Feb. 16, 1932. A. G. LOTTER 1,845,671

LOOSE LEAF BINDER

Filed May 4, 1928

Fig. 1.

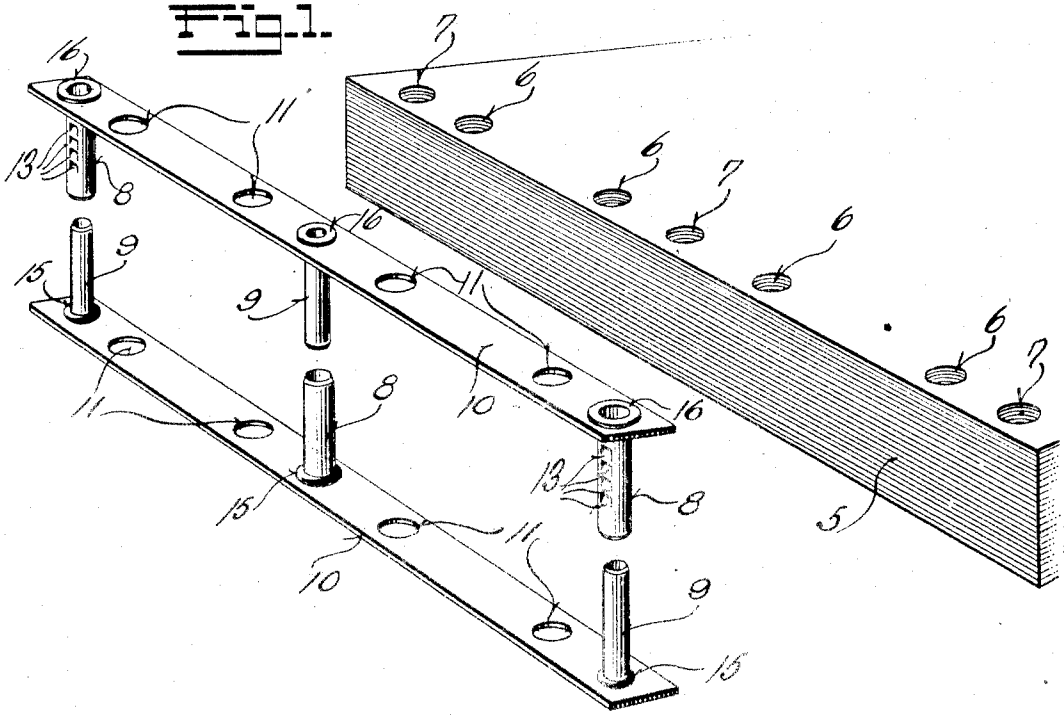


Fig. 2.

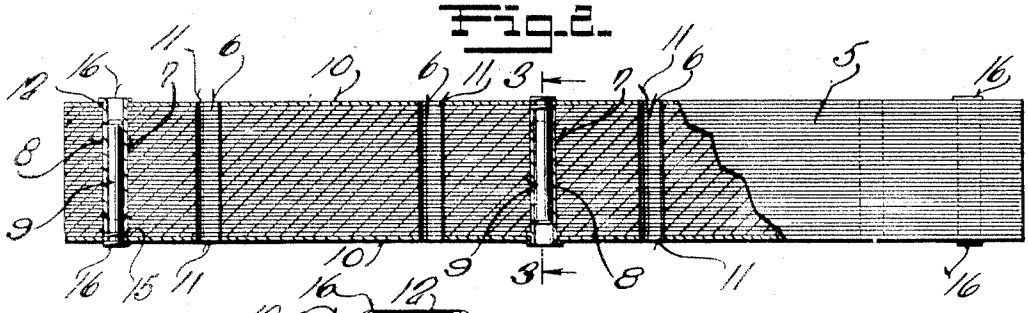
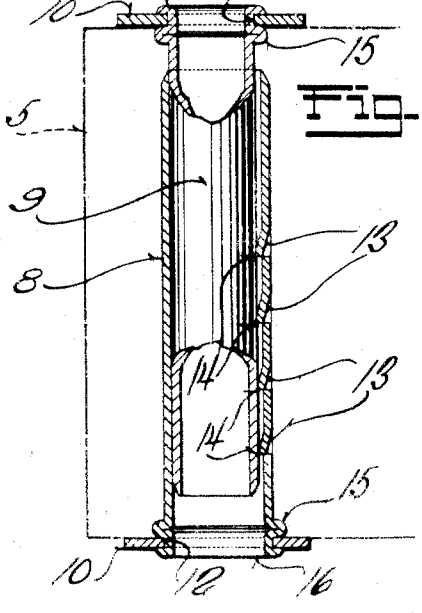


Fig. 3.



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UNITED STATES PATENT OFFICE

ADOLPH G. LOTTER, OF MILWAUKEE, WISCONSIN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO STATIONERS LOOSE LEAF COMPANY, OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN

LOOSE LEAF BINDER

Application filed May 4, 1928. Serial No. 275,149.

This invention relates to certain new and useful improvements in binding devices and refers more particularly to means for permanently connecting a plurality of record sheets for convenience in storing or for binding in a suitable covering in such a manner as to prevent the loss or detachment of any of the sheets.

Another object of this invention resides in the provision of an improved device of the character described which may be instantly applied to a plurality of record sheets without requiring the use of any tools and which when once applied is non-detachable. With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the herein-disclosed invention may be made as come within the scope of the claims.

In the accompanying drawings, I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a perspective view of my improved binding device illustrating the parts thereof as separated and about to be applied to a plurality of loose leaves or record sheets;

Figure 2 is a view, partly in end elevation and partly in transverse section and illustrating the binder as applied to the sheets; and

Figure 3 is an enlarged, detail, sectional view taken through one of the connecting post units of the device on the plane of the line 3—3 of Figure 2.

Referring now more particularly to the accompanying drawings, in which like numerals designate like parts throughout the several views, the numeral 5 designates a body or plurality of loose sheets or records which are provided with a series of aligned perforations 6 along one marginal edge, to receive the binding posts, not shown, of a suitable loose-leaf binder structure, not shown, and certain of the perforations 7 receiving the telescopic post units 8 and 9 of my improved binding device.

The device forming the subject matter of the present invention consists of a pair of bars 10 provided with apertures 11 adapted to register with the apertures 6 of the record sheets, and with apertures 12 in which the outer ends of the adjacent post sections are secured. The post sections 8 and 9 are preferably of tubular construction, and the bores of the sections 8 are slightly greater than the outside diameters of the sections 9 to telescopically receive the same. The walls of the sections 8 are struck inwardly at spaced points, as at 13, to provide a series of internal ratchet teeth or sharp edges 14 arranged to oppose movement outwardly of the members 9 when inserted therein.

The sections 8 and 9 are secured to their respective bars 10 by having annular shoulders or ribs 15 crimped or spun inwardly of their outer ends to abut the inner surfaces of the bars adjacent the apertures 12 and having their extreme ends flanged over the outer surfaces of the bars, as at 16, see Figure 3.

When the body of record sheets 5 is complete and it is desired to store it either with or without a cover or when it is desired to maintain the single sheets against detachment one from the other within a suitable loose-leaf binder structure, the bars 10 are disposed on opposite sides of the body of records and their post sections inserted in the openings 7 thereof. As the bars are forced toward each other to clamp the body of leaves therebetween, the sections 9 telescope within the sections 8, the teeth or sharp portions 14 of the sections 8 dragging over the sections 9, but resisting separation of the post sections due to the edges 14 tending to bite deeper into the sections 9 upon outward movement thereof, as will be readily apparent from reference to Figure 3.

The order of the center post unit is preferably reversed with respect to the outermost units, the section 8, which is the post having the larger diameter, preferably being on the bar 10 carrying the end-most sections 9.

From the foregoing description, taken in

connection with the accompanying drawings, it will be readily apparent to those skilled in the art to which an invention of the character described apertains, that I provide a novel and improved binder structure which permanently secures a body of record sheets together, to prevent their becoming lost or detached and which readily lends itself to insertion in a loose-leaf binder structure of any character.

What I claim as my invention is:

1. A device for permanently binding a plurality of loose sheets having aligned apertures, which consists of a pair of pressure bars, tubular members of different diameters carried by the bars and engageable in the same apertures in the sheets from opposite sides to telescope one in the other, and longitudinally spaced portions struck inwardly from the member of larger diameter to form sharp projections in the bore of said member which bite into the outer walls of the inner member and restrain movement apart of said members to permanently bind the sheets between the pressure bars.

2. In a device for permanently binding a plurality of loose sheets having aligned apertures, a first tubular member having a bore of fixed diameter, longitudinally spaced portions struck inwardly to form sharp projections in the bore of said member and defining between the innermost edge of said sharp projection and the opposite wall of the bore a portion of minimum diameter, a second tubular member having an outer diameter smaller than said fixed diameter and larger than said minimum diameter and adapted to be forced into said first named tubular member, said projections biting into said second named tubular member to prevent withdrawal.

3. In a device for permanently binding a plurality of loose sheets having aligned apertures comprising a pressure bar having a pair of lateral edges, a pair of tubular members secured to said pressure bar adjacent the ends thereof, and between said lateral edges, said tubular members having a bore of fixed diameter, longitudinally spaced portions struck inwardly to form sharp projections in the bore of said member and forming between the inner most portion of said sharp projections and the opposite wall of said bore a portion of minimum diameter, a second pressure bar having parallel lateral edges and being parallel to said first pressure bar, a second pair of tubular members attached to the ends of said second bar between the lateral edges thereof and in positions corresponding to said first named tubular member, said second named tubular members having a diameter intermediate said fixed diameter and said minimum diameter and being adapted to be forced into said first named tubular members, said projections biting into said second tubular members to prevent withdrawal of said second tubular members from said first tubular members.

4. In a device for permanently binding a plurality of loose sheets having aligned apertures, a first pressure bar having a pair of aligned edges, a pair of tubular members having a fixed inside diameter secured to said pressure bar at the opposite ends thereof and intermediate said edges, said tubular members having a plurality of longitudinally spaced portions struck inwardly to form sharp projections in the bores of said members forming between the innermost portions of said sharp projections and the wall of the bore opposite said portions a portion of minimum diameter, said projections lying in a plane parallel to one of said edges, a second pressure bar disposed parallel to said first pressure bar having a second pair of longitudinal edges, a second pair of tubular members secured to said bar between said edges in longitudinal positions corresponding to said first named tubular members, said second tubular members having a diameter intermediate said minimum diameter and said fixed diameter, a third tubular member disposed on said second named bar and having a fixed diameter corresponding to the fixed diameter of said first named pair of members, longitudinally spaced portions struck inwardly from said third tubular member to form sharp projections in the bore of said member, formed between the innermost portions of said sharp projections and the wall of the bore opposite said projections, a second portion of minimum diameter, said last named projections lying adjacent the opposite edge from said first named projections, a fourth tubular member secured to said first pressure bar intermediate said first named pair of tubular members and in position corresponding to said third tubular member having a diameter intermediate said fixed diameter, and said second minimum diameter, said second named pair of members and said fourth member being adapted to be forced into said first pair and said fourth tubular member, said projections biting into said second pair and said fourth tubular members to prevent withdrawal from the respective tubular members.

In testimony whereof I have hereunto affixed my signature.

ADOLPH G. LOTTER.