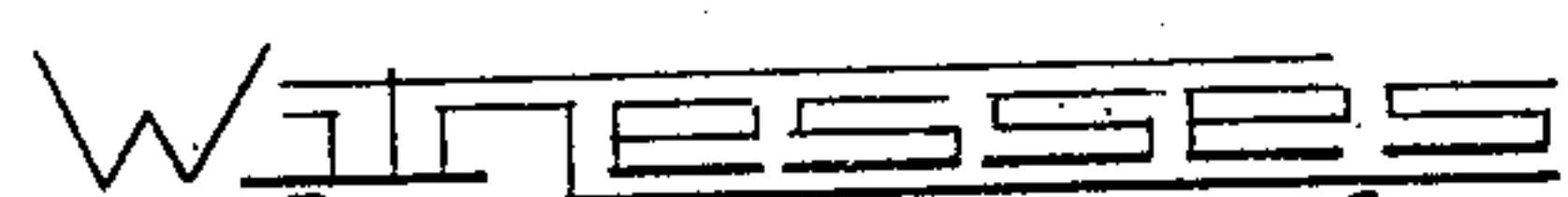


APPLICATION FILED JUNE 26, 1908.

Patented Apr. 25, 1911.

2 SHEETS—SHEET 1.



# Inventory

Ralph B. Wilson.

Charles W. Rice, Atty.

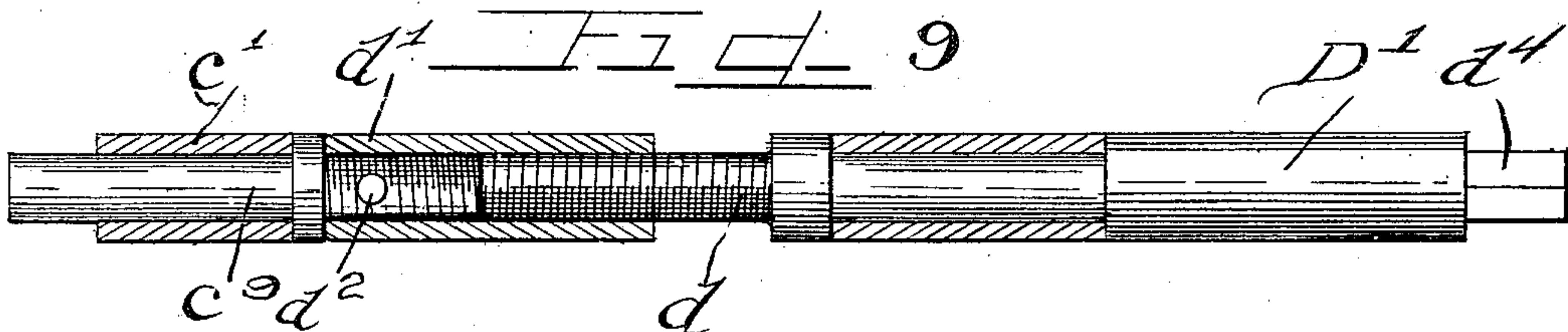
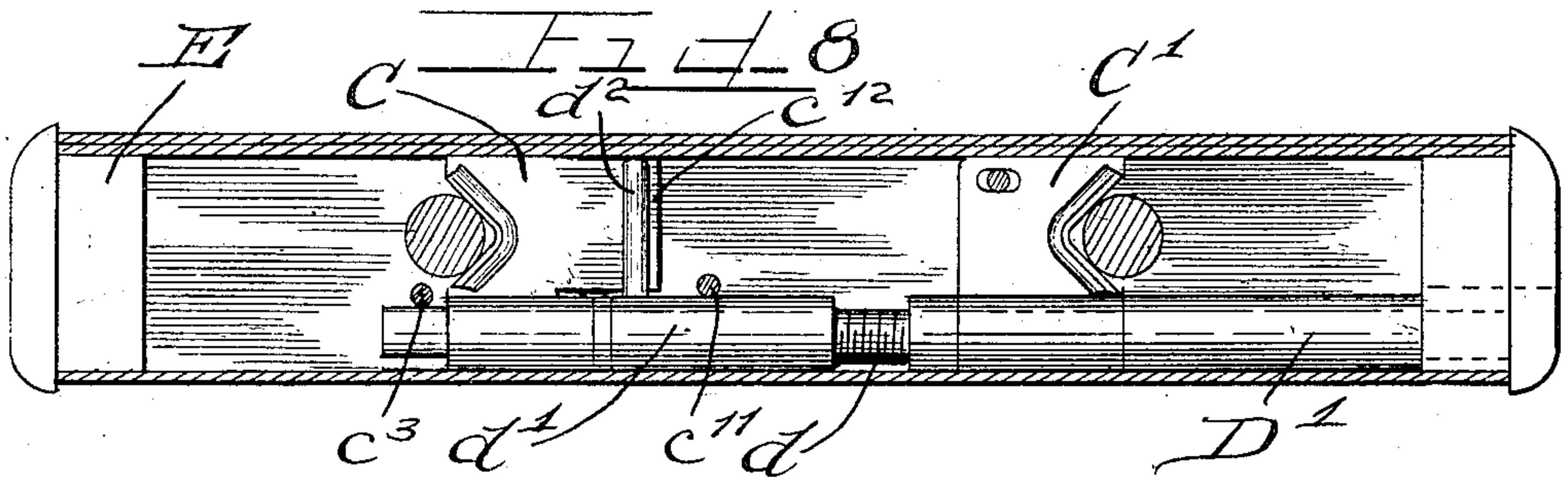
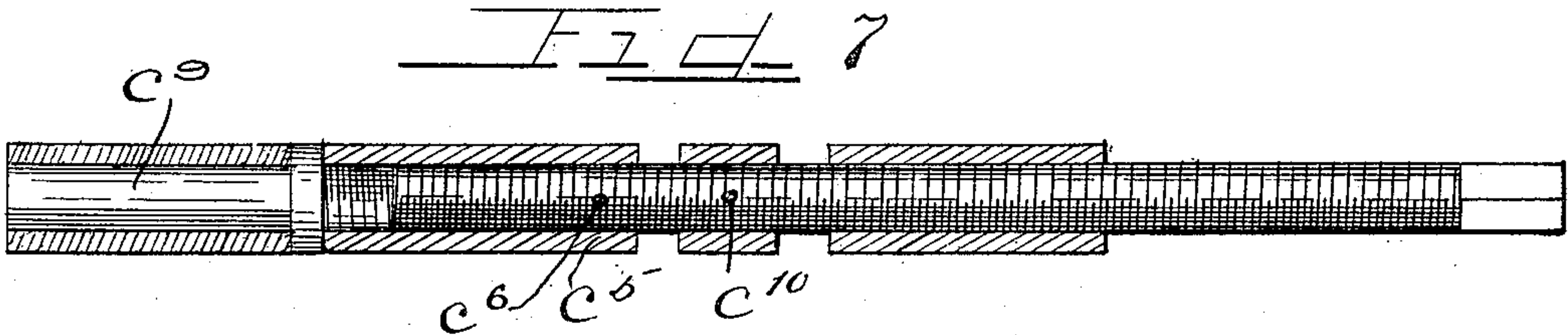
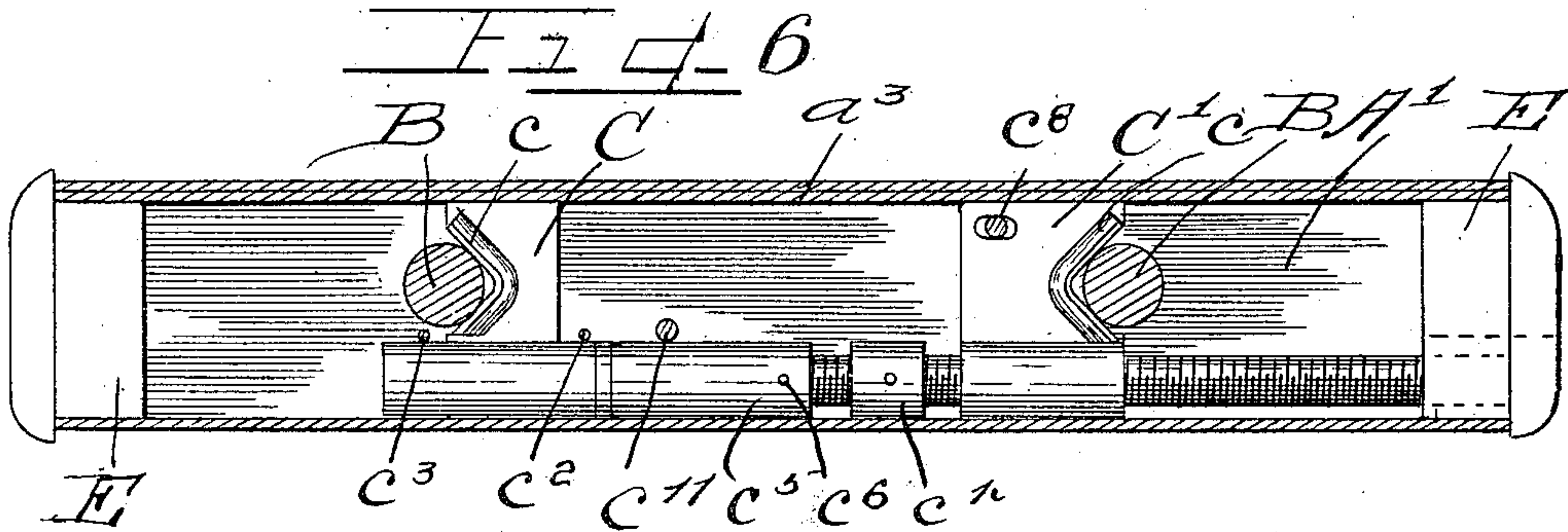
R. B. WILSON.  
LOOSE LEAF BINDER.

APPLICATION FILED JUNE 26, 1908.

990,324.

Patented Apr. 25, 1911.

2 SHEETS—SHEET 2.



WITNESSES

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# UNITED STATES PATENT OFFICE.

RALPH B. WILSON, OF CHICAGO, ILLINOIS.

LOOSE-LEAF BINDER.

990,324.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed June 26, 1908. Serial No. 440,462.

*To all whom it may concern:*

Be it known that I, RALPH B. WILSON, a citizen of the United States, and a resident of the city of Chicago, Cook county, 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 more particularly to that class of loose leaf binders set forth in my prior application for patent for "loose leaf binders", filed on the 26th day of Sept. 1907, Serial No. 394,743. In the construction set forth in said prior application for patent the locking members or bolts were physically connected by means of an actuating rod or shaft, the action of which was to impel the locking members or bolts oppositely to engage or disengage the impaling posts. This, in some instances, operates to a disadvantage for the reason that inasmuch as both the locking members are engaged upon the actuating shaft, which lies at one side of the impaling posts, the tendency is to clamp or spring the shaft particularly at the inner end thereof, sometimes resulting in ruining the locking mechanism, and of course, rendering the device inoperative.

The object of this invention is to afford a locking mechanism adapted for use to rigidly engage the upper clamping plate on the impaling posts in any desired adjusted position and to rigidly hold the same in such position until the locking members are released from the post.

It is a further object of the invention to afford in a device of the class described oppositely movable locking members or bolts both of which are actuated from a single actuating shaft, which is physically connected with but one of the locking members, thus enabling the maximum pressure to be applied upon the shaft in locking without possibility of springing the shaft.

It is further an important object of the invention to afford in a device of the class described oppositely movable locking members both actuated by a common shaft, one of which is engaged on the shaft and the other of which is physically un-connected

therewith, but pressed longitudinally of the binding plate thereby.

It is further a very important object of the invention to afford a locking member adapted for use in binders of the class described and adapted for use without change in connection with any of several diameters of impaling posts in each instance acting to rigidly lock the clamping plate on the impaling posts at any adjusted position.

Finally it is an object of the invention to greatly cheapen and simplify constructions of the class described and to afford a more effective and simpler mechanism than has heretofore been possible and to obviate any tendency to deformation or springing of the operating parts.

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 central longitudinal section taken through the clamping and binding plates, and showing the impaling posts and locking mechanism in elevation. Fig. 2 is an enlarged horizontal section of the clamping plate and impaling posts and showing the locking mechanism in plan. Fig. 3 is an enlarged section taken on line 3—3 of Fig. 2. Fig. 4 is an enlarged section taken on line 4—4 of Fig. 2. Fig. 5 is an enlarged view in elevation of the actuating shaft and showing parts of the locking members or bolts in section. Fig. 6 illustrates a construction practically identical with the construction shown in Figs. 1 to 5 inclusive, with the exception that the actuating shaft is threaded for its entire length. Fig. 7 is a sectional view of the same similar to Fig. 5. Fig. 8 is a view similar to Fig. 2 and illustrating a slightly modified construction. Fig. 9 is a view similar to Figs. 5 and 7 and illustrates the construction of the actuating shaft shown in Fig. 8.

As shown in the drawings: A, indicates the binding plate, which may be constructed in any suitable manner and on which at suitable intervals apart are engaged impaling posts B, which may be engaged to the binding plate as preferred. Said impaling posts may be constructed each of one piece of the desired length, or may be constructed in detachable sections in a well known manner, if preferred, and slidable thereon is a clamping plate A', which, as shown, is constructed



of a sheet of metal of suitable width rolled or folded to afford a tubular bar having parallel sides  $a-a'$ , and rounded back  $a^2$ , and the front edge of which  $a^3$ , consists of the overlapped edges of the plate, which are formed, as shown in Fig. 4, so that said bar is of greater width at the bottom than at the top,—in other words, the front edge of the plate inclines from the bottom upwardly and rearwardly. Said clamping plate is provided with apertures of the desired size and arranged complementally with the impaling posts on the binding plate to receive said impaling posts therethrough, as shown in Fig. 1, and engaged within said tubular clamping plate or bar are oppositely sliding locking members or bolts  $C-C'$ , which, as shown, are positioned between the impaling posts and are moved oppositely and outwardly to engage the posts and spring the same against the relatively sharp upper and lower edges afforded by said apertures through the clamping plate. As shown, said locking members or bolts are each constructed of a plate of metal stamped or pressed to afford a V shaped notch on the outer ends to receive the respective posts, the metal at said notch being struck up, as clearly shown to afford a relatively sharp forwardly and obliquely upwardly inclined flange  $c$ , adapted to bite into the posts. Said locking members are of a width to fit comparatively closely within the clamping plate or bar  $A'$ .

Extending along the rounded end of the binding plate is the rotative shaft  $D$ , which is of a length to bear at its inner end against the head of a shaft  $c^9$ , on which is secured the sleeve  $c'$ , of the locking member  $C$ , as shown in Figs. 2 and 5, and as shown in Fig. 2, said locking member  $C$ , is held in operative relation within the back by means of pins  $c^2-c^3$ , which extend vertically through the side of the clamping plate or bar, one at each end of the cylindric back piece or sleeve  $c'$ , with which said locking member is integral and which, although allowing free longitudinal movement of the locking member  $C$ , in the clamping bar, yet limits such movement as to distance and also serves to guide said locking member positively into engagement with the impaling post. Said actuating shaft  $D$ , at its end bearing against the cylindric end of the shaft or pintle  $c^9$ , is not threaded or if preferred, may be provided with a sleeve  $c^5$ , which is rigidly engaged thereon by means of a pin  $c^6$ , engaged therethrough, or may be rigidly engaged in place by slightly deforming said sleeve to bind upon the thread. The outer end of said shaft, however, is screw threaded and the rear edge of the locking member  $C'$ , is rolled to form an integral sleeve, as shown in Fig. 4, which is complementally threaded with the shaft, so that rotation of the shaft in one direction

serves of necessity to force said locking members oppositely while rotation in the opposite direction acts to release the pressure of the locking members on the impaling posts, permitting the same to retract therefrom. As shown and to limit to some extent the movement of the locking member  $C'$ , an elongated aperture is provided in the forward edge of said locking member and a pin  $c^8$ , which passes through the upper and lower sides of the clamping bar, passes through said slot, as shown in Figs. 2, 4, 6, and 8. If desired, the locking member  $C$ , may also be struck from a plate of metal of suitable gage, and the rear edge thereof rolled about a pintle  $c^9$ , which affords a somewhat rounded head on its inner end against which the inner end of the actuating shaft bears, as shown in Fig. 5.

Where the actuating shaft is threaded for its entire length, as shown in Figs. 6 and 7, conveniently a sleeve  $c^{10}$ , is provided on said shaft to limit the outward adjustment thereof in releasing the locking members. This is a very convenient arrangement, inasmuch as it adapts the construction for binders of various sizes, or in other words, in which the distance between the impaling posts may be different, inasmuch as the sleeves  $c^5-c^{10}$  may be adjusted to afford the desired movement of the locking members before being rigidly engaged in place on the shaft. As shown also, extending through the clamping plate or bar  $A'$ , closely adjacent the inner side of the actuating shaft at its inner end is a relatively strong pin  $c^{11}$ , which serves to guide said shaft at all times closely against the back of the plate to deliver its thrust directly against the cylindric back of the inner locking member. If desired, the actuating shaft may have non-threaded connection with the locking member  $C'$ , and although unconnected physically with the locking member  $C$ , may act to press the same oppositely from the locking member  $C'$ . For this purpose, as shown, the shaft  $D'$ , is unthreaded at its outer end and threaded at its inner end  $d$ , as shown in Figs. 8 and 9. The shaft is turned to afford a spindle of reduced diameter corresponding in position thereon with the sleeve integral with the back of the locking member  $C'$ , and said rear edge of said sleeve is engaged thereon, as shown in Figs. 8 and 9, so that said shaft may rotate therein. The locking member  $C$ , is constructed as before described, excepting that the end thereof adjacent the locking member  $C'$ , is extended forwardly and provided with an up-turned flange  $c^{12}$ , extending transversely the clamping plate.

Bearing against the head of the pintle  $c^9$ , is an internally threaded sleeve  $d'$ , having a pin  $d^2$ , set in the side thereof near the inner end and extending over the locking member  $C$ , and within the flange thereof, so that



rotation of the shaft D', acts to slide said sleeve d' longitudinally of the clamping bar, and the pin d<sup>2</sup>, engaging the flange on the locking member C, acts to retract said locking member, while rotation in the opposite direction of the shaft D', causes said sleeve to press said locking member C, against the impaling post. As shown, closing pieces or end members E, of aluminum or other suitable material are inserted in the ends of the tubular clamping bar and one of the same is apertured in alinement with the angular end d<sup>4</sup>, of the actuating shaft to permit the insertion of the key for rotating the same.

The operation is as follows: The actuating shaft is unconnected physically with the inner locking member C, in each instance and is rotatably engaged with the outer locking member C', in one form shown said locking member being threaded on the shaft, and in the other construction, namely, that shown in Figs. 8 and 9, said locking member being merely rotatably engaged on the locking shaft. Rotation of the shaft in one construction must obviously force said locking members outwardly and from each other, in consequence forcing the same against the impaling posts, the forwardly and upwardly inclined flanges c, thereof engaging the impaling posts midway between the upper and lower plates of the clamping bar, thus affording a three point engagement, which is exceptionally rigid owing to the sharp biting edge of the flange c, of the locking members biting into the post. When the shaft is rotated in the opposite direction, when releasing, in the construction shown in Figs. 1 to 7 inclusive, the pressure is immediately released on both impaling posts, and in consequence, the locking members tend to fall away therefrom. In each instance, however, the inward movement of the locking members is limited by pins, in the one instance c<sup>2</sup>, and in the other instance c<sup>8</sup>. Should the bar be removed from the impaling posts, the inner locking member C, cannot slide sufficiently toward its end of the clamping bar to block the aperture for the impaling posts, inasmuch as the rivet or pin c<sup>3</sup>, serves as a stop therefor while of course, the pin c<sup>8</sup> serves as a stop for the locking member C'. Furthermore, at no position possible to be freely assumed by said locking members can the locking members serve as an obstruction to prevent the impaling posts entering the clamping bar, inasmuch as the inclined under surfaces of the flanges, e, or jaws of the locking members cause said clamping members to be automatically retracted when the clamping bar is pressed down over the posts. As shown also in dotted lines in Fig. 2, the peculiar construction of the V shaped notch of the locking members permits posts of practically any desired size to be used without any

change whatever in the construction of the locking members, actuating shaft, or, for that matter, in the clamping bar with the exception that preferably the apertures in the clamping bar will be but slightly greater in size than the diameter of the impaling posts.

Obviously from the construction shown, no pressure whatsoever applied to the shaft will be sufficient to spring the shaft owing to the oblique engagement of the inner clamping member on its impaling post for the reason that said actuating shaft merely bears against said clamping member, leaving the same free to swing slightly, if necessary, under its pressure, and in practice, great economy in repair as well as cheaper construction is afforded thereby.

Of course, I am aware that details of the construction may be varied. I therefore do not purpose limiting this application for patent otherwise than necessitated by the prior art.

I claim as my invention:

1. The combination with a clamping bar apertured to receive impaling posts there-through, of oppositely movable locking members engaged between the impaling posts, means positively connected with one and unconnected with the other and acting to move said locking members oppositely into engagement with the impaling posts.

2. The combination with a clamping bar apertured to receive impaling posts there-through, of oppositely movable locking members adapted to engage the impaling posts oppositely, a shaft connected with one of the locking members and, means rotatively connected with one locking member and bearing on the shaft of the other locking member and acting to force said locking members into locking engagement with the impaling posts.

3. The combination with a clamping bar apertured to receive impaling posts there-through of oppositely slidable locking members secured in the bar between the impaling posts, rotatable means positively connected with one, and unconnected with the other and acting by rotation to force said locking members oppositely into engagement with the impaling posts.

4. The combination with a clamping bar apertured to receive impaling posts there-through, of oppositely slidable locking members engaged between the impaling posts, rotatable means parallel with the bar, positively connected with one and unconnected with the other, and acting by rotation in one direction to force said locking members oppositely into engagement with the impaling posts and in the other to release the posts therefrom.

5. The combination with a clamping bar apertured to receive impaling posts there-



through of oppositely movable locking members engaged between the impaling posts, means positively connected with one and unconnected with the other and acting  
5 to force said locking members oppositely into engagement with the impaling posts.

6. The combination with a hollow clamping bar apertured to receive transverse impaling posts therethrough of oppositely movable locking members slidably engaged in  
10 the bar, between the impaling posts, a screw shaft having threaded engagement with one and unconnected with the other locking member and acting to force said locking  
15 members oppositely into engagement with the impaling posts, and a member on the screw shaft acting to retract the unconnected locking member on reversing the rotation of the shaft.

7. In a device of the class described the combination with a binding plate and its impaling posts of a hollow clamping bar apertured to receive the posts therethrough,  
25 locking means in the clamping bar slidably between said posts to positively engage the clamping bar thereto, a rotative shaft having connection with one of said locking members, and disconnected from but impinging against the other, said shaft acting  
30 by rotation to force said members oppositely to engage posts and by reverse rotation to permit said members to release the posts.

8. In a device of the class described the combination with a binding plate and its  
35 impaling posts of a hollow clamping bar apertured to receive the posts therethrough, locking members therein slidably between said posts to positively engage the clamping bar thereto, a rotative shaft connected with  
40 one of said locking members and unconnected with but impinging against the other, said shaft acting by rotation to force said members oppositely to engage posts and by reversely rotating to permit said members to  
45 move inwardly to release the posts and means limiting the inward movement of each locking member.

9. In a device of the class described a tubular flattened clamping bar having apertures  
50 therethrough to receive impaling posts, an actuating shaft lying in the back of said clamping bar and threaded for a part of its length, an inner slidable locking member, a projection thereon, a sleeve threaded on the  
55 inner end of the shaft, and bearing at its end against said locking member, a laterally directed finger thereon extending across said locking member and adapted to engage said projection to retract the locking member,  
60 and an outer locking member secured on the shaft for engaging the other of said impaling posts.

10. In a device of the class described a tubular, flattened clamping bar having aper-  
65 tures therethrough to receive impaling posts,

an actuating shaft lying in the back of said clamping bar and threaded for a part of its length, an inner slidable locking member, a projection thereon, a sleeve threaded on the inner end of the shaft, and having at its end  
70 against said locking member a laterally directed finger thereon extending across said locking member and adapted to engage said projection to retract the locking member, an outer locking member secured on the shaft  
75 for engaging the other of said impaling posts, and metallic end stops closing the ends of said tubular bar, one of which is apertured to permit insertion of a key into engagement with the shaft. 80

11. In a device of the class described a tubular, flattened, clamping bar having apertures therethrough to receive impaling posts, an actuating shaft lying in the back of said  
85 clamping bar and threaded for a part of its length, an inner clamping member, a non-rotatable sleeve threaded on the inner end of the shaft adapted to press against said locking member, a laterally directed finger there-  
90 on extending across said locking member and adapted to engage a projection on the locking member to retract the same, an outer locking member secured on the shaft for en-  
95 gaging the other of said impaling posts and guide pins engaged through the clamping bar holding the locking means in alinement.

12. In a device of the class described a hollow clamping member, locking members therein, a shaft rotatably connected with one of the locking members, and non-connected  
100 with the other locking member and interlocking means on the last named locking member and shaft.

13. In a device of the class described a hollow clamping plate, locking members  
105 therein, a shaft for forcing the same oppositely, connected with one member and non-connected with the other, means connected with the shaft and with the non-connected member for positively retracting said mem-  
110 ber.

14. In a device of the class described a clamping plate, oppositely movable locking members, one of which is loosely mounted thereon, and a shaft connecting with one  
115 locking member and non-connected with the loosely mounted locking member adapted to positively force the locking members into clamping position and means for positively retracting the loosely mounted locking mem-  
120 ber.

15. In a device of the class described a hollow clamping plate, a plurality of locking members therein, an actuating shaft rota-  
125 tably connected with one of the locking members and threaded beyond the member and a member threaded on said shaft and adapted to contact one of the locking mem-  
bers.

16. In a device of the class described a 130



hollow clamping plate, a plurality of locking members therein, an actuating shaft rotatably connected with one of the locking members and threaded beyond the member, 5 a member threaded on said shaft and adapted to contact one of the locking members, and coacting means secured to the member threaded on the shaft and the locking member for positively retracting the locking 10 member.

17. In a device of the class described a hollow clamping plate, a plurality of locking members therein, an actuating shaft rotatably connected with one of the locking 15 members and threaded beyond the member, a member threaded on said shaft and adapted to contact one of the locking members, and stops for limiting the movement of the locking members in either direction.

20 18. In a device of the class described, a hollow clamping plate, a plurality of locking

plates therein, a member rigidly secured to one of the locking members and extending longitudinally of the plate, and an actuating shaft connected with one of the locking 25 plates and bearing against the member.

19. In a device of the class described, a hollow clamping plate, a plurality of locking members therein, a short shaft rigidly connected to one of said members, extending 30 longitudinally of the clamping plate and at the back thereof, and an actuating shaft secured to one of the locking members and bearing against the end of the shaft.

In testimony whereof I have hereunto subscribed my name in the presence of two 35 subscribing witnesses.

RALPH B. WILSON.

Witnesses:

K. E. HANNAH,

J. W. ANGELL.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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