

No. 683,176.

Patented Sept. 24, 1901.

F. M. HO-GLEN.
BINDER.

(Application filed Oct. 16, 1900.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.

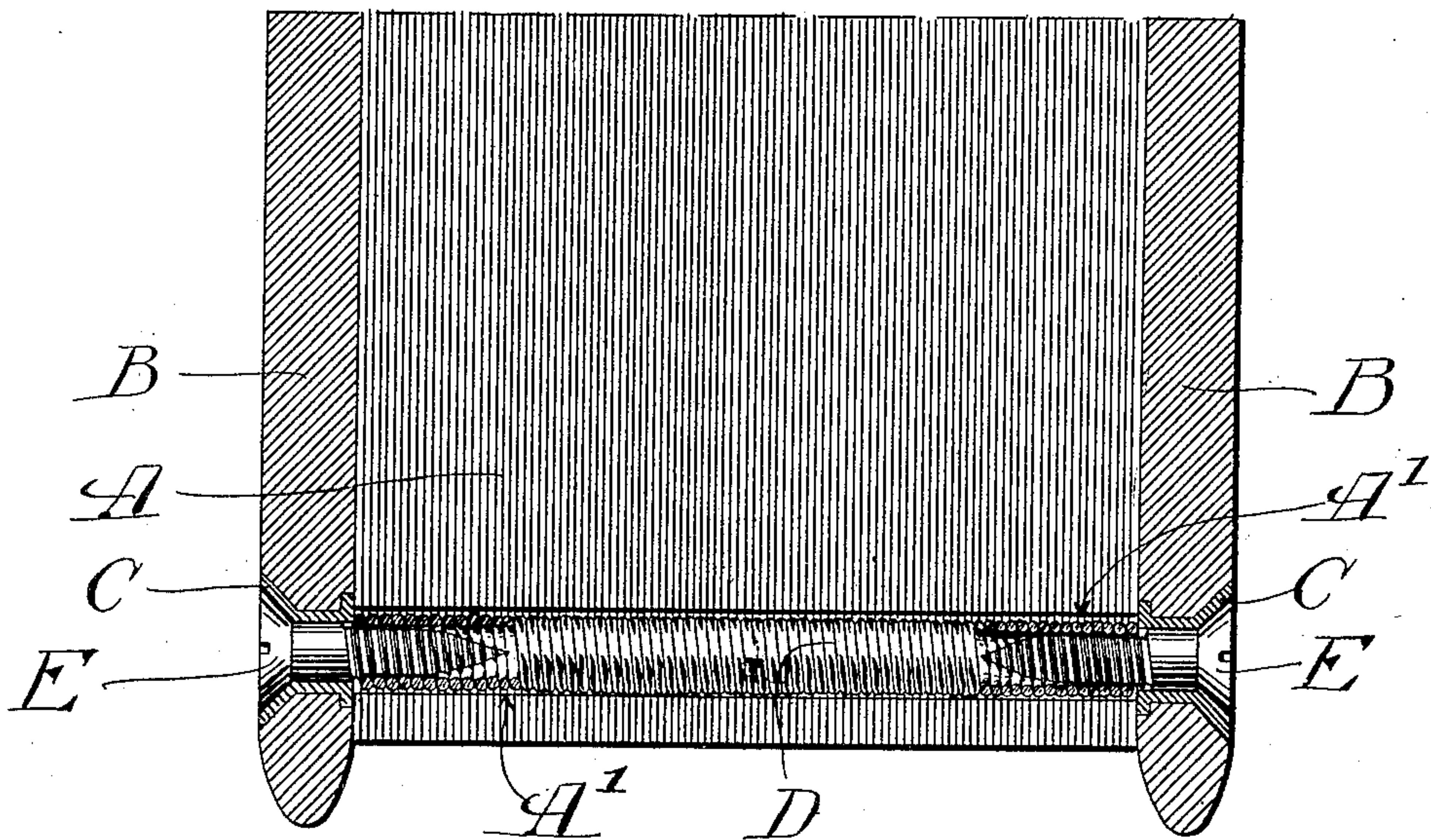
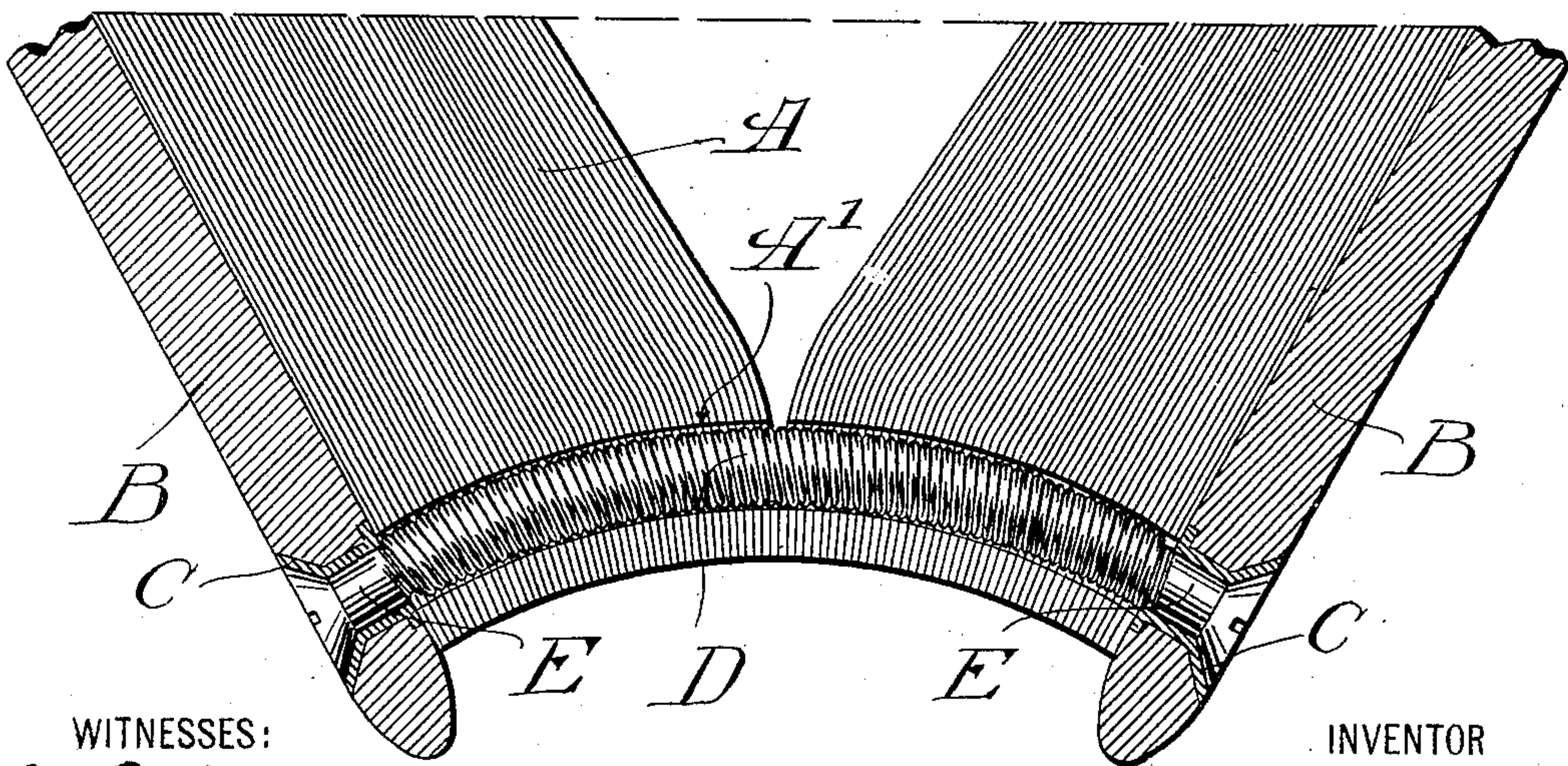


Fig. 2.



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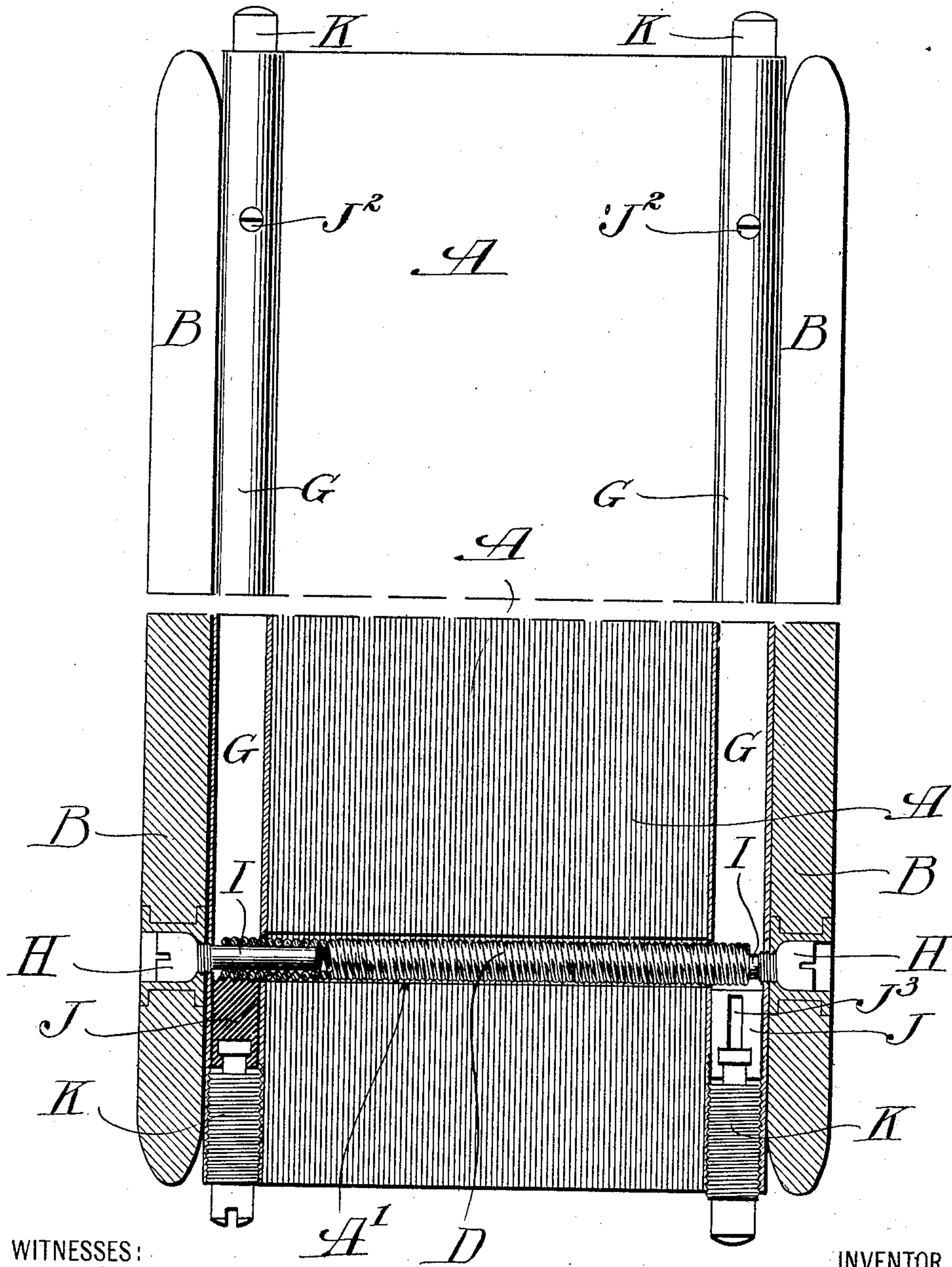
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Fig. 3.



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3 Sheets—Sheet 3.

Fig. 5.

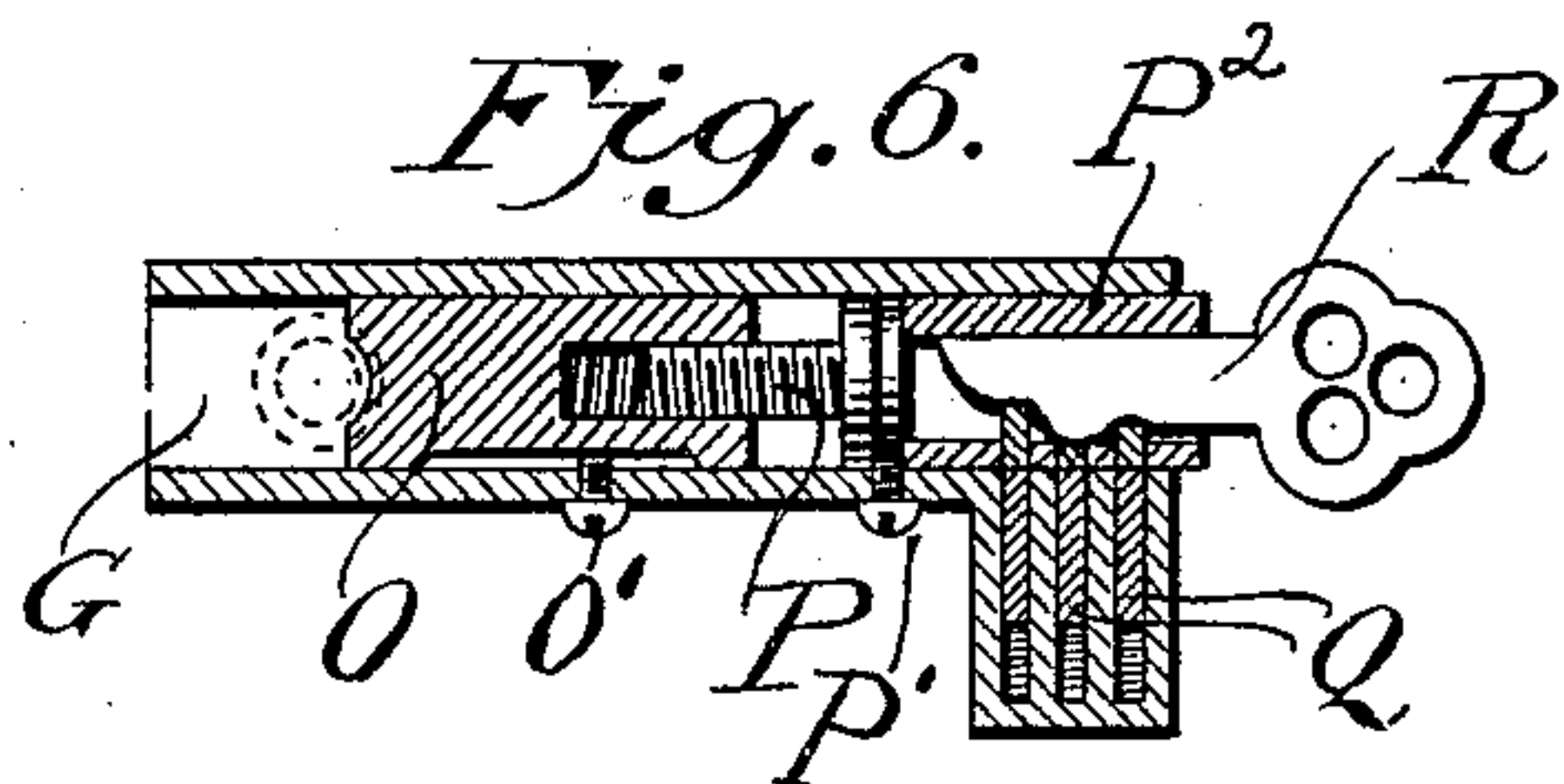
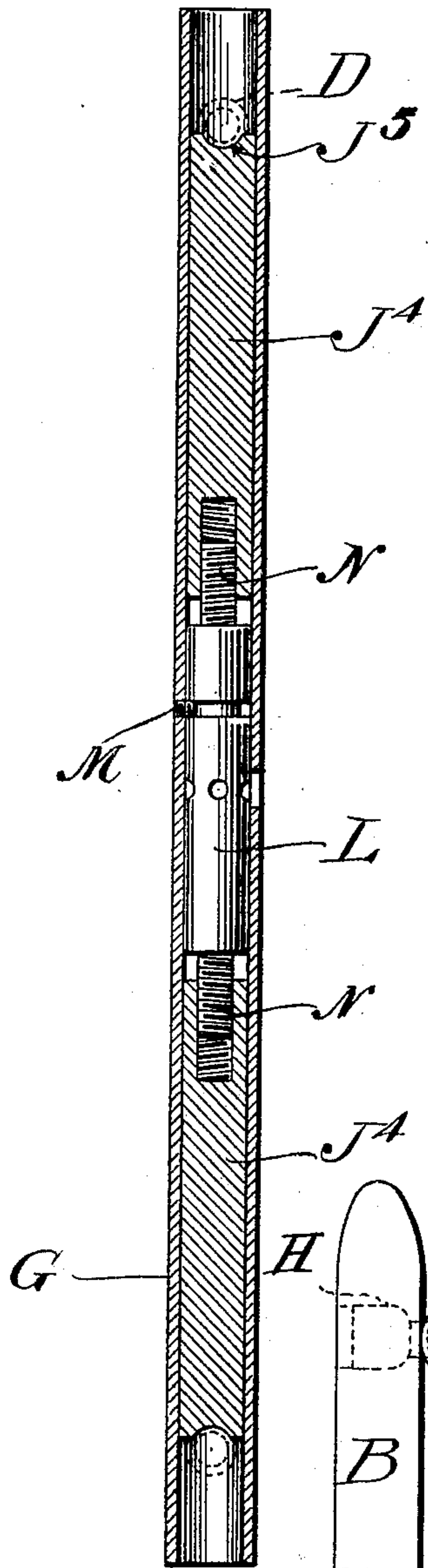


Fig. 7.

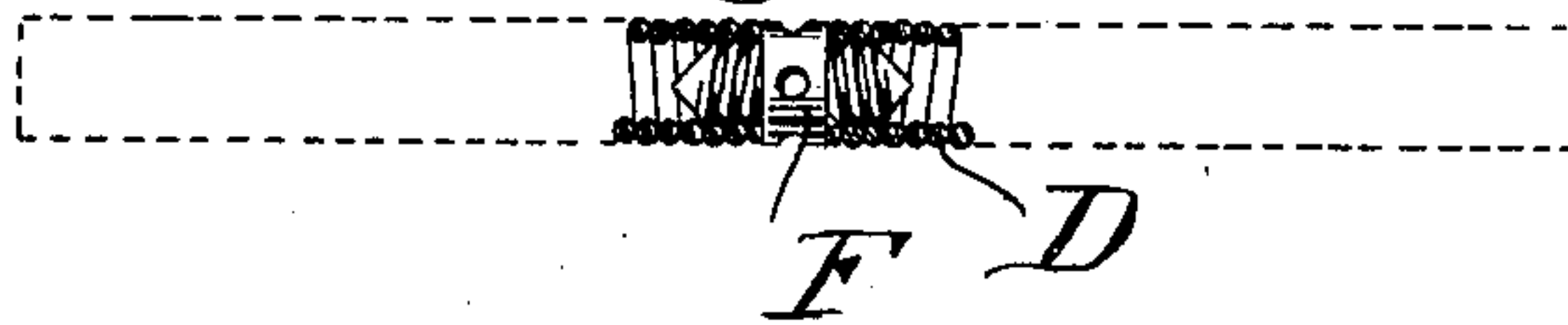


Fig. 8.

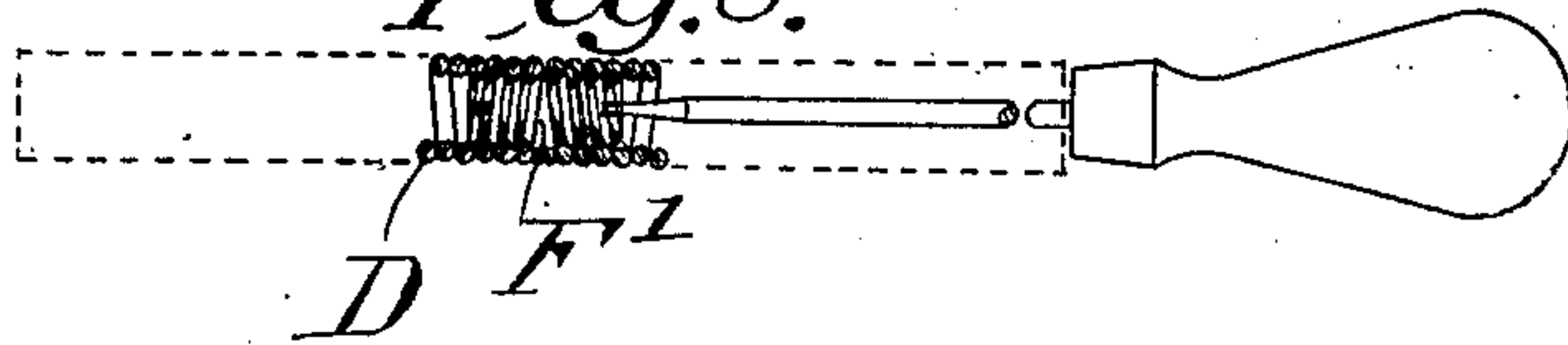
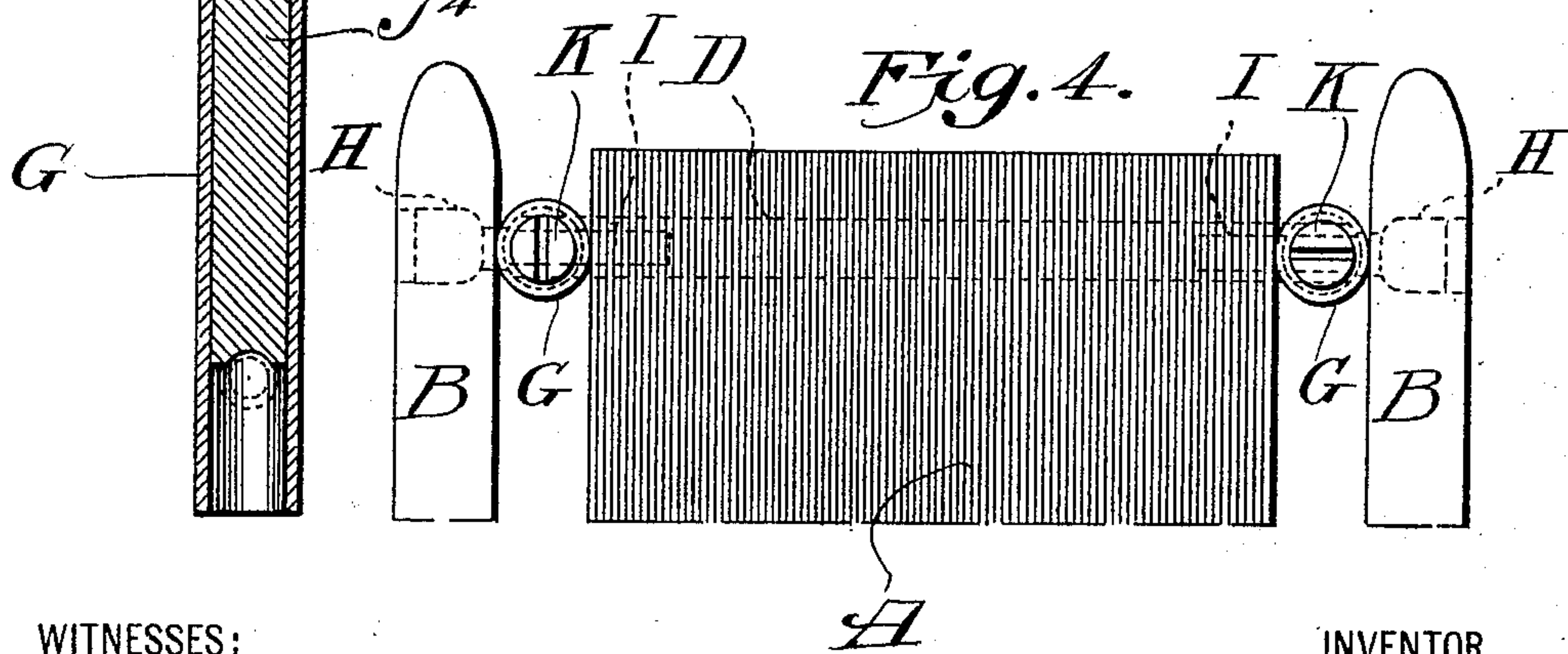


Fig. 4.



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FRANK MARSHALL HO-GLEN, OF NEW YORK, N. Y.

BINDER.

SPECIFICATION forming part of Letters Patent No. 683,176, dated September 24, 1901.

Application filed October 16, 1900. Serial No. 33,240. (No model.)

To all whom it may concern:

Be it known that I, FRANK MARSHALL HO-GLEN, a citizen of the United States, residing at New York city, New York, have invented certain new and useful Improvements in Binders, of which the following is a full, clear, and exact description.

My invention relates to binders, and especially to a device for binding together a number of leaves in such manner that any leaf may be inserted at any point or removed at ease.

One of the objects attained in this invention is the flexibility of the binding device, whereby the book may be opened out flat without danger of tearing the leaves at their point of fastening and allowing the use of a narrow margin near the point of fastening.

Further desirable objects—such as simplicity, economy of manufacture, durability, ease of application, and effectiveness of operation—are attained, which will be fully disclosed hereinafter.

In the drawings, Figure 1 is a sectional view showing my device binding together a number of sheets to form a book. Fig. 2 is a similar view showing the book partially opened. Fig. 3 is a view of the back of a book, partly in section, showing a modification of my device. Fig. 4 is an end elevation of a portion of a book having its leaves bound together with the modification shown in Fig. 3. Fig. 5 is a detail view of a modification. Fig. 6 is a detail view. Figs. 7 and 8 are detail views of modifications.

Referring to Fig. 1, A represents a number of leaves having perforations A'. B B are suitable covers, preferably having eyelets C C. D is a binding-post, in this embodiment a spiral spring, which passes through the perforations A'. E E are screws which pass through the eyelets C C and engage with the ends of the spring D, the coils of which furnish a natural thread for the screws. One of these devices just described would be sufficient to fasten the sheets together; but in order to hold the sheets in book form it is desirable to have two or more of the devices arranged at suitable points to hold the leaves in alinement.

When it is desired to insert or remove a sheet at a particular point, the book is laid on

its side, and the screws E, which pass through one cover, may be unscrewed from the springs D. The cover may then be lifted and the desired sheet inserted or removed. My device is so constructed that a sheet may be inserted or removed with equal facility from either side. For instance, if it were desired to remove a leaf lying closer to one cover than the other the screws passing through the nearest cover would be removed and the cover lifted and withdrawn, whereupon the desired sheet could be then conveniently withdrawn. By the employment of the spring D, I am enabled to produce a much more efficient and at the same time cheaper binding-post than has heretofore been produced, for the reason that no threads are required to be cut to receive the fastening devices, as the coils of the spring serve as threads to receive the threads of the screw, and the spring, such as D, may be very quickly and cheaply made. It is of course not necessary to employ the eyelets C C if the covers are of material strong enough to properly hold the heads of the screws.

An important advantage of this binder is its flexibility due to its spring-post, (see Fig. 2,) which permits the book to be opened out flat and the leaves to lie in a very easy position without undue straining and consequent tearing at the perforations. When the book is opened, the user may readily see close up to the bound edge of each leaf. The operation of replacing any temporarily-detached leaves is rendered very easy, as the flexible post will yieldingly thread its way through the successive perforations in the papers that it is desired to replace.

It might be thought that when the book was opened the spring being bent would allow the leaves to slip down into the open spaces between the coils and become wedged; but such is not the case. As will be seen by referring to Fig. 2, when the book is opened the lower edges of the sheets become tightly wedged together, owing to the drawing together of the lower edges of the covers B B. This wedging action serves to press upwardly the middle leaves, and thus bring the lower portion of the perforations against the side of the spring on which the coils are compressed.

It may be desirable to have certain por-

tions of the spring stiffer than others, and, as shown in Figs. 1 and 2, the portions of the spring D which are in engagement with the screws E E are prevented from bending.

5 Therefore the leaves adjacent those portions of the spring do not become wedged between the coils, while in the middle portion of the book the wedging action on the bottom is sufficient to keep the leaves pressed upwardly.

10 Fig. 7 shows a right and left spring united by a double bolt F, having a right and a left thread to take into the relatively corresponding coils of the springs. The operation of this device is apparent. The bolt F is simply

15 turned two or three times until the threads are disengaged from the springs, whereupon one-half of the book may be lifted off and the desired sheet extracted from the portion which it is in. To facilitate turning, this bolt may

20 be made with a capstan-head, as shown, and should it for any reason turn with difficulty a pin or bar may be inserted in the holes to give the required leverage.

Fig. 8 shows a modification of Fig. 7, the

25 bolt F' being slotted to receive a screw-driver. Of course when such construction is employed one of the screws in a spring will have to be removed in order to permit the insertion of a screw-driver.

30 I do not wish to be confined to the exact method of securing the springs D to the covers B, and while the method just described is simple and convenient it may in some instances be desirable to apply this device in

35 various other ways, one desirable method being that illustrated in Figs. 3 and 4, in which tubes G G are screwed to the inner sides of the covers B B by means of fastening-screws H H. These screws H H may have suitable

40 extensions I, which may serve as supports for the spring D. J J are slidable blocks having in one end screw-threads adapted to engage with the outside of the coils of the spring D, while to their other ends screws K K are pivotally attached, the blocks J being prevented

45 from rotation by means of a screw J² bearing in a slot J³, formed in the block J. The ends of the tubes G are threaded to receive the screws K K. Either of the covers may be

50 removed by turning the screws K, which operation withdraws the blocks J from engagement with the end coils of the spring D, allowing the cover and attached tube G to be withdrawn. One advantage of this construction

55 is the reduced contact of the cover with the leaves at the point where the leaves are attached, thus obviating much of the pressure at the back of the leaves when the book is open and allowing a perfect view of the

60 inside edge of the page. Referring to Fig. 4, it is apparent that when the covers are swung open their short ends will be prevented from bearing against the short sides of the leaves on account of the interposition of the tubes

65 G. In this form, however, the wedging effect upon the leaves when the book is opened is to hold the leaves in proper places. After

the cover has been removed the spring D may be unscrewed from the lower block J, (see Fig. 3,) provided the lower screw K has not

70 been too tightly screwed to the spring D. In ordinary use I have found that it is preferable to adjust the blocks J so that when one cover is removed it will be possible to turn the spring-post with the fingers. Inasmuch

75 as the operator usually turns both screws K at the same time, one with each hand, the screws K may be provided with right and left threads. I intend that the screws K may be operated by the fingers; but should it be

80 necessary to use additional power they may be provided with slotted ends, so that a screw-driver or any convenient medium, such as a thin coin, may be used.

Fig. 5 shows a modification in which the

85 blocks J⁴ J⁴ correspond in function to the blocks J in Fig. 3, L being a revoluble bolt, which may be held from longitudinal movement by a screw M and having right and left screw-threaded ends N N, which take

90 into corresponding screw-threaded openings in the blocks J⁴ J⁴. By turning the bolt L the blocks J⁴ J⁴ are either advanced or retracted. The free ends J⁵ of the blocks J⁴ J⁴

95 may be provided with screw-threads which may take against the coils of the spring D. The advantage of this construction is that the movement of one bolt only is necessary to free both spring-posts.

When it is desired to lock the screw K from

100 rotation, a device such as is illustrated in Fig. 6 may be employed, in which O is a slidable block having one end adapted to bear against and secure the end coils of a spring

105 D. This block O is prevented from turning in the tube by means of a pin or set-screw O', which may project into a slot in the block, as shown. P is a screw operative in the tube, and by reason of the pin or set-screw P' acting in a slot in the head of the screw P it is

110 prevented from any but a rotary movement. The head P² of this screw is adapted to receive a key R. A key of the proper conformation and relation with the tumblers Q

115 may be inserted and turned, and thus the block may be moved forward or backward at will. The employment of this device need not affect the appearance of the book, as the enlargement which carries the pin-tumblers

120 Q Q may lie out of sight and quite concealed between the covers and the body of the book.

It is obvious that the tube G might be made quite short, one for each corner, and a rod of any cheap and light material, such as

125 wood, inserted in the ends to prevent the tubes from turning upon the screws H and to secure the necessary alinement. This construction would replace the metal in the middle portion of the tube G and lighten the book

130 materially.

As the number of leaves between the covers B B are increased the screws E may be gradually withdrawn to give increased capacity, and obviously as leaves are removed the

screws may be set up and the covers drawn toward each other.

In the application of this device the user may be supplied with spring-posts and screws of different lengths adapted to go with the size of the book he intends using. The device may be readily handled or carried and easily applied by nearly any one.

It will be seen that the device is quite inconspicuous and neat, there being no projections on the outside surface of the cover to mar the desk, and when the tubes G are employed they are concealed by the covers.

It will be obvious that many changes may be made in the construction herein disclosed without departing from the spirit of the invention as defined in the claims.

What I claim is—

1. In a binding device in combination, an elastic post for holding loose sheets, covers, and means for securing said covers to said post.

2. In a binding device in combination, an elastic post for holding loose sheets, covers, and means for detachably securing said covers to said post.

3. In a binding device in combination, an elastic post for holding loose sheets, screw-threads on the ends of said post, covers, and fastening devices attached to said covers and engaging the threads of said post.

4. In a binding device in combination, an elastic post for holding leaves, screw-threads on the ends of said post, covers, and clamping devices attached to said covers detachably engaging the threads of said post.

5. In a binding device in combination, an elastic post for holding leaves, covers, and clamping devices attached to said covers detachably engaging said post.

6. In a binding device in combination, an elastic post for holding leaves, a cover, and a clamping device detachably secured to said cover, and engaging said post.

7. In combination, a spiral spring-post for a binding device, a cover, a clamping device

mounted on said cover adapted to engage the ends of said post.

8. In a binding device in combination, elastic posts for holding leaves, covers and means for removably attaching each of said covers to said posts.

9. In a binding device in combination, an elastic post for holding loose sheets, a cover, a slidable clamping device mounted on said cover and in detachable engagement with said post, and means to control said clamping device.

10. In a binding device in combination, an elastic post for holding loose sheets, a cover, a slidable clamping device mounted on said cover and in detachable engagement with said post, and a screw to control said clamping device.

11. In a binding device in combination, a flexible post for holding leaves, a cover, a projection carried by said cover and extending into the end of said post, and a clamping device carried by the cover and engaging said post adjacent said projection.

12. In a binding device in combination, an elastic post for binding loose sheets, a cover, a clamping device attached to said cover and in detachable engagement with said post, and key-operated means for moving said clamping device.

13. In a binding device in combination, a spiral spring-post for holding loose sheets, covers, and means for securing said post to said covers.

14. In a binding device in combination, an elastic post for holding loose sheets, covers, means for securing said covers to said post, and means for varying the length of said post.

Signed at New York, N. Y., this 15th day of October, 1900.

FRANK MARSHALL HO-GLEN.

Witnesses:

GEORGE T. HACKLEY,
L. VREELAND.