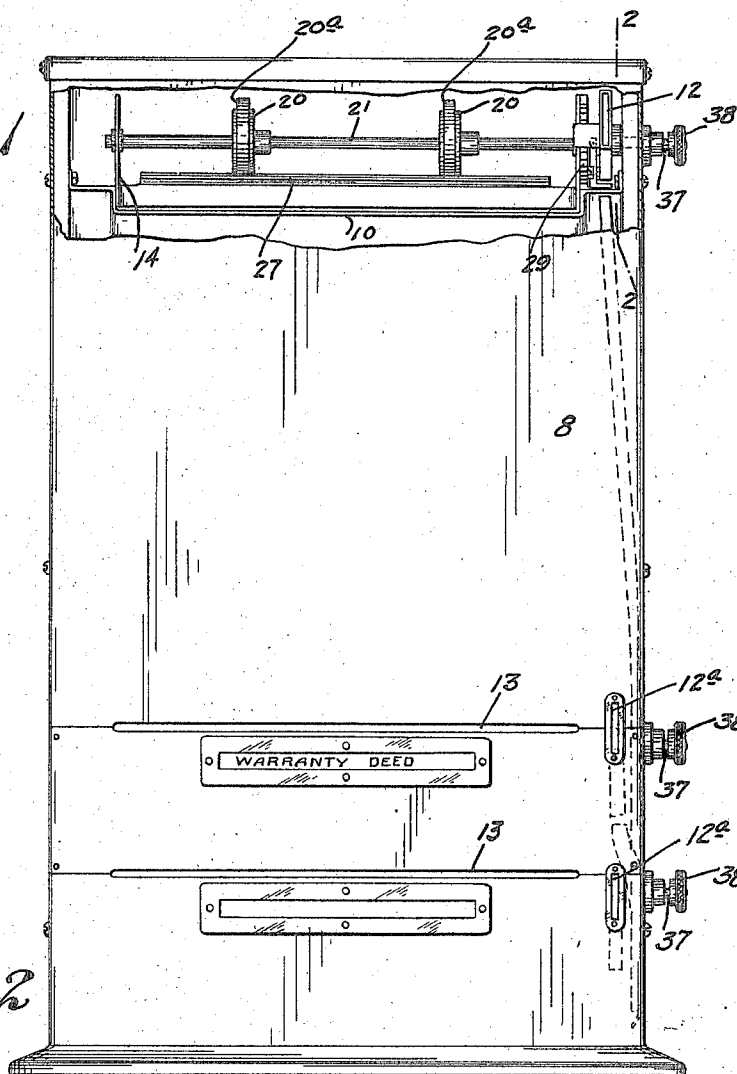


Fig. 2

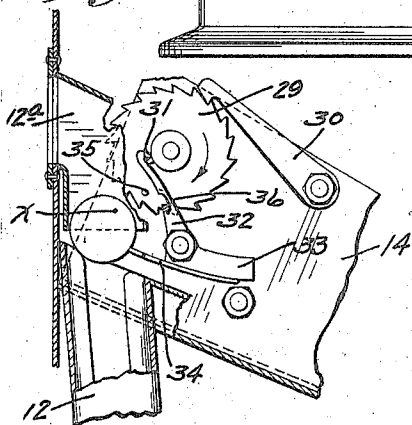
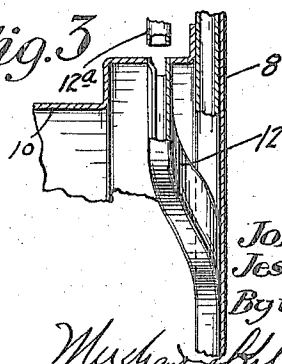


Fig. 3



Inventors
John O. Davis
Jesse H. Stice
By their Attorneys

Murphy & Pugh on

Feb. 20, 1923.

1,445,666

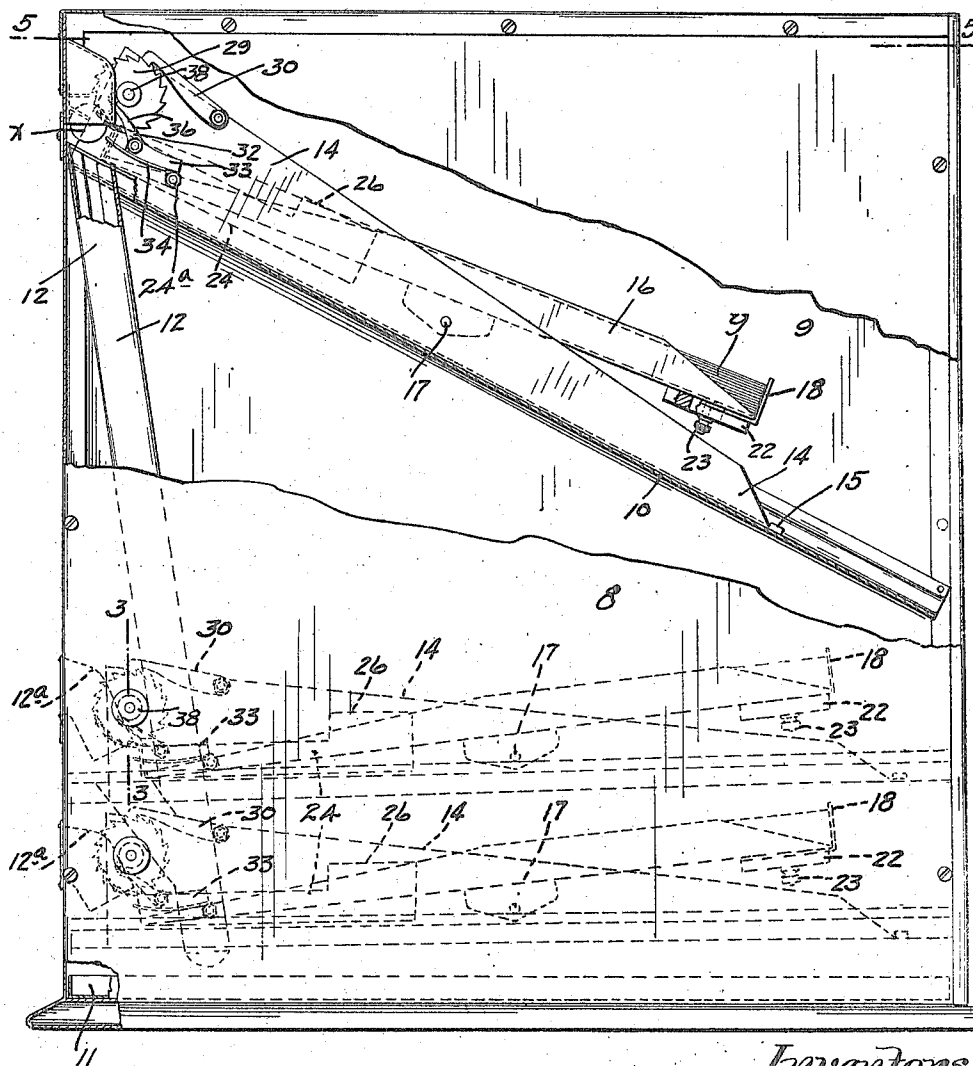
J. O. DAVIS ET AL

LEGAL BLANK VENDING MACHINE

Filed Jan. 25, 1922

4 sheets-sheet 2

Fig. 4



Inventors
John O. Davis
Jesse H. Stice
By their Attorneys
Wm. H. Wilson

Feb. 20, 1923.

1,445,666

J. O. DAVIS ET AL

LEGAL BLANK VENDING MACHINE

Filed Jan. 25, 1922

4 sheets-sheet 3

Fig. 5

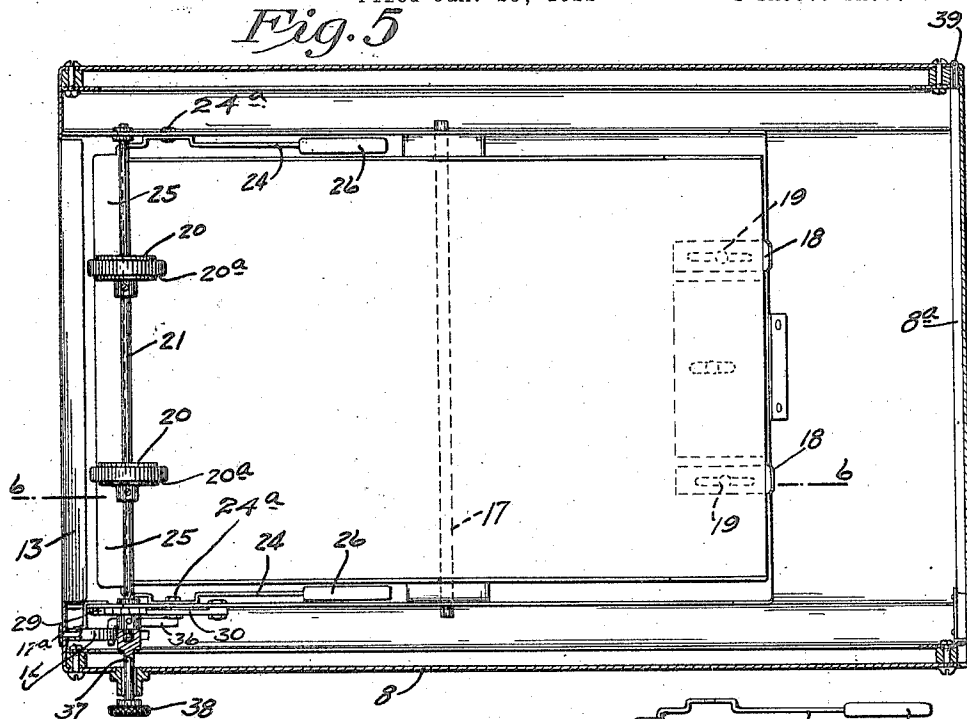


Fig. 5a

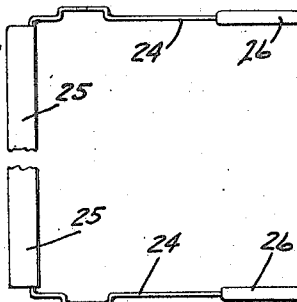


Fig. 6

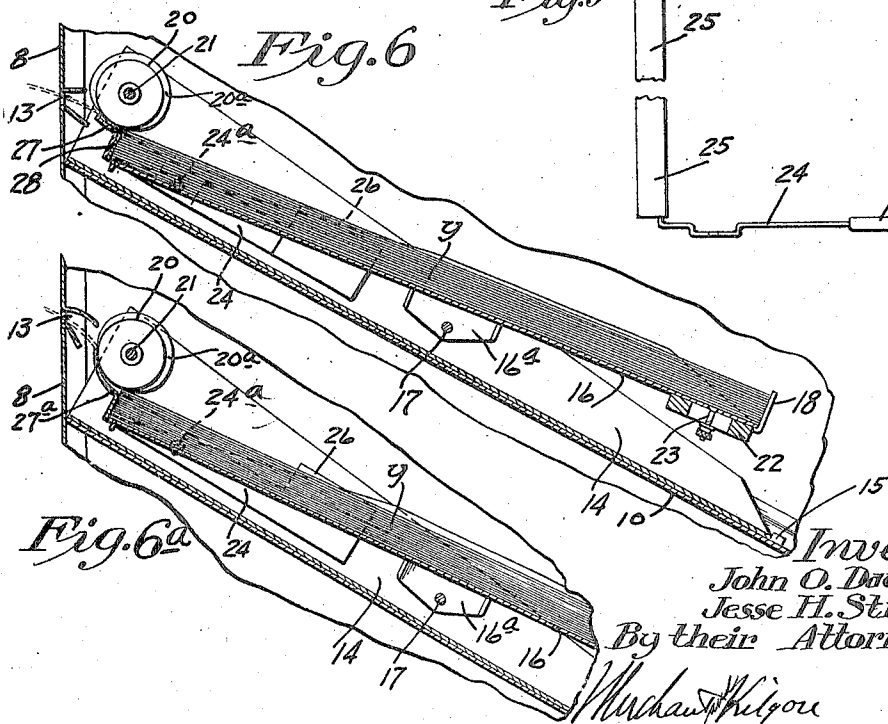


Fig. 6a

Inventors
John O. Davis
Jesse H. Stice
By their Attorneys
M. H. Wilson

Feb. 20, 1923.

1,445,666

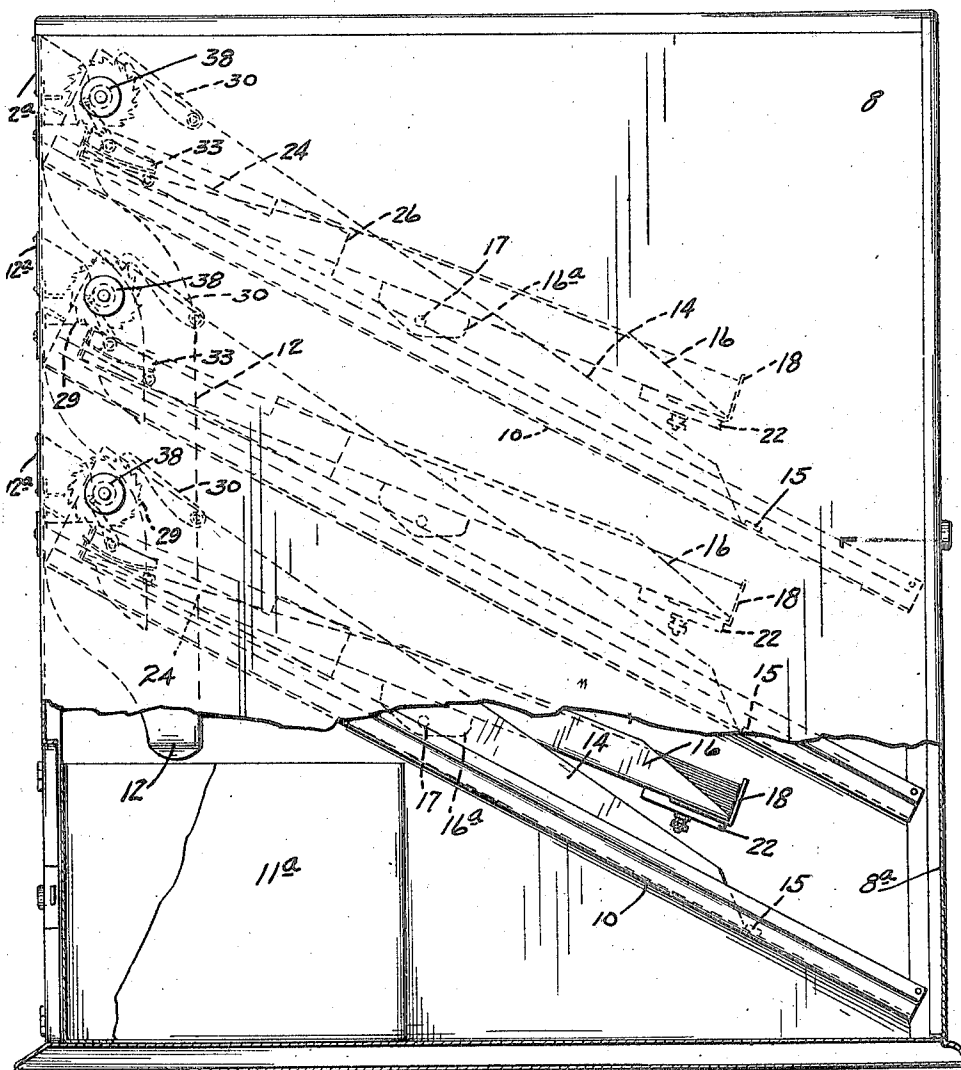
J. O. DAVIS ET AL

LEGAL BLANK VENDING MACHINE

Filed Jan. 25, 1922

4 sheets-sheet 4

Fig. 7



Inventors
John O. Davis
Jesse H. Stice
By their Attorneys
Mitchell & Kilgore

Patented Feb. 20, 1923.

1,445,666

UNITED STATES PATENT OFFICE.

JOHN O. DAVIS, OF MINNEAPOLIS, MINNESOTA, AND JESSE H. STICE, OF TAMA, IOWA;
SAID STICE ASSIGNOR TO SAID DAVIS.

LEGAL-BLANK-VENDING MACHINE.

Application filed January 25, 1922. Serial No. 531,809.

To all whom it may concern:

Be it known that we, JOHN O. DAVIS and JESSE H. STICE, are citizens of the United States, residing, respectively, at Minneapolis and Tama, in the counties of Hennepin and Tama and States of Minnesota and Iowa, have invented certain new and useful improvements in Legal-Blank-Vending Machines; and we 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.

This invention relates to machines for vending and delivering to purchasers legal blanks or similar paper sheets, and is in the nature of an improvement on or refinement of the machine disclosed and claimed in our pending application Serial Number 430,942, filed December 15, 1920, and entitled "Legal blank vending machine."

Generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a front elevation with some parts broken away, showing the improved machine;

Fig. 2 is an enlarged section taken on the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary section taken substantially on the line 3—3 of Fig. 4;

Fig. 4 is a side elevation of the machine with some parts broken away and with some parts in vertical section;

Fig. 5 is a horizontal section taken on the line 5—5 of Fig. 4;

Fig. 5^a is a detail in plan showing a bail-like retaining bar applied to the pivoted so-called feed table;

Fig. 6 is a fragmentary vertical section taken on the line 6—6 of Fig. 5;

Fig. 6^a is a view corresponding to Fig. 6 but illustrating a slightly modified construction; and

Fig. 7 is a side elevation with some parts broken away, illustrating a construction differing in some respects from that illustrated in Fig. 4.

The device may comprise any desired number of units and these may be arranged

in a variety of different ways, but, as shown and preferred, it involves a plurality of such units or such sections all incorporated into a common cabinet or casing and the different units arranged to deliver different kinds of blanks. The cabinet 8 illustrated is shown as formed with vertically spaced drawer compartments 9 and intervening vertically spaced partitions 10.

In the lower compartment, the cabinet is provided with a coin box or receptacle 11, into which the coins will be delivered through a coin chute 12. In the front wall of the cabinet are vertically spaced transversely elongated blank delivery passages 13, through which the blanks or paper sheets are adapted to be delivered out of the cabinet.

Removably mounted on each partition 10 is a drawer or flanged slide 14, preferably formed of sheet metal and left open or flangeless at its front and rear ends.

In Figs. 1 and 4, the partitions 10 and the drawers 14 are shown in several different arrangements, the upper drawer and partition being inclined away from the front or delivery slot or passage 13 and this is the preferred arrangement. Nevertheless, for some kinds of blanks, the substantially horizontal partitions and drawers arranged as indicated by dotted lines in Fig. 4 will be found desirable. With these statements made, the further description will be confined to the preferred arrangement illustrated at the top in Fig. 4 and in the several instances in Fig. 7.

The numeral 15 indicates stops on the partitions 10, with which the lower ends of the drawers 14 are engaged to hold the same in proper working position.

Within or upon each drawer 14 is a pivoted feed table 16, preferably also made of sheet metal and having upturned side flanges, through which and the side flanges of the drawer 14 a pivot rod 17 is passed to afford a pivotal connection between the two. This pivot, for an important reason, is located forward of the center of gravity of the feed table 16 and its load.

The legal blanks or like sheets y are placed on the table, as best shown in Figs. 4, 6 and 7, and they are held properly positioned, as best shown in Fig. 6, by the upturned ends of gauge clips 18 that underlap the lower end of the feed table 16 and

are screwed thereto for adjustments longitudinally thereof by slot and screw connections 19 or the like. These gauge clips 18 should be so adjusted that the upper edge of the top blank or sheet γ will be pressed into frictional engagement with the bottoms of overlying feed rollers 20 that are secured to a feed shaft 21 journaled in the front ends of the side flanges of the drawer or slide 14.

To increase the weight of the lower end of the feed table 16 over that of the upper end and to give always the desired pressure of the upper blank or sheet against the feed rollers, said table is provided on the under surface of its lower end with a weight 22 that is made adjustable longitudinally thereof by a slot and screw connection 23. Here it may be further noted that the pivotal connection between the table 16 and the pivot rod 17 is made by turning the lugs 16^a downward from the sides of said table and through which the rod 17 is passed.

Each feed roller 20 has a frictional face, preferably formed of soft rubber, for direct engagement with the upper paper sheet or blank γ . These frictional faces 20^a are eccentric or cut away below or to the metal flanges of said wheels for a short distance, at the lower portions thereof, so that, normally, said frictional faces will be out of action on the paper sheet.

Pivotally mounted on the upper delivery end of the table 16, at 24, is a bail-shaped so-called retaining bar 25, as best shown in Figs. 5, 5^a and 6. The arms of said bar, at their inner ends, are provided with weights 26 that keep the front or cross portion of said retaining bar raised. Said bar 25 is provided with a segmental flange 27 preferably faced with a thin sheet of rubber 28 or similar material that will offer more resistance than polished metal or wood to the movement of the upper sheet γ over the same. Normally, this facing 28 is pressed against the feed rollers by the weights 26. By reference to Fig. 6, it will be noted that the retaining bar 27 stands in front of all but the uppermost of the paper sheets or blanks γ . One of the discharge slots or passages 13 is positioned to receive the upper blank or sheet γ from said feed rollers, as indicated by dotted lines in Fig. 6.

Within the casing but at one end, the roller shaft 21 is provided with a ratchet wheel 29 that is engaged by a retaining dog 30 pivoted to one flange of the drawer or slide 14, (see particularly Fig. 2). On its hub, the ratchet wheel 29 has a lock lug 31 that is engaged by the hook-like end of a lock dog 32 that is pivoted to the adjacent flange of the drawer 14. This lock dog 32 has a weighted end 33 and a tripping finger 34, which latter projects partly over the receiving end of the coin chute 12. The coin α

is arranged to be delivered to the chute 12 and against the tripping finger 34 by a supplemental coin chute 12^a. The numeral 35 indicates a stop pin on the ratchet wheel 29. This pin, when the dog 32 is in its locking position, is adapted to pass through a notch 36 in one side of the latter.

For operating the feed roller, its shaft 21 is provided with a detachable section 37 shown as detachably connected thereto by threaded engagement and extended out through one side of the casing and provided with an operating knob 38.

In the arrangement illustrated in Fig. 7, the coin chute 12 delivers to the coin box 11^a located in the angular space below the lowermost partition 10. Preferably, the cabinet will be provided with a displaceable back plate 8^a connected thereto by a hinge 39.

The construction illustrated in Fig. 6^a is like that illustrated in Fig. 6, except that the operating flange of the retaining bar 27^a is not covered with rubber or the like, but is extended on the arc of a circle through a greater number of degrees than is the corresponding flange of the bar 27. In both arrangements, the blanks or sheets γ are arranged to be discharged by an upward feeding movement.

Figs. 1 and 4 show the upper feed table 26 rearwardly inclined and two lower feed tables set slightly forwardly inclined. For most purposes, however, the best feeding action is produced with the table and the blanks held rearwardly inclined so that blanks must be fed from the stack by an inclined upward feeding movement.

Operation.

The operation of the preferred form of the vending mechanism will now be described, attention being directed particularly to Fig. 6.

When a coin is deposited in the coin chute 12^a, it will drop against the finger 34 of the lock dog 32, as shown in Fig. 2, and its weight will then move said dog into a releasing position against the stop pin 35 of the ratchet wheel 29, but said coin will be temporarily held by said finger. This releases the feed rollers, so that they may be rotated by manipulating the knob 38.

Normally, the upper front edge of the top blank γ will be frictionally pressed against the feed rollers so that, by initial rotation of the latter in the direction of the arrow marked on Fig. 2, the top sheet will be fed from the stack and over the rubber face of the flange of the retaining bar 27 and from thence out through the discharge passage 13. As soon as the upper end of the blank is forced between the rollers and the flange of the retaining bar 27, the latter assists in pressing the blank into frictional engagement with the feed rollers,

so that a good feeding action is insured. It should be noted that the blank or sheet is subjected to frictional pressure first by the weight 22 on the lower end of the table 16, and second by the weights 26 acting through the retaining bar 27. The retaining bar, so-called, therefore acts as a combined retaining bar and presser bar. The rubber facing on the bar 27 does not afford such friction as to prevent feeding of the top blank, which alone has contact with the rubber faces of the feed rollers, but it does serve to effectuate to hold back a second sheet which might tend to stick to and move with the top blank. The curved flange of the bar 27, shown in Fig. 6^a, serves much the same function. In actual practice, we have found that both forms of the device illustrated in Figs. 6 and 6^a are of very high efficiency and will operate almost to perfection. The co-operative feeding action between the table and the combined retaining and pressure bar accomplishes the desired result. Of course, as the stack of blanks or sheets *y* is fed down, the retaining bar 27 lowers in respect to the table so as to always maintain the same feeding relation thereto.

When the feed rolls have made one complete rotation, a lock lug 31 will engage the hook and lock dog 32 and the rolls will be again locked in normal position. One rotation of the feed rolls, however, will eject the top blank or sheet *y* where it can be easily reached with the fingers and easily pulled the rest of the way out of the casing, since the cut-away portions of the frictional facings 20^a will be then again in the plane of the upper blank *y*. A further highly important action should be particularly noted. When the feed rollers have made their complete rotation and have been again locked with the cut away or omitted portions of the facings 20^a aligned with the top blank or sheet *y*, the latter will have been projected out of the passage 13. Then, when this upper blank or sheet is engaged by the fingers and pulled outward, it will press downward on the flange of the re-

taining bar, thereby rocking the weighted arms 24 on their pivots 24^a and moving downward on the retaining bar 25. This greatly decreases the frictional resistance to the withdrawal of the blank or sheet and permits the same to be very easily pulled completely out of the casing.

What we claim is:—

1. In a vending machine, an enclosing casing, a sheet supporting table pivotally mounted within said casing, a feed roller overlying the delivery end of said table, and against which said table is arranged to press the top sheet, and a retaining bar movably mounted at the delivery end of said table and yieldingly pressed upward in respect thereto and toward said feed roller.

2. The construction defined in claim 1 in which said retaining bar has a flange directly opposed to said roller.

3. The construction defined in claim 2 70 in which said roller has a frictional peripheral face with a removed portion.

4. The construction defined in claim 1 in which said retaining bar has a curved flange opposed to said roller.

5. In a vending machine, an enclosing casing, a sheet supporting table pivotally mounted within said casing, a feed roller overlying the delivery end of said table, and against which said table is arranged to press the top sheet, said casing having a sheet discharge passage, and a retaining bar movably mounted at the delivery end of said table and having weighted arms pivotally connected to said table and yieldingly pressing said bar toward said roller.

6. The construction defined in claim 5 in which said retaining bar has an upper surface covered with a frictional substance.

7. The construction defined in claim 5 90 in which said retaining bar has a curved flange opposed to said feed roller.

In testimony whereof we affix our signatures.

JOHN O. DAVIS.
JESSE H. STICE.