J. M. LULL.

LOOSE LEAF BINDER.

APPLICATION FILED FEB. 16, 1909.

943,431. Patented Dec. 14, 1909.

Fig. 1.

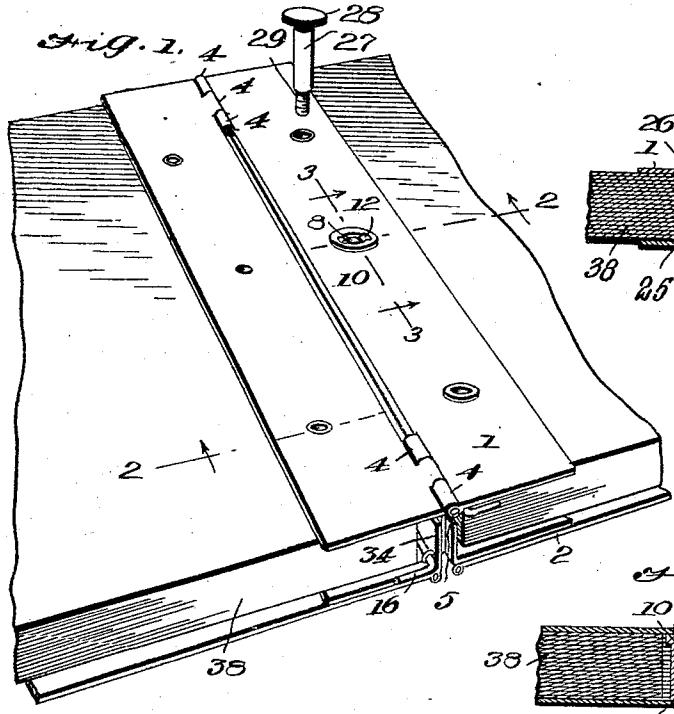


Fig. 2.

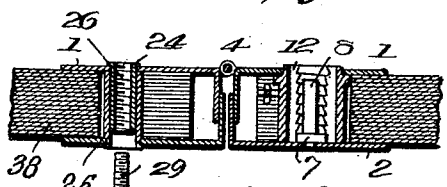


Fig. 6.

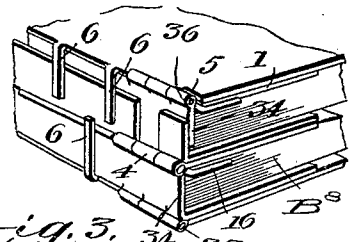


Fig. 3.

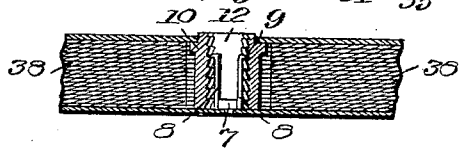


Fig. 4

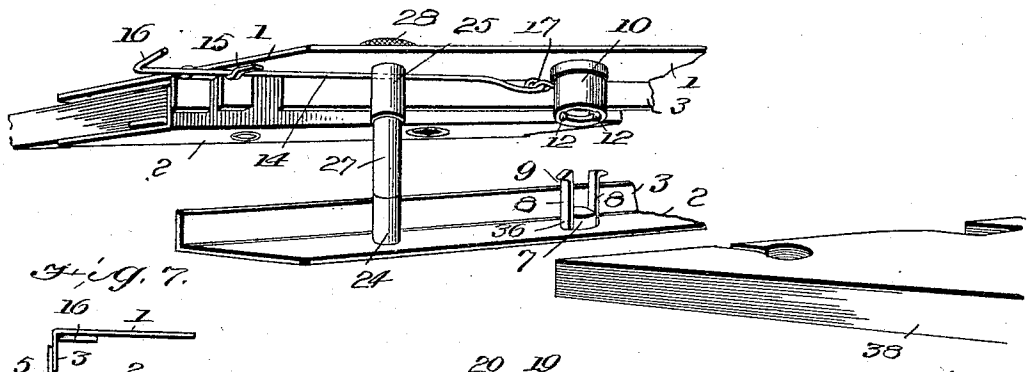
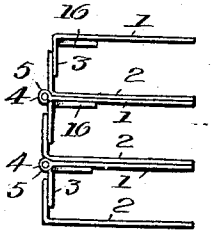


Fig. 7.



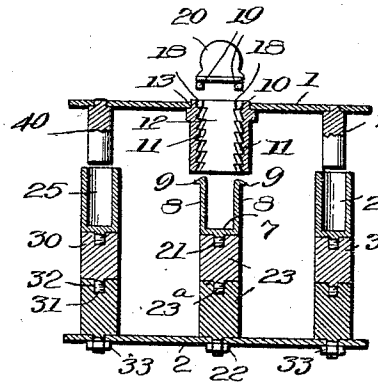


Fig. 5.

WITNESSES

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LOOSE-LEAF BINDER.

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To all whom it may concern:

Be it known that I, JOHN M. LULL, a citizen of the United States, residing at Wausau, in the county of Marathon and State of Wisconsin, have invented a new and useful Improvement in Loose-Leaf Binders, of which the following is a specification.

My invention is an improvement in loose leaf binders and consists in certain novel constructions and combination of parts hereinafter described and claimed.

Referring to the drawings forming a part hereof—Figure 1 is a perspective view of a portion of the binder. Fig. 2 is a section on the line 2—2 of Fig. 1 looking in the direction of the arrow. Fig. 3 is a section on the line 3—3 of the same figure looking in the direction of the arrow. Fig. 4 is a perspective view of a portion of the binder showing the parts in position to insert the leaves. Fig. 5 is a section through the binding posts, showing a modified form of post, and the manner of extending the same by the use of extension members. Fig. 6 is a partial perspective view of a modified form. Fig. 7 is an end view of three connected leaves.

The present embodiment of the invention comprises a plurality of leaves hinged together, and each of the leaves is composed of two sections connected by telescoping binding posts, and a clamp. Each of the leaves consists of two sections 1, 2, and each section is composed of a plate of sheet material having at one edge a lateral flange 3, and at the angle formed by the plate and the flange of one of the sections, bearings 4 are formed, whose openings register and are traversed by a rod 5, thus hinging the leaves together. A portion of the flange 3 is cut away to form the bearing as will be evident from an inspection of the drawing, and if desired, other portions 6 of the flange may be separated therefrom to form tongues, and the sections are arranged with the flange of one extending toward and overlapping the flange of the other, and received between said flange and the tongues 6. The sections are secured together by the clamp before mentioned, which consists of a stud 7, secured to one section and provided with projecting resilient arms 8 at opposite sides, each arm having a lateral head 9, and a lug or socket 10 on the other section for receiving the arms. The socket is provided with internal series of ratchet teeth 11, and with guideways 12 between the series, for permitting the passage of the heads.

It will be evident from the description that when the stud is introduced into the sockets, with the heads in alinement with the guideways, it will enter freely, but when the socket is partially rotated to bring the heads out of alinement, they will engage with the teeth, thus preventing withdrawal of the stud. The socket 10 is rotatably mounted on the leaf section, being provided with an annular groove 13 for receiving the edge of the opening through the plate, and is partially rotated by means of a rod 14, movable longitudinally of the plate, and supported by bearings 15 on the plate, one end of the rod being bent to form a handle 16, and the other engaging an eye 17 on the socket. If desired the socket may be provided with oppositely arranged notches 18, for receiving lugs 19 on a spanner key 20, as shown in Fig. 5 thus dispensing with the rod. The stud may also be provided at its bottom with a threaded stem 21, as shown in the same figure, the stem traversing an opening in the plate and being secured in place by a tap 22.

With the above construction, the clamp may be extended, by inserting extension members 23, each consisting of a body portion having at one end a threaded stem 23^a, and at the other a threaded opening for receiving the stem of the stud or of another extension member. Each of the telescoping binding posts comprises an inner member 24 secured to one leaf section, and an outer member 25 secured to the other. As shown in Fig. 2, the inner member is hollow and internally threaded as at 26, and plugs 27 are provided with a reduced threaded portion 29, for screwing into the inner member as shown in Fig. 1, and the plugs are provided with milled heads 28, for convenience in manipulating the same. When it is desired to separate the sections of the leaf for the purpose of inserting or removing sheets, the plug 27 is threaded into the inner member, which is then pushed from out the outer member as shown in Fig. 4 and the engagement of the milled head 28 with the other section, permits the sections to be separated as shown in Fig. 4, while still retaining them connected together. The inner member may

be hollow as shown at 24 in Fig. 2 for the above specified purpose, or it may be solid as shown at 40 in Fig. 5. When the plug is in place, the sections may be separated, as shown in Fig. 4, but are still retained in their relative positions by the plug and the extent of separation is limited by the engagement of the milled head 28 with the plate to which the outer section of the binding post is secured, the body portion of the plug passing freely through the outer section. If desired, the binding posts may be extended by using extension members 30, each of which consists of a body portion provided at one end with a threaded stem 31 and at the other with a threaded opening 32. In this construction the stem of the bottom section passes through an opening in the bottom plate, and is secured in place by a nut 33, and the inner section 40 of the post may be solid as shown in Fig. 5.

In Figs. 1 and 6 the plates of the sections 1 and 2 which are not hinged together are not provided with integral flanges, but with strips 34 hinged to the plates as at 35, and this construction is preferable in some cases. It will also be evident that a number of the leaves may be hinged together as shown in Fig. 7, in which case the sheets will be divided into a plurality of sections instead of two as shown in Figs. 1, 2 and 3.

In using the binder, the sections of a leaf are separated by partially rotating the socket of the clamp and the sheets 38 are placed on the binding posts, after which the socket is returned to its original position and the sections are pushed together. The other leaves are filled in the same manner. It will be understood that more than one clamp may be used for each leaf if desired. The tongues 6 act also to raise the center of the binder, when it is opened, and for this purpose they are made resilient.

It will be observed from an inspection of Fig. 1, that the clamp consisting of a socket and a plug is used only at the longitudinal center of the plates, while at the ends the telescoping binding posts are made use of, and the plugs 27 before described are used with the telescoping binding posts but not with the clamps.

I claim—

1. A loose leaf binder comprising a plurality of channel shaped leaves, each leaf being hinged to the adjacent leaf by one corner, each leaf consisting of a plurality of plates spaced apart from each other, and each provided with a lateral flange hinged to the plate, the flange of each plate projecting toward and overlapping the flange of the other plate, one of the plates having secured thereto the inner sections of a plurality of telescoping binding posts and the other the outer sections, a stud provided with resilient arms having lateral heads on one of the plates, and a socket rotatably mounted on the other plate and provided with longitudinal passages for receiving the heads and with a series of ratchet teeth between the passages and means for rotating the head.

2. A loose leaf binder comprising a plurality of channel shaped leaves, each consisting of a plurality of plates having lateral flanges, the flanges of one plate overlapping the flanges of the other plate, each leaf being hinged to the adjacent leaf by one edge, a plurality of clamps in connection with the plates, each of said clamps consisting of a socket connected with one plate and having longitudinal passages, and ratchet teeth between the passages, and a stud on the other plate having resilient arms provided with heads for engaging the teeth.

3. In a device of the class described, a plurality of leaves each consisting of plates spaced apart from each other, and having lateral flanges, the flange of one plate overlapping the flange of the other plate, one of said plates having spring arms between which and the flange the flange of the other plate is received.

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Witnesses:
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