F. H. CRUMP.

LOOSE LEAF BINDER.

APPLICATION FILED MAR. 14, 1912.

1,070,780. Patented Aug. 19, 1913.

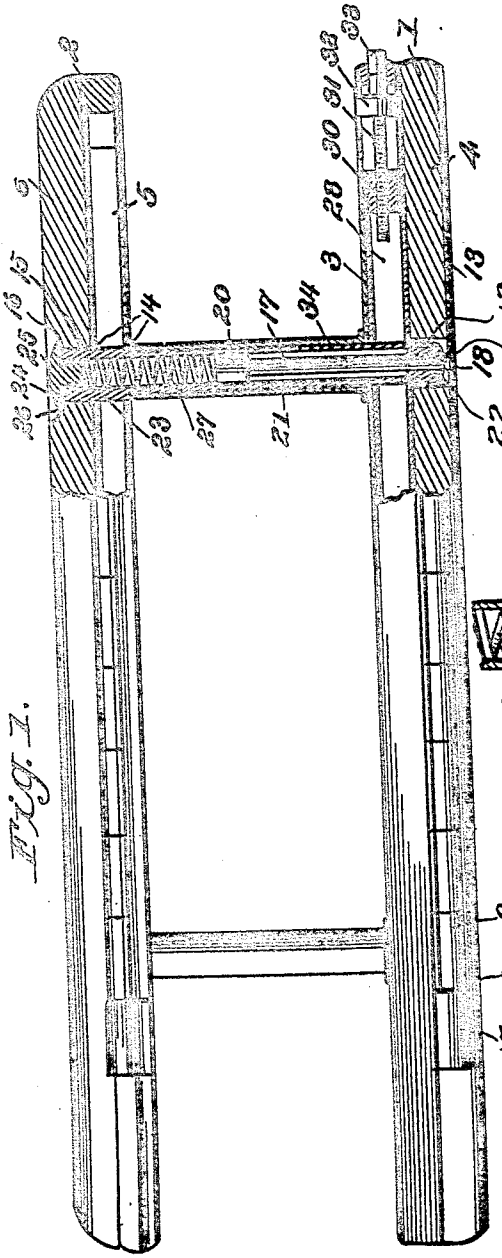


Fig. 1.

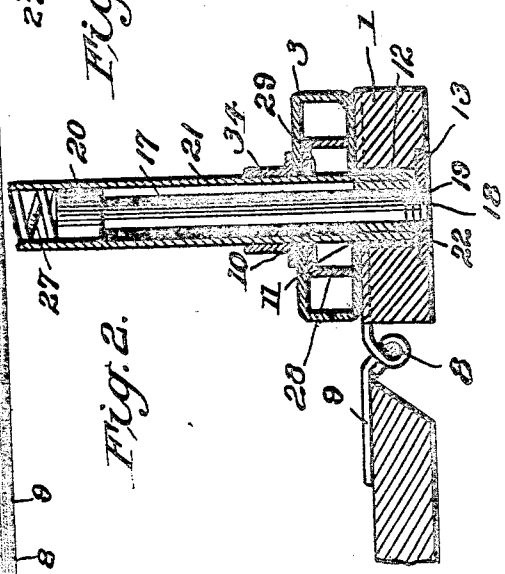


Fig. 2.

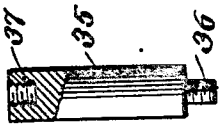


Fig. 3.

Witnesses:

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LOOSE-LEAF BINDER.

1,070,780. Specification of Letters Patent. Patented Aug. 19, 1913.

Application filed March 14, 1912. Serial No. 683,309.

To all whom it may concern:

Be it known that I, FRANK H. CRUMP, citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Loose-Leaf Binders, of which the following is a specification.

This invention relates to loose leaf binders and more particularly to a binder of that class in which the sheets to be held are clamped between members connected by extensible posts, and one aim of the invention is to provide a binder of this type, the clamping members of which may be separated to permit of the insertion or removal of leaves without disarranging the leaves and without the necessity of removing the covers of the binder.

The invention contemplates the provision, in a binder of this class of clamping members which are connected by means of posts comprising telescopic sections, one of the clamping members carrying means for adjustably clamping one of the said post sections and having secured thereto one end of the other sections of each post. By such a construction, the clamping members may be held at relative adjustment within certain limits so as to permit of the insertion of a number of extra leaves if desired without building up the posts by the use of additional sections.

Another aim of the invention is to provide means so arranged upon the leaf-supporting or retaining posts as to prevent the leaves held by the binder becoming relatively displaced when the clamping members of the binder are separated, for the insertion or removal of leaves.

A further object of the invention is to provide within the posts, means for automatically extending the sections thereof when the binder is unlocked.

For a full understanding of the invention reference is to be had to the following description and accompanying drawing, in which:—

Figure 1 is a view partly in elevation and partly in longitudinal section of the binder embodying the present invention. Fig. 2 is a detail vertical transverse sectional view through a portion thereof. Fig. 3 is a detail view partly in elevation and partly in section illustrating an element employed in building up the posts of the binder.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawing by the same reference characters.

In the drawing, the lower clamping member of the binder is indicated in general by the numeral 1 and the upper clamping member is indicated by the numeral 2. The lower clamping member includes a flat tubular body member 3 against the under side of which there is disposed a filler 4 which may be secured directly to the body-member 3 or may be held thereto by the usual binding (not shown) which covers the back-boards of the binder.

The upper clamping member of the binder consists of a flat tubular body 5 which corresponds to the member 3, and a filler 6 corresponding to the filler 4. The back-boards of the binder are secured to the clamping members 1 and 2 by means of hinges, each consisting of a pair of attaching plates 7 secured between the tubular body and filler of each clamping member and supporting a hinge-rod 8 upon which are carried a number of leaves 9 secured in any suitable manner to the respective back-board. For a purpose to be presently explained, the upper and lower walls of the hollow body 3 of the clamping member 1 are formed with vertically alined openings 10 and 11 and the filler 4 of this clamping member is formed with an opening 12 which registers with the opening 11.

A strip 13 is secured in a recess formed in the under side of the filler 4 and closes the lower end of the opening 12 as shown in Figs. 1 and 2 of the drawing. Also, for a purpose to be presently explained, the walls of the body 5 of the clamping member 2 are formed with vertically alined openings 14 and the filler 6 is formed with an opening 15 and a countersink 16.

Each of the leaf-holding posts of the binder includes a section 17 which has its lower end threaded into an opening in the strip 4 as at 18 and indented as at 19 so as to prevent its removal or accidental disengagement, and this section of the post is formed or provided at its upper end with a head 20. Each post also includes a section 21 which is interiorly reduced in diameter

at its lower end as at 22 and the sections 17 and 21 are assembled with the latter slidably receiving the former. By providing the section 17 with the head 20 and interiorly reducing the section 21 complete separation of the sections is prevented. As illustrated in the drawing, the lower end of the section 21 fits through the openings 10, 11 and 12 and may rest against the upper side of the strip 13, such engagement serving to prevent the section 21 passing entirely through the openings 12. At its upper end, the section 21 is exteriorly increased in diameter as at 23 and interiorly decreased in diameter as at 24, it being interiorly threaded to receive a plug 25 which is provided with a milled head 26, the periphery of which projects beyond the exterior surface of the section at its said end. The said upper end of the section fits slidably through the openings 14 and 15 and when the clamping members of the binder are fully separated the head of the plug 25 will be received within the countersink 16, as illustrated in Fig. 1. By interiorly reducing the section 21 at its upper end a shoulder is formed against which bears the upper end of a spring 27 housed within the said section. The lower end of this spring bears against the head 20 at the upper end of the section 17 and the spring being under compression it at all times tends to relatively separate or extend the sections 17 and 21, such extension being, however, normally prevented through the medium of a locking device housed within the body 3 of the clamping member 1 and coöperating with the section 21 of the post.

The locking device mentioned above consists of a channel bar 28 which is slidably arranged within the body 3 and has the lower edges of its flanges resting upon the bottom wall of the said body member 3 and its connecting portion lying immediately beneath the upper wall of the said body. The said connecting portion of the channel bar is formed with openings 29 which register with the openings 10 when the bar is in one position, but are arranged to be brought out of registration when the bar is adjusted longitudinally within the said body. In one end of the bar 3 there is fixed a plug 30 into which is adjustably threaded a stem 31 carrying a collar 32 which is rotatably confined within the body 3 but held against displacement longitudinally thereof. Beyond the collar 33 the stem 31 is squared as at 33 for the engagement therewith of a suitable key (not shown) by means of which the stem may be rotated so as to adjust the channel bar within the body. At this point it will be readily understood that when the openings 29 are in registration with the openings 10 the lower end portion of the section 21 of each of the leaf-holding posts may be slidably adjusted through the said openings and through the openings 11 and 12. However, when the clamping members 1 and 2 are in closed relation, and the stem 31 has been adjusted so as to longitudinally adjust the channel bar 28 within the body 3 and bring the openings 29 out of registration with the openings 10, the walls of said openings 29 will bind the sections 21 against the walls of the openings 10 and the sections of the posts will be held against relative separation or extension, thereby holding the clamping members against separation.

From the foregoing it will be readily understood that the leaves of the binder are to be fitted to the posts in the usual manner, and that they are to be clamped between the members 1 and 2. It will also be understood that when it is desired to insert new leaves or to remove certain leaves, the stem 31 may be rotated so as to cause the openings 29 in the channel bar 28 to register with the openings 10, thereby releasing the sections 21. The springs 27 will then immediately act to lift the clamping member 2 and permit of the insertion or removal of the leaves. It will furthermore be noted that the walls of the openings 29 engage with the sections 21 of the posts a considerable distance above the lower ends of these sections so that a number of additional leaves may be inserted without the necessity of increasing the length of each post.

As a means for preventing relative displacement of the leaves when the clamping members 1 and 2 are separated, a sleeve 34 is loosely fitted upon each post section 21 and these sleeves, being of a diameter substantially equal to the exterior diameter of said sections 21, and of considerably greater diameter than the sections 17, hold the leaves against engagement with the said sections 17.

In Fig. 3 of the drawing there is shown one of a number of sections which may be employed in building up the posts so as to increase their length and this section is indicated by the numeral 5 and is of substantially the same diameter exteriorly as the enlarged upper end 23 of the section 21. The section 35 is formed at one end with a threaded stud 36 of a size to fit within the threaded upper end of the section 21 after the plug 25 has been unscrewed therefrom and is formed in its opposite end with a threaded socket 37 which may receive the stud 36 of the companion section 35, or may receive the headed stud 25.

Having thus described the invention what is claimed as new is:—

1. In a binder of the class described, leaf clamping members, a post connecting the members, said post comprising telescopic sections each carried by one of the members, the free end of one of the sections of the

post being arranged to enter a socket in the member other than the one by which it is carried, and means carried by the socketed member for adjustably clamping the said end of the post section.

2. In a binder of the class described, leaf clamping members, a post connecting the members, said post comprising telescopic sections, each carried by one of the members, one of said members having a socket, and the post section carried by the other member being arranged to be adjustably fitted at its free end in the said socket, and means carried by the first mentioned clamping member for clamping the said inserted end of the post section and holding it at adjustment in the said socket.

3. In a binder of the class described, leaf clamping members, a post connecting the members, said post comprising telescopic sections each carried by one of the members, the free end of one of the sections of the post being arranged to enter a socket in the member other than the one by which it is carried, means carried by the socketed member for clamping the said ends of the post section, and a spring interposed between the sections of the post and arranged to automatically extend the same when the post section clamping means is rendered inoperative.

4. In a binder of the class described, leaf clamping members, a post connecting the members, said post comprising telescopic sections each carried by one of the members, the free end of one of the sections of the post being arranged to enter a socket in the member other than the one by which it is carried, means carried by the socketed member and clamping the said end of the post section, and a sleeve slidably fitted upon the said clamped section of the post.

5. In a binder of the class described, leaf clamping members, a post connecting the members, said post comprising telescopic sections, one section of the post being permanently attached to one of the clamping members and the other section of the post being slidably fitted in the other clamping member, one end of the last mentioned section being arranged to enter a socket in the first mentioned clamping member, and means carried by the socketed member and clamping the said end of the post section.

6. In a binder of the class described, leaf clamping members, a post connecting the members, said post comprising telescopic sections, one section of the post being permanently attached to one of the clamping members and the other section of the post being slidably fitted in the other clamping member, one end of the last mentioned section being arranged to enter a socket in the first mentioned clamping member, means carried by the socketed member and clamping the said end of the post section, the second mentioned section of the post being interiorly threaded at its end opposite its clamped end, a headed stud threaded into the said end of the post section, and an extension section having a threaded stud arranged to be fitted into the said threaded end of the post section and having a threaded socket arranged to receive the threaded stud.

7. In a binder of the class described, leaf-clamping members, one of said members comprising a hollow body, and a filler, the walls of the hollow body and the filler being formed with alined openings, a post connecting the said members and comprising a section permanently secured at one end in the filler, and a section telescopically fitted thereon and connected at one end with the other clamping member, the last mentioned section of the post having its other end adjustably fitted through the registering openings in the walls of the hollow body and the filler, and means within the hollow body adjustably clamping the said post section.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK H. CRUMP. [L. S.]

Witnesses:
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W. L. STEIN.

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