

No. 841,081.

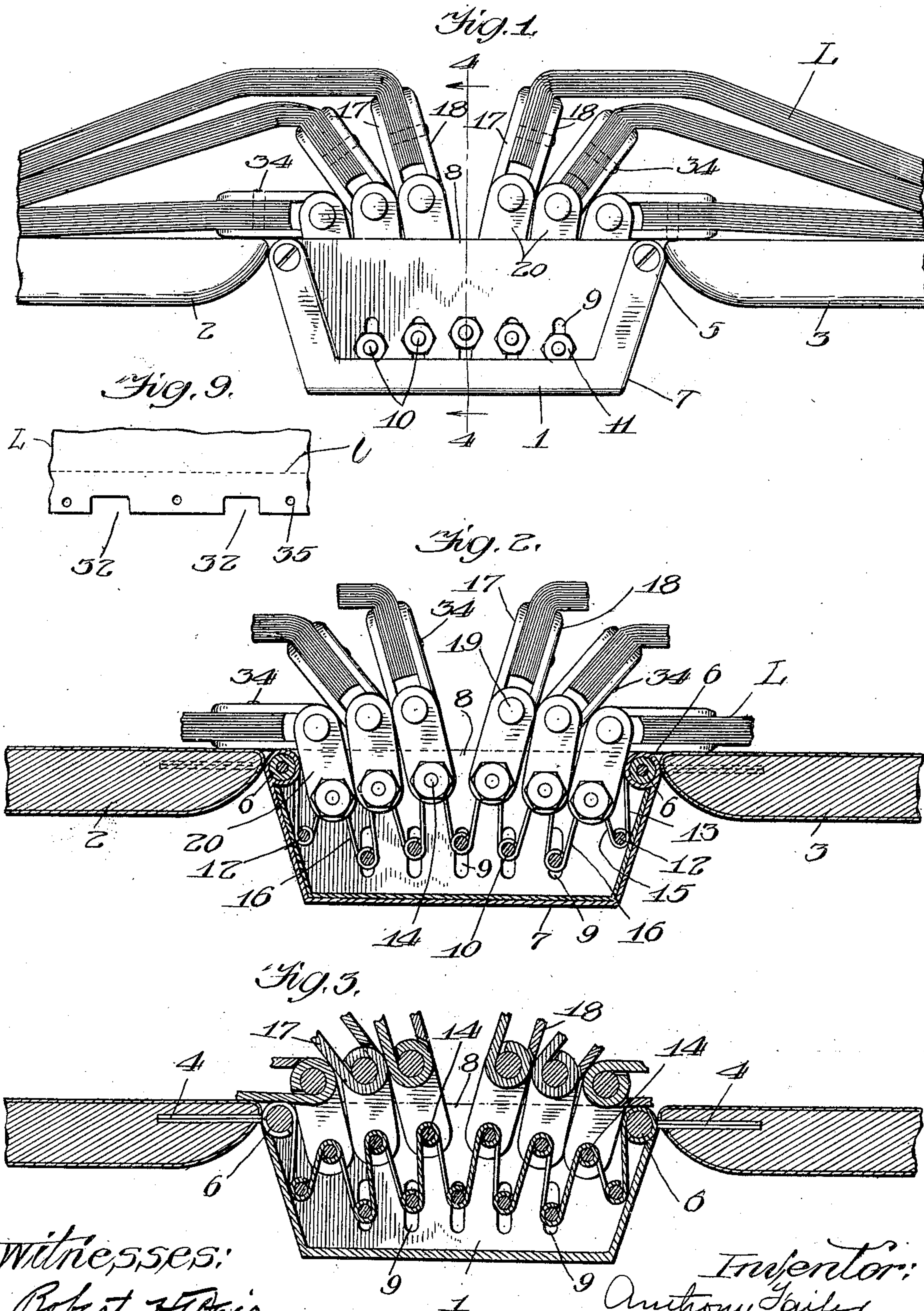
PATENTED JAN. 8, 1907

A. FAIFER.

BINDER.

APPLICATION FILED APR. 3, 1905.

2 SHEETS—SHEET 1



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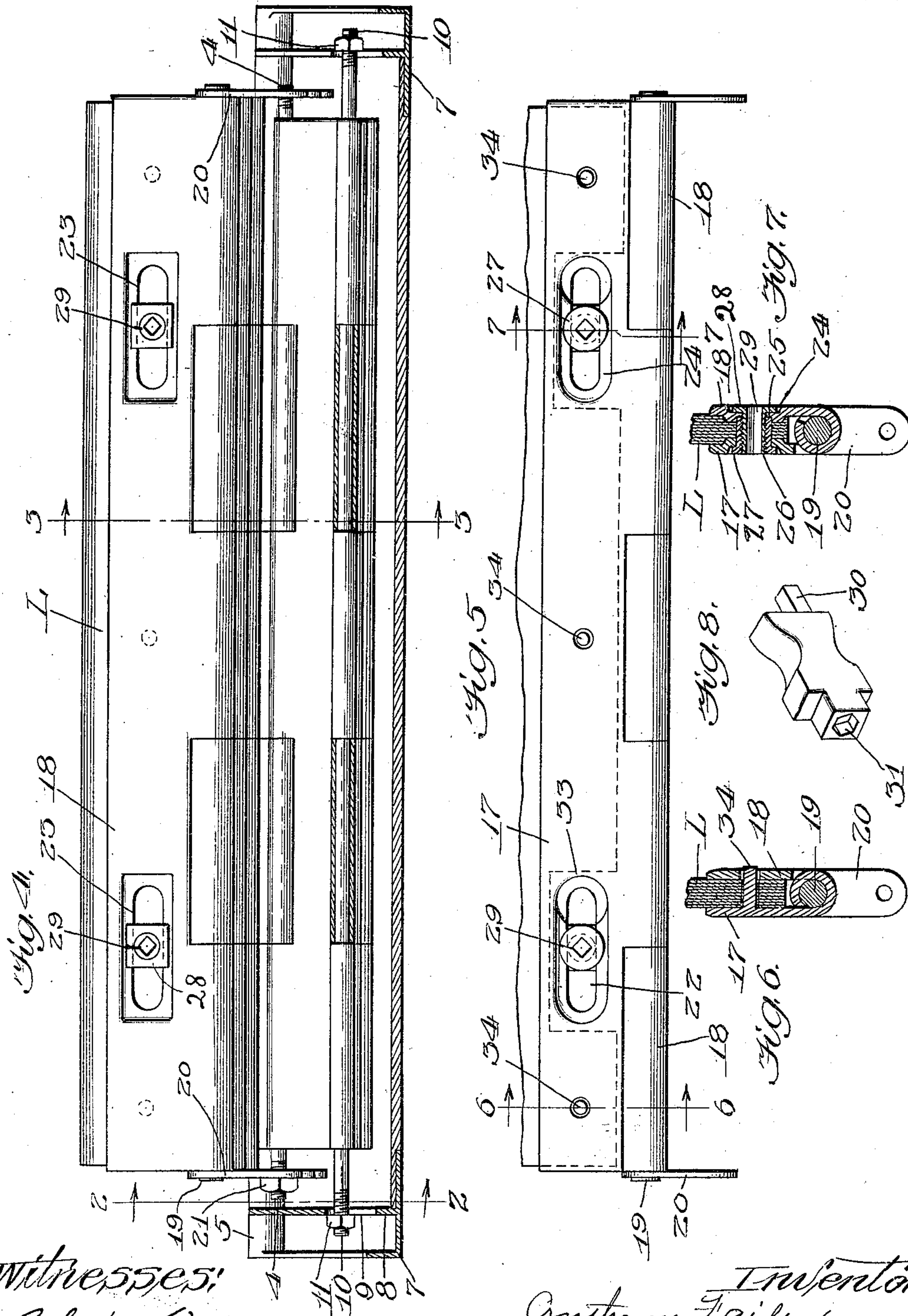
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# UNITED STATES PATENT OFFICE.

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## BINDER.

No. 841,081.

Specification of Letters Patent.

Patented Jan. 8, 1907.

Application filed April 3, 1905. Serial No. 253,400.

*To all whom it may concern:*

Be it known that I, ANTHONY FAIFER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Binders, of which the following is a full, clear, and exact specification.

My invention relates to binders, and more particularly to that class employed for binding loose leaves in separate sections—as, for example, the system employed in loose-leaf ledgers—and it has for its primary object to provide an improved form of binders of this character which shall be “flat opening,” whereby the various sections and the leaves thereof will be present in proper form to be written upon or to be conveniently referred to.

With a view to the attainment of these ends and the accomplishment of certain other objects which will hereinafter appear, the invention consists in the features of novelty in the construction, combination, and arrangement of parts which will now be described with reference to the accompanying drawings and then more particularly pointed out in the claims.

In the said drawings, Figure 1 is an end elevation of a binder constructed according to my invention, showing the same open. Fig. 2 is a cross-section of the binder on the line 2 2, Fig. 4. Fig. 3 is a cross-section on the line 3 3, Fig. 4. Fig. 4 is a longitudinal section on the line 4 4, Fig. 1. Fig. 5 is a detail face view of one of the clamps hereinafter described. Fig. 6 is a cross-section thereon on the line 6 6, Fig. 5. Fig. 7 is a cross-section thereof on the line 7 7, Fig. 5; and Fig. 8 is a perspective view of a key or wrench hereinafter described. Fig. 9 is a detail view of one of the leaves on a smaller scale.

The cover of the binder comprises a back portion 1 and two flat portions 2 3, hinged to the edges of the back portion 1 in the usual or any suitable way—as, for example, by means of a leather fabric or other material of which these elements are composed, but preferably by means of a positive hinge consisting of hinge-leaves 4, secured to or incorporated in the cover members 1 2 and hinge-lugs 5, through which and the leaves 4 pass rods or pintles 6 for pivotally connecting the lugs 5 and hinge-leaves 4 together. The hinge-lugs

5 are formed on or secured to the ends of two plates 7, which are secured to the ends of the back member 1, as better shown in Fig. 4, and which are curved to the same contour as said back member and constitute reinforces therefor, while also forming the means for supporting the mechanism, as will be presently described. Each of these end plates 7 is formed with a web or flange 8, provided with a number of slots 9, extending in a direction perpendicular to the cover when the same is open or flat in the position shown in Fig. 1, and in each of these slots is arranged one end of a rod or pin 10, extending throughout the length of the back 1 and provided on both ends with some suitable means for holding it in place or against longitudinal movement, such as nuts 11, abutting against the outer faces of the flanges 8.

The rods 10 are arranged in a row across the back 1, as shown in Figs. 2 and 3, and at each end of the row and parallel with the rods 10 is arranged an additional rod 12, similar to the rods 10; but instead of being arranged in slots like the rods 10 they are rigidly fixed in the end plates or flanges and are also pivoted to the lower ends of links 13, which are pivoted at their upper ends to the rods 6 and at their lower ends to the rods 12. Arranged above the series of rods 10 12 is another row or series of rods 14, extending parallel with the first series and in a row across the back, and each of these rods 14 is connected to two of the rods belonging to the series 10 12 by means of links or hinge-leaves 15 16 in such a manner that the two series of rods will be flexibly linked together, whereby the rods 10 12 may rise and fall with relation to the back, and the rods 14 may make a similar movement, as well as move transversely. Each of the rods 14 is flexibly connected to one of the various leaf-clamps for holding the different sections of leaves, and these leaf-clamps are themselves flexible on axes extending lengthwise of the back or substantially parallel with the rods 14, so that when the book or binder is open they may bend individually and permit the leaves to lie substantially flat. In accomplishing this result I employ leaf-clamps each of which is composed of two clamping-jaws 17 18, which are hinged together along their inner edges by means of rods or pintles 19, and the ends of these rods or



pintles are connected to the rods 14 by means of links 20, one at each end of each of the rods 19, in such a way that each pair of jaws will have one of the links 20 at each end connecting it to one of the rods 14, and the rods 19 will be entirely independent of the rods 10 12, except for their flexible connection therewith, constituted by the hinge-leaves 15 16 and the links 20. The clamping-jaws 17 18 and the rods 19 are shorter than the distance between the end flanges 8, as shown in Fig. 4, so that when the book or binder is closed, permitting or causing the rods 10 to slide downwardly in their slots 9, the ends of the rods 14 may, if necessary, pass downwardly behind the flanges 8, and at least one end of each of the rods 14 is provided with a nut 21, whereby the rod may be withdrawn should it be desired to remove any one of the sections of leaves L without unclamping them.

The cover members 2 3 are so positioned with relation to the proportions of the leaves 13 15 and the position of the end rods 14 that when the binder is open in the position shown in Figs. 1 to 3 the links 20, contiguous thereto, will hold the two end clamps in such a position that they will lie flat or substantially flat against the inner faces of the cover members 2 3, as shown in these figures of the drawings, and the flexible connections between the clamps will permit the succeeding clamps of the series to rise sufficiently to lie substantially flat one upon the other, whereby the leaves 12 will also be substantially flat and in a position suitable to be written upon and convenient for reference. In order that the rods 10 may rise and fall different distances for thus permitting the different clamps to rise and fall as the binder is opened and to assume the described horizontal or flat positions, the slots 9 are graduated any length, so that the rods 10 will assume an arching form when the binder is open and the clamps are lying flat. It is of course understood, however, that this variation in the length of the slot is immaterial so long as the intermediate slots are of sufficient length or height to permit of the arching formation of the rods 10, since the links 15 will hold the end rods belonging to the row of rods 10 from rising beyond a certain height, whether their slots be elongated or not, the end rods 12 being fixed in the flanges 8, as before described.

The jaws 17 18 of the clamps are provided with longitudinal registering slots 22 23, respectively, each surrounded by a countersink 24, and passing through these slots are pins or bolts of any suitable construction capable of clamping the jaws together, but preferably consisting of two sleeves 25 26 screwed one into the other and each having a flange or head at its outer end resting against one of the jaws and in one of the countersinks. This flange on the sleeve 25 is shown at 27 as a plain round flange capable

of rotating at any point in the countersink 24, while the other flange or head 28 is squared, so as to fit the countersink and hold the sleeve 25 against rotation. The inner sleeve 26 is provided with a wrench-socket 29 for the application of any suitable key or wrench 30, whereby the two sleeves may be unscrewed when it is desired to release the clamp and remove the leaves L, the countersink 24 serving the twofold purpose of making the flanges 27 28 flush with the faces of the clamps and of holding the sleeve 25 against rotation when the clamping-jaws are being loosened or tightened by means of the wrench 30. One end of the wrench 30 is provided, if desired, with an additional wrench 31, adapted to fit the nuts 11 21.

The leaves L, as shown in Fig. 9, are provided with notches 32 for the passage of the sleeves 25 26, and these notches are elongated to permit the sleeves to pass the full length of the slots 22 23, one of which is provided with an enlargement 33 of sufficient size to permit the round head or flange 28 to pass through it, thus providing for the insertion thereof without entirely separating the sleeves in the act of separating the jaws sufficiently to permit the leaves to be withdrawn. The jaws are also provided with pins 34, which are secured to one of the jaws of each pair and pass through the other jaw of that pair and also through perforations 35 in the leaves. In inserting the leaves they are first placed over the pins 34 and the jaws closed upon them. The round head 28 of the sleeves is then inserted through the enlargement 33, assuming that the sleeves have already been screwed together and placed in the plain slot 23. The sleeves are then slipped along the slots 22 23 away from the enlargement 33 and screwed tightly together.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In a binder the combination with a cover comprising a back, of a series of flexible leaf-clamps movable bodily with relation to said back, and means for limiting said movement.

2. In a binder the combination of a cover comprising a back, a series of leaf-clamps flexibly linked together across said back, means for attaching the ends of the series to the cover, and means for limiting their outward movement.

3. In a binder the combination of a cover comprising a back, a series of leaf-clamps flexibly linked together across said back and movable outwardly with relation thereto at the intermediate part of the series, the ends of the series being attached to the cover and means for limiting said outward movement in relation to the back.

4. In a binder the combination of a cover comprising a back, a series of leaf-clamps,



guide-rods, said clamps being flexibly linked to said rods, and means for attaching the ends of the series to the cover.

5 In a binder the combination of a cover comprising a back, a series of leaf-clamps flexibly linked together and being individually flexible on axes extending lengthwise of the back, and means for limiting the outward movement of said clamps with relation  
10 to the back.

6. In a binder the combination of a cover comprising a back, a series of leaf-clamps flexibly linked across the back, pins projecting from said leaf-clamps and plates secured  
15 to the back and having slots in which said pins engage.

7. In a binder the combination of a cover comprising a back, a series of rods or pins extending lengthwise of the back, a pair of  
20 clamping-jaws hinged to each of said pins or rods, a second series of rods extending parallel with the first said series, means for fixing the end rods of the second series with relation to said back, and hinge-leaves connecting each of the rods of the first series  
25 with two of the rods of the second series.

8. In a binder the combination of a cover comprising a back, a series of rods or pins extending lengthwise of the back, a pair of  
30 clamping-jaws hinged to each of said rods, a second series of rods extending parallel with the first said rods, means for fixing the end rods of the second series with relation to the back, hinge-leaves connecting each of the  
35 rods of the first series with two of the rods of the second series, and slotted end plates in which the ends of the rods of the second series engage for limiting the outward movement of the clamping-jaws.

40 9. In a binder the combination of a cover comprising a back, a curve or offset from the plane of the inner face of the cover when the cover is open, a series of clamping-jaws flexibly hinged together across the back with the  
45 end jaws of said series so positioned with relation to the back and the cover that when the cover is open said jaws will lie substantially flat against the inner face of the cover, and means for limiting the outward movement of the jaws.  
50

10. In a binder the combination of a cover,

a clamp for holding a section of leaves, comprising two jaws hinged together and having registering slots, one of which is enlarged at one end, a flanged pin passing through said  
55 registering slots for clamping the jaws together, a nut having screw-threaded connection with said pin and adapted to press against one of the jaws, and means for attaching said clamp to the cover. 60

11. In a binder the combination of a cover, a leaf-clamp comprising two hinged jaws having registering slots and said jaws being countersunk around the edges of said slots, a  
65 pin passing through said slots and having a flange on one end seated in the countersink of one of said jaws and a nut screwed on the other end and seated in the countersink of the other of said jaws, and means for attaching said clamp to the cover. 70

12. In a binder the combination of a cover, a leaf-clamp comprising two hinged jaws having registering slots enlarged at one end and countersunk around their edges, a pin  
75 passing through said slots and having squared head on one end fitting in the countersink in one of said jaws and a nut on the other end fitting in the countersink in the other of said jaws and adapted to pass through said enlargement, and means for attaching said  
80 clamp to the cover.

13. In a binder, the combination of a cover comprising a back, a series of rods movably mounted on the back, a series of leaf-clamps and interposed members engaging  
85 said clamps and rods to form flexible connections therebetween, said clamps being independently movable about their points of engagement with the members.

14. In a binder, the combination of a  
90 cover comprising a back, provided with a plurality of guideways, a series of rods mounted and movable within said ways, a series of leaf-clamps, and links pivotally connecting the clamps and rods, said clamps being movable independently of the rods, and said rods  
95 and clamps being both movable with relation to the back.

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