No. 775,220. PATENTED NOV. 15, 1904.

H. P. JONES, DEC'D.

H. S. JONES, ADMINISTRATOR.

BINDER.

APPLICATION FILED MAY 12, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

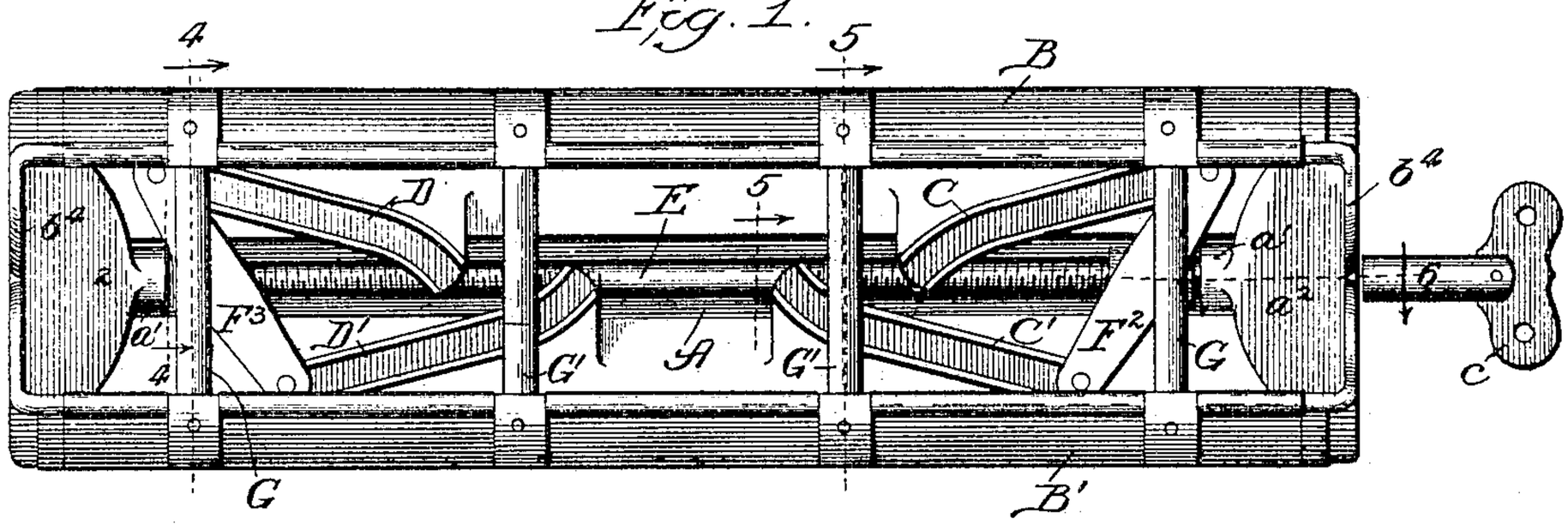


Fig. 2.

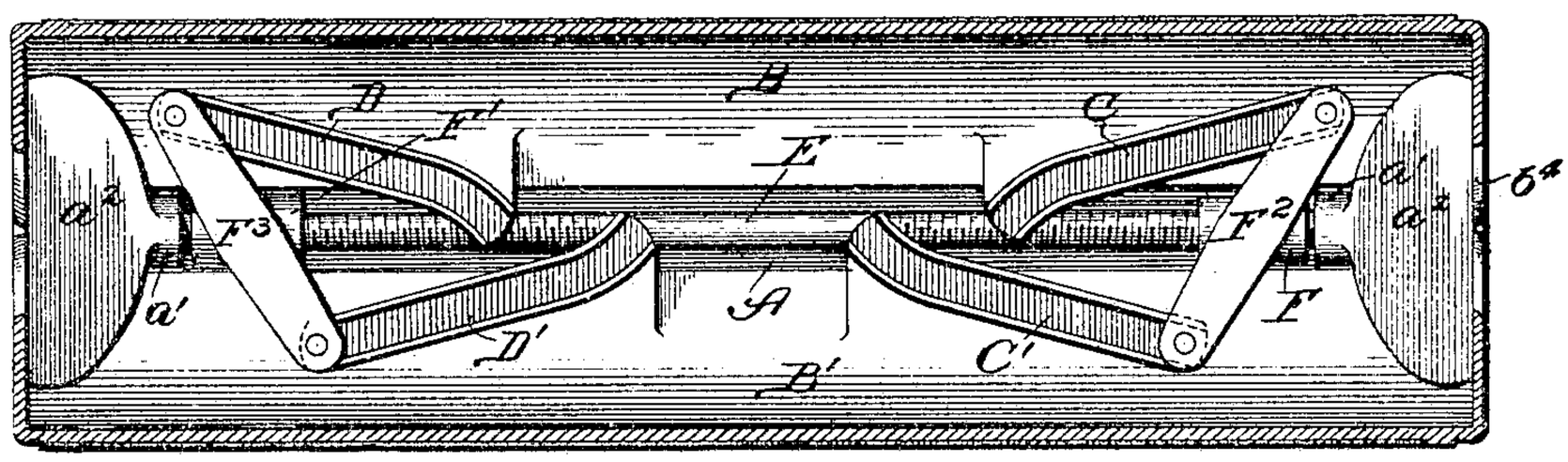
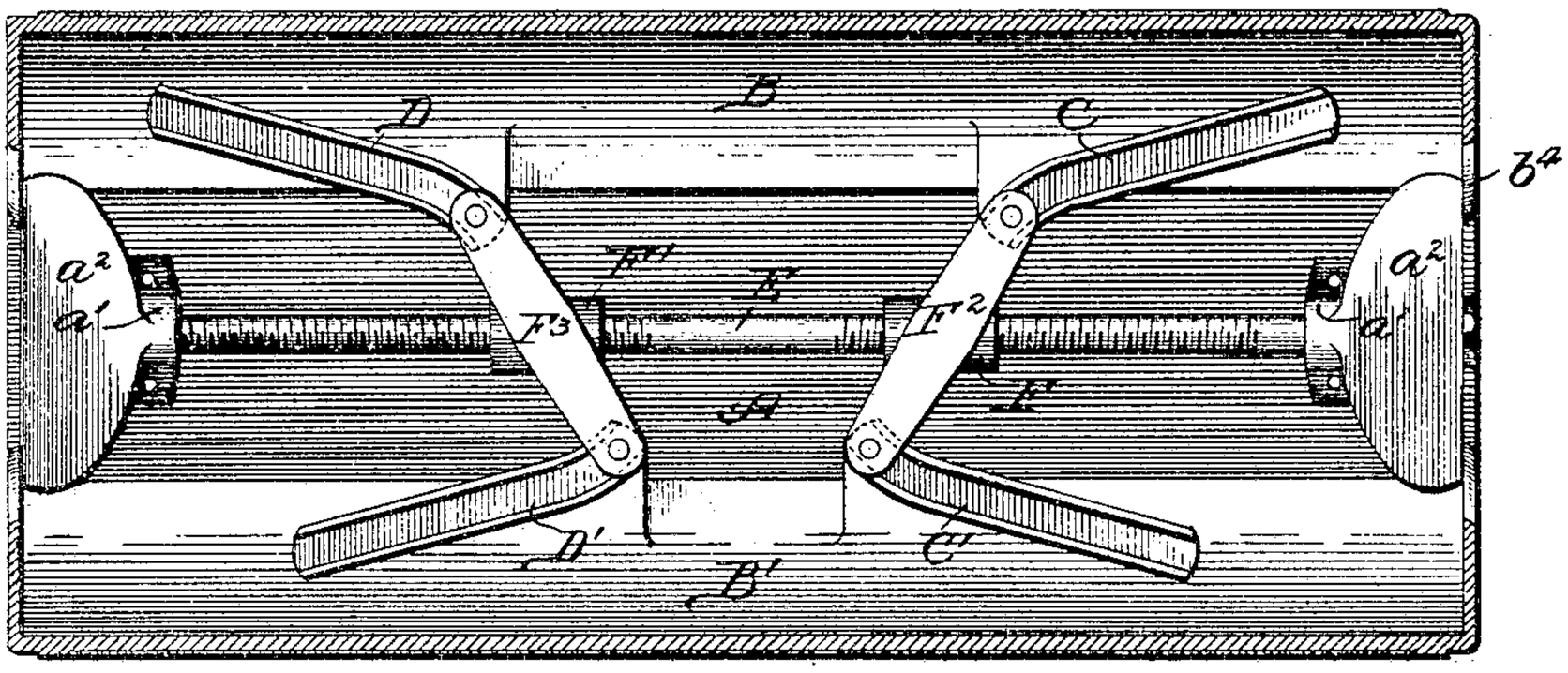


Fig. 3.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 4.

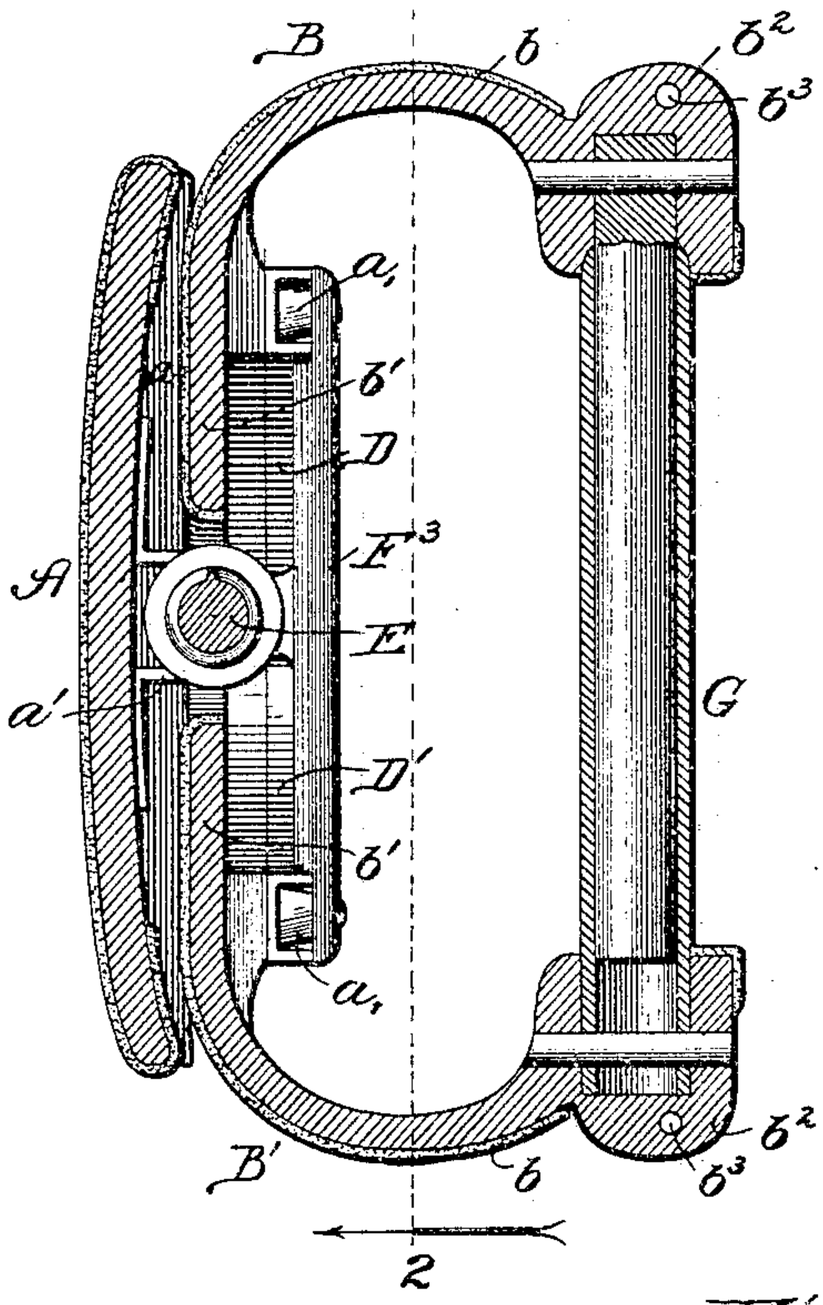


Fig. 5.

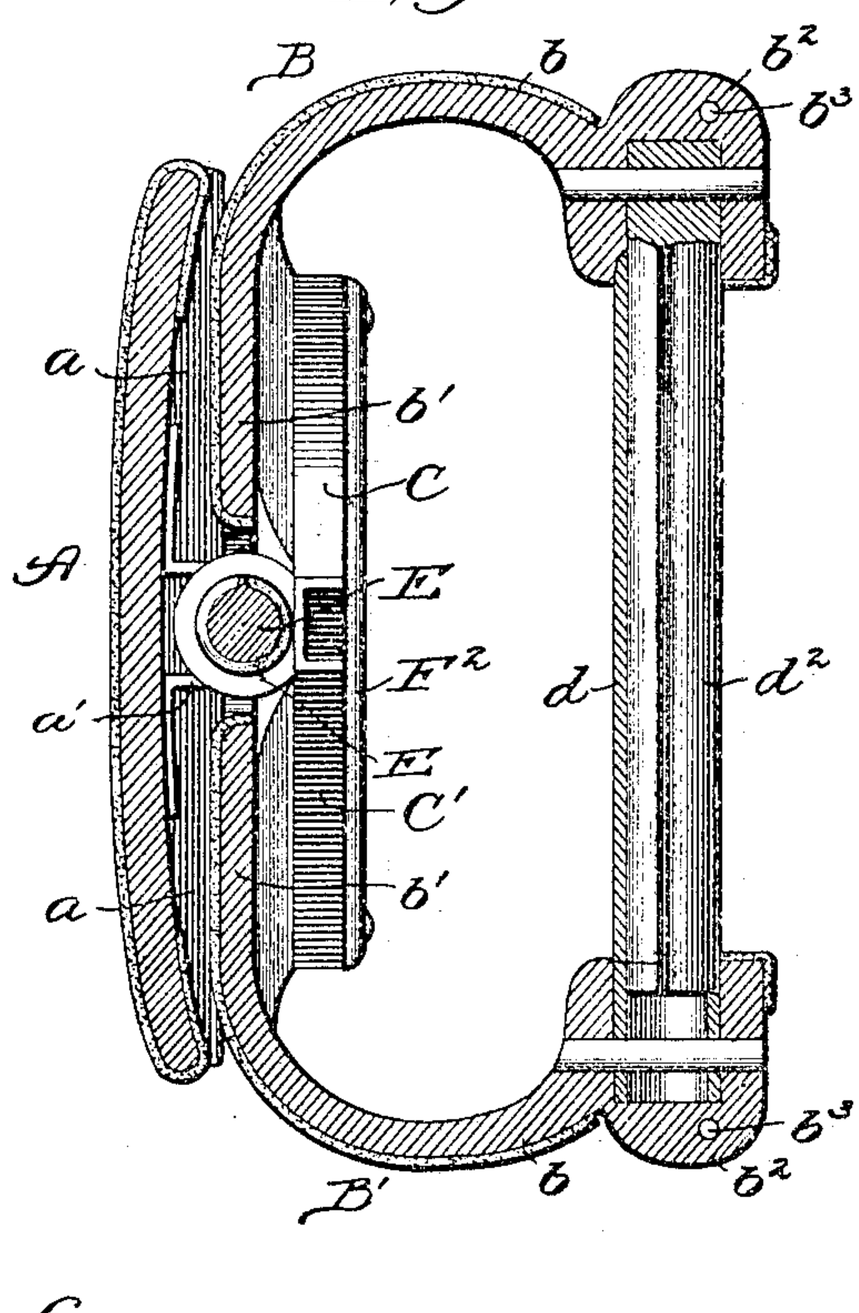


Fig. 6.

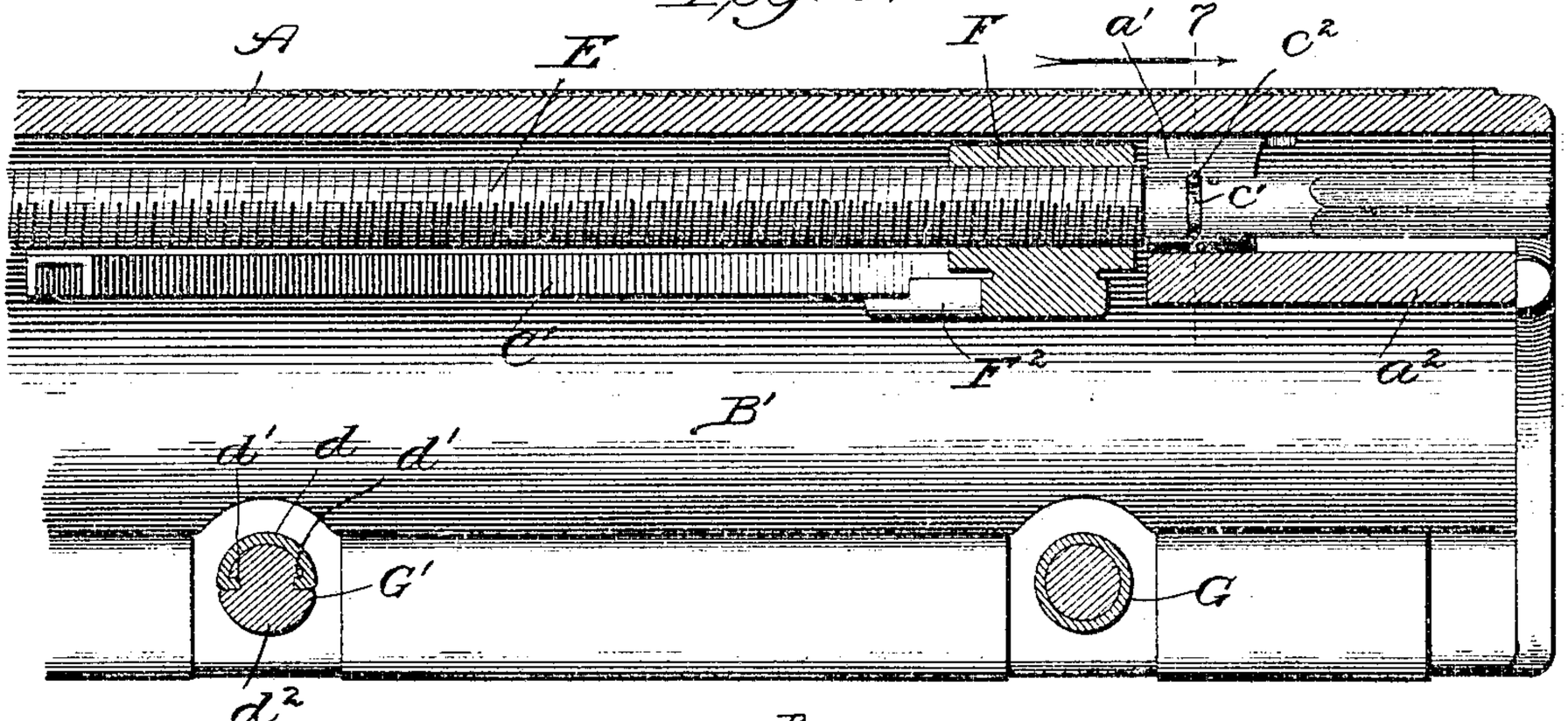
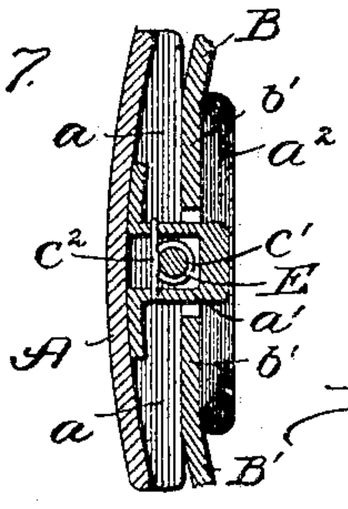


Fig. 7.



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No. 775,220. Patented November 15, 1904.

UNITED STATES PATENT OFFICE.

HARVEY P. JONES, OF CHICAGO, ILLINOIS; HARRY S. JONES ADMINISTRATOR OF SAID HARVEY P. JONES, DECEASED, ASSIGNOR TO W. GIFFORD JONES AND HARRY S. JONES.

BINDER.

SPECIFICATION forming part of Letters Patent No. 775,220, dated November 15, 1904.

Application filed May 12, 1902. Serial No 107,004. (No model.)

To all whom it may concern:

Be it known that I, HARVEY P. JONES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Binders, of which the following is a specification.

My invention relates particularly to binders for loose-leaf ledgers; and my primary object is to provide a binder of this character of exceedingly simple construction, great strength and durability, and readiness of manipulation.

My invention is illustrated in its preferred embodiment in the accompanying drawings, in which—

Figure 1 represents an inner view of the improved binder; Fig. 2, a section taken as indicated at line 2 of Fig. 4; Fig. 3, a similar section, but showing the binder extended; Fig. 4, an enlarged composite section taken as indicated at the lines 4 of Fig. 1; Fig. 5, a similar section taken as indicated at the corresponding lines of Fig. 1; Fig. 6, an enlarged broken section taken as indicated at line 6 of Fig. 1, and Fig. 7 a broken section taken as indicated at line 7 of Fig. 6.

The preferred construction is as follows: A represents the binder-back; B B′, clamping members slidable transversely on said back; C C′ and D D′, oblique guides arranged in pairs on the clamping members; E, a rod disposed longitudinally of the back and equipped at opposite sides of its center with right and left threads; F F′, nuts connected with the rod E and bearing rigidly-secured obliquely-set bars F^2 F^3, provided with guide-engaging rollers a'; G G, telescopic binding-posts connected with the free edges of the clamping members, and G′ G′ extensible binding-posts having tongue-and-groove connection and serving to hold the leaves in proper position at all times.

The back A is provided on its inner surface at its ends with flanges a, and adjacent to its ends are bridge-pieces a', through which the rod E extends. The bridge-pieces a' are provided with outwardly-projecting members a^2, which are supported some distance above the inner surface of the back. The clamping members are of general L shape, having forwardly-projecting portions b and inwardly-projecting portions b'. The portions b have the binding-posts connected with them at their free edges and are equipped with lugs b^2, having perforations b^3 for receiving the pivots of the cover-sections. The portions b' of the clamping members are substantially parallel with the back A and fit between the flanges a and the under surfaces of the members a^2. The clamping members are provided at their ends with rudimentary flanges b^4, the inner surfaces of which contact with the edges of the members a^2.

The guides C C′ and D D′ comprise open-topped channels, as shown. Preferably the members of each pair of guides converge inwardly, and the inner ends of the guides are turned abruptly toward each other. The bars or heads F^2 F^3 are preferably set obliquely, as shown.

The rod E is supported wholly by the nuts F F′ and is without contact with the bridge-pieces a'. One end of the rod is squared to receive a key c. As an added security against longitudinal shifting of the rod the rod may be provided with a circumferential groove c' for receiving a pin c^2, passing through one of the bridge-pieces a'. The binding-posts G comprise telescopic tubes of well-known construction. The binding-posts G′ comprise half-tubular members d, connected with one clamping member and having inturned longitudinal flanges d' and pins d^2 recessed to receive the members d and form therewith binding-posts of substantially circular cross-section. The rollers a' are preferably of the form of cone-frustums, so that their lower portions contact with the lower portions of the guide-channels in which they move.

The manner of use will be readily understood from the foregoing detailed description. When the rod E is turned in one direction, it serves to draw the nuts F F′ toward each other, thereby forcing the rollers a' along their oblique guides and separating the clamping members, and when said rod is turned in the opposite direction a reverse action occurs. The members of each pair of guides are set

at an obliquity which will cause the clamping members to move at the desired speed. When the rollers a' reach the inner end of the guides, they encounter portions of the guides having a greater obliquity, and hence the clamping members are caused to move with greater rapidity. In practice the binder is never filled with leaves to the full extent of its capacity of expansion, some space being requisite to enable the leaves to be inserted or removed. After the first effort to release the clamping members from the leaves the clamping members move with much facility. The feature of the curved inner ends of the two sets of guides is therefore of considerable advantage in that the rate of movement of the clamping members is increased at a point where slight effort is required to move them.

It will be noted that the members of each set of oblique guides are somewhat staggered with relation to each other, the purpose being to permit the inner ends of the guides to pass each other to a certain extent, thereby enabling the clamping members to approach each other more closely. This will be understood clearly from Figs. 1 and 2, where the inner ends of said guides are shown projecting over the rod E. In use separation of the back from the clamping members is impossible by reason of the manner in which they are connected, and racking is prevented by reason of the fact that the members a^2 engage the inner surfaces of the flanges b^4. The clamping members therefore are guided accurately, so as to move transversely on the back. Moreover, the connection between the members of each pair of oblique guides tends to prevent racking of the parts.

The improved binder is one of exceeding simplicity for a binder of its character, and the binder possesses inherent strength and facility of operation. It readily will be understood that any suitable cover-sections may be supplied and that any suitable binding-posts may be employed in lieu of the binding-posts shown.

Changes in details of construction within the spirit of my invention may be made. Hence no undue limitation is to be understood from the foregoing detailed description, which has been given for clearness of understanding only.

What I regard as new, and desire to secure by Letters Patent, is—

1. In a binder, the combination of two clamping members, two nuts, a threaded rod, connections between said nuts and clamping members, including oblique guides, and extensible leaf-supports connecting the clamping members in both the opened and closed condition of the binder, for the purpose set forth.

2. In a binder, the combination of two clamping members, two nuts, a threaded rod, connections between said nuts and clamping members including oblique guides carried by said clamping members, and extensible leaf-supports connecting the clamping members in both the opened and closed condition of the binder, for the purpose set forth.

3. In a binder, the combination of two clamping members equipped with oblique guides arranged in pairs, heads movably engaging said guides, actuating means for said heads, and leaf-supports connecting the clamping members in both the opened and closed condition of the binder, for the purpose set forth.

4. In a binder, the combination of two clamping members, two nuts, a right and left threaded rod for moving said nuts, roller-equipped members carried by said nuts, and oblique guides on said clamping members and engaged by the rollers of said nut-carried members.

5. In a binder, the combination of two clamping members equipped with convergent guides arranged in pairs, a member connecting the guides of each pair, means for actuating said last-named members, thereby to actuate said clamping members through the medium of said guides, and leaf-supports connecting the clamping members in both the opened and closed condition of the binder, for the purpose set forth.

6. In a binder, the combination of two clamping members equipped with oblique guides arranged in pairs, each guide having a curved end portion, a member connecting the guides of each pair, and means for actuating said last-named members in two directions, for the purpose set forth.

7. In a binder, the combination of two clamping members equipped with convergent guides, a right and left threaded rod arranged below the plane of said guides, members connecting said guides in pairs, and nuts on said rod and actuating said last-named members, for the purpose set forth.

8. In a binder, the combination of two clamping members equipped with oblique guides arranged in pairs, the members of each pair being staggered with relation to each other, heads movably connected with said guides, and means for actuating said heads, for the purpose set forth.

9. In a binder, the combination of two clamping members equipped with oblique guides arranged in pairs, the members of each pair being staggered with relation to each other, heads movably connected with said guides, and nut-and-screw connection for actuating said heads, for the purpose set forth.

10. In a binder, the combination of two clamping members equipped with oblique guides, a right and left threaded rod equipped with nuts, and oblique members carried by said nuts and movably connected with said guides, for the purpose set forth.

11. In a binder, the combination of two clamping members equipped with oblique guides, members movable toward and away from each other equipped with rollers engaging said guides, and means for simultaneously moving said last-named members toward or away from each other, for the purpose set forth.

12. In a binder, the combination of a back, clamping members connected to slide transversely on said back, oblique guides connected with said clamping members, and actuating means for said clamping members connected with said guides and located beneath the plane of said guides, for the purpose set forth.

13. In a binder, the combination of a back, clamping members slidable transversely on said back and equipped with oblique guides, nuts connected with said guides, and a right and left threaded rod supported by said nuts and serving to actuate the latter, for the purpose set forth.

14. In a binder, the combination of a back equipped on its inner surface near its ends with bridge-pieces having outward extensions, clamping members having end flanges contacting with said extensions, said clamping members being confined between said extensions and said back, oblique guides carried by said clamping members, a rod passing through one of said bridge-pieces and having right and left threads, and nuts on said rod having connection with said guides, for the purpose set forth.

15. In a binder, the combination of a back, clamping members mounted to move transversely on said back, inwardly-convergent guides carried by said clamping members, a right and left threaded rod, and nuts on said rod and connected with said guides, for the purpose set forth.

16. In a binder, the combination of two clamping members, means for adjusting said clamping members with relation to each other, and extensible posts connecting said clamping members and comprising half-cylindrical members connected with one clamping member and having inturned flanges, and pins connected with the other clamping member and recessed to receive said half-cylindrical members and their flanges, for the purpose set forth.

17. In a binder, the combination of two clamping members, an adjusting member movable longitudinally with reference to said clamping members, and connections between said adjusting member and said clamping members, including oblique guides having curved portions, for the purpose set forth.

18. A binder-frame consisting of a back, a longitudinal rod mounted in suitable supports thereon, a traveler adapted to be moved by said rod, longitudinally-immovable jaws movably secured to said frame, cam-grooves and pins common to said jaws and traveler, and supports extending between said jaws when the latter are both opened and closed.

19. A binder-frame having a longitudinal rod mounted in suitable supports thereon, a traveler adapted to be moved by said rod, longitudinally-immovable jaws movably secured with respect to each other, cam-grooves and pins common to said jaws and traveler, and supports extending between said jaws when the latter are both opened and closed.

20. A binder-frame comprising a pair of longitudinally-immovable transversely-slidable jaws, a traveler movable longitudinally of said frame, a suitably-journaled screw serving to actuate said traveler, connections between said traveler and jaws comprising oblique cam-grooves and studs working therein, and extensible binding-posts connecting said jaws in both the expanded and collapsed condition of the binder-frame, for the purpose set forth.

21. A binder-frame, comprising a pair of longitudinally-immovable transversely-slidable jaws having flanges lying in a common plane and post-supporting flanges at substantially right angles to said first-named flanges, extensible binding-posts joining said second-named flanges in both the expanded and collapsed condition of the binder-frame, and actuating means, comprising a traveler movable longitudinally of the binder-frame, and connections between said first-named flanges and said traveler comprising oblique cam-grooves and studs working therein and serving in opening and closing the binder-frame.

HARVEY P. JONES.

In presence of—
HARRY S. JONES,
W. GIFFORD JONES.