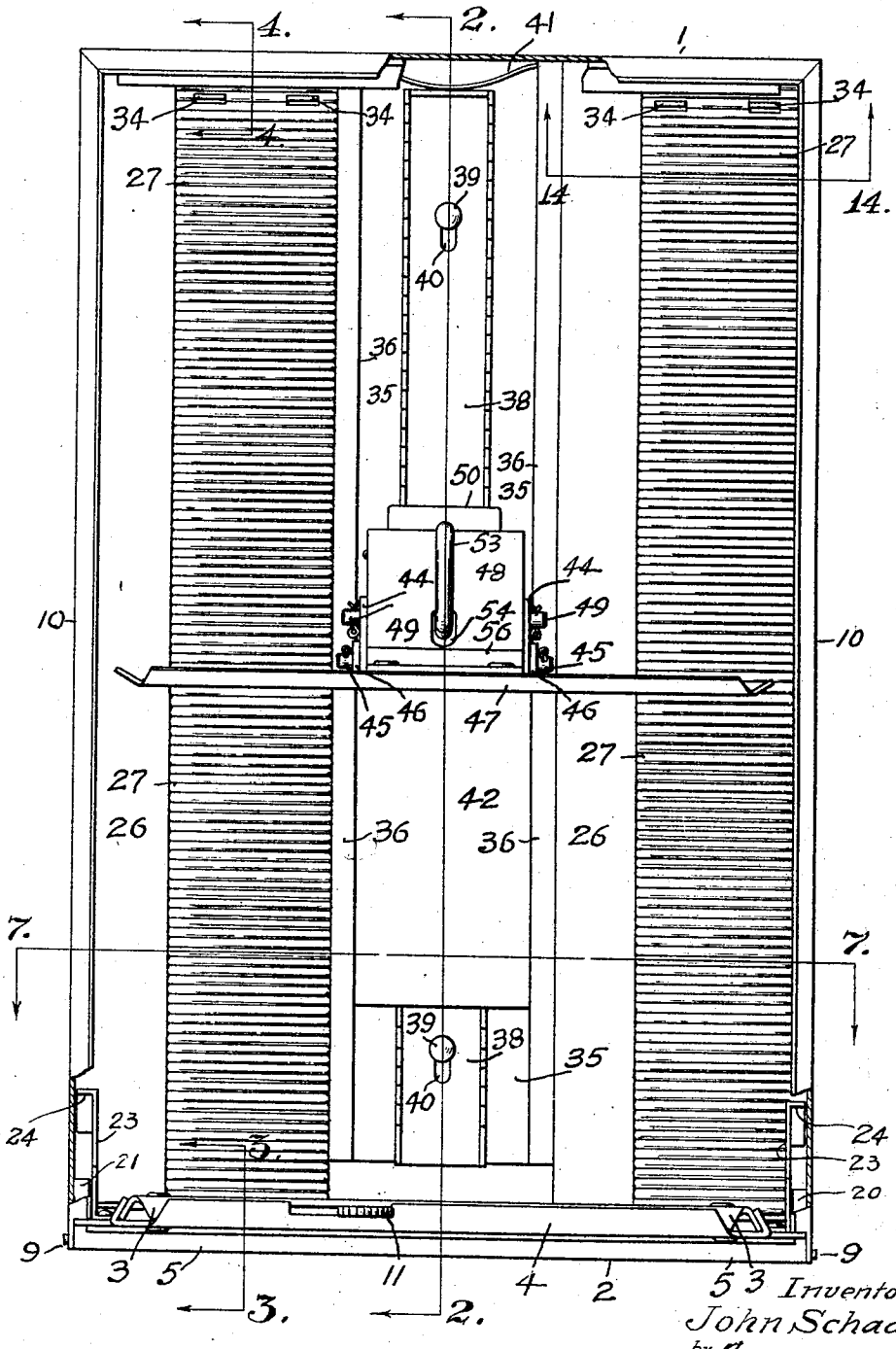
Feb. 28, 1933. J. SCHADE 1,899,530

FILE CONTAINER FOR LOOSE LEAF SHEETS

Filed Sept. 14, 1929 6 Sheets-Sheet 1

FIG. 1.



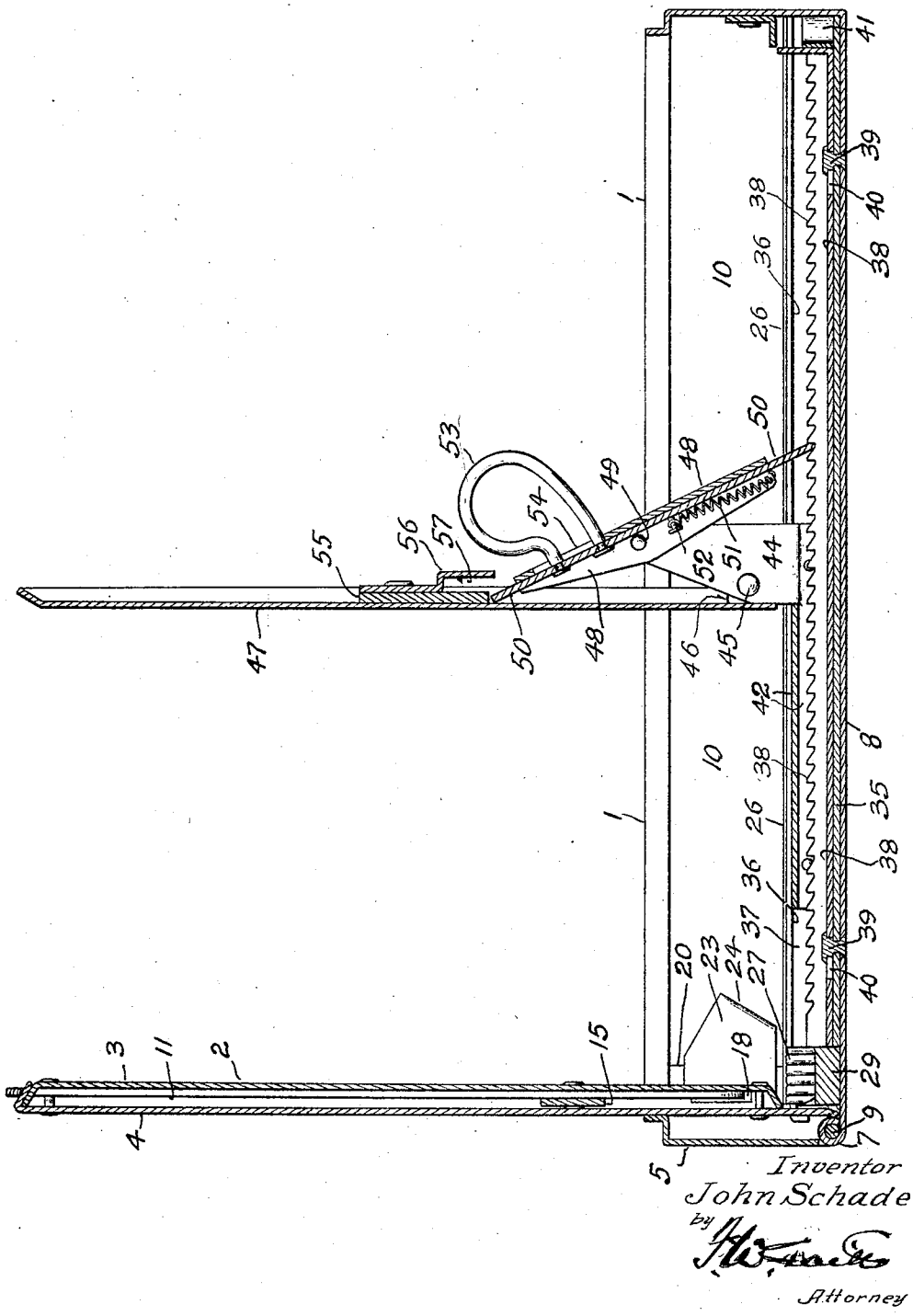
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FILE CONTAINER FOR LOOSE LEAF SHEETS

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FIG. 2.



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FILE CONTAINER FOR LOOSE LEAF SHEETS

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FIG. 3.

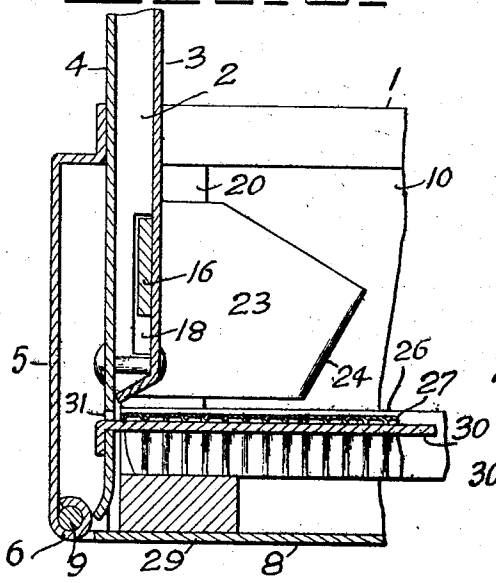


FIG. 4.

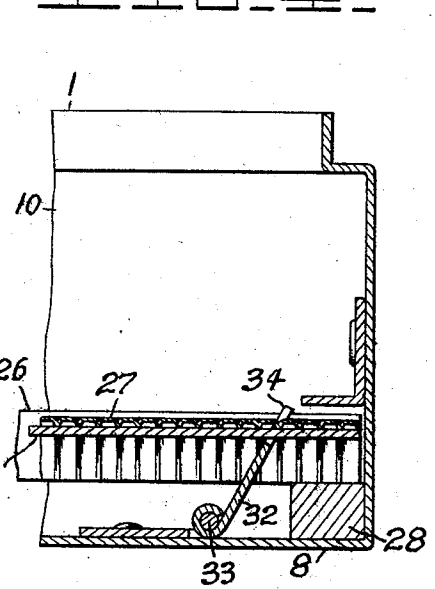


FIG. 5.

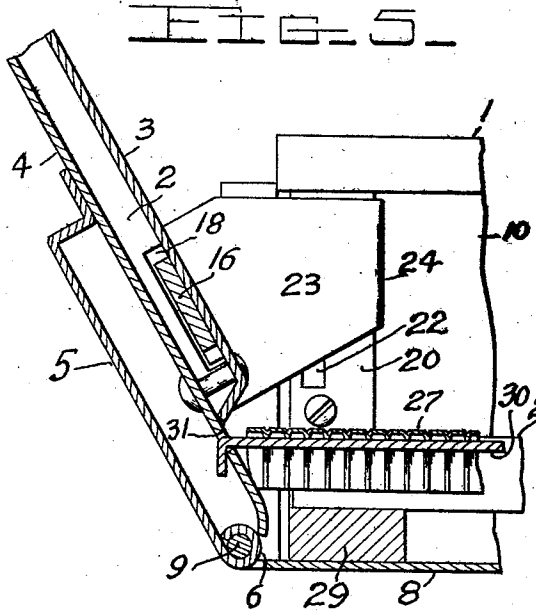
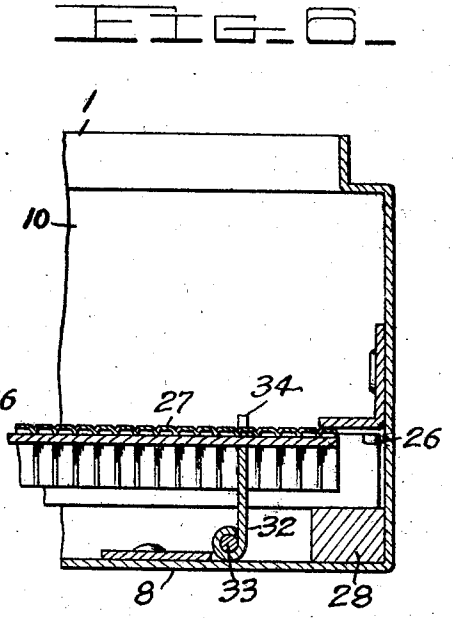


FIG. 6.



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FILE CONTAINER FOR LOOSE LEAF SHEETS

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FIG. 7.

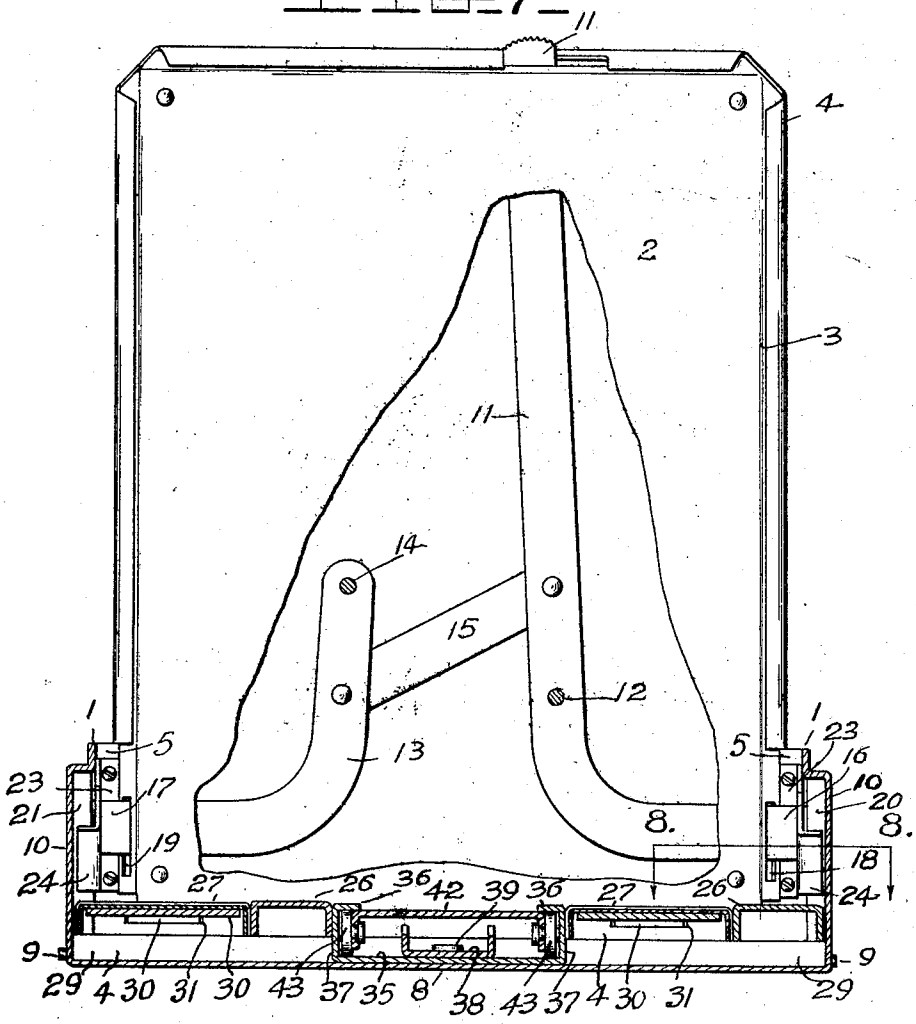
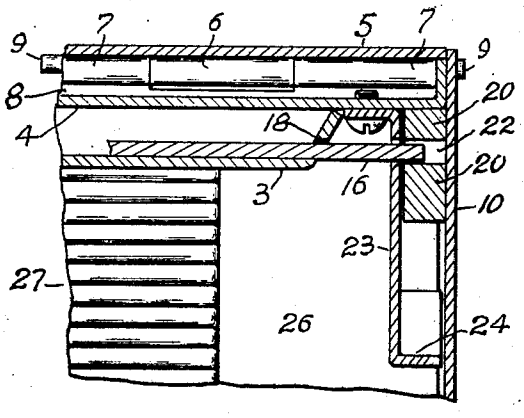


FIG. 8.



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FILE CONTAINER FOR LOOSE LEAF SHEETS

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FIG. 9.

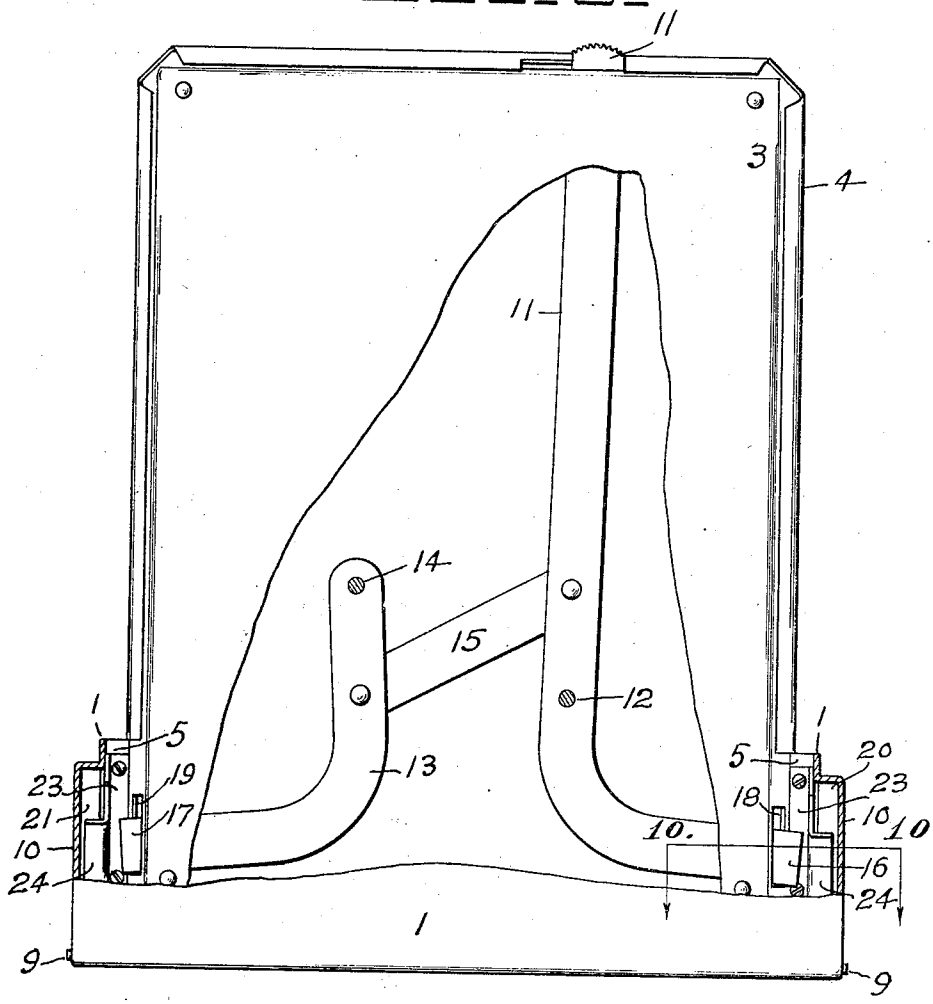
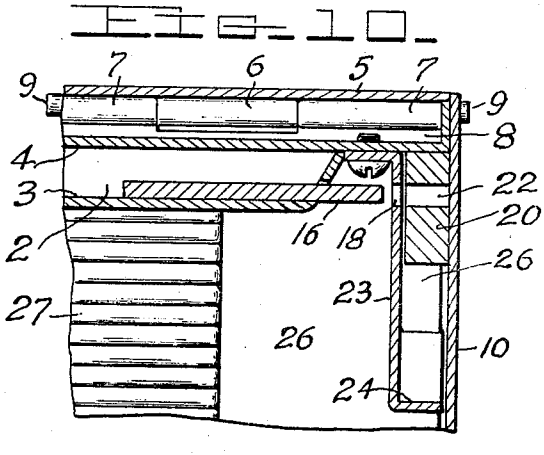


FIG. 10.



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FILE CONTAINER FOR LOOSE LEAF SHEETS

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Fig. 11.

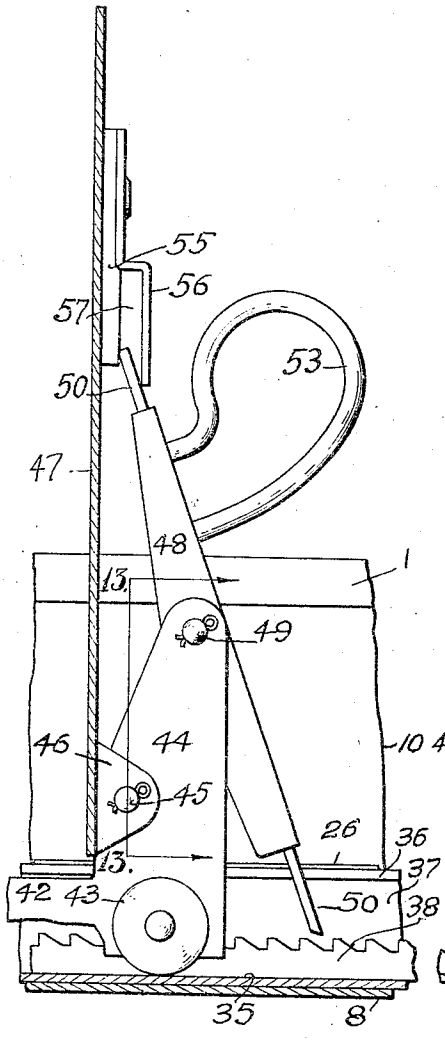


Fig. 12.

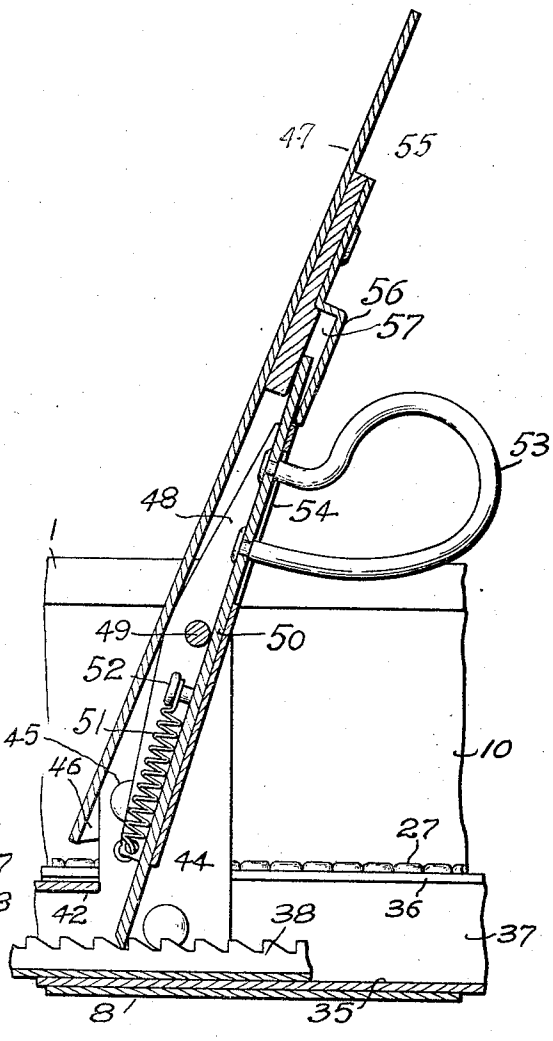


Fig. 13.

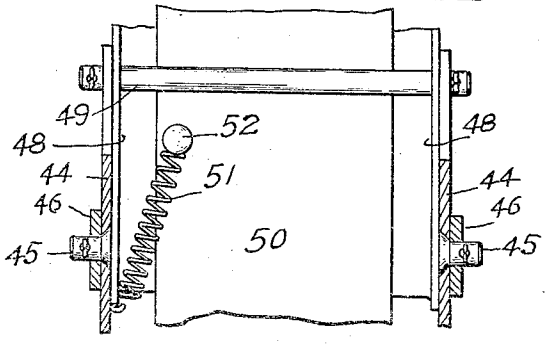
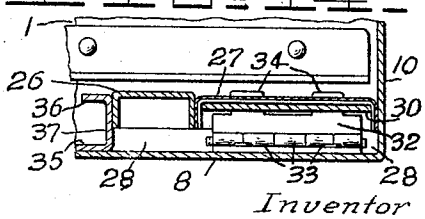


Fig. 14.



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UNITED STATES PATENT OFFICE

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FILE CONTAINER FOR LOOSE LEAF SHEETS

Application filed September 14, 1929. Serial No. 392,706.

This invention relates to file containers for loose leaf sheets, such as are commonly used in the form of a tray with front and back plate rests for the sheets.

Devices of this sort usually comprise an open box-like tray structure that is provided with front and back plate rests for the sheets, which rests are capable of being inclined in spaced relation, one or both of the rests being operable to clamp the sheets when the device is not in use, and the tray being equipped with two sets of floors which are respectively rough and smooth and are so disposed and operated that when the tray is in use, the lower edges of the sheets rest on the rough floors, so that said sheets can be manipulated back and forth from one rest plate to the other without any slipping such as would cause the sheets to sag, and when it is desired to clamp the sheets, the bottom edges of the latter will rest on the smooth floors, so that the mass of sheets usually weighing several pounds, can be easily forced into clamping position wthout abrading their lower edges.

The present invention has the general characteristics above set forth with respect to the file containers now in use, but has certain objects in view which will briefly be referred to.

First, the invention aims to increase the capacity of the tray without increasing the dimensions thereof.

Second, to provide an improved follower or front plate, and to so equip and operate it that it will always clamp the sheets firmly, while it may readily be relaxed and adjusted to any desired position.

Third, to so form and pivot the back plate that it constitutes the back of the tray, and when said plate is tilted rearwardly to provide an inclined rest for the sheets, the act of such tilting will automatically elevate the roughened floors so that the lower edges of the sheets will be supported solely by said floors, while the restoring of said plate to its normal position will automatically effect the lowering of these floors and cause said sheets to be wholly supported by the smooth floors.

Fourth, to effect the elevation and lowering of the roughened floors by a slight lengthwise movement of the latter.

Fifth, to cause the tilting of the front or follower plate to simultaneously and automatically move said plate forwardly so as to space said plate from the back or rest plate a distance sufficient to permit the ready manipulation of the sheets.

In order that the invention may be fully understood, attention is called to the accompanying drawings which illustrate a preferred form of the invention and which will be referred to in the detail description which follows, and in these drawings

Figure 1 is a plan top view of the tray with the parts in normal or clamping positions—

Figures 2, 3, and 4, are respectively sections at the lines 2—2, 3—3, and 4—4, of Figure 1—

Figures 5 and 6 are views similar to Figures 3 and 4, but showing the position of parts when the tray has been manipulated for use—

Figure 7 is a section, partly broken, at the line 7—7 of Figure 1, and showing the back plate locked—

Figure 8 is a section at the line 8—8 of Figure 7—

Figure 9 is a view from the front end, with the latter broken away and with the follower plate removed, and showing the back or rest plate unlocked preparatory to tilting rearward—

Figure 10 is a section at the line 10—10 of Figure 9—

Figure 11 is a segmental side elevation, partly in section, of the front or follower plate unlocked and in position for sliding forward or backward—

Figure 12 is a segmental sectional side elevation of the front or follower plate as it appears in tilted position—

Figure 13 is a section at the line 13—13 of Figure 11, and

Figure 14 is a section at the line 14—14 of Figure 1.

Similar numerals of reference will be used in the following description to designate like parts in the several figures of the drawings.

The tray is designated by the numeral 1 and

contains all the operative parts of the invention.

2 is the numeral which generally denotes the back or rest plate against which the sheets are clamped by what will hereinafter be termed the front or follower plate, and this rest plate is composed of flat members 3, 4, that are spaced apart so that it will be understood that this rest plate is hollow, and to the lower part of said plate is secured an offset 5 along whose lower edge spaced hinge eyes 6 are formed which interengage with spaced hinge eyes 7 formed on the rear end of the bottom 8 of the tray 1, a pintle 9 being passed through these eyes, so that it will be clear that said rest plate is hinged to the tray and constitutes the rear end thereof. Between the rear ends of the sides 10 of the tray the ends of the offset 5 are housed when the rest plate is swung to vertical normal position.

As before stated it will be clear that the structure composed of the spaced flat members 3, 4, and the offset 5, constitutes the back or rest plate 2, and since this plate is hinged to the rear end of the bottom of the tray, it will be clear that this rest plate forms the rear end of the tray, and therefore this increases the capacity of the tray over that of a tray in which this rest plate 2 is pivoted at some position within the tray that is intermediate the rear and front ends of the tray.

The normal position of this rest plate is in a vertical plane with respect to the bottom of the tray, and as it is necessary to preserve this position when the tray is not in use, locking means has been provided that is contained in the space between the members 3 and 4, and this locking means comprises a vertically disposed lever 11 that is pivoted at 12 to this plate, and an auxiliary locking lever 13 pivoted at 14 to this plate, these levers 11 and 13 being connected by a link 15 whose extremities are pivoted to these levers. The lower ends of these locking levers are bent outwardly at substantially right-angles so as to form bolts 16, 17, that extend through slots 18, 19, at the lower ends of the rest plate 2. The vertical locking lever 11 extends upwardly through the top of the plate 2 so that it may be conveniently manipulated, and when this lever is swung in one direction the bolts 16 and 17 will be shot outwardly within openings in posts 20 and 21 that are secured within the rear ends of the sides 10 of the tray, and as these openings in said posts and the manner of locking are precisely the same in both instances only one of these post openings is shown and is designated by the numeral 22 in Figures 8 and 10, the position of parts in the latter figure being shown unlocked, while in Figure 8 the bolt is shown shot within the slot 22.

It is necessary that some means be provided for limiting the backward tilting movement of the rest plate 2 so that it may be at a proper angle when the tray is in use and this means consists of bracket-like members 23 secured to the offset 5 at each lower bottom side thereof and projecting inwardly and terminating in outwardly extending flanges 24, which latter, when the plate 2 is swung rearwardly, will abut against the posts 20 and 21, as shown in the instance of one of these members at Figure 5, and thereby hold this plate in position.

These members 23 are penetratd by the bolts 16 and 17, when the plate 2 is in locked position, and as said members are exactly alike they are provided with openings 25, one of which is shown at Figures 8 and 10, and these openings 25 are in alinement with the slots 22 when the plate 2 is swung to normal or vertical position, so that the bolts can be readily shot through the members 23 into said slots.

This locking mechanism just described is quite ordinary and it could readily be supplanted by various devices and structures that could be manually operated to lock and unlock the rest plate 2, none of which structures involve invention but would be merely the result of mechanical ingenuity, and therefore no stress is laid upon this locking mechanism, and for the purposes of this invention any suitable means for locking and unlocking this rest plate will be fully within the scope of the invention.

Also, the back or rest plate 2 is hollow, merely for the purposes of containing and concealing the locking mechanism thereof, and therefore the invention is not limited in this respect.

26, 26 are smooth floors, and 27, 27 are rough floors, which rest upon blocks 28 and 29 that are secured to the floor of the tray at the front and rear ends respectively, and the surfaces of the floors 26 are above the surfaces of the floors 27 when the parts are in normal condition, as shown at Figures 1 and 2 of the drawings, but when the rest plate 2 is tilted backward it will automatically elevate the rough floors 27 above the floors 26 and the manner in which this is effected will now be described.

30, 30 are elongated metal strips which extend beneath the floors 27 and throughout the length thereof and the rear end of each strip passes loosely through a slot 31 in the member 4 of the rest 2, and each strip is hooked after passing through said slot, so that when said rest 2 is thrown rearward it will carry the strips with it. At the front end of the tray beneath each floor 27, a plate 32 is hinged at 33 to the bottom of the tray or any suitable part secured thereto, and from the upper edge of each one of these plates, spaced fingers 34 extend loosely through openings in strips 30 and floors 27, and normally these plates 32 are inclined forwardly with their upper edges immediately beneath

strips 30, the normal positions of the rear ends of these strips 30 and plates 32 being shown at Figures 3 and 4.

When the rest 2 is swung rearwardly it will not only elevate the floors 27, but will pull them rearwardly, and this will cause the plates 32 to be swung to upright position and to thereby elevate the front ends of these floors, the arrangement and proportions of parts being such that these floors will be elevated above the level of the smooth floors 26, and at the same time there will be the same degree of elevation throughout the length of the rough floors 27.

The object of having rough and smooth floors in devices of this character and the elevation of one above the other is well understood, but will be referred to further in this description.

35 is an elongated guide plate extending lengthwise of the central portion of the tray and secured to the bottom thereof, and this plate has flanges 36 that extend inwardly from upright sides 37 of the plate. 38 is an elongated U-shaped rack that extends substantially throughout the length of the tray and rests upon the plate 35 and is secured by means of headed studs 39 the shanks of which extend through elongated slots 40, and this rack is free to move lengthwise. The front end of the rack abuts against a leaf spring 41 that is suitably positioned within the front end of the tray so that it will be clear that any forward movement of the rack will be against the resiliency of this spring.

In filing devices of this description a front or follower plate is employed which is capable of sliding movements and which may be tilted forwardly in order that the loose sheets may be readily manipulated back and forth between the tilted follower and rest plates, and means is usually provided for steadying such follower plate and for holding it in various positions, all of which will now be described in detail.

42 is an inverted U-shaped platen positioned within the guide plate, and having journaled in its sides and extending outside the latter, rollers 43 that track upon the bottom of the guide plate 35, these rollers being confined between the bottom of this plate and the flanges 36, and this platen is therefore free to move lengthwise of the plate 35.

Fixed to the sides of the front end of this platen 42 are brackets 44, and extending from the outside faces of these brackets near the lower ends thereof are studs 45 around which are pivoted ears 46 that extend from the follower plate 47 so that it will be clear that this front or follower plate and platen 42 will move in harmony so far as sliding movements are concerned.

48 is an elongated and generally vertically disposed housing the sides of which are pivoted between the brackets 44 around a pin 49 that extends through these brackets, and within this housing is an elongated pawl lever 50 that extends above and below the housing, as shown particularly at Figures 11 and 12, and this lever is capable of vertical sliding movements. The lower end of the lever 50 is kept in normal engagement with the rack 38 by means of a spring 51 whose extremities are secured respectively to the lower end of the housing 48 and to a stud 52 that is fixed to said lever, and a suitably shaped handle 53 extends through an elongated slot 54 in the housing 48 and is fixed to the lever 50, and by pulling upward on this handle the lever 50 may be disengaged from the rack 38, so that the follower plate 47 and all parts connected therewith may be slid reawardly or forwardly as may be desired.

Secured to the front face of the follower plate 47 is a block 55 whose lower edge acts as a shoulder beneath which the upper end of the lever 50 abuts when the follower plate is clamped against a mass of sheets, and 56 is an offset that is also secured to the follower plate and provides a recess 57 within which the top of the lever 50 may extend when it is desired to raise the lever out of engagement with the rack.

Presupposing the parts to be in the position shown at Figure 2, the pressure of the clamped sheets against the follower plate will keep the block 55 in engagement with the top of the pawl lever, but a slight pressure against the top of the follower plate will cause the pawl lever to disengage from this block and to pass within the recess 57, so that by manipulating the handle 53 this lever will be withdrawn from engagement with the rack, and the follower plate and parts connected therewith can then slide forwardly to any desired location; whereupon, the pawl lever is released and will automatically engage with one of the notches in the rack, and this follower plate can then be swung forwardly in a tilted position, the angle of which is determined and limited by the impact of the follower plate, against the inclined top edge of the bracket 44 as shown particularly at Figure 12.

The rearward movement of the follower plate is arrested when it gets to a substantially vertical or clamping position by the impact of the lower edge of said plate against the brackets 44.

When the rear rest and the follower plate are inclined and properly spaced apart so that the sheets may be manipulated from one end of the file to the other or otherwise treated as desired, the lower edges of these sheets will have sole contact with the rough floors since it will be remembered that the tilting of the rear rest support will elevate these floors above the level of the smooth floors, but when it is desired to clamp the sheets together, the rear rest and the follower plate

are brought to normal or vertical position and the lower edges of the sheets will then rest on the smooth floors so that as they are shoved along by the action of the follower plate these edges will not become roughened.

But should it be found difficult to clamp the sheets tightly and get the block 55 into locking abutment against the top of the pawl lever, which is often the case, owing to the pressure of too many sheets in the binder, it would not do to slide the follower plate forwardly so that the pawl lever at its lower end would engage the next notch of the rack because then there would not be enough sheets in the binder to effect a tight clamping.

Therefore, whenever this difficulty arises, it is merely necessary to exert a little force against the follower plate and this will cause the rack to move forwardly against the spring 41, whereupon the top of the pawl lever will readily engage beneath the block 55, and the pressure of the leaves will render this engagement stable.

It will be noted that the brackets 44 are rigid with the platen 42, that the follower plate 47 is pivoted near its lower edge to these brackets, that the pawl lever housing 48 is pivoted to said brackets, and that the pivotal point of this housing is considerably above and in front of the pivotal point of the follower plate, and that this housing slants rearwardly when the pawl lever is engaged with the rack and the rear rest plate and follower plate are in position for clamping the sheets within the file, as shown very clearly at Figure 2.

Consequently, when the pawl lever is released from locking engagement with the block 55 and the follower plate tilted forwardly, the pawl lever, engaged with the rack as shown in Figure 2, will act as a second-class lever and will pull the brackets 44 and the follower plate forwardly to the position shown at Figure 12, thus automatically spacing apart the follower and rear rest plates a distance sufficient for the usual manipulation of the sheets, and, in case more sheets are added to the file, it is merely necessary to shift the follower plate and parts connected therewith so that the pawl lever will engage with a tooth in the rack that is nearer the front of the file container.

What is claimed is:—

1. A filing tray for loose leaf sheets having a floor of smooth and rough sections, a rear sheet support pivoted to one end of said tray and capable of being tilted, and means whereby the tilting of said support changes the relative levels of the floor sections by moving the rough sections both longitudinally and vertically for adjustment with the smooth sections.

2. A filing tray having a rear sheet support, a follower plate adjustable to various positions within said tray, means for locking said plate in said positions and means for simultaneously tilting said follower plate and changing its spacing and locking the same with relation to said sheet support.

3. A file container for loose leaf sheets, comprising a tray, rough and smooth floors supported by the bottom of the tray, a tiltable rest that forms the rear end of the tray and is pivoted to the bottom thereof, means for locking said rest in normal position, means for limiting the tilting movement of said rest, and means operated by said tilting for raising the rough floors above the level of the smooth floors.

4. A filing tray having a tiltable rear sheet support, a longitudinal rack supported by the tray for lengthwise adjustments, resilient means normally urging said rack toward the rear sheet support and a follower plate mounted for adjustment to various positions within the tray and carrying locking means for engaging the teeth of the rack and said follower plate being capable of adjustments intermediate said teeth owing to the resilient lengthwise movement of said rack.

5. A filling tray having a rear sheet support, a longitudinal rack supported by the bottom of the tray for limited lengthwise movements, a resilient abutment at one end of the rack whereby the movements of the latter are rendered resilient, and a follower plate operatively mounted within the tray and carrying means that selectively engage the teeth of said rack, said follower plate being capable of adjustments intermediate the length of one of said teeth owing to the resilient movement of said rack.

In testimony whereof I affix my signature hereto.

JOHN SCHADE.