

Nov. 28, 1933.

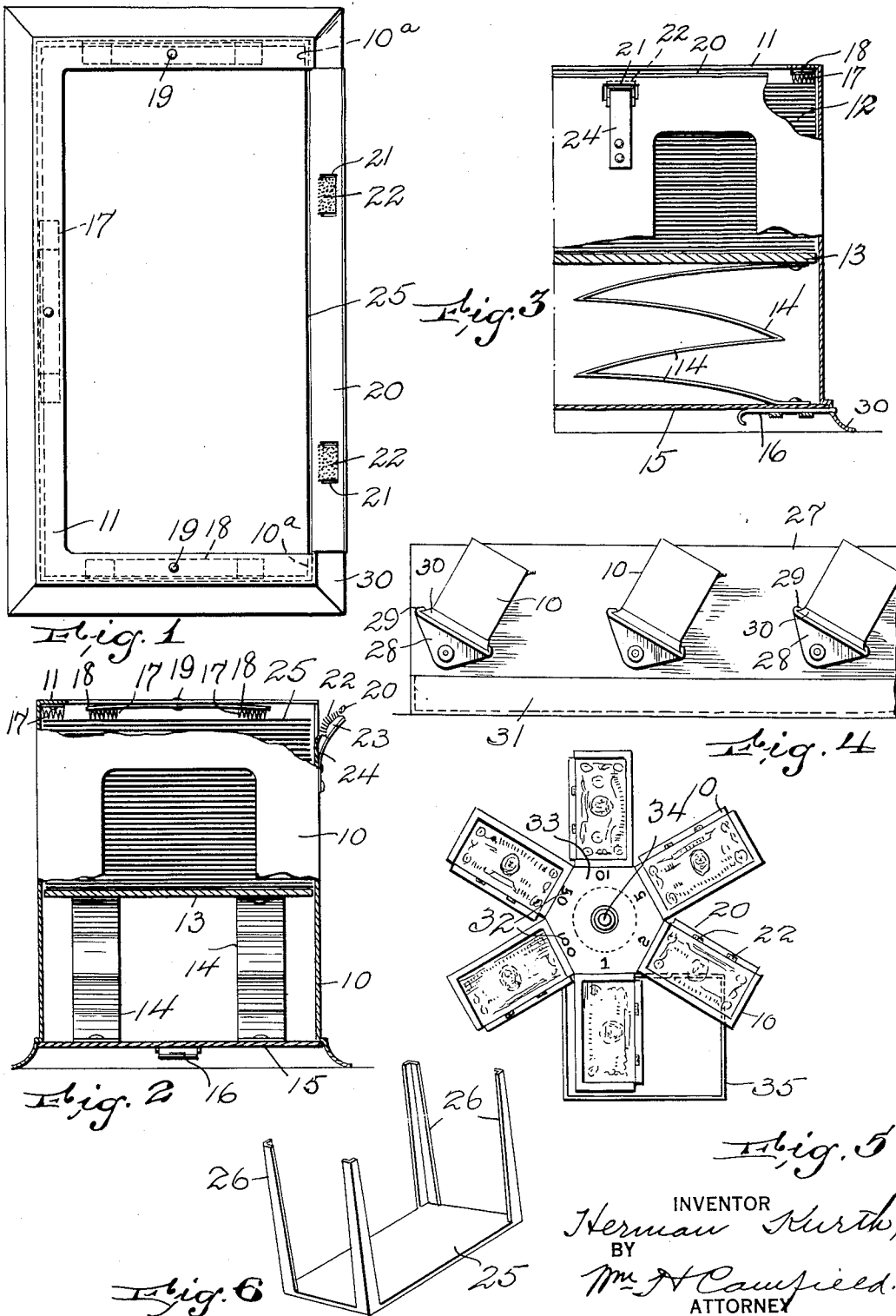
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1,937,024

DEVICE FOR HOLDING AND DISPENSING PAPER SHEETS

Filed May 22, 1931

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

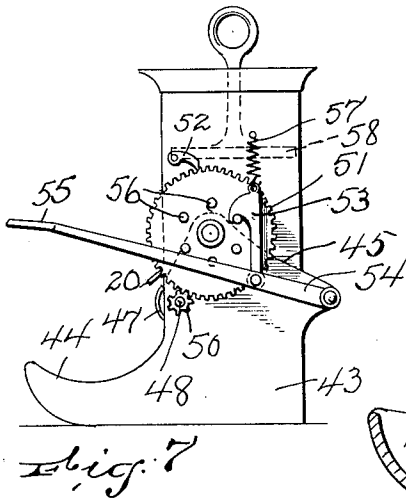
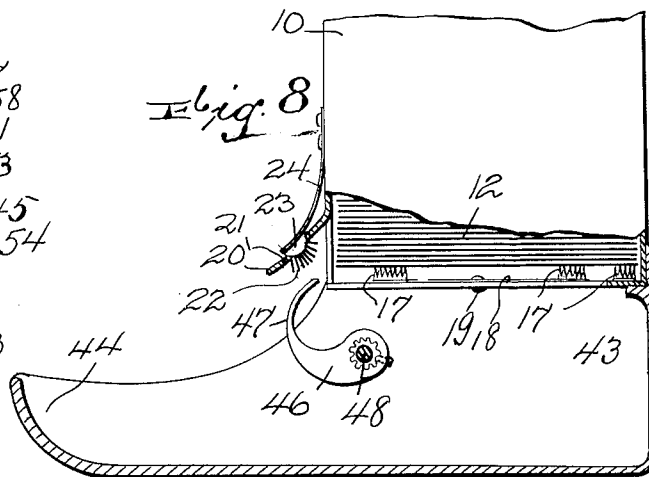
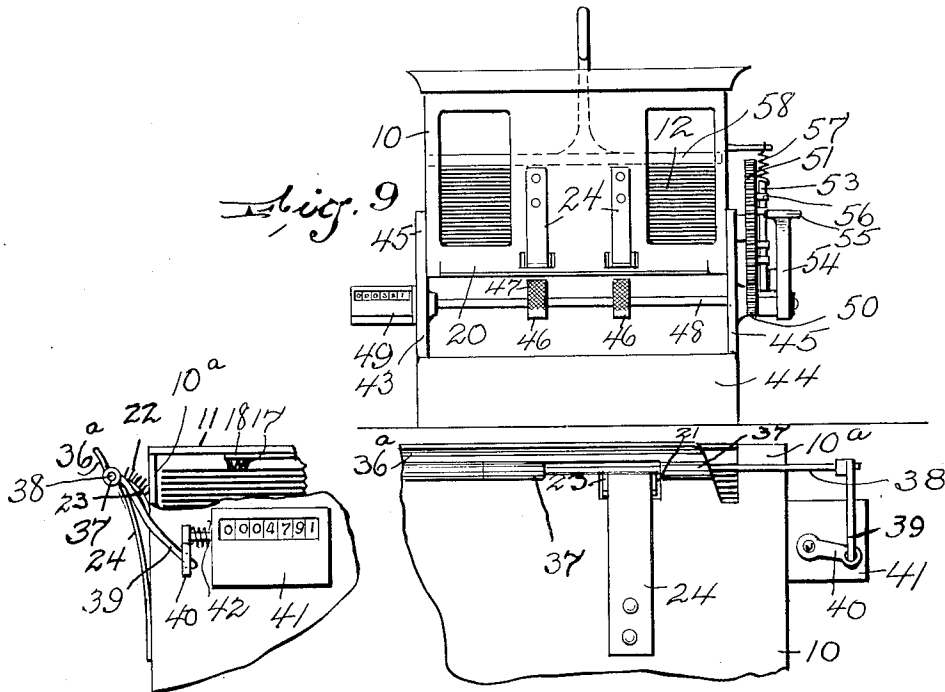


Fig. 10

Fig. 11

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DEVICE FOR HOLDING AND DISPENSING
PAPER SHEETS

Herman Kurth, Newark, N. J.

Application May 22, 1931. Serial No. 539,219

6 Claims. (Cl. 312—61)

This invention relates to an improved device for dispensing individual sheets from a stack of paper sheets. The machine is adapted for various uses but is particularly adapted for use in dispensing paper money. The machine is preferably of a portable or semi-portable type and can be used by clerks in banks and in offices for the quick and accurate counting and delivering of paper money.

The object of the invention is to provide a holder which presents the stack of paper sheets with the top sheet or end sheet of the stack in position to be laterally removed from the holder. The next succeeding sheet is restrained from following and the accuracy of count is thus insured as only one sheet at a time is removed. The device works just as efficiently with worn or crumpled sheets as with smooth sheets and the device is therefore particularly adapted for use in dispensing paper money.

The invention is designed to utilize the characteristics of paper in sheets and producing a holder that takes advantage of the slight distortion in the top sheet that results from a lateral rubbing or sweeping motion and the sheet is thus released. The next succeeding sheet is prevented from following by a brush-like impediment that operates effectively to hold the said second sheet from passing out with the outside or top sheet.

The invention also resides in certain details of construction which will be hereinafter more fully described and finally embodied in the claims.

The invention is illustrated in the accompanying drawings in which Figure 1 is a top view of a holder embodying my invention. Figure 2 is a side view broken away to disclose some of the interior construction. Figure 3 is a front view of the right hand half of the holder shown in Figure 1, this figure also being broken away to show the interior construction. Figure 4 is a view showing a series of holders mounted to provide ready dispensing of sheets from various holders as money of various denominations. Figure 5 is a top view of a series of holders mounted on a rotatable support. Figure 6 is a perspective view of a filler that can be used for placing the sheets in the holder. Figure 7 is a side view of a holder mounted in a stand and adapted for mechanical ejection and counting of the sheets. Figure 8 is a section of the lower part of Figure 7 and on a larger scale. Figure 9 is a front view of the machine shown in Figure 7. Figure 10 is a cross section and Figure 11 is a front view of a detail which operates a counting device when

the holder is used for dispensing the sheets by hand.

The main casing 10 of the machine is usually made of sheet metal and has an open top except for a flange 11 which extends inwardly, usually on three sides, that is, the two ends and the back. The front wall is cut down slightly to allow the sheets to be fed laterally at the top. The front wall, however, at the ends of the top are not cut away and these portions form corner abutments 10^a. These abutments retard the corners of the top sheet of paper which advances at the centre where it is free to move. The consequent buckling of the paper causes the rear and sides of the sheet to move toward the centre. The advantage of this will be apparent later on. The stack 12 of paper sheets rests on a platform 13 supported in turn by springs 14, usually four in number. These springs are spaced laterally and longitudinally to distribute an even pressure under the stack 12. The springs rest on the removable bottom 15 held in place by any desired form of latch 16. The springs, the bottom and the platform are preferably secured together to provide easy handling.

On the top the stack rests against small resilient rubber or other resilient fingers 17 arranged at the ends of the light springs 18. These brushes or sets of elastic fingers engage the sheet directly underneath the top sheet as soon as the top sheet has started to be withdrawn. The springs are shown held in place by a rivet 19 each in the centre of a spring 18. As the movement of the top sheet takes place the previously described movement of the edges of the sheet toward the centre exposes the second sheet to engagement by the brushes 17 at the rear and side edges and holds this second sheet against movement a material distance.

At the top of the front wall is an outwardly turned lip 20. This lip has an opening or openings 21 through which project bristles 22 on backings 23 supported on the top ends of springs 24 which are secured to the front wall.

In operating the device the top sheet 25 is swept as above described across the lip 20 and comes out alone. The next succeeding sheet is held against any but a slight side movement first by the brushes 17 on the rear flange 11 and then by the side brushes and is positively stopped from any further progress by the bristles 22. The next sheet which becomes the top sheet on the removal of the next preceding sheet is held flat and the stack always presents a smooth appearance at the top. Advantage is taken of the prop-

erty of a thin sheet of paper of buckling on its withdrawal and when the thumb engages the top sheet it moves at its edges toward the centre and all the brushes 17 grasp the next succeeding sheet at about the same time. A damp sponge rubber or other light friction surface can be used when it is desired to remove sheets in quick succession from the holder.

The device is particularly adaptable for the easy and quick handling and counting of paper money. The use of the device by bank tellers and persons making up pay rolls saves much time and economizes space. The paper money or other sheets are easily placed in a stack and then into the machine by the use of the filler 25 shown in Figure 6. The filler has corner posts 26 and these are used for arranging the bills in a stack as the sides are open and the bills can be quickly aligned. The holder, with the bottom 16 and the platform 13 removed is placed over the filler 25 which is of a size to slide up in the corners of the casing 10. The assembled parts are then turned upside down, the filler is removed, the bottom 16 with the springs 14 and the platform 13 attached thereto is put into place, the holder again sets upright and it is ready for use.

The use of holders in a group or series is desirable where bills of various denominations are counted out. In Figure 4, I have shown a straight support 27 on which the brackets 28 are adjustably supported. The brackets are cut away to allow the holders to be slid on their respective brackets. The drawings show undercut portion 29 to receive the flared bottom edges 30 of the holders. A tray or drawer 31 under the holders is a convenient construction for receiving the moneys counted out from the holders 10.

In Figure 5, I show a series of holders of bills of various denominations. The value of each bill in a holder can be indicated by the numbers 32 on the rotatable support 33 on the standard 34. The support 33 has the holders arranged radially and as each holder is required it is swung around into place. The bills counted out fall into the tray or drawer 35. These devices can also be made to rotate in a vertical plane instead of a horizontal one. These forms of group holders are particularly desirable in banks and similar places where money is handled by counting individual bills.

In the event that a counting attachment is desired I have devised a construction as shown in Figure 10 and Figure 11. In this form the flap 36^a is pivoted to the top of the lip 20. The flap 36^a is hinged at 37 and is secured to move rotatively with the pintle 38 which has an arm 39 which actuates the counter arm 40 of the tabulator or counter 41. A spring 42 is installed to force the arm 40 in the reverse direction when released. In this form, as each bill is swept from the stack the flap 36^a is swung down far enough to actuate the counter to register its loss to the stack. In this way an easy and quick way of keeping tally on the amounts dispensed or remaining is provided.

A mechanical feeding apparatus is shown in Figures 7, 8, and 9. The holder 10 as shown in Figures 1 to 3 is placed bottom side up on a base 43 which is preferably formed as a tray 44 and side bearings 45. The bills are fed from the bottom of the stack by a spring arm or arms 46 which have a sweeping motion across the bottom of the stack of bills. The arms are preferably more resilient toward their outer ends as

at 47. The arms are secured to a shaft 48 which can be operated in any desired manner and for each revolution indicating a bill as expended the shaft may operate a suitable counter 49. One mechanism for providing an easy and convenient operation of the shaft 48 comprises a pinion 50 on the shaft 48 and a properly proportioned gear 51 in mesh therewith. The gear 51 is held against reverse movement by a pawl 52 and is moved in the other direction by the pawl 53 operated by a lever 54 having a finger piece 55. The pawl engages pins 56 in succession and is returned to normal position by the spring 57. In this form of machine the simple weight 58 is used in lieu of the springs 14. In this form of dispenser the operation of the handle 55 will rotate the feeding arm 46 and the bottom sheet of the stack 12 is swept out and deposited in the tray 44. The next succeeding sheet is engaged by the brushes or other gripping means 17 and by the bristles 22 and is prevented from moving outwardly until it is directly engaged by the feeding arm 46. The spaces and clearances in the drawings are necessarily exaggerated to make the function of the various parts clear.

For clarity in the description the device is described as having an open top. This phrasing is not limited to an upright machine but also embraces the machine when placed upside down for feeding the sheets from the bottom in which case the open top is, of course, an open bottom.

I claim:

1. A device for the dispensing of paper sheets from a stack comprising a casing with an opening in the top for access for laterally moving the top sheet, said casing having an abutment at each end of the side from which the top sheet is delivered, and resilient members engaging the top of the stack at the edges.

2. A device for the dispensing of paper sheets from a stack comprising a casing with an opening in the top for access for laterally moving the top sheet, said casing having an abutment at each end of the side from which the top sheet is delivered, and resilient members engaging the top of the stack at the edges, and brush-like members in the side from which the sheets emerge and disposed to engage the sheet below the top sheet to prevent its removal with the top sheet.

3. A device for holding a stack of sheets for successive individual delivery comprising a casing with an open top and having inwardly extending flanges at the back and sides and having end abutments at the top of the front side, friction members secured under the flanges and resting on the stack at its back and side edges whereby the movement of the top sheet is retarded at these points, and means for pushing the stack toward the top of the casing.

4. A device for holding a stack of flexible sheets comprising a casing to receive a stack of sheets, the casing having an open top, friction members resiliently supported adjacent the edges of said top and disposed to rest on the top of the stack at the edges, said casing having an open space at the top of one side to allow lateral movement of the top sheet from the casing, abutments at the ends of the open space whereby lateral movement of the top sheet causes the sheet to buckle in the central part and remove its edges from engagement with the friction members, and means for yieldingly holding the stack against the friction devices.

5. A device for holding a stack of flexible

5 sheets comprising a casing to hold the stack, the casing having an outlet opening on one side to allow lateral movement of the top sheet, abutments at the ends of opening, resiliently supported friction devices resting on the edges of the sheet next to be moved and means for keeping the stack flat.

comprising a casing to hold the stack, the casing having an outlet opening on one side to allow lateral movement of the top sheet, abutments at the ends of opening, friction devices resting on the edges of the sheet next to be removed from the stack and means for keeping the stack flat and compressed.

6. A device for holding a stack of flexible sheets

HERMAN KURTH.

10	85
15	90
20	95
25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150