Jan. 21, 1930. A. G. LOTTER 1,744,274

FLEXIBLE POST FOR LOOSE LEAF BINDERS

Filed Feb. 23, 1928

Fig. 1.

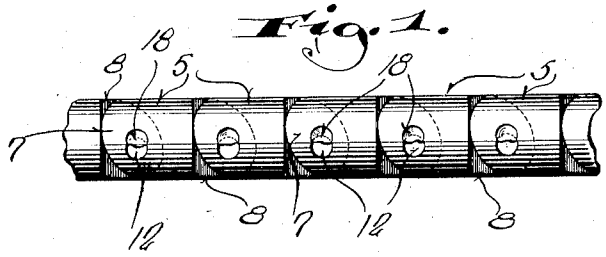



Fig. 2.

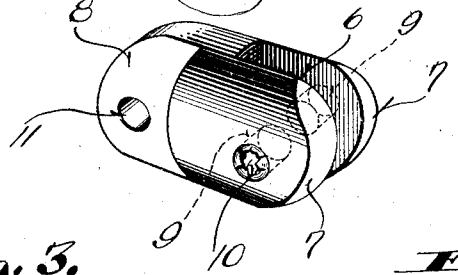



Fig. 3.

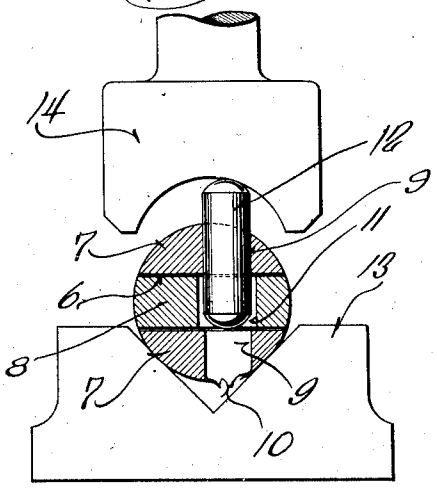
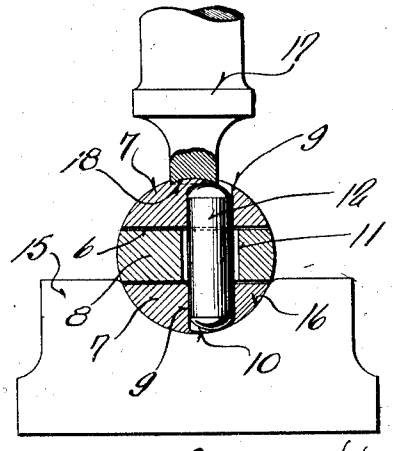



Fig. 4.




Inventor

Adolph G. Lotter

By Ira Milton Jones.

C. M. Kinney.

Patented Jan. 21, 1930

1,744,274

# UNITED STATES PATENT OFFICE

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

## FLEXIBLE POST FOR LOOSE-LEAF BINDERS

Application filed February 23, 1928. Serial No. 256,372.

This invention relates to certain new and useful improvements in flexible posts for loose leaf binders and the method of making the same. Binder posts of this type are generally formed of a plurality of hingedly connected small units and heretofore the outer ends of the apertures thereof through which the pivot pins extend were counter-bored and the pin ends riveted. While this method of assembling the posts is practical, it is extremely costly and this invention has as its principal object to provide a flexible binder post wherein the means for hingedly connecting its sections obviates the necessity of counter-boring and riveting.

A further object of this invention resides in the provision of means for hingedly connecting the units of a flexible binder post wherein the normal burr resulting from drilling the pivot pin aperture is utilized to assist in maintaining the pin against displacement.

A further object of this invention resides in the method of hingedly connecting the units of a flexible binder post wherein the pin inserted in the aligned apertures of adjacent units, has a press fit in the apertures of one section and is relatively free within the aperture of the other section.

And a still further object of this invention resides in the method of hingedly connecting the adjacent units of a flexible binder post wherein the normal burr, resulting from drilling the pivot pin aperture in one unit, is pressed back into the aperture over the adjacent end of the pivot pin and the material at the periphery of the other end of said aperture is swedged over the other end of the pin in a single operation.

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 hereindisclosed invention may be made as come within the scope of the claims.

In the accompanying drawing, 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 view in elevation of a length of completed flexible binder post;

Figure 2 is an enlarged perspective view of one unit and illustrating the normal burr left after drilling the aperture through one end;

Figure 3 is a diagrammatic view illustrating the method of inserting the pin into the aligned apertures of adjacent units, and

Figure 4 is a diagrammatic view illustrating the method of swedging the material at one end of the pin and pressing the normal burr into the aperture over the other end of the pin.

Referring now more particularly to the accompanying drawing, in which like numerals designate like parts throughout the several views, 5 designates the units of which a length of flexible post is formed. One end of each unit is bifurcated to provide a recess 6 and spaced extension members 7 and the opposite end has its side portions cut away to form a web member 8 of a size to fit within the recess 6 of an adjacent unit.

The units are preferably formed of round stock and their ends are rounded to facilitate pivotal movement of one with respect to the other. The spaced extension members 7 are drilled to provide aligned apertures 9, the normal burrs 10 remaining after drilling the apertures, being retained instead of removed as heretofore, for a purpose to be later described, and the opposite ends or webbed portions 8 are apertured, as at 11, the apertures 11 being slightly larger than the apertures 9.

In assembling, several units are arranged with the webbed portion on one extending into the recess 6 of the next adjacent unit with their apertures 9 and 11 aligned. Pins 12 of a length slightly less than the combined length of the aligned apertures are then inserted, as illustrated in Figure 3, preferably on a punch press or the like. The plurality of units being held in the trough of a supporting block 13 which maintains the same in their

proper relation as the pins 12 are inserted. The pins 12 have a loose fit in the apertures 11 and a drive fit in the apertures 9, being pressed into place by a die block 14 carried by the ram of the press not shown. The operating face of the block is shaped to conform to the circumference of the units, so that the pins, the ends of which are preferably rounded, are pressed into place with only their upper-most points in line with the circumference of the units. The increased size of the apertures in the web members 8, permits free pivotal movement of the units with respect to each other.

After the pins have been inserted, the plurality of connected units is then placed in a die block 15, the trough 16 of which is shaped to conform to the contour of the units and a punch 17 is actuated to swedge the metal adjacent the periphery of the aperture 9 opposite the side having the burr, over the adjacent end of the pin, as at 18. The swedging action also causes the burr 10 to be pressed back into the aperture over the path of the pin. The apertures through which the pins 12 pass being off center and the punch 17 being in line with the longitudinal axis of the connected units prevents rotation of the units within the die block 15 during the swedging operation.

From the foregoing description taken in connection with the accompanying drawing it will be readily apparent to those skilled in the art to which an invention of this character appertains that I have provided a flexible post for loose leaf binders and a method of hingedly connecting its several units whereby a permanent hinged connection is afforded at an extremely lower cost than has heretofore been possible.

What I claim as my invention is:

1. The method of connecting the units of a flexible binder post, which consists in drilling an aperture through one unit and leaving the normal burr at the end of the aperture, in forming an aperture through the end of the adjacent unit, in aligning the apertures of the units, in placing a pin in the aligned apertures, the length of which is less than the combined length of the apertures, and in securing the pin against displacement at one end by pressing over the burr left in drilling and at its other end by swedging the material at the periphery of the aperture over the adjacent end of the pin.

2. The method of hingedly connecting the units of a flexible binder post of the character described, which consists in drilling one end of one unit and leaving the normal burr caused by the drilling operation, in aligning the apertured end of the adjacent unit with the drilled aperture, in inserting a pin in the aligned apertures, the pin being of less length than the combined length of the apertures, and in pressing the burr into the aperture and swedging the material at the periphery of the opposite end of the drilled aperture over the end of the pin in a single operation.

3. A flexible binder post of the character described, comprising a plurality of complementary units, each having an apertured web portion at one end and an apertured bifurcated portion at its other, the web of one unit being positioned within the bifurcated end of the next unit with the apertures aligned and the apertures of the bifurcated end of each unit being formed by drilling producing a burr at one end and the aperture of the web being of greater diameter than that of the bifurcated end, pins adapted to be inserted in the aligned apertures to hingedly connect adjacent units, each pin having a driving fit in the smaller apertures and being of less length than the combined length of the apertures, and means securing each pin against displacement including the burr at one end and a part of the unit swedged over the other end.

In testimony whereof I hereunto affix my signature.

ADOLPH G. LOTTER.