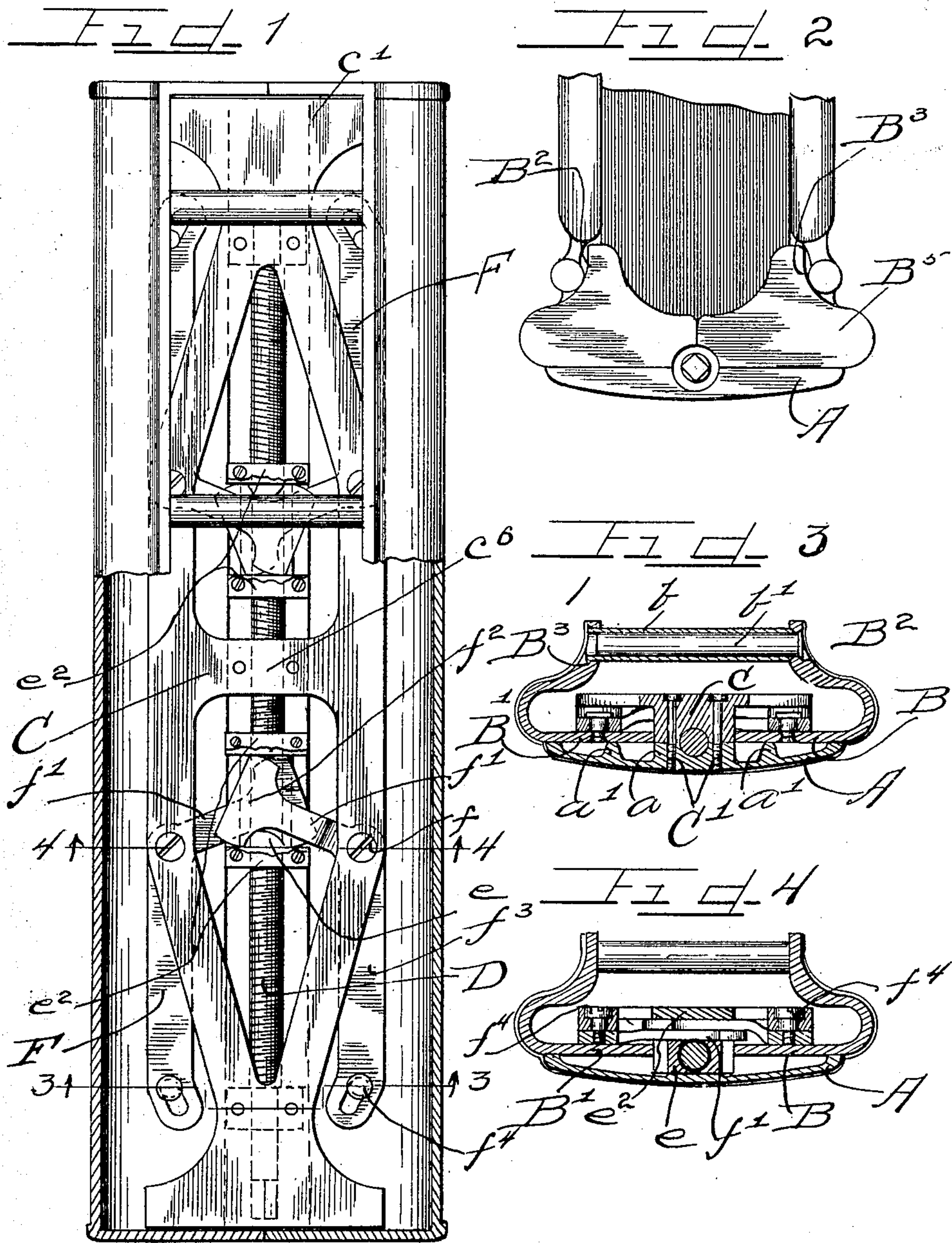


S. C. NOTT.
 LOOSE LEAF BINDER.
 APPLICATION FILED MAY 29, 1907.

919,453.

Patented Apr. 27, 1909.
 2 SHEETS—SHEET 1.



WITNESSES

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 J. E. Hornum.

INVENTOR

Sydney C. Nott.

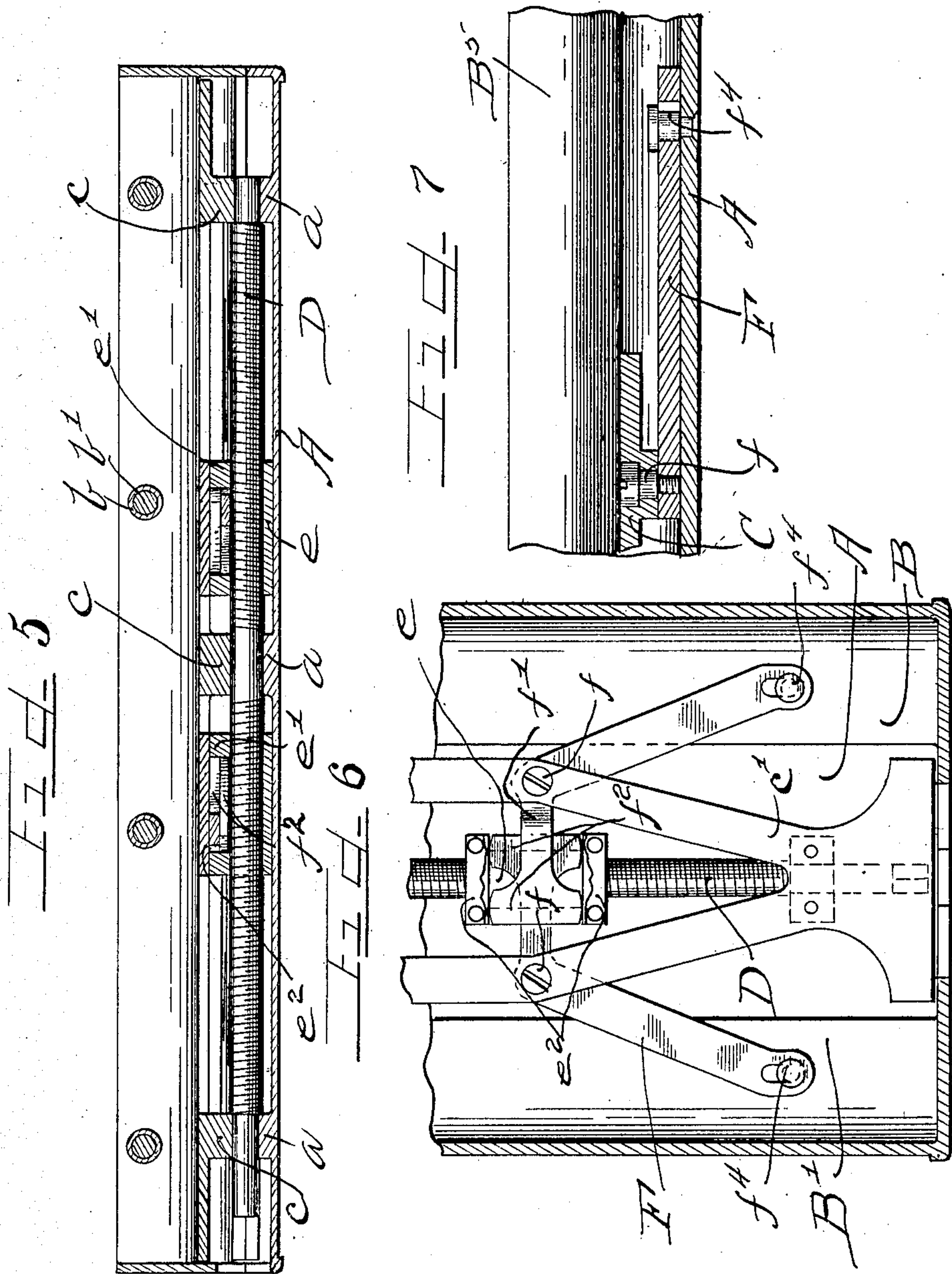
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UNITED STATES PATENT OFFICE.

SYDNEY C. NOTT, OF LA GRANGE, ILLINOIS.

LOOSE-LEAF BINDER.

No. 919,453.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed May 29, 1907. Serial No. 376,261.

To all whom it may concern:

Be it known that I, SYDNEY C. NOTT, a citizen of the United States, and a resident of the city of La Grange, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Loose-Leaf Binders; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in loose leaf binders and particularly to that class known as "current binders". Heretofore binders of this class have usually been composed of a multiplicity of parts and require considerable and careful manipulation in effecting the required adjustments and when open do not lie flat on the desk rendering it difficult to write therein.

It is an object of this invention to provide a binder of the class described in which very few parts are employed and these so constructed as to afford lightness with great strength and rigidity and permit quick and positive adjustment.

It is an important object of the invention to so construct the operating mechanism and the binder as a whole that the leaves lie practically flat upon the covers when in open position thus obviating the objection of long bending of the leaves from the impaling posts to approximately the center of the covers as heretofore.

It is finally an object of the invention to construct a binder in which the parts are quickly assembled or as quickly taken apart, cheap to manufacture and in which none of the operating mechanism is exposed and in which the three piece back can be so secured in place as to permit covering the same with leather or any desired material before attaching in place.

The invention consists in the matters hereinafter described and more fully pointed out and defined in the appended claims.

In the drawings: Figure 1 is a top plan view of a device embodying my invention with parts omitted. Fig. 2 is a fragmentary elevation of the binder closed. Fig. 3 is a section taken on line 3—3 of Fig. 1. Fig. 4 is a section taken on line 4—4 of Fig. 1. Fig. 5 is a central longitudinal section of the binder. Fig. 6 is a fragmentary view of the binder fully distended. Fig. 7 is an

enlarged sectional detail taken longitudinally of one of the levers.

As shown in the drawings:—A indicates the back plate which is concave on the inner side and convex on the outer as is usual and is provided at each end on the outer side with a transverse raised bead to protect the covering for the back. Within the back are integral raised flat bearing blocks *a* in central alinement and located at each end and one in the center, and also longitudinal ribs *a'—a'* one on each side of each bearing block and upon which and the edges of said central back plate the lateral back plates B—B' bear. Said lateral back plates as shown are integral with the clamping plates B²—B³ and directed at right angles therewith and connected thereto by an outwardly curved or rounded portion adapted to rest on the desk when the book is open. Said clamping plates and lateral back portions are provided with integral closed ends B⁵. Secured upon the clamping plates are telescoping impaling posts *b—b* as usual with this class of binders.

A light metallic one piece frame C, having integral bearing blocks *c* on its under side registering with the bearing blocks in the back is rigidly secured to the back plate A, by means of screws C' which engage in said bearing blocks. Said frame as shown embraces a plate *c'* of approximately the width of the central back plate and which is cut away on each side near its ends to expose the lateral back plates and centrally to expose the inner mechanism except for a transverse central portion *c''* which carries the central bearing block.

A rotative shaft D is journaled at its ends and its middle between the bearing blocks in the back and on the frame plate and opposite ends intermediate said bearings are threaded the one with a right and the other with a left thread. One end of said shaft is shaped for engagement with a suitable key inserted through an aperture at one end of the binder between and in the back plates. Carriages have threaded engagement one with each end of said shaft and each as shown comprises a nut *e* recessed to provide upwardly directed flanges *e'* at the ends thereof.

Four oppositely disposed bell crank levers F are pivoted to and below the frame plate two on each side the frame plate and on opposite sides the middle by means of screws *f*

which extend through the frame plate and a boss integral therewith, and are threaded at their outer ends to thread into said lever at its fulcrum point. The shorter arms f' of said levers are directed obliquely inward toward the middle of the binder and the ends are laterally extended to afford cams f^2 which engage between the ribs or flanges e' on the carriage and are confined in operative position by the cover plate e^2 , which is rigidly secured to the ribs or flanges e' . The longer arms f^3 of said levers are directed toward the ends of the binder and are curved slightly inwardly and slotted longitudinally at said inwardly directed ends to engage a rivet or screw f^4 whereby said ends are slidably secured to the lateral back plates.

The operation is as follows: By rotating the shaft D in one direction the carriages are moved toward the ends of the binder and move the short arms of said levers therewith thus throwing the outer end of the levers laterally outward thereby forcing the clamping plates open as shown in Fig. 6, such adjustment being only limited by the shape and length of the slots in the arms f^3 and the width of the back sections. A reverse rotation of the shaft of course closes the binder.

The extreme rigidity of the construction is evident from the fact that the central frame plate affords the fulcrum for the actuating levers or toggles or bell cranks, and the broad strong cams engage in the carriages in a manner to preclude breakage or poor adjustment. As shown also the broad ends of the frame plate serve as guides or braces for the ends of the lateral back plates insuring perfect accuracy of movement and preventing any wobbling of parts when the sections are extended or the binder is open or unlocked. There is in other words practically no lost motion.

Inasmuch as the central back sections are secured in place from the inside it as well as the lateral back sections may be covered with leather or fabric before being secured in place without the possibility of defacement or injury in attaching.

Very few parts are employed in the construction and these are so constructed as to stand the most severe usage without breakage.

The back and clamping plates and internal operating mechanism lie very low when the back plate is contacting the desk enabling the sheets to lie quite flat on the cover.

Details of construction may be varied without departing from the principles of this invention and I therefore do not purpose limiting this application for patent otherwise than necessitated by the prior art.

I claim as my invention:

1. A binder comprising a back plate and clamping plates, a right and left threaded

shaft journaled on the back plate, oppositely movable carriages thereon provided with upwardly directed flanges, a frame, bell crank levers connected with the frame at their fulcrum points, and each at one end connected with the clamping plates and cams on the other ends engaged within the flanges of the carriages.

2. A binder of the class described embracing clamping plates, levers connected to actuate the same, an actuating shaft oppositely threaded at its ends, a carriage on each end of said shaft each provided with flanges and heads integral with the levers and engaged between the flanges whereby the levers are actuated.

3. In a device of the class described clamping plates, coacting bell cranks connected therewith, laterally enlarged heads on corresponding ends thereof, an actuating shaft and means operated by said shaft adapted to engage the heads on the bell cranks for moving the clamping plates.

4. In a device of the class described the combination with a metallic back plate concave on its inner side, of clamping plates slidable relatively thereto, a shaft journaled longitudinally on said back plate and oppositely threaded at its ends, a carriage movable on each end of said shaft and oppositely disposed levers secured at one end to the clamping plates and enlarged heads on the other ends affording cams which engage in suitable seats in said carriages, thereby actuating the clamping plates.

5. In a binder the combination with a back plate and clamping plates slidable relatively thereto, of a light metallic frame rigidly connected to the back plate, a shaft secured to and extending longitudinally of the frame, oppositely movable carriages on the ends of said shaft and levers fulcrumed on the frame and operatively connected with the clamping plates and carriages and actuated by movement of the carriages to adjust the clamping plates.

6. In a loose leaf binder a back plate, clamping plates movable relatively thereto, an internal frame rigidly secured to the back plate, bearing blocks integral with said frame, a shaft oppositely threaded at its ends and journaled in the bearing blocks, a carriage having threaded engagement with each end of said shaft, oppositely disposed bell crank levers fulcrumed on opposite sides of the frame and having the short arms thereof loosely engaged by the carriages and the longer arm engaged to each clamping plate whereby rotation of the shaft adjusts said clamping plates.

7. In a loose leaf binder the combination with the clamping plates of an internal frame positioned between the same, levers fulcrumed on the frame in pairs and slidably engaged to the clamping plates at their

outer ends and carriages movable longitudinally of the frame and positively engaging the inner ends of the lever.

8. In a device of the class described the combination with a central back plate of lateral back plates slidable thereagainst, a clamping plate integral with each lateral back plate, telescoping impaling posts on said clamping plates, a frame between the clamping plates, bearing blocks on the under side thereof, a threaded shaft journaled therein and extending longitudinally the back, carriages on said shaft adapted to be driven oppositely by the threads thereon, and broad ends on the frame member acting as guides for the ends of the clamping plates.

9. In a device of the class described a central back plate, an internal frame parallel therewith, a shaft journaled between the frame and back plate and threaded oppositely at its ends, complementary nuts on the ends of the shafts acting as carriages, bell crank levers fulcrumed in pairs on opposite sides of said frame, an enlarged head on the inner end of each which engages with the appropriate carriage, clamping plates connected with the outer ends of said levers, provided with lateral back sections slidable on the back plate and between the same and the frame.

10. In a loose leaf binder of the class described a shaft, actuating levers operated by movement of said shaft, an inner frame plate above the shaft and serving as a support for the actuating levers and clamping plates operated by movement of said levers.

11. In a loose leaf binder of the class described clamping plates, an actuating shaft having right and left threads on its ends, an inner frame plate above the threaded actuating shaft serving as a support and guiding the clamping plate and bell crank levers fulcrumed on said frame, each lever having a cam at one end.

12. In a loose leaf binder a back plate, adjustable clamping plates, end plates integral with the clamping plates, telescoping impaling posts rigidly secured to the clamping plates, mechanism for adjusting the clamping plates and a one piece frame secured to the back plate positioned above and protecting the adjusting mechanism and the ends of the frame adapted to guide and keep the end plates in alinement.

13. In a loose leaf binder a back plate, oppositely adjustable clamping plates, actuating mechanism and a frame confining the actuating mechanism between the same and back plate and adapted to support part of the actuating mechanism.

14. In a loose leaf binder a frame for strengthening the binder, means removably securing said frame in position, clamping plates, oppositely disposed members pivoted to the frame and connected at corresponding ends to the clamping plates and means for simultaneously actuating the oppositely disposed members for adjusting the clamping plates.

15. In a loose leaf binder a removable frame for strengthening the binder and adapted to guide the binder when being adjusted, mechanism fulcrumed to and lying beneath the frame adapted for extending and contracting the binder and means for operating said mechanism.

16. In a loose leaf binder the combination with the back and clamping plates of means secured to the back plate supporting the inner ends of the clamping plates, a removable frame strengthening the back and clamping plates and acting to keep the ends of the clamping plates in alinement, an adjusting shaft, oppositely movable carriages thereon, cams actuated by movement of the carriages and operative connections between the cams and clamping plates for adjusting said clamping plates.

17. In a device of the class described a back plate, clamping plates, adjustable carriages provided with flanges, a plate secured to the top of the flanges of each carriage providing a slot, levers connected at their outer ends with the clamping plates and at their inner ends engaged in said slots and mechanism for actuating the carriages.

18. In a device of the class described the combination with a back plate of clamping plates slidable thereover, actuating mechanism, carriages operated thereby provided with parallel flanges, a removable plate secured to the flanges of each carriage, and levers slidably connected at one end with the clamping plates and at their opposite ends engaged between the flanges and secured in place by the removable plate.

19. In a device of the class described clamping plates, telescoping impaling posts secured thereto, mechanism for moving the clamping plates oppositely and a frame interposed between the impaling posts and the actuating mechanism and affording a fulcrum for part of the actuating mechanism.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

SYDNEY C. NOTT.

Witnesses:

K. E. HANNAH,
CHARLES W. HILLS.