

No. 795,639.

PATENTED JULY 25, 1905.

S. H. MITCHELL.  
LOOSE LEAF BINDER.  
APPLICATION FILED OCT. 15, 1904.

Fig. 1.

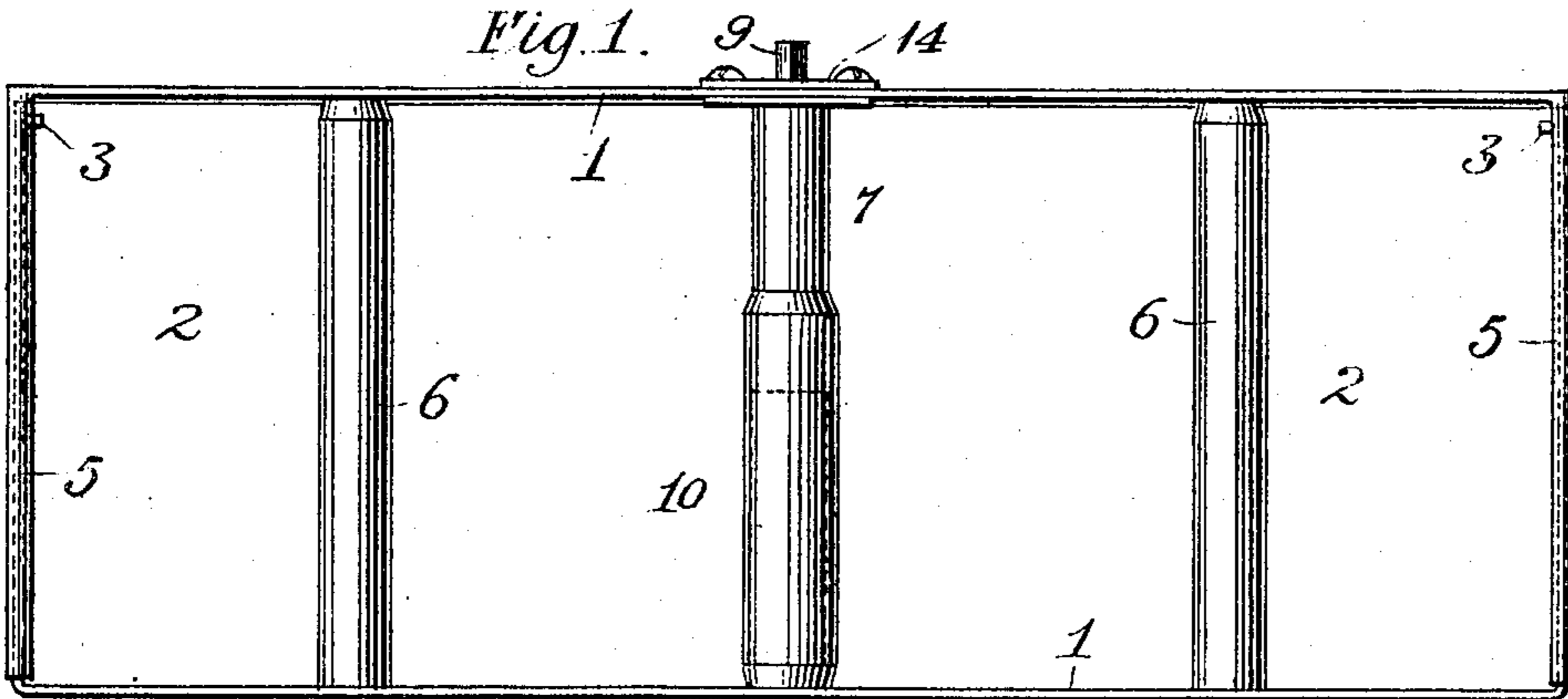


Fig. 2.

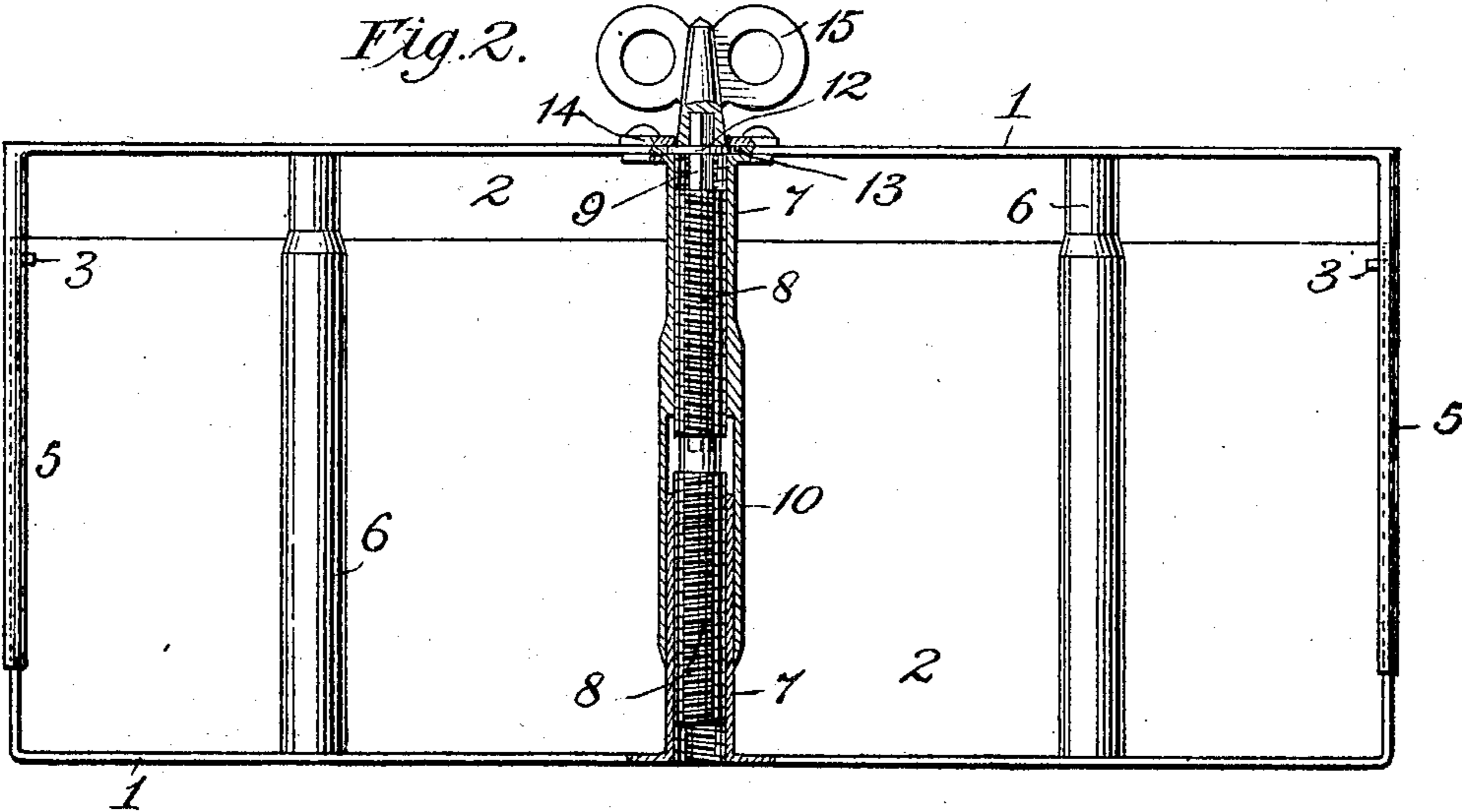


Fig. 3.

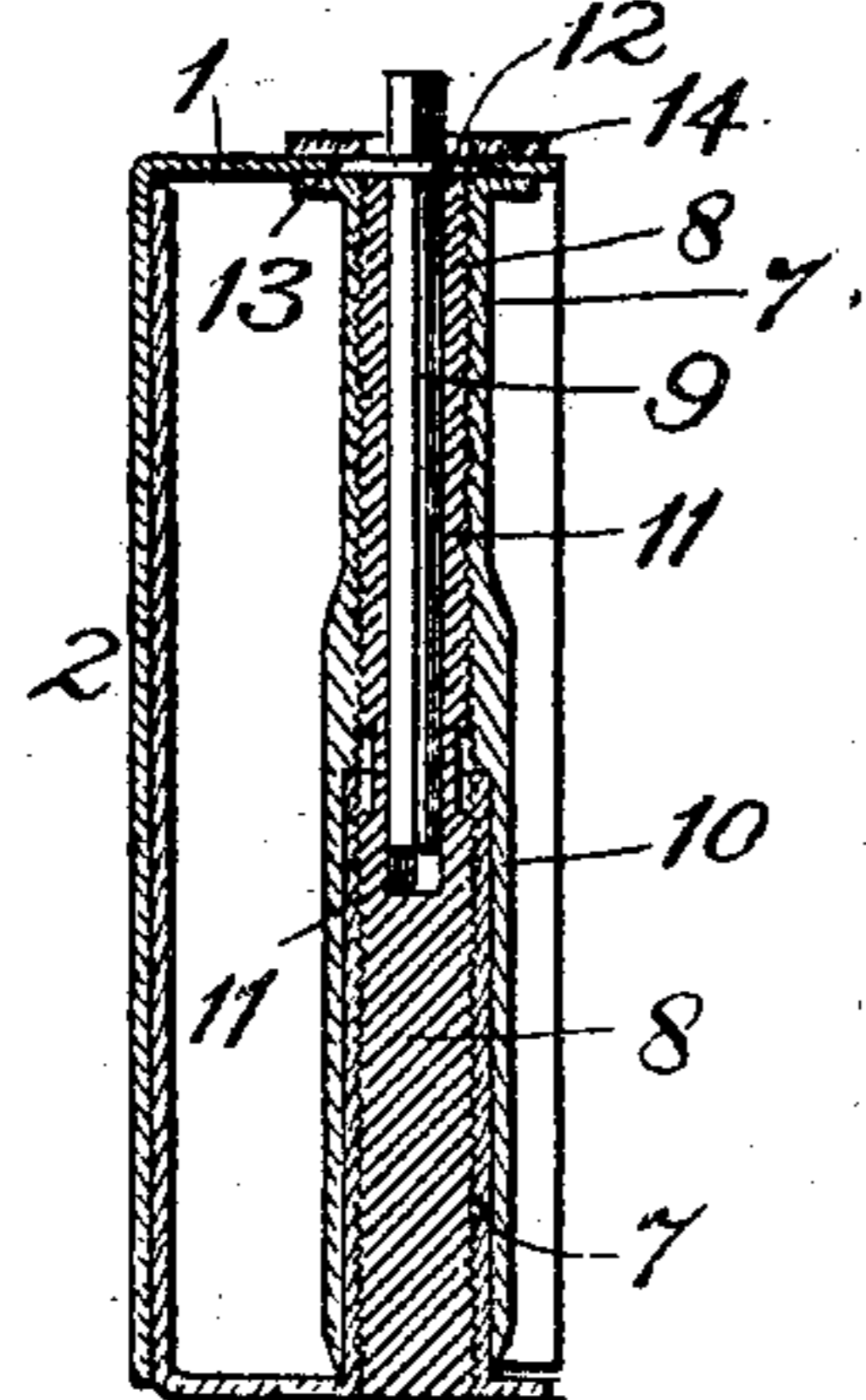


Fig. 4.

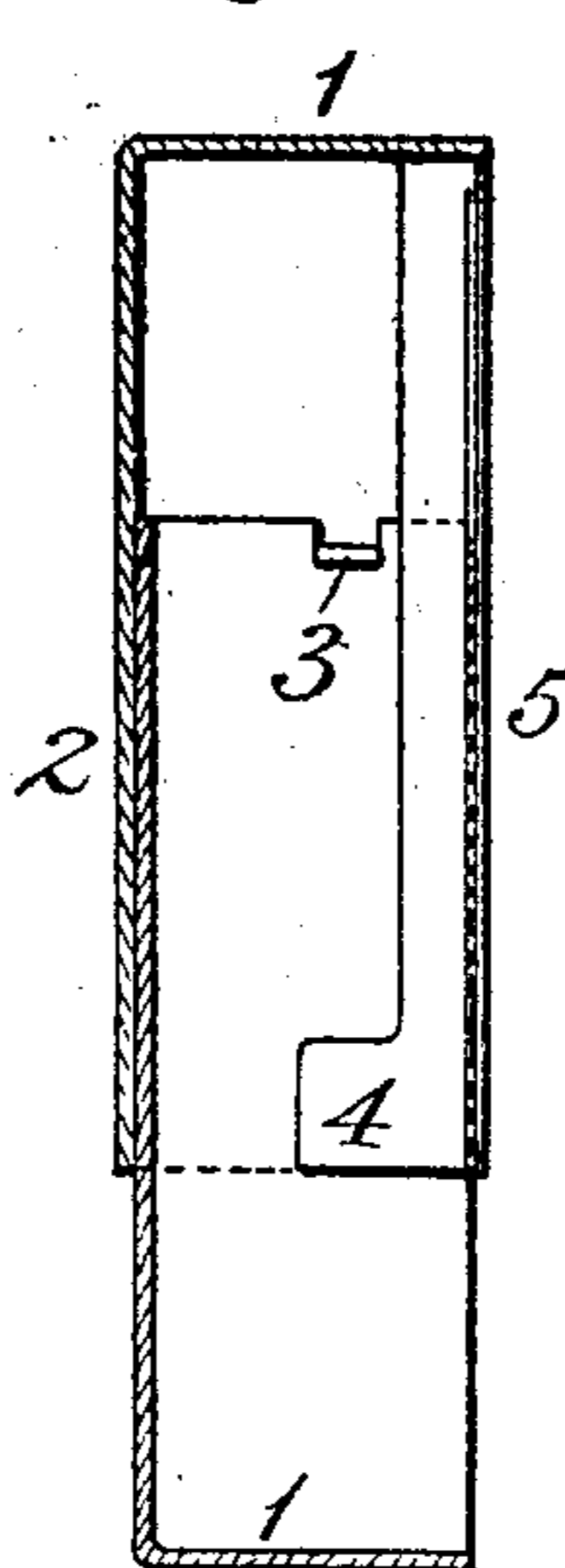
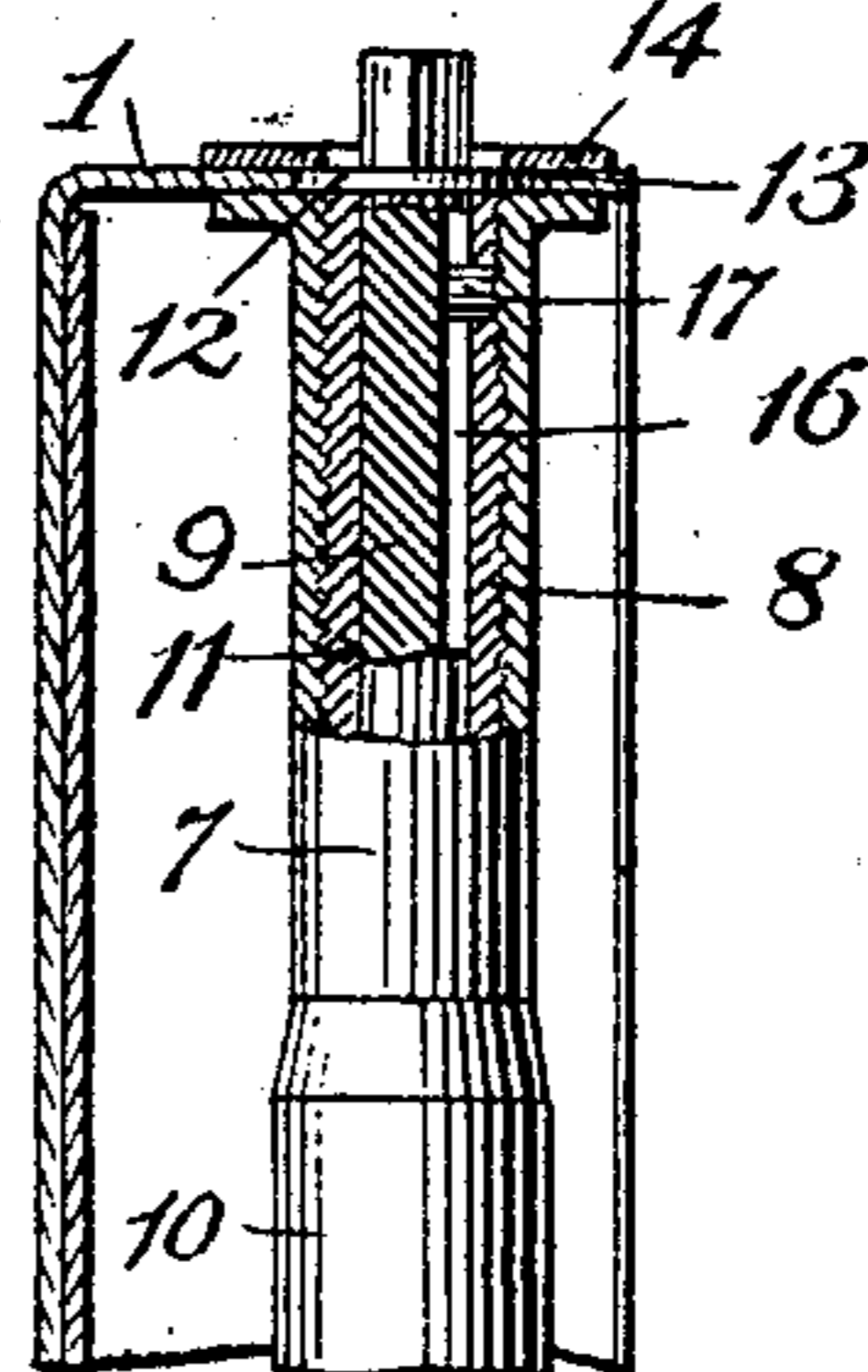


Fig. 5.



Witnesses  
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# UNITED STATES PATENT OFFICE.

STEPHEN H. MITCHELL, OF CHICAGO, ILLINOIS.

## LOOSE-LEAF BINDER.

No. 795,639.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed October 15, 1904. Serial No. 228,532.

*To all whom it may concern:*

Be it known that I, STEPHEN H. MITCHELL, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Loose-Leaf Binders, of which the following is such a full, clear, and exact description as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to loose-leaf binders, and has special reference to that type of binders in which a double-threaded rod or screw is employed to spread the sides or binding-bars.

The principal object of the invention is to provide a construction by which a short key may be employed, thereby applying the operating power more directly and preventing twisting of the shank or the key. This object is attained by the use of the construction illustrated in the accompanying drawings; and the invention consists in certain novel features of the same, as will be hereinafter first fully described and then particularly pointed out in the claims.

In the drawings just mentioned, Figure 1 is an elevation of a binder embodying my improvements. Fig. 2 is a similar view, partly in section, showing the bars separated more than in Fig. 1. Fig. 3 is a vertical section through the operating-rod. Fig. 4 is a detail end elevation, and Fig. 5 is a detail sectional view showing a modification.

The binding-bars 1 are formed integral with or secured to the back 2, which consists of two overlapping plates, as shown and as will be readily understood. The ends of the back-plates are turned forward and made to form continuations of the binding-bars, so as to inclose the edges of the leaves held by the binder. The end of the lower back-plate is provided at its upper edge with an inwardly-projecting lug or tooth 3, which coacts with a lip 4 on the end of the upper back-plate to prevent the back-plates being moved so far as to be entirely separated. The end of the upper back-plate is provided with a grooved portion or guide 5, which engages the edge of the end of the lower back-plate, and thereby aids in securing an even movement of the two plates, the lip 4 being formed at the lower end of this guiding portion.

Between the two binding-bars are telescopic posts 6 of the usual formation and a central operating connection. This operating connection consists of two internally-threaded stems or posts 7, a double-threaded rod or screw 8, and a driving-arbor 9. The posts 7 approach each other from the inner faces of the binding-bars and one of them is provided with an extension 10, which fits telescopically over the other post, so that the screw will be covered in all adjustments of the binder and oil or dirt prevented from coming into contact with and soiling the sheets. The said posts are internally threaded in opposite directions, and the ends of the right and left threaded rod or screw 8 engage the threaded bores; so that when the said rod or screw is rotated the posts or stems will be caused to move in opposite directions.

The upper portion of the rod or screw 8 is constructed with an angular socket 11, in which is fitted the driving-arbor or turning-bar 9. This turning-bar 9 is provided near its upper extremity with an annular flange or collar 12, which rests in a bearing 13, formed in the upper binding-bar, and over this collar or flange a keeper 14 is secured upon the binding-bar, so as to hold the turning-bar against longitudinal movement. The end of the turning-bar is extended slightly beyond the keeper 14 and adapted to be engaged by a key or wrench 15.

In the modification shown in Fig. 5 the socket 11 of the screw is circular, and the turning-rod is circular in cross-section and is provided with a longitudinal groove or keyway 16, which is engaged by a radial pin 17, secured in the end of the screw.

The loose leaves to be held by the binder will of course be notched to pass around the posts. After they are inserted between the sides of the binder the key 15 is applied to the end of the turning-bar 9 and is rotated, as will be readily understood. The motion thus imparted to the turning-bar is transmitted directly to the double-threaded screw, and the hollow stems or posts are thereby caused to approach, so as to draw the sides of the binder together and clamp the leaves. Of course to remove a leaf the turning-bar will be rotated in the contrary direction.

It will be observed that the key is not applied directly to the double-threaded screw, and consequently does not travel with the screw, so that an exceedingly short key or

wrench may be used. The provision of the turning-bar, furthermore, aids in maintaining the screw on a straight line, so that the movement will be even and steady, and consequently easier than in the devices heretofore employed, in which the screw vibrated more or less, and thereby created greater friction. In the devices heretofore employed the arrangement has been such that a key having a long shank was needed, and the result was that the shank was frequently twisted. The inconvenience of keeping a large key in safety was also considerable.

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

1. In a loose-leaf binder, the combination with the sides or clamping-bars, of internally-threaded posts extending inward from the inner faces of the same, a double-threaded screw engaging the bores of said posts, and a

turning-bar journaled in one of the clamping-bars and adapted to actuate the said screw.

2. In a loose-leaf binder, the combination with the sides or clamping-bars, of internally-threaded posts extending inward from the inner faces of the same, a double-threaded screw engaging the bores of said posts and having a socket in one end, a turning-bar fitting in said socket and having an annular flange near its end resting in a bearing in one of the clamping-bars, and a keeper secured to the said clamping-bar and fitting over the said flange.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

STEPHEN H. MITCHELL.

Witnesses:

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C. MITCHELL.