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E. N. FARKAS

2,202,097

LOOSE-LEAF BINDER

Filed Sept. 9, 1938

Fig. 1.

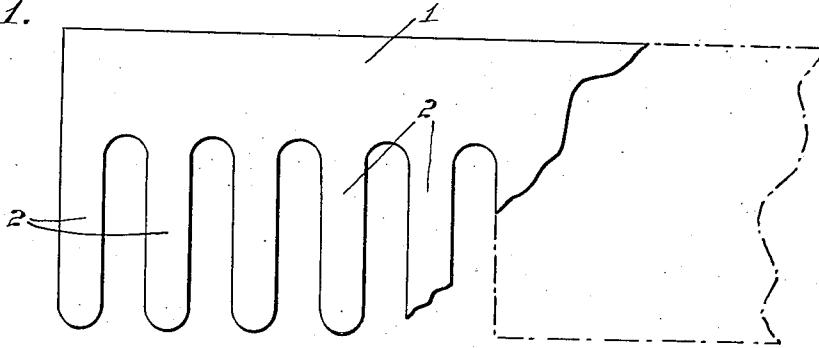


Fig. 2.

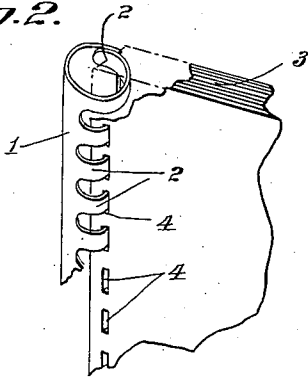


Fig. 3.

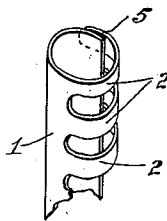


Fig. 4.

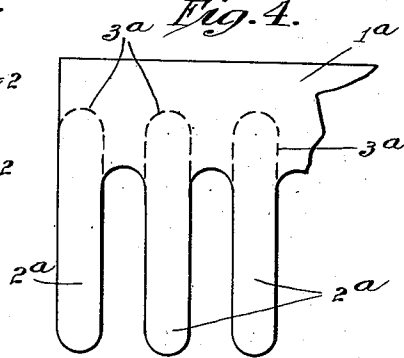


Fig. 5.

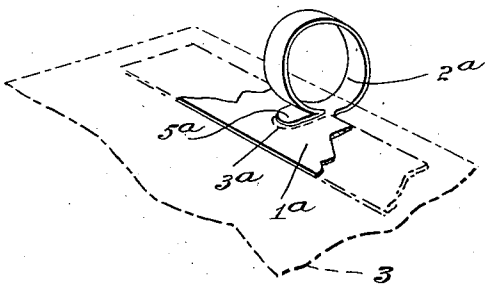
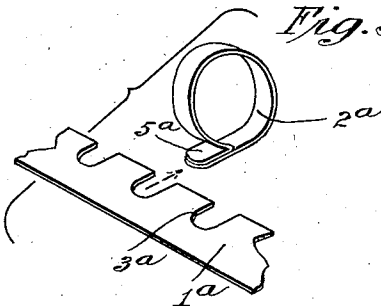


Fig. 5a.



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# UNITED STATES PATENT OFFICE

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## LOOSE-LEAF BINDER

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Application September 9, 1938, Serial No. 229,075

### 1 Claim. (Cl. 281—21)

This invention relates to a new and useful loose-leaf binder for books and the like.

It has been heretofore suggested to use clasps, rings or other fastening devices engaging perforations in the leaves for the purpose of insuring proper coordination between adjacent or superimposed leaves and for holding together the leaves so that when the booklet is opened the leaves will lie flat. Such fastening devices or rings, to be referred to as "loose-leaf" binders, were usually made out of metal, plastic materials, or other similar substances which, while in many respects were eminently satisfactory, were relatively expensive and, owing to their relative rigidity and tensile strength, tend to tear the paper leaves.

Still another objection to such fastening or binding devices of the prior art is that metal or plastic spirals or rings must necessarily be formed on special machines adapted to handle such materials. Bookbinding shops are usually equipped with machinery adapted only to handle paper; therefore, special machinery foreign to the bookbinding trade must be used for handling such binding devices.

It is the object of the present invention to overcome these disadvantages of prior mechanical loose-leaf binders. I attain this by making the binding device of paper having preferably slightly greater rigidity or tensile strength than the leaves of the booklet. The rigidity or tensile strength of the paper binding device may be attained by using a paper stock having inherently greater strength, or by using the same paper stock that is used in making up the booklet and increasing its rigidity by doubling it or by pasting together portions of it, or by some other means that may readily suggest itself to those skilled in the art, or by laminating it with other materials.

Since my novel loose-leaf binder is made out of paper, it can be handled by the usual personnel and with the usual equipment of a bookbinding shop. Combs formed of paper can much more readily be formed into loose-leaf binders than combs of metal or plastic materials.

Where the outside covers of the booklet are made of suitable stock, it may be used for forming the binding device. In this case the binding device will harmonize with the cover. Since it is made of paper, the decoration of the binding device or the printing of advertisements thereon is no more difficult than the decoration of the book cover.

Still another advantage resulting from my in-

vention over the fastening devices of the prior art is the substantial saving in cost of materials used to produce the desired object.

An added advantage of my invention is the lighter mailing weight of an assembly such as I propose, thus effecting a great saving in postage.

More clearly to illustrate the nature of the invention I have shown in the drawing three embodiments thereof.

Fig. 1 represents a top plan view of the loose-leaf binder before use;

Fig. 2 is a perspective view of the binder holding together the leaves of a booklet;

Fig. 3 is a perspective view of a second way in which the binder may be applied;

Fig. 4 is a top plan view of a modified form of the loose-leaf binder before it is put in place; and

Figs. 5 and 5a illustrate in perspective the binder of Fig. 4 in its finally assembled form.

Figs. 1-3 illustrate substantially the same structure as is disclosed in patent No. 1,970,285 of August 14, 1934, to Roger M. L. Douvry. However, instead of a plastic material, I use a blank of paper which is formed into a comb shape having a back 1 from which teeth project. The length of the teeth, and the length and the width of the back 1, will vary, depending on the size and weight of the leaves to be bound together and the use to which it is intended to put them. These dimensions will depend on the tensile strength of the paper used in blank 1.

As shown in Fig. 2, a group of leaves 3 may be held together by passing the teeth or bands 2 through perforations 4 provided along the edges of the leaves, bending back the teeth after they have been passed through the perforations of all the sheets, and attaching the end 5 of each tooth to the inside of the free edge of the comb 1 to form complete rings. The fastening can be accomplished by any suitable means. For instance, the ends 5 may be glued, they may be crimped, or otherwise mechanically united with the comb 1. As shown in Fig. 3, the ends 5 of the teeth 2 may be attached to the outside of the free edge of the comb. The back 1 serves to hold together the rings formed by the bands 2.

In Fig. 4 I have illustrated a comb like the one shown in Fig. 1. However, in this case, the back 1<sup>a</sup> has perforated or scored portions 3<sup>a</sup> constituting extensions of the teeth 2<sup>a</sup>. In holding together sheets by means of the comb shown in Fig. 4, the back 1<sup>a</sup> is placed between the last two sheets, or between some other two sheets of the assembly that is to be formed into a booklet. The

teeth 2<sup>a</sup> are then passed through the perforations of the leaves, and then the end 5<sup>a</sup> of each tooth is brought back into contact with the corresponding scored or perforated portions 3<sup>a</sup> and attached thereto by means such as I have described in connection with Figs. 1-3 to form complete rings. The assembly may either be left in place as shown in Fig. 5, or, as shown in Fig. 5*a*, the back 1<sup>a</sup> may be torn loose, leaving in place only the rings 2<sup>a</sup> with their respective overlapping ends 5<sup>a</sup>, 3<sup>a</sup> attached to one another. In other words, the paper rings may be held to one another or left separate.

Instead of fastening the ends 5<sup>a</sup> of the fingers to portions 3<sup>a</sup> at the inside edge of comb 1<sup>a</sup>, they may be fastened to the outside edges thereof.

As distinguished from the structures shown in Figs. 2 and 3, where the back 1 of the comb is on the outside of the booklet, in Figs. 5 and 5*a*, the back 1<sup>a</sup>, or the portions that are left of it, will be inside the booklet.

The paper stock out of which the comb is made should be stronger or of greater tensile strength than the leaves of the booklet to be held together. It should, however, not be so strong as to present a hard or rigid surface to the edges of the perforations 4. This will guard against the tearing of the leaves. The paper stock of the comb, as distinguished from the metal or plastic material of the prior art, will have a "give" to it which will cushion the blows when the booklet is thrown on its fastened edge, without transmitting them to the leaves.

Owing to the fact that my improved paper binder may be easily collapsed, it will be possible

to stack the booklets, whereas such stacking with metal or plastic bound books is impossible or difficult because such relatively rigid binding means projects beyond the limits of the booklet and cannot be collapsed without destroying their usefulness.

The paper used in making up the loose-leaf binder may, if desired, be formed of a plurality of superimposed sheets, or, as they are called, laminations, held together by means well known in the paper-making art. Where the paper is provided with a suitable reinforcing lamination or coating, it is possible to attach the ends 5 of the fingers to the back, or the ends 5<sup>a</sup> to the overlapping scored portions 3<sup>a</sup>, by the application of heat and pressure.

The width of the teeth or bands 2 and the corresponding length of the perforations 4 will, of course, also vary, depending on the tensile strength, weight and size of the leaves, as well as the number of leaves to be held together. These dimensions will be greater than is customary with metallic or plastic bindings.

What is claimed is:

A loose-leaf binder for sheets of paper consisting of a comb of paper for fastening together paper sheets having perforations, said comb having teeth and scored portions to define easy tear lines in the back constituting extensions of the teeth, the teeth of the comb projecting through the perforations of the sheets with the ends of the teeth bent back and attached to the corresponding scored portions of the comb.

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