Aug. 15, 1961 CHRIS J. TSAI 2,996,219

DISPENSING DEVICE FOR LITERATURE AND THE LIKE

Filed March 24, 1959 3 Sheets-Sheet 1

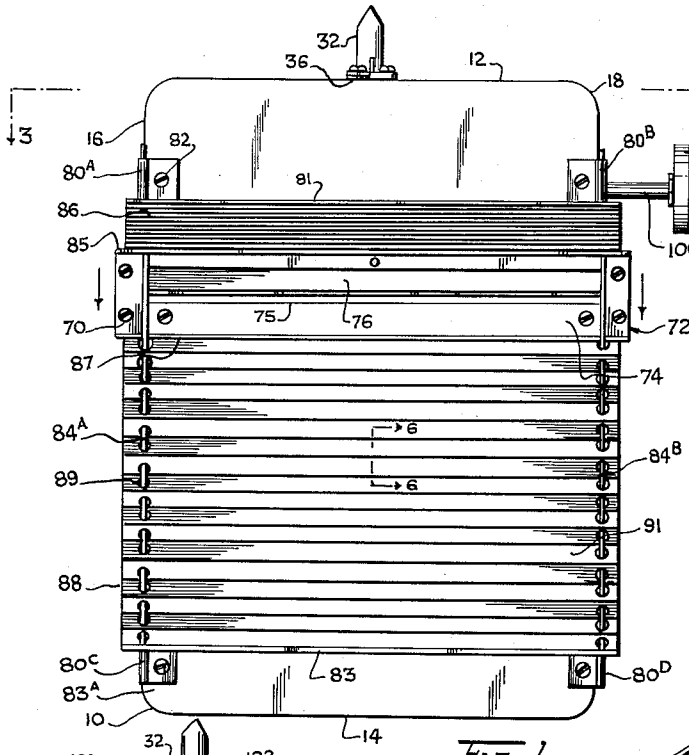

Fig. 1.

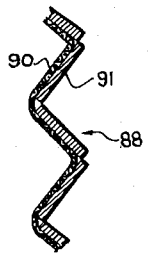

Fig. 6.

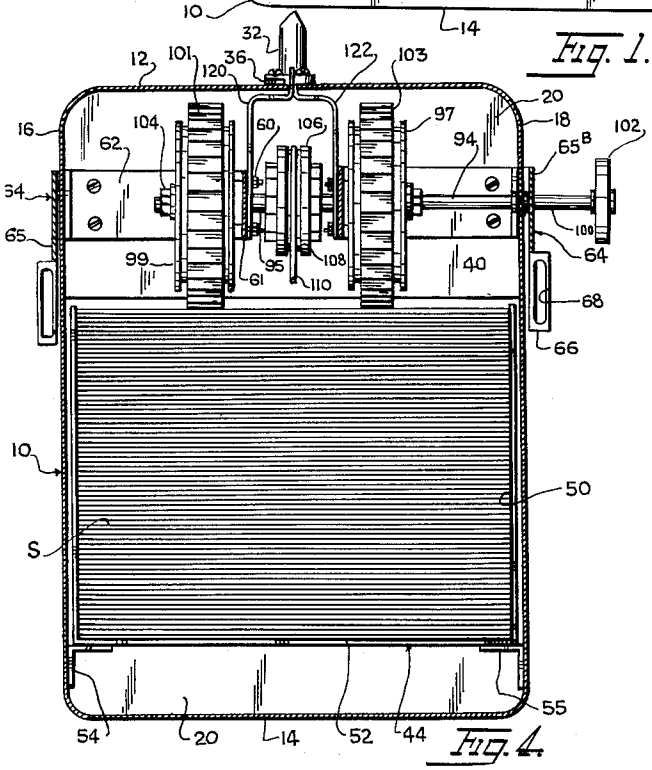

Fig. 4.

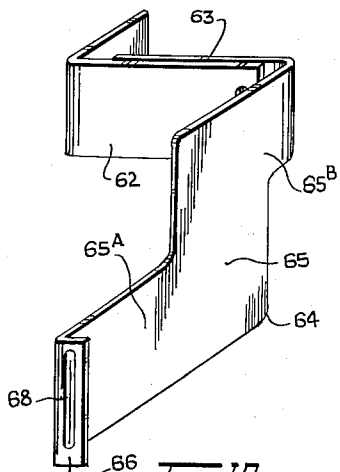

Fig. 10.

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DISPENSING DEVICE FOR LITERATURE AND THE LIKE

Filed March 24, 1959 3 Sheets-Sheet 2

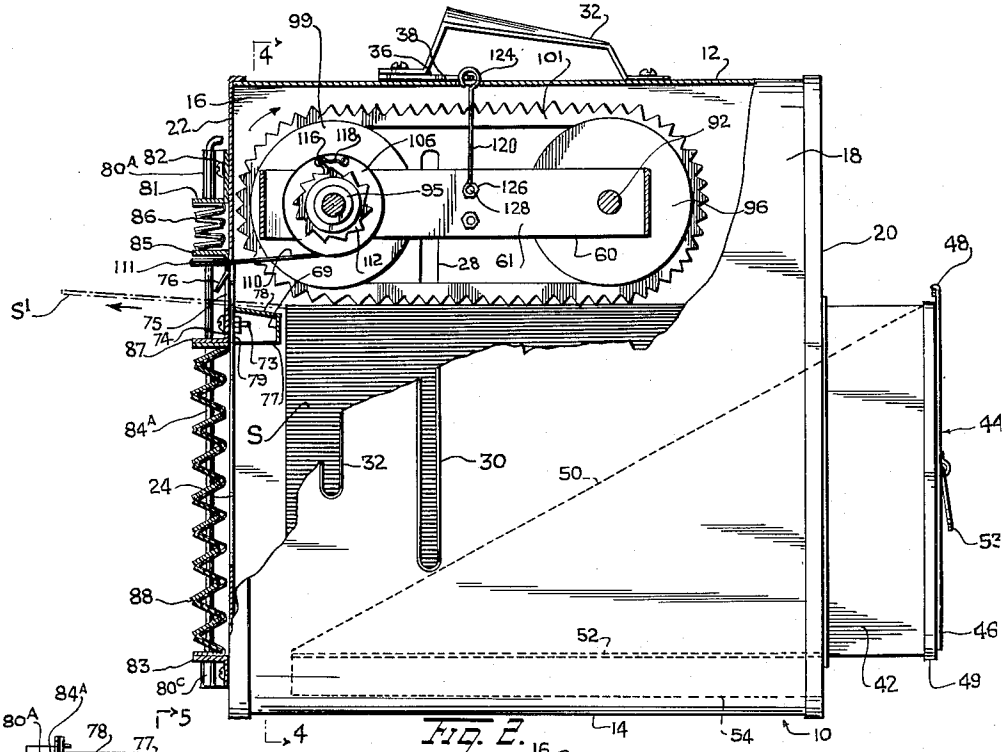

FIG. 2.

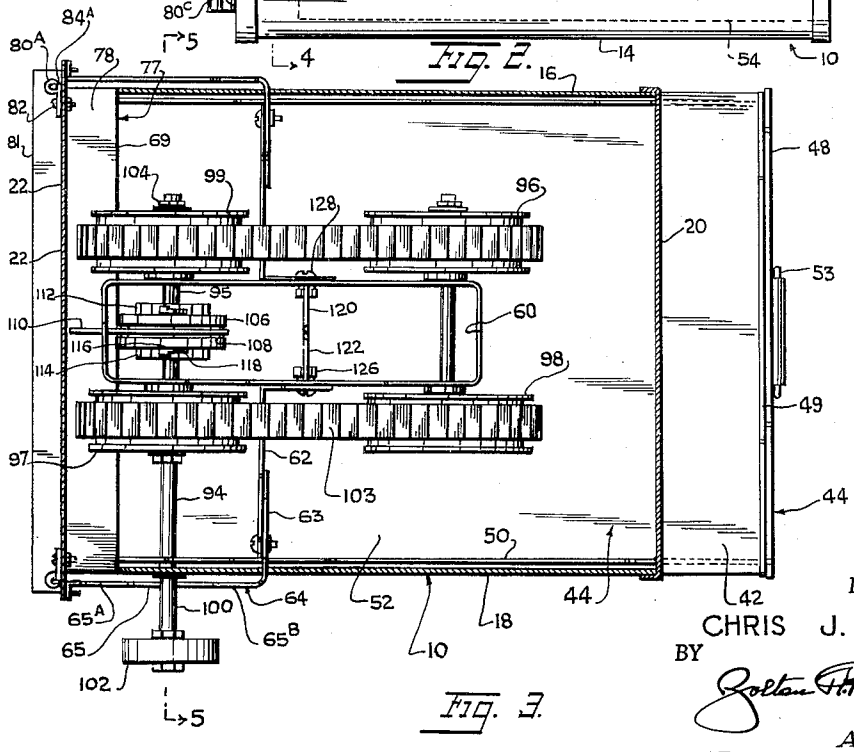

FIG. 3.

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Filed March 24, 1959 3 Sheets-Sheet 3

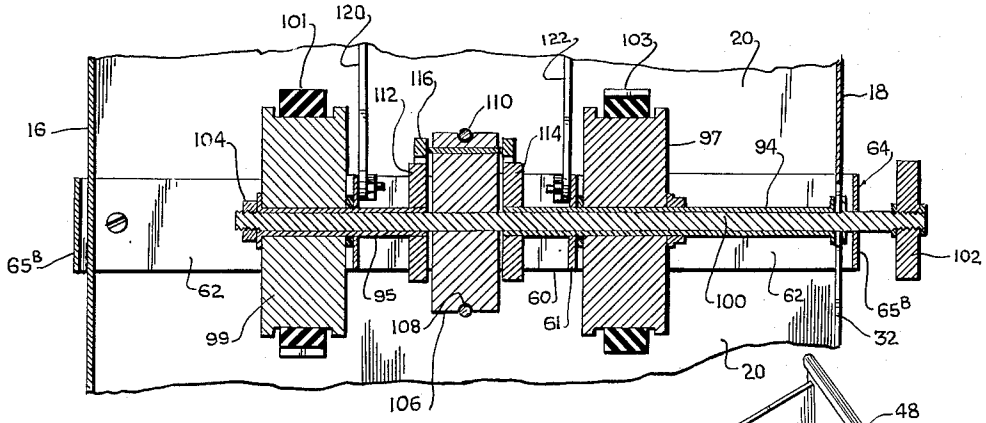

Fig. 5.

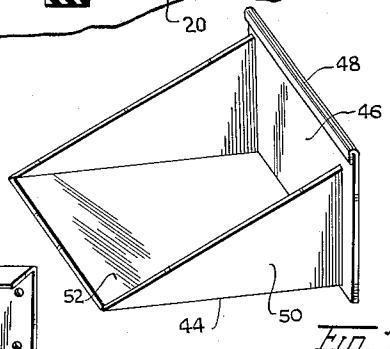

Fig. 7.

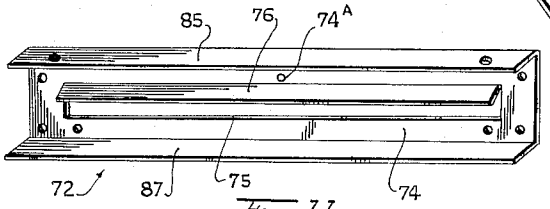

Fig. 11.

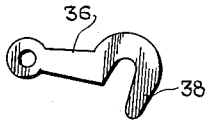

Fig. 9.

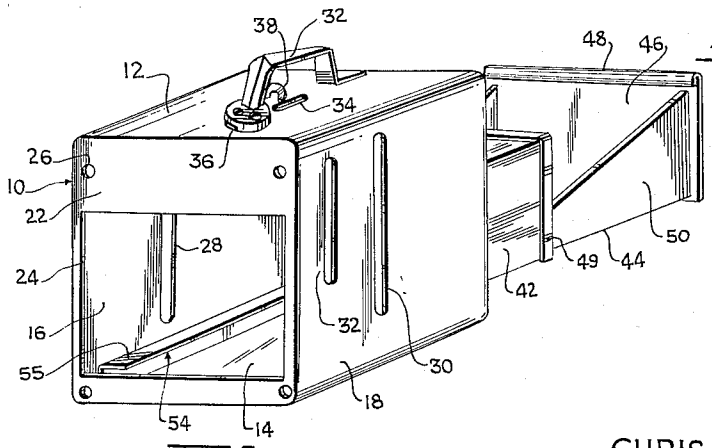

Fig. 8.

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2,996,219

DISPENSING DEVICE FOR LITERATURE AND THE LIKE

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Filed Mar. 24, 1959, Ser. No. 801,528
4 Claims. (Cl. 221—259)

This invention concerns a sheet dispensing device and more particularly is directed at a device for distributing programs, menus, advertising literature, etc., in theatres, restaurants, schools, and other public places.

An object of the invention is the provision of a device whereby printed and unprinted paper sheets, programs, napkins, leaflets, etc., can be drawn out automatically one by one by the public without requiring any attendant to perform such distributing functions.

A further object is the provision of a device of the character described in which the drawing out of one paper sheet advances another into position for removal from the device.

A still further object is the provision of a device in which endless rubber belts frictionally contact the top of a pile of paper sheets to be dispensed, and advance one sheet after another as the successive sheets are drawn out of the device.

Another object is the provision of a device of the character described in which the belts are mounted on a floating frame which rests on the pile of sheets to be dispensed, the weight of the belts and their frame support providing the traction necessary for advancing the sheets one after the other.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

FIG. 1 is a front elevational view of a device embodying the invention.

FIG. 2 is a side elevational view of the device with portions broken away to show internal parts.

FIG. 3 is a plan sectional view taken on line 3—3 of FIG. 1.

FIG. 4 is an elevational sectional view taken on line 4—4 of FIG. 2.

FIG. 5 is a fragmentary sectional view taken on line 5—5 of FIG. 3.

FIG. 6 is a fragmentary sectional view on an enlarged scale taken on line 6—6 of FIG. 1.

FIG. 7 is a perspective view of a drawer employed in the device.

FIG. 8 is a perspective view of a housing of the device.

FIG. 9 is a plan view of a catch member employed for temporary support of a frame assembly in the device.

FIGS. 10 and 11 are perspective views of frame members employed in the device.

Referring to FIGS. 1 through 4 and FIG. 8, there is shown a box or housing **10** having a flat top **12**, bottom **14**, sides **16** and **18**, a rear wall **20**, and a front wall **22**. The front wall is formed with a large rectangular opening **24** and four spaced threaded holes **26** near the corners. Side walls **16** and **18** have two long vertical slots **28** and **30**. An additional slot **32** is formed in wall **18** between slot **30** and the front wall **22**.

On the top wall **12** is mounted a handle **32**. A slot **34** is located in the top wall. A flat hook **36**, best shown in FIG. 9, is pivotally mounted at the base of the handle and is adapted to be moved parallel to the top wall so that the free end **38** thereof crosses slot **34**. The rear wall **20** has a large rectangular opening **40** best shown in

FIG. 4. Extending from this opening is a rectangular sleeve-like extension **42** adapted to receive a drawer **44**. This drawer is shown partially inserted into the wall extension **42** in FIG. 8. The drawer, as best shown in FIGS. 7 and 8, has a flat rear wall **46** with a turned top edge **48**. Wall **46** is adapted to fit flush against the flanged end **49** of extension **42**. Wall **46** is joined to two upstanding vertical triangular side walls **50** of the drawer. The bottom **52** of the drawer is rectangular. A handle **53** is disposed on the other side of wall **46** as best shown in FIGS. 2 and 3. In order to support the drawer in the housing **10** there is provided a pair of angle brackets **54** supported on side walls **16** and **18** and located near the bottom **14**. The flat horizontal flanges **55** of the brackets are coplanar and aligned with the bottom of the opening **40** in the rear wall **20**.

A pile of flat rectangular sheets S may be placed in the drawer which may then be inserted into the housing in the position shown best in FIGS. 2 and 4. The sheets S are omitted from FIG. 3.

The sheet dispensing mechanism includes a rectangular frame **60** whose sides **61** are supported by two laterally extending L-shaped arms **62**. Attached to arms **62** respectively are flanged ends **63** of two generally L-shaped frame members **64**, best shown in FIG. 10. Each of these members has a plate portion **65** located outside the housing. The flanges **63** extend through slots **28** and **30** in walls **16**, **18**. Section 65^a of plate **65** is disposed lower and is offset from the upper section 65^b as clearly shown in FIG. 10. The forward free ends of plates **65** are formed with outwardly extending flanges **66** having vertical slots **68**. Secured to the flanges **66** by screws **70** is a sheet dispensing member **72**, best shown in FIG. 11. This member is a channel-shaped plate disposed with its flat bottom wall **74** in a vertical position. The flat wall **74** has a slot **75** and a forwardly extending flap **76** disposed longitudinally between the ends of member **72**.

Secured to the back of wall **74** by screws and nuts **73** is another channel member **77**. This member has a top wall **78** disposed at an angle to forward wall **79** and rear wall **69**. Wall **78** inclines downwardly and rearwardly, as best shown in FIG. 2, to provide a guide for passage of sheet S in turn through slot **75**. Rear wall **69** of member **77** is vertical.

Two cylindrical sockets 80^a and 80^b are attached to an angle bracket **81** which is secured by screws **82** threaded in holes **26** at the upper corners of front wall **22**. Two other similar sockets 80^c and 80^d are attached to another angle bracket **83** held by screws 83^a near the bottom of the housing. Two rods 84^a and 84^b are vertically disposed at the sides of housing **10**. One rod is supported in sockets 80^a and 80^c. The other rod is supported in sockets 80^b and 80^d. Between the upper horizontal flange **85** of member **72** and the upper bracket **81** is a slatted expansible wall **86**. A similar expansible wall **88** is mounted between the lower flange **87** of member **72** and the lower bracket **83**. The rods pass through holes or slots **89** located near the ends of the slats and corresponding holes in flanges **85**, **87** and bracket **88** aligned with sockets 80^a, 80^c and 80^b, 80^d.

The structure of the walls **86** and **88**, as best shown in FIGS. 2 and 6, includes a flexible fabric back **90** to which the slats **91** are attached so that the walls assume the expansible and retractable zig-zag positions shown in FIG. 2. The lower end of wall **86** and the upper end of wall **88** are preferably cemented to the flanges **85** and **87** of member **72**. The upper end of wall **86** is secured to the horizontal bracket **81**. The lower end of wall **88** is attached to bracket **83**. Thus, when the frame **60** moves up the walls **86**, **88** contract and expand respectively to conceal the opening **24** at the front of the housing,

except of course for the slot 75 in member 72. When the frame moves down the walls 86, 88 expand and contract respectively.

Disposed transversely across the sides 61 of frame 60 near the rear thereof is a shaft 92 which carries two freely rotatable flanged wheels 96 and 98 supporting toothed endless rubber belts 101, 103. A sleeve shaft 95 best shown in FIGS. 2–5 carries another flanged wheel 99. A fourth flanged wheel 97 is carried by another sleeve shaft 94. Wheels 97 and 99 support the forward ends of belts 103, 101. Shafts 94 and 95 are rotatably mounted on a shaft 100 passing axially therethrough. This shaft passes through the sides 61 of the frame 60 and through the slot 32 in side wall 18. A knob handle 102 is secured on the outer end of shaft 100. The shaft 100 terminates in a nut 104 threaded thereon at one side of wheel 99. Secured to shaft 100 is a roller 106 which has a central peripheral groove 108 in which is secured a cord 110. This cord extends through a hole in wall 74 and terminates in a knob handle 111, outside of member 72. Mounted on sleeve shafts 94 and 95 at their inner ends adjacent the sides of roller 106 are two ratchet wheels 112 and 114. Pivotable pawls 116 are carried at the sides of the roller 106 for engaging in the teeth of the ratchet wheels. Springs 118 hold the pawls in engagement with the teeth. These springs are carried on the sides of roller 106.

A pair of rods or arms 120, 122 are vertically disposed and are carried at the sides 61 of the frame 60. These rods terminate at their upper ends in closed loops 124 which are juxtaposed to each other. These loops can be passed through the slot 34 when the frame is raised sufficiently so that the free end 38 of hook 36 can be engaged therein to hold the frame elevated. The lower ends of rods 120, 122 are secured by nuts 126 and screws 128 to the sides of the frame. The rods extend vertically from the sides of the frame and are then bent inwardly to juxtapose the loops 124 together.

In operation of the device, drawer 44 will be drawn out of the device and loaded with a pile of sheets S. The frame 60 will be in an elevated position with loops 124 of rods 120, 122 engaged by the end 38 of hook 36 at the top of the housing. The loaded drawer will then be pushed inwardly to the positions shown in FIGS. 2–4. The hook will then be pivoted outwardly to disengage the loops 124 and the frame will be lowered so that the lower straight toothed sides of belts 101, 103 rest on the uppermost one of the sheets S. This will align the forward end of the topmost sheet with the slot 75 in member 72. The knob 111 will then be pulled forward manually unwinding cord 110 to cause roller 106 to turn. Since ratchet wheels 112 and 114 are held engaged with the roller by the pawls 116, these wheels will turn with the roller 106 to rotate the shafts 94, 95 and wheels 96–99. This advances the lower sides of the belts which are resting on the topmost of sheets S so that this sheet is pushed about half way through slot 75. Knob 102 may now be turned manually to turn shaft 100 rotating roller 106 in the opposite direction, rewinding the cord 110 thereon and retracting handle 111. Because of the ratchet arrangement and the frictional engagement of the belts on the sheets, they do not move as the cord is being retracted.

The topmost exposed sheet S' is shown in dotted lines in FIG. 2 where it has been partially pushed out through slot 75. This sheet may now be manually withdrawn from the device. As this sheet is being withdrawn, the rear portions of the lower sides of the belts come in contact with the next lower sheet at the top of the pile and advance this sheet to a position where it extends partially out of slot 75 as the topmost sheet S' is drawn clear of the device. Thus, withdrawing each topmost sheet advances the next sheet under it into position for removal from the dispenser. As the successive sheets are withdrawn the pile lowers gradually in height. The frame 60 and belts move downwardly since the weight of the frame plus the weight of the wheels, belts and the remainder of the sheet advancing mechanism rest on the pile of sheets. The slots in the sides of the housing serve as guides for vertical movement of the frame. While the frame moves down, wall 88 contracts while wall 86 expands keeping the front opening 24 of the housing closed. When all of the sheets are dispensed from the device, the frame can be lifted by grasping the forwardly extending flap 76 or the plates 65. The frame will be lifted until loops 124 again extend through slot 34 at the top of the housing. The forward end 38 of the hook 36 can then be engaged in the hooks to hold the frame elevated until drawer 44 can again be loaded with a pile of sheets and replaced in the housing for operation as described.

The inclined upper side 78 of member 77 provides a lower guide for the forwardly advancing sheets. Flap 76 provides an upper guide. The vertical slots 68 in flanges 66 make it possible to adjust member 72 so that slot 75 is adjustably located in optimum position depending on the thickness of the sheets to be dispensed from the device.

This device makes it possible to provide the public with a sheet dispensing means which requires no attention by an attendant other than refilling it when empty. Thus, waiters in restaurants, ushers in theatres, attendants in toilet rooms, and others are free of the chore of manually dispensing sheets as has heretofore been required.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. A sheet dispensing device, comprising a housing having a closed top and side walls, and an open front wall, means for supporting a pile of sheets in the housing near the open front wall, endless belt means disposed within the housing and positioned to rest on the top of said pile, said belt means being movable as the topmost one of said sheets is drawn out of the housing through the opening in the front wall to frictionally engage the next lower sheet on the pile and advance said next sheet partially out of said opening, said side walls having vertical slots therein, plate members extending through said slots, and a frame movably supporting the belt means, said plate members being attached to the frame whereby the frame is guided by said vertical slots in vertical movement in the housing, said frame carrying manually operable means for moving the belt means to advance the topmost sheet partially out of the housing, the last-named means including a roller, a cord attached to said roller for actuating the same ratchet wheels engaged with said roller, and flanged wheels mounted on shafts engaged with said ratchet wheels, said flanged wheels supporting said belt means, whereby pulling said cord turns said roller, ratchet wheels, and flanged wheels and advances said belt means, there being a central shaft supporting the first-named shafts and secured to said roller, said central shaft extending out of the housing and being manually rotatable to retract said cord without moving said belt means, said top wall having a slot therein, a catch member disposed near the last-named slot, and a vertical arm attached to the frame and adapted to extend through said slot to engage said catch member for holding the frame and belt means in an elevated position.

2. A sheet dispensing device, comprising a housing having a closed top and side walls, and an open front wall, means for supporting a pile of sheets in the housing near the open front wall, endless belt means disposed within the housing and positioned to rest on the top of

said pile, said belt means being movable as the topmost one of said sheets is drawn out of the housing through the opening in the front wall to frictionally engage the next lower sheet on the pile and advance said next sheet partially out of said opening, said side walls having vertical slots therein, plate members extending through said slots, and a frame movably supporting the belt means, said plate members being attached to the frame whereby the frame is guided by said vertical slots in vertical movement in the housing, said frame carrying manually operable means for moving the belt means to advance the topmost sheet partially out of the housing, the last-named means including a cord operated roller, ratchet wheels engaged with said roller, and flanged wheels mounted on shafts engaged with said ratchet wheels, said flanged wheels supporting said belt means, whereby pulling said cord turns said roller, ratchet wheels, and flanged wheels and advances said belt means, there being a central shaft supporting the first-named shafts and secured to said roller, said central shaft extending out of the housing and being manually rotatable to retract said cord without moving said belt means, said top wall having a slot therein, a catch member disposed near the last-named slot, and a vertical arm attached to the frame and adapted to extend through said slot to engage said catch member for holding the frame and belt means in an elevated position, a slotted member carried by said plate members in front of said front wall, the slotted member providing a guide for sheets dispensed from the housing, and slatted walls carried by said slotted member, said slatted walls being collapsible and expansible for keeping the opening in the front wall covered except for the slot in the slotted member as the frame moves in the housing.

3. A sheet dispensing device, comprising a housing having a closed top and side walls, and an open front wall, means for supporting a pile of sheets in the housing near the open front wall, endless belt means disposed within the housing and positioned to rest on the top of said pile, said belt means being movable as the topmost one of said sheets is drawn out of the housing through the opening in the front wall to frictionally engage the next lower sheet on the pile and advance said next sheet partially out of said opening, said side walls having vertical slots therein, plate members extending through said slots, and a frame movably supporting the belt means, said plate members being attached to the frame whereby the frame is guided by said vertical slots in vertical movement in the housing, said frame carrying manually operable means for moving the belt means to advance the topmost sheet partially out of the housing, the last-named means including a cord operated roller, ratchet wheels engaged with said roller, and flanged wheels mounted on shafts engaged with said ratchet wheels, said flanged wheels supporting said belt means, whereby pulling said cord turns said roller, ratchet wheels, and flanged wheels and advances said belt means, there being a central shaft supporting the first-named shafts and secured to said roller, said central shaft extending out of the housing and being manually rotatable to retract said cord without moving said belt means, said top wall having a slot therein, a catch member disposed near the last-named slot, and a vertical arm attached to the frame and adapted to extend through said slot to engage said catch member for holding the frame and belt means in an elevated position, a slotted member carried by said plate members in front of said front wall, the slotted member providing a guide for sheets dispensed from the housing, and slatted walls carried by said slotted member, said slatted walls being collapsible and expansible for keeping the opening in the front wall covered except for the slot in the slotted member as the frame moves in the housing, said plate members having slotted flanges secured to the ends of the slotted member, the slots in the flanges permitting adjustable positioning of said slotted member depending on the thickness of sheets to be dispensed from the pile.

4. A sheet dispensing device, comprising a housing having closed top and side walls, and an open front wall, means for supporting a pile of sheets in the housing near the open front wall, endless belt means disposed within the housing and positioned to rest on the top of said pile, said belt means being movable as the topmost one of said sheets is drawn out of the housing through the opening in the front wall to frictionally engage the next lower sheet on the pile and advance said next sheet partially out of said opening, said side walls having vertical slots therein, plate members extending through said slots, and a frame movably supporting the belt means, said plate members being attached to the frame whereby the frame is guided by said vertical slots in vertical movement in the housing, said frame carrying manually operable means for moving the belt means to advance the topmost sheet partially out of the housing, the last-named means including a cord operated roller, ratchet wheels engaged with said roller, and flanged wheels mounted on shafts engaged with said ratchet wheels, said flanged wheels supporting said belt means, whereby pulling said cord turns said roller, ratchet wheels, and flanged wheels and advances said belt means, there being a central shaft supporting the first-named shafts and secured to said roller, said central shaft extending out of the housing and being manually rotatable to retract said cord without moving said belt means, said top wall having a slot therein, a catch member disposed near the last-named slot, and a vertical arm attached to the frame and adapted to extend through said slot to engage said catch member for holding the frame and belt means in an elevated position, a slotted member carried by said plate members in front of said front wall, the slotted member providing a guide for sheets dispensed from the housing and slatted walls carried by said slotted member, said slatted walls being collapsible and expansible for keeping the opening in the front wall covered except for the slot in the slotted member as the frame moves in the housing, said plate members having slotted flanges secured to ends of the slotted member, the slots in the flanges permitting adjustable positioning of said slotted member depending on the thickness of sheets to be dispensed from the pile, said housing having a rear wall with an opening therein, there being a drawer removably disposed in the housing and providing the first-named means, said drawer being insertable through the opening in the rear wall.

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