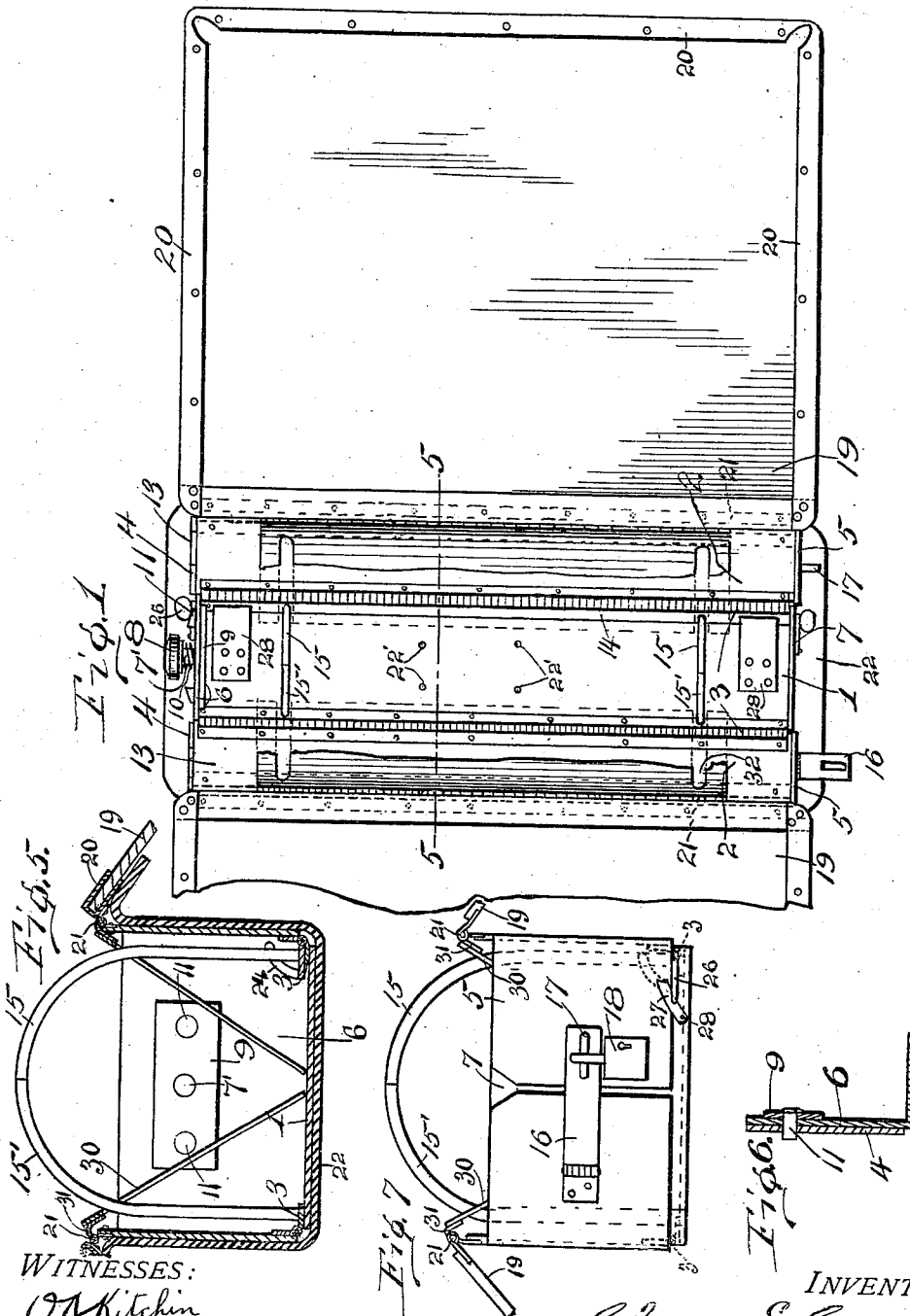


991,133.

Patented May 2, 1911.

3 SHEETS—SHEET 1.



WITNESSES:
 O. A. Kitchin
 C. H. Fisher

BY

INVENTOR
 Clarence E. Canan,
 Edgar M. Kitchin,
 his Attorney.

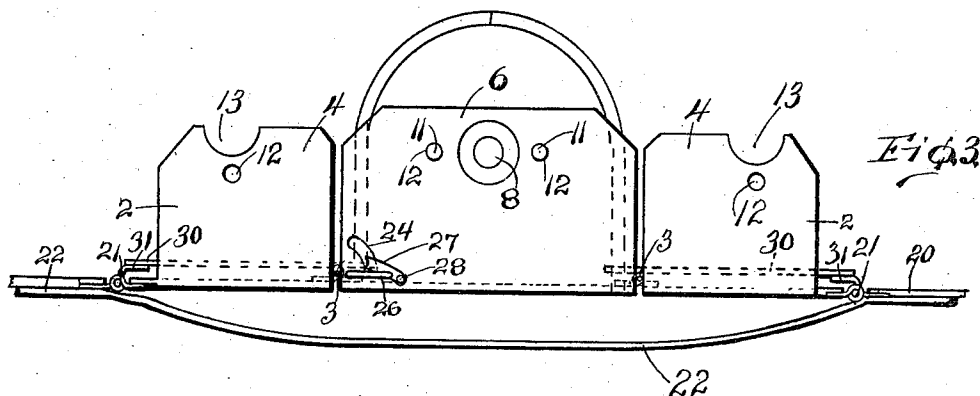
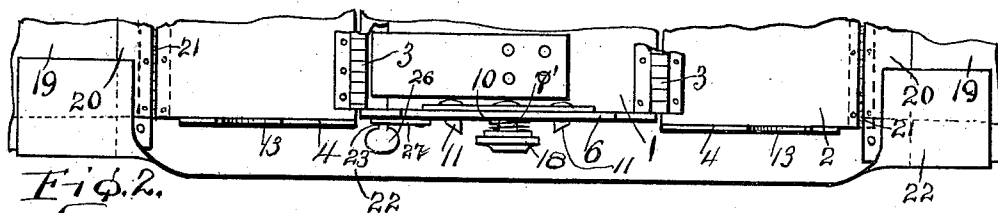
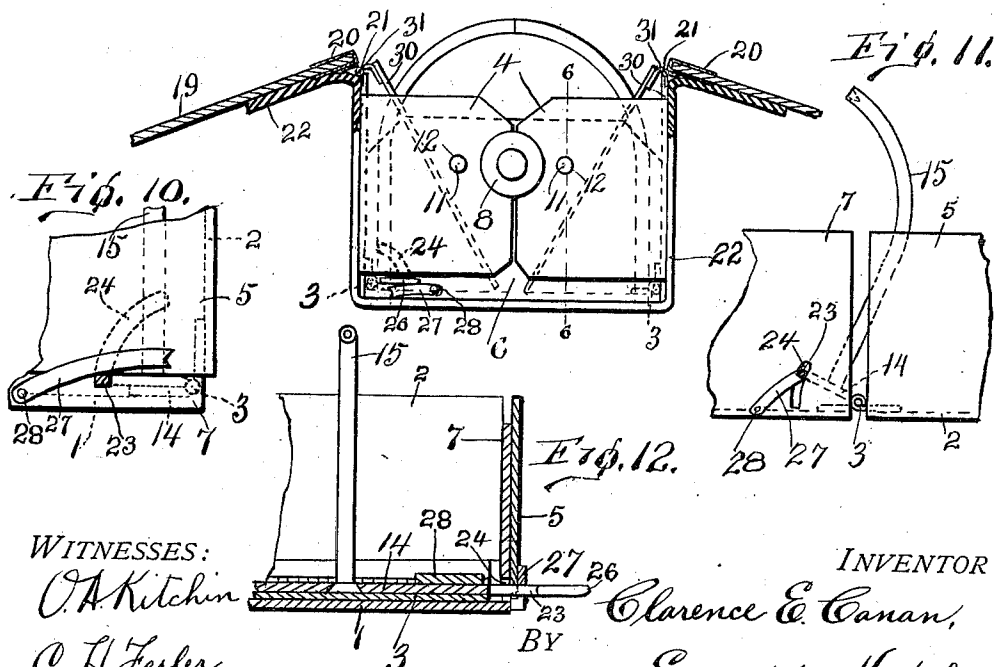


Fig. 4.



WITNESSES:
 O. A. Kitchen
 C. H. Tesler

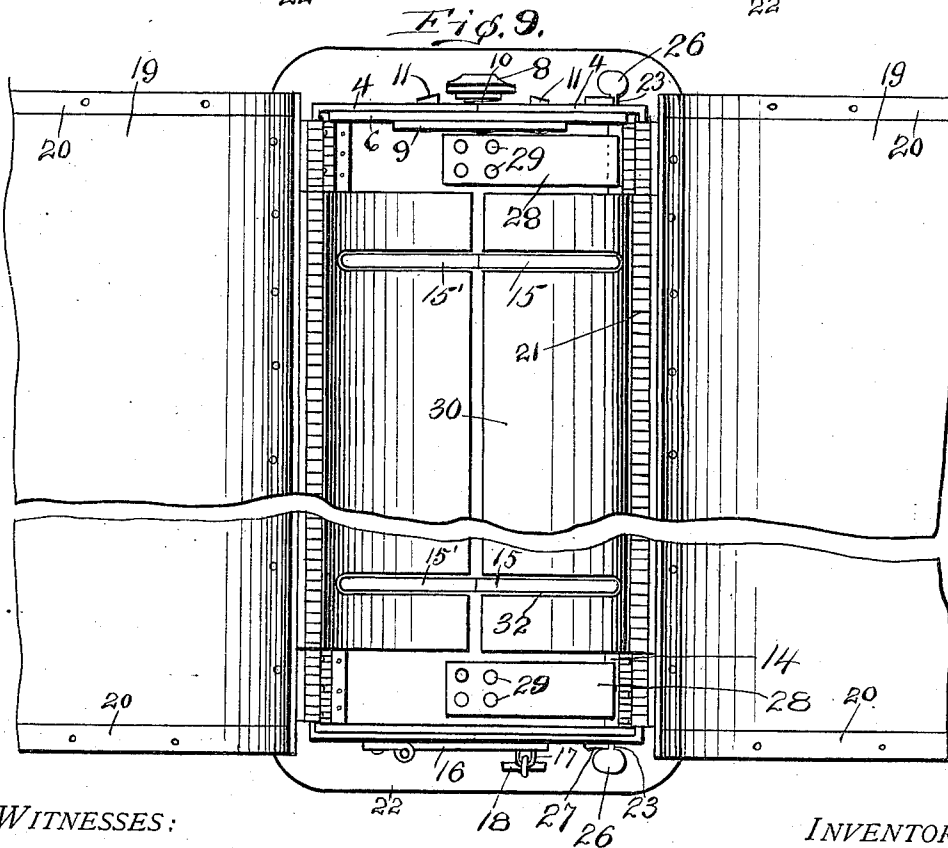
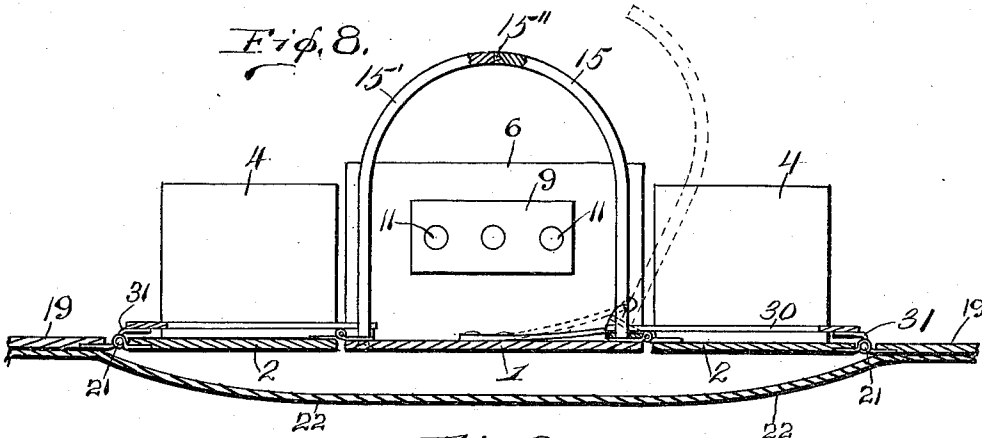
INVENTOR
 Clarence E. Canan,
 By
 Edgar M. Kitchen,
 his Attorney.

C. E. CANAN.
LOOSE LEAF BINDER.
APPLICATION FILED MAY 29, 1909.

991,133.

Patented May 2, 1911.

3 SHEETS—SHEET 3.



WITNESSES:

C. H. Tesler
E. M. Godfrey.

INVENTOR

BY Clarence E. Canan.
Edgar M. Kitchin
Attorney

UNITED STATES PATENT OFFICE.

CLARENCE E. CANAN, OF OMAHA, NEBRASKA.

LOOSE-LEAF BINDER.

991,133.

Specification of Letters Patent.

Patented May 2, 1911.

Application filed May 29, 1909. Serial No. 499,190.

To all whom it may concern:

Be it known that I, CLARENCE E. CANAN, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Loose-Leaf Binders; and I 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 improvements in binders of the detachable or loose leaf type, and among the objects in view, in addition to cheapness and durability of construction, are the facility of manipulation, permitting the ready insertion, and removal of leaves, and the adaptability of the back and sides of the binder to assume a perfectly flat condition when open.

With these and further objects in view as will in part hereinafter become obvious and in part be set forth, the invention comprises certain novel constructions, combinations and arrangements of parts as will be hereinafter specified and claimed.

In the accompanying drawings,—Figure 1 is a top plan view of a binder embodying the features of the present invention, the side plates of the back portion being in their open position. Fig. 2 is an enlarged detail, fragmentary top plan view of one end of the back portion illustrating the side plates thereof in the open or extended position. Fig. 3 is a fragmentary end view thereof. Fig. 4 is a similar view of the same with the side plates of the back portion in the closed position. Fig. 5 is a transverse, vertical sectional view taken on the plane indicated by line 5, 5, in Fig. 1. Fig. 6 is a detail, fragmentary section taken on the plane indicated by line 6, 6 of Fig. 4. Fig. 7 is a view similar to Fig. 4 of the opposite end of the back portion. Fig. 8 is a section similar to Fig. 5 with the side plates of the back portion in the opened or unfolded condition. Fig. 9 is a plan view of the parts in the position indicated in Figs. 4 and 7. Fig. 10 is a fragmentary, enlarged elevation showing in detail the latch for the pin-carrying leaf, parts being in the closed position. Fig. 11 is a similar view of the same with the parts indicated in the open position. Fig. 12 is a vertical, longitudinal, detail section, of the parts seen in Fig. 10, taken on a plane lying just in front of the paper pin.

The embodiment of the invention as illustrated in the accompanying drawings comprehends two essential features of construction, one being the back portion and the other the side covers. Of these, the back portion is made up of a flat, preferably metallic back plate 1, and side plates 2, 2, hinged to the back plate along the longitudinal edges thereof, as at 3, 3, in position for folding from the condition seen in Fig. 3 to the condition seen in Fig. 4. Each plate 2 is formed at one end with an inwardly turned flange 4, and at the other end with a similar flange 5, the flanges 4, 4, and 5, 5, being disposed for having their inner edges lie contiguous to each other when the side plates of the back portion are in the folded condition as indicated in Figs. 4, 7 and 9. Plate 1 is provided at one end with an up-standing flange 6, and at the other end with a similar flange 7, each forming a cross plate.

Flange 6 is formed with an aperture through which loosely extends a plunger or rod 7', said plunger being free to reciprocate through said aperture and being provided at its outer end with an operating push button 8, and at its inner end with a lock plate 9. A spring 10, preferably of the coiled type, surrounds plunger 7' and at its outer end presses button 8, at its inner end pressing the outer face of plate 6, so that plate 9 is normally held with its outer face against the inner face of flange 6. Near the ends of the plate 9, the same is provided with detent latches 11, beveled inwardly and movably extending through suitable apertures in flange 6 in position for engaging apertures 12, 12, in flanges 4. The inner edge of each flange 4 is formed with a semi-annular recess 13 adapted, when the parts are in their closed position, to surround and accommodate plunger 7' and spring 10. The beveled outer ends of detent latches 11 allow the flanges 4 to move to the closed position, the detents being pressed backwardly until apertures 12 arrive in a position registering with said latches, whereupon the latches spring outwardly into the apertures 12, and lock the parts in the folded or closed position, the spring action of the detent latches being due of course to the action of the spring 10. It is to be observed that the parts will remain in the folded condition until released, which may be accomplished by simply pressing on button 8, which retracts both of the latches, if the pressure is direct, and the

side plates of the back portion will then be free to hinge outwardly to the flat or unfolded condition. Pressure on one side of button 8 may be caused to retract one of the
 5 detents 11 without retracting the other, so that one side plate 2 may be released without releasing the other side plate.

Flanges 5, when the plates 2 are in the closed position, lap flange 7 in the same manner as flanges 4 lap flange 6, and the vertical
 10 edges of both flanges 6 and 7 are preferably arranged to have the inner faces of plates 2 contact therewith and be held against inward collapse thereby, the detent latches 11
 15 serving to prevent outward opening of the side plates 2 during use of the binder.

When it is desired to provide a permanent lock adapted to prevent unauthorized alteration or removal of papers, a suitable
 20 lock may be applied to the flanges 5, and the lock may assume any of various forms, a conventional form being indicated in the drawing, and consisting of a hasp 16 hinged
 25 to one flange 5, and adapted to engage a staple 17 carried by the other flange 5, the staple being designed to be in turn engaged by a padlock or other suitable locking device 18. Obviously, the lock 18 must be removed and hasp 16 disconnected from staple
 30 17 before the side plates 2 of the back portion may be opened or unfolded, and then all parts are in condition for being controlled by the button 8 and connected parts as above specified.

One of the hinges 3 is provided with a third leaf, as indicated at 14, which is free to swing vertically upon the pintle of the hinge, and carries pins 15, 15', distributed at various points along its length, there being as many pins 15 as may be desired for
 40 efficiently retaining the leaves in the binder. Each pin 15 extends upwardly and is curved into a semi-arch which meets the cooperating curved portion of a complementary pin 15', there being one pin 15' for each pin 15. Each pin 15' is preferably formed at its free end with a tapered point 15'' adapted to enter a suitable recess in the free end of pin 15. The lower end of each pin 15' is
 50 rigidly fixed in any suitable manner to the back plate 1. Thus it is to be noted that by swinging the leaf 14 upon its pintle all of the pins 15 may be swung to and from the open position indicated in dotted lines in
 55 Fig. 8 simultaneously, and to facilitate such operation a pin 23 extends from each end of leaf 14, near the free edge thereof, through a slot 24 in the respective plate 6 or 7, the respective flange 4 or 5 extending above and
 60 with its lower edge resting against pin 23 when side plates 2 are closed so as to lock the pins 23 and leaf 14 against movement, so that pins 15 may not be moved from a closed position until side plates 2 are swung open.
 65 The outer end of each pin 23 may be pro-

vided with 26 an operating handle or disk-shaped knob for facilitating manipulation, and in order at times to lock the pins 15 in their outer or open position, a detent latch 27 is provided and consists simply of
 70 a link pivoted at its lower end, as at 28, and bifurcated at its upper end in position for receiving the respective pin 23, when said pin is in its uppermost position, and for sustaining the same in such position. To
 75 release the latch 27, it is only necessary to move the same pivotally out of engagement with the respective pin 23, and to thus lower the pin and allow the latch to rest loosely upon the same, as indicated in Figs. 10 and
 80 12. Of course, if desired, when the parts are in the released condition, the latches 27 may be positioned beneath the pins 23, as indicated in Fig. 4. Obviously, while I prefer to use two latches 27, one for each
 85 pin 23, so as to evenly sustain the pressure, it is possible to eliminate one of these latches and allow the other to do the work of sustaining the leaf 14 in its raised position. In order normally to retain the leaf 14 in its
 90 lowered position with the pins 15 in their closed position, the said leaf is engaged at each end by a flat spring plate 28 riveted or otherwise rigidly connected with the back plate 1, as indicated at 29, 29. The spring
 95 plates 29 press downwardly upon the outer free edge of the leaf 14, and the said leaf may be swung upwardly only against the pressure of said springs, so that when the latches 27 are released, after the pins 15 have
 100 been positioned in their open condition, the said pins will spring quickly to the closed position under the pressure of springs 28. Obviously, the arrangement, enabling either a momentary or a prolonged retention of the
 105 pins 15 in the open position, will allow a very ready removal and replacement of sheets, and the opening of the pins on the central line freely facilitates the insertion and extracting of loose leaves at any desired
 110 point in the body of leaves contained by the binder, the retaining springs insuring the firm retention of the pins in the closed position against accidental opening.

To the back portion are secured the side
 115 covers 19, 19, which may be of board or metal as preferred. The edges of each side 19 are inclosed and surrounded by a continuous rim 20, preferably of metal, and the rim 20 along the inner edge of the side 19
 120 is connected to plate 2 by a piano hinge 21 similar in construction to hinges 3, and arranged to allow the respective side to swing freely with respect to the given plate 2 to which it is attached.
 125

In practice, I have found that by reason of the parallel position of the upright or vertical portions of pins 15 and 15' with the side plates of the back portion when closed, unless provision is made to prevent binding, 130

some annoyance is liable to be experienced by reason of a binding action of the leaves occurring between the respective side plates 2 and the contiguous upright portions of the respective pins 15 and 15'. To avoid this binding action, I have provided shield plates 30, 30, one connected to each side plate 2 by being fixed to a third leaf 31 hinged to the pintle of the respective hinge 21. Each plate 30 is provided with a slot 32 for each pin 15 or 15' and thus the respective plate 30 is free to move up and down along the pins with the hinging movement of the respective side plate 2 so that said plates 30 may move from the practically horizontal position indicated in Figs. 1, 3 and 8 to the inclined position indicated in Figs. 4, 5, 7 and 9. Thus when the side plates 2 are being brought from their unfolded to their folded position, the guard shields 30 lying beneath the leaves will lift the same and force the leaves along the pins 15 and 15' to a position on the curved portions of the pins, so that no binding action will occur during the hinging movement of the side plates. The guard plates 30 will also insure maintaining the leaves confined to the curved portions of the pins while the side plates are retained closed, so that liability of one or more leaves being forced farther back into the file than the greater portion of the leaves is obviated. At the same time, when the side plates are being swung to the open position, the guard plates 30 move downwardly and allow the leaves to follow readily and naturally to the open position.

A cover 22 of leather or other suitable material may be secured to sides 19 and extends beneath and covers the entire back portion so as to add to the finished effect of the binder, and also to serve as a muffler for obviating noise when the binder is being opened or closed or being shifted from place to place. Obviously, the outer faces of the sides 19 may be finished in any desired manner for artistic effect or utility as preferred. For convenience, in applying a metal, leather or other suitable label, the back plate 1 is provided with apertures 22', 22' adapted to receive the fastening means for the label.

From the foregoing it is believed that the operation of the structure will be obvious, and it is to be noted that one of the essential features of advantage of the invention resides in the capacity of the side plates 2 of the back portion to be lowered to a position perfectly flat and flush with plate 1, so that the leaves or other sheets in the binder, when open, lie perfectly flat at all points, and no raised portion or projection is presented along the inner edge, as is true of many of the common types of binders.

What I claim is:

1. In a device of the class described, the combination of side covers and a back por-

tion therefor, said back portion comprising a back plate and side plates hinged thereto and hinged to the side covers and adapted to be disposed at an angle to the back plate when closed and to lie flush with the side covers and back plate when open, a cross plate disposed between the side plates for retaining the same against inward collapse when closed, and means movable longitudinally of the back portion and carried by the cross plate for securing the side plates against outward movement.

2. In a device of the class described, the combination of side covers and a back portion therefor, said back portion comprising a back plate and side plates hinged thereto and hinged to the side covers and adapted to be disposed at an angle to the back plate when closed and to lie flush with the covers and back plate when open, an upstanding plate extending across said back plate and disposed between the side plates for limiting the side plates against inward collapse when closed, and means movable longitudinally of the back portion and carried by the upstanding plate for securing said side plates against outward movement.

3. In a device of the class described, the combination of side covers and a back portion therefor, said back portion comprising a back plate, side plates hinged thereto and hinged to the side covers and adapted to be disposed at an angle to the back plate when closed and to lie flush with the side covers and back plate when open, an upstanding plate extending across said back plate and connected with the end portion thereof and disposed between the side plates for limiting the side plates against inward collapse when closed, and means carried by the upstanding plate movable longitudinally of the back portion for securing the side plates against outward movement.

4. In a device of the class described, the combination of side covers and a back portion therefor, said back portion comprising a back plate and side plates hinged thereto and hinged to said covers and adapted to be disposed at an angle to the back plate when closed and to lie flush with the side covers and back plate when open, an upstanding plate extending across the back plate between the side plates and positioned for limiting the side plates against inward collapse when closed, a plate carried by each of the side plates and positioned for lapping said cross plate, and means for detachably securing said cross plate and lapping plates together.

5. In a device of the class described, the combination of a back portion and side covers hinged thereto, said back portion comprising a back plate and side plates hinged to said back plate and adapted to swing from a raised to a lowered position,

upstanding paper receiving pins carried by the back plate and extending contiguous to the side plates when the side plates are in their raised position, and shield plates
5 hinged to the upper edges of the side plates and extending past the pins.

6. In a device of the class described, the combination of side covers and a back portion therefor, said back portion comprising
10 a back plate and side plates hinged thereto and hinged to the side covers, a latch plate shiftable longitudinally of the back plate, a support for the latch plate carried by said back plate, operating means for the latch
15 plate, and means adapted to be engaged by the latch plate for securing the side plates against hinging movement.

7. In a device of the class described, the combination of side covers and a back portion therefor, said back portion comprising
20 a back plate and side plates pivotally connected thereto, an upstanding plate carried by the back plate, a plunger slidingly supported by said upstanding plate and movable longitudinally of the back portion,
25 latches connected to said plunger, a spring pressing said latches, and means extending from said side plates and adapted to be engaged by the latches to retain the side plates
30 against pivotal movement.

8. In a device of the class described, the combination of side covers and a back portion therefor, said back portion comprising
35 a back plate and side plates hinged to said back plate and hinged to the side covers, paper retaining means carried by the back plate, a cross plate fixed to the back plate and limiting the side plates against inward movement, a plate extending inwardly from
40 each of said side plates and lapping said cross plate, and longitudinally movable latches carried by the cross plate and adapted to detachably engage the inwardly extending plates.

9. In a device of the class described, the combination of side covers and a back portion therefor, said back portion comprising
45 a back plate and side plates hinged to said back plate and hinged to the side covers, paper retaining means carried by the back plate, a cross plate fixed to the back plate and limiting the side plates against inward movement, a plate extending inwardly from
50 each of said side plates and lapping said cross plate, a plunger slidingly carried by said cross plate, a latch plate connected to said plunger, and detent latches carried by said latch plate for detachably engaging the inwardly extending plates.

10. In a device of the class described, the combination of side covers and a back portion therefor, said back portion comprising
60 a back plate and side plates hinged to said back plate and hinged to the side covers, paper retaining means carried by the back

plate, a cross plate fixed to the back plate and positioned for limiting inward movement of the side plates, an inwardly extending plate carried by each side plate and adapted to lap said cross plate, the said
70 cross plate and inwardly extending plates being formed with apertures registering when the parts are in closed position, and longitudinally movable detent latches carried by said cross plate and adapted to re-
75 movably project through said apertures.

11. In a device of the class described, the combination with side covers and a back portion therefor, said back portion comprising
80 a back plate and side plates hinged thereto and hinged to the side covers, an upstanding cross plate connected with the back plate and disposed between the side plates for limiting inward movement thereof, a
85 latch plate normally engaging the inner face of said cross plate, a plunger fixed to said latch plate and slidingly extending through the cross plate and supported thereby and extending outwardly therefrom, a spring
90 pressing said plunger outwardly, an inwardly extending plate carried by each side plate in position for lapping contiguous portions of the cross plate, and detent latches carried by said latch plate and extending
95 through the cross plate in position for detachably engaging the inwardly extending plates.

12. In a device of the class described, the combination of a back portion and side covers hinged thereto, said back portion comprising
100 a back plate and side plates hinged to the back plate, a paper receiving pin hinged to the back plate by the hinge connecting one of the side plates to the back plate and adapted to swing upon its hinge
105 from its normally closed position to an open position, and means for normally maintaining the pin in its closed position.

13. In a device of the class described, the combination of a back portion and side covers hinged thereto, said back portion comprising
110 a back plate and side plates hinged to the back plate, a pin hinged to the back plate by the hinge connecting one of the side plates to the back plate and adapted to
115 swing upon its hinge from its normally closed position to an open position, and means for locking the pin in its closed position.

14. In a device of the class described, the combination of a back portion and side covers hinged thereto, said back portion comprising
120 a back plate and side plates connected thereto, a pair of pins upstanding from said back plate and bent to meet at
125 their upper ends, a hinge-connection between one of said pins and the back plate and one side plate adapted to admit of movement of the pin from engagement with the
130 other pin, and means for locking the hinged

pin against disengagement with the other pin.

15. In a device of the class described, the combination of a back portion and side covers hinged thereto, said back portion comprising a back plate and side plates hinged thereto, a third leaf for one of the hinges connecting the side plates to the back plate, and a pin carried by said leaf.

16. In a device of the class described, the combination of a back portion and side covers hinged thereto, said back portion comprising a back plate and side plates, a hinge-connection between the back plate and one of the side plates, a third leaf for the hinge of said hinge-connection, and a pin carried by said third leaf.

17. In a device of the class described, the combination of a back portion and side covers hinged thereto, said back portion comprising a back plate and side plates, a hinge-connection between said back plate and one of the side plates, a third leaf for the hinge of said hinge-connection, a pin carried by said third leaf, and a flat spring connected to said back plate and resting upon said third leaf for normally retaining the pin in a closed position.

18. In a device of the class described, the combination, of a back portion and side covers hinged thereto, said back portion comprising a back plate and a side plate hinged to the back plate, a leaf having a hinge-connection with the back plate, a paper receiving pin extending from said leaf, means connected to the side plate for retaining the leaf against hinging movement when the side plate is in its closed position, and means for locking the side plate in the closed position.

19. In a device of the class described, the combination of a back portion and side covers hinged thereto, said back portion comprising a back plate and side plates hinged to the back plate, a plurality of pairs of paper receiving pins upstanding from said back plate and formed to meet at their upper ends, and a leaf connected to the back plate by a hinged connection with one of the hinges of the back plate to the side plates and carrying one of the pins of each pair.

20. In a device of the class described, the combination of a back portion and side covers hinged thereto, said back portion comprising a back plate and a side plate hinged to said back plate and adapted to swing upon its hinge from a raised to a lowered position, an upstanding paper receiving pin carried by the back plate and extending contiguous to the side plate when the side plate is in its raised position, and a shield plate hinged to the side plate and extending past said pin.

21. In a device of the class described, the combination of a back portion and side covers hinged thereto, said back portion comprising a back plate and a side plate hinged thereto, a paper receiving pin extending contiguous to said side plate, and a shield plate hinged to the side plate and extending past the pin and formed with a slot receiving the pin for allowing free movement of the side plate with respect to the pin.

In testimony whereof I affix my signature in presence of two witnesses.

CLARENCE E. CANAN.

Witnesses:

HAL BUCKINGHAM,
H. W. TRUELSEN.