Jan. 17, 1933. J. C. DAWSON 1,894,734

RING BOOKBINDER

Filed June 27, 1930

Fig. 1

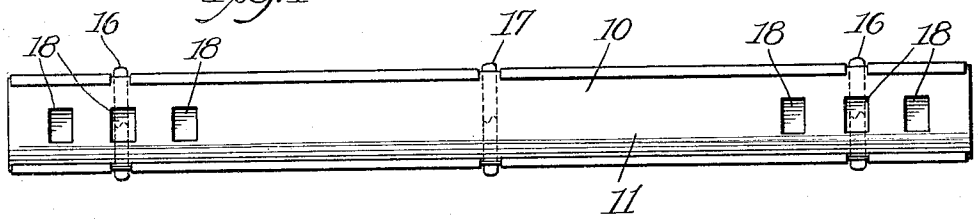


Fig. 2

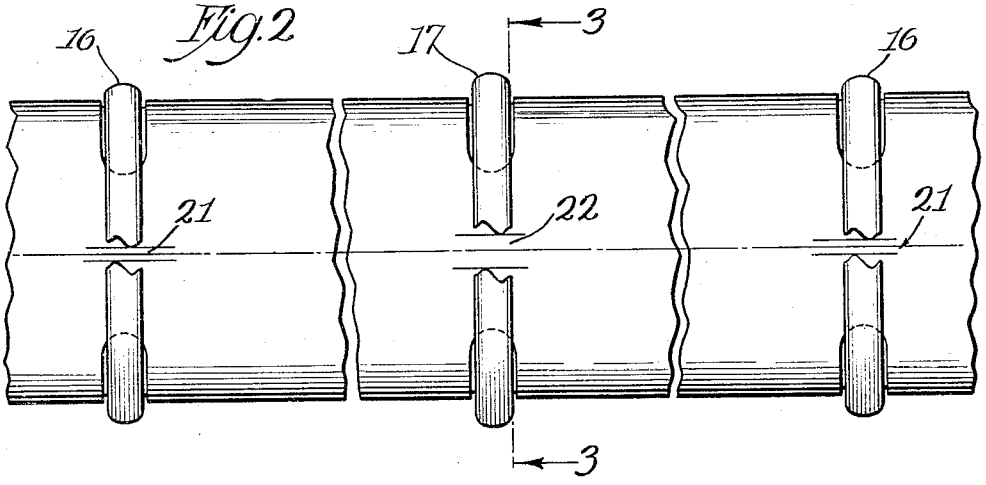
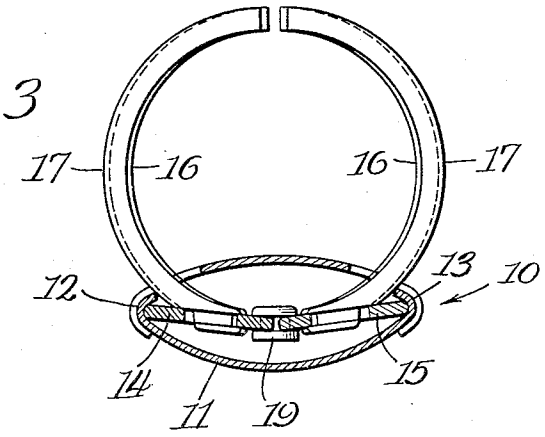


Fig. 3



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UNITED STATES PATENT OFFICE

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RING BOOKBINDER

Application filed June 27, 1930. Serial No. 464,232.

This invention relates to ring book binders and has for its principal object to provide the end pairs of prongs or arches with closing pressure substantially as great as that on the intermediate pairs.

Other objects and advantages of the invention will become apparent as the disclosure proceeds and the description is read in conjunction with the accompanying drawing, in which

Fig. 1 represents a longitudinal, rear elevation of a loose leaf binder metal;

Fig. 2 is an enlarged front elevation with unnecessary parts broken away; and

Fig. 3 is a section through the binder looking to the left on the line 3—3 of Fig. 2.

With reference to Fig. 1 it will be seen that the loose leaf binder metal, generally indicated by 10, comprises a spring back 11 provided with the hooked margins 12 and 13, Fig. 3, in which the articulated toggle plates 14 and 15 are resiliently mounted. The toggle plates are provided with a plurality of mating pairs of paper holding prongs, one pair 16 being located adjacent either end of the spring back 11 and an intermediate pair 17 positioned between the two.

The spring back 11 may be regarded as composed of at least three springs; two of these are short since they are at the ends of the back while the third section which urges the central pair of prongs into engagement is much longer and consequently much more powerful than the end sections of the spring. These are often further weakened by the presence of rivet holes or as in a common form here illustrated, clearance apertures 18, 18, through which fingers struck up from the book back project. In any case, it follows that the pressure holding the prongs 17 closed is in excess of that holding closed the prongs 16 and this is true whether the spring be the cover plate or the spring back.

It is desirable that these prongs be held together by a pressure at least as great as that closing the prongs 17 for whenever the pages of the paper are turned, the strain in turning has the marked tendency to pull the end arches apart. Commonly, however, the arch, which is held together by the strongest pressure is the intermediate arch which is acted upon by the strongest spring, and it frequently happens that the prongs 16 do not completely close but gape apart.

If, however, the prongs or the plates are distorted in such a manner as to cause the prongs 16 to close in advance of the prongs 17, the end of the spring back 11 may be caused to exert a pressure which is substantially equal or in excess of that closing the prongs 17. This action may be secured by the construction illustrated, in which, as indicated in Fig. 2, the end prongs are slightly longer than those of the intermediate pair. The spring continues to exert an unequal pressure when the prongs are open but this distribution of pressure is destroyed immediately when the end pairs of prongs close and hence offer resistance to the spring.

It will be noticed that the distance 21, 21 between the prongs 16 is less than the distance 22 between the prongs 17. In the vertical section, Fig. 3, where the prongs are shown in perspective, it is also to be noticed that the near pair of prongs 17 is closing later than the far pair of prongs 16.

By such an adjustment, it is possible to cause all pairs of prongs to be closed with substantially equal pressure. It may even be desirable to cause the end portions to be closed with a considerably greater pressure than that closing the intermediate pair. This may be accomplished in exactly the same manner simply by increasing the difference in the closing as previously explained.

While a preferred and highly efficient embodiment of the invention is herein disclosed, it may take different forms within the scope of the appended claims.

What I claim, therefore, is:

1. In a loose leaf binder, a pair of articulated toggle plates, a paper-holding prong adjacent to each end of each plate arranged in mating pairs, an intermediate prong on each toggle plate arranged to mate with the opposing prong, with their free ends out of line with and lagging behind the free ends of the end prongs as they approach the closed position.

2. In a loose leaf binder in combination, a

concave spring plate having its side margins in-turned, a pair of toggle elements engaged between the margins of the spring plate, pairs of mating prongs mounted on the toggle elements adjacent the ends thereof, and a pair of mating prongs mounted on such elements intermediate of their ends and being shorter than the end prongs whereby pressure between said intermediate prongs is not greater than that between the end prongs.

3. In a loose leaf binder, a pair of articulated toggle plates, a paper holding prong adjacent to each end of each plate arranged in mating pairs, an intermediate prong on each toggle plate arranged in mating relation and means, including a base plate having hooked margins engaging the outer edges of said toggle plates, for resiliently mounting the toggle plates and for causing the intermediate prong to engage its mate subsequently to the engagement of the prongs adjacent to the ends of the plates during the closing operation of the binder.

4. In a loose leaf binder, in combination, a transversely bowed spring plate having inturned margins, cooperating toggle plates inclosed between such margins, pairs of mating paper-holding prongs mounted on the toggle plates adjacent the ends thereof, and an intermediate pair of mating prongs mounted on such plates and being shorter than the end prongs, whereby the spring pressure holding the several pairs of prongs closed is rendered more nearly uniform.

In testimony whereof I affix my signature.

JAMES C. DAWSON.