July 2, 1940. E. N. FARKAS 2,206,394

LEAF BINDING DEVICE

Filed Oct. 17, 1938 2 Sheets-Sheet 1

FIG. 1

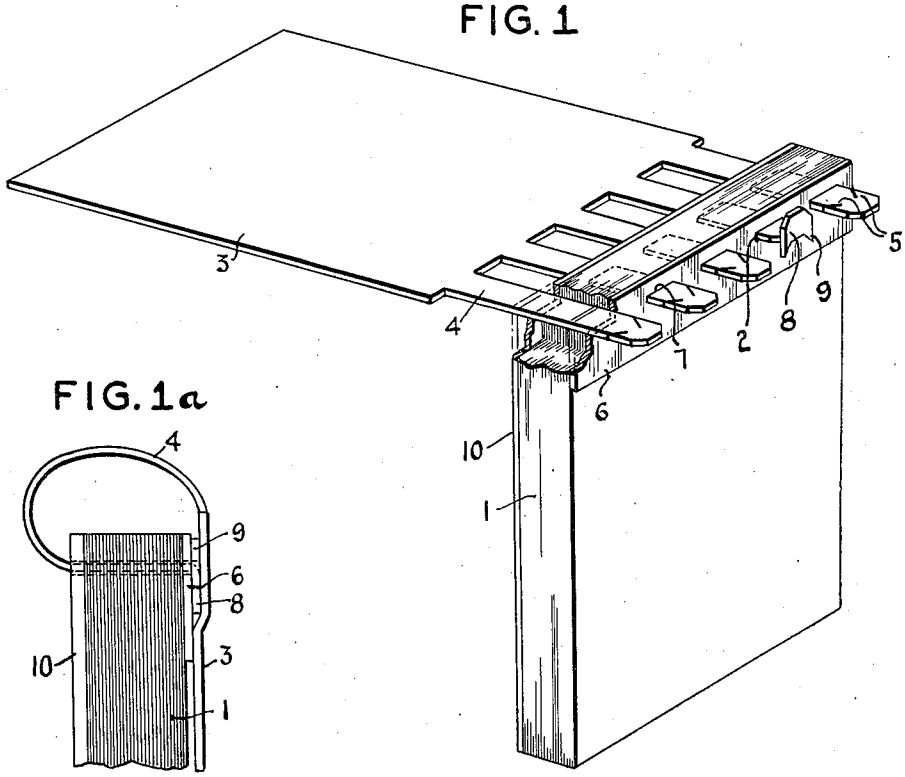


FIG. 1a

FIG. 2

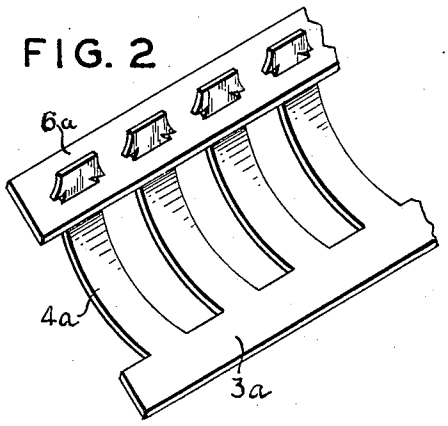
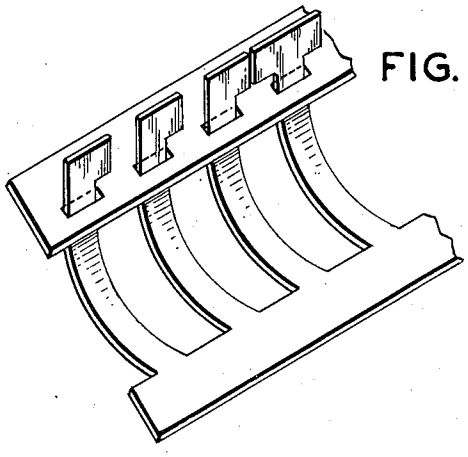


FIG. 2a



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FIG. 3

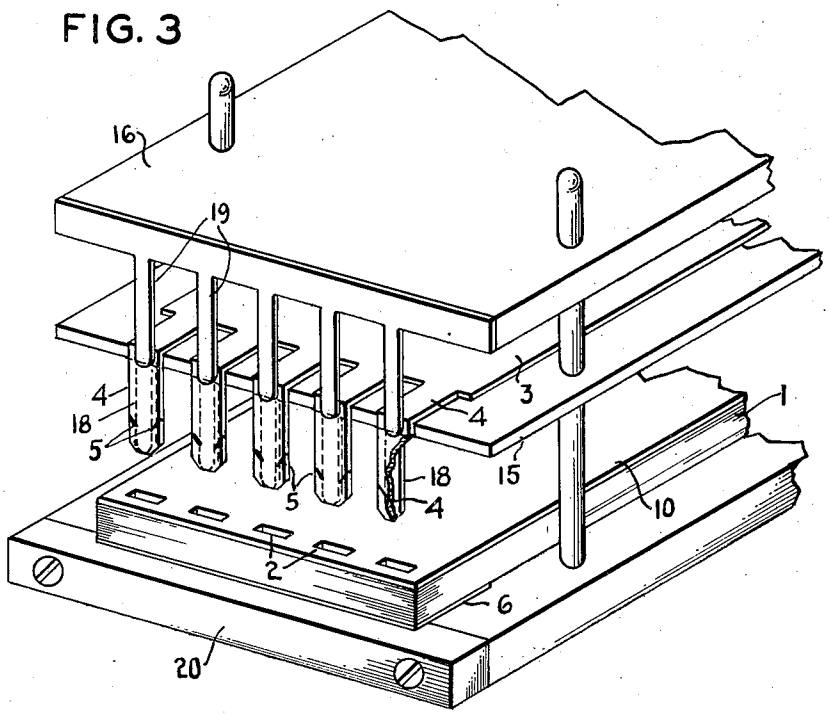
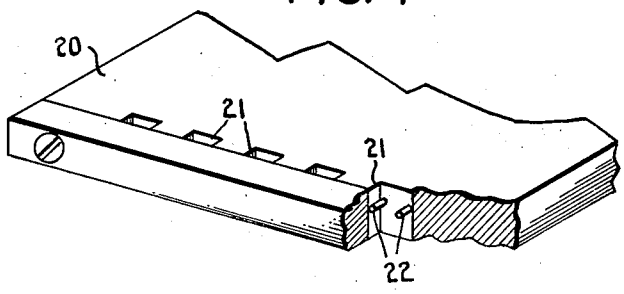


FIG. 4



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LEAF BINDING DEVICE

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Application October 17, 1938, Serial No. 235,381

6 Claims. (Cl. 281—21)

This invention relates to new and useful improvements in devices for assembling marginally perforated leaves in the general form of a book.

The object of this invention is a device for binding, whereby a very simple binding means constructed from inexpensive materials, such as paper and the like, may be readily applied to marginally perforated leaves.

In order to explain the nature of the invention certain embodiments thereof will now be described.

In the drawings, Fig. 1 is a perspective view of a book assembly illustrating an embodiment of the invention;

Fig. 1*a* is a side elevation of the book of Fig. 1 bound and closed;

Figs. 2 and 2*a* are perspective views of modified embodiments of the improved binder;

Fig. 3 is a perspective view of the mechanism by means of which the novel method of assembling can be practiced; and

Fig. 4 is a perspective view of the bottom portion of the assembling mechanism.

Referring now to Fig. 1, 1 indicates the leaves which it is desired to bind together into a book. The leaves are provided with marginal perforations 2, preferably though not necessarily of rectangular outline. 3 is one of the paper covers of the book, in one edge of which integral fingers 4 are formed. The fingers are of such width and are so shaped and spaced as to project through the perforations 2. Near its end each finger has two lateral slanting slits 5 extending from the edges and the purpose of which will be explained presently.

A binding strip 6 is placed against the right-hand top leaf 1, the strip being of such width and length as completely to cover the marginal perforations 2. In alignment with each perforation, the binding strip 6 is provided with a slit 7 of such dimensions that a finger 4 may be forced therethrough.

To bind the leaves 1 together the fingers 4 of the cover are pushed through the perforations 2 and through the slits 7 in the binding strip 6. The fingers 4 project far enough so that the lateral slits 5 will be past the binding strip 6. The ends 8 of the fingers 4 are bent up along the line of the slits 5. With the ends of each finger 4 thus deformed, the fingers are pulled back until the portions adjacent the slits 5, which have been distorted out of the planes of the fingers, contact with the binding strip 6. The distorted portion which catches against the binding strip 6 will be further deformed, as illustrated in connection with the first two fingers in Fig. 1, so that prongs 9 will be formed therein. These prongs will prevent the withdrawal of the fingers from the slits 7.

The binding strip 6 may be left loose or it may be secured to the cover 3. The cover 3 is rotated on top of this right-hand top leaf. Assuming that the left-hand top leaf 10 is also a cover sheet, I will now have a complete book, as illustrated in side elevation in Fig. 1*a*.

As shown in Fig. 2, the fingers serving as the binding need not form integral parts of a complete cover 3. In the structure here shown, the fingers 4*a* are integral merely with what corresponds to a binding strip 3*a* and their ends cooperate with a binding strip 6*a* in the same manner as the ends of fingers 4*a* cooperate with binding strip 6. The assembly of the book by means of the binding shown in Fig. 2 is accomplished in the same manner as shown in Fig. 1, except that two adjacent end leaves are the cover leaves of the book. After the fingers 4*a* have been laced through, the binding strip 3*a* and one end leaf are rotated over into contact with the strip 6*a* and adjacent leaf, so that the two covers assume the same positions as shown in Fig. 1*a*. The two binding strips 3*a* and 6*a* may be either left loose or the two may be fastened together, and they may also be attached to a leaf or a cover sheet.

A further modification of the structure is shown in Fig. 2*a*, in which the fingers are locked against withdrawal from the paper strip by an L-shaped integral end formed in the fingers, the projecting part of which was folded back and held generally in the plane of the finger while it was being pushed through a slit in the binding strip. The folded ends are permitted to spring into the positions illustrated after the step of guiding them through the binding strip had been completed.

It will be noted that in all these modifications shown in Figs. 1, 2 and 2*a*, in effect a ladder-like structure is present, the rungs of which are constituted by the fingers, one side by the binding strip 6 and the other side either by the cover 3 of the book or by the strip 3*a*. At least one of the sides of this ladder-like structure, i. e., the side 6, is removable. The method of binding together the leaves of the book may be practiced simply by forming a ladder-like structure either as an integral part of one of the covers, or otherwise, without, however, attaching one of the sides to the rungs, then passing the open ends of the rungs through the perforations, and finally lock-

ing the rung against withdrawal from the detachable side. The manner in which the ladder is assembled and locked together can, of course, be varied within wide limits without departing from the spirit of the present invention.

The leaves 1 as well as all other elements described in connection with Figs. 1 and 2, may be of paper or any other suitable material.

The method of assembly described in connection with Figs. 1 and 2, including the deforming of the ends of the fingers so as to lock them against withdrawal from the binding strip and the perforations, may be practiced by hand or by any suitable mechanism. One such mechanism is shown in Fig. 3. As here illustrated, the cover 3 or the binding strip 3a, as the case may be, is placed between two plates 15 and 16 which may be clamped together by any suitable means. The cover 3 is placed with the fingers 4 projecting beyond the edge of plate 15. Very thin steel fingers 18 are fastened to the edge of plate 15 at right angles to the top thereof and spaced at the spacing of fingers 4. Corresponding and cooperating steel fingers 19 are fastened to the edge of top plate 16. The steel fingers 18 and 19 in this specific embodiment are narrower than the fingers 4, and they are so placed and spaced with respect to one another that when the plates 15 and 16 are clamped together, the paper fingers 4 will be tightly held between the steel fingers 18 and 19, the cover 3 being at the same time held between the plates 15 and 16. When structures like Fig. 2a are applied, the steel guiding fingers need not be narrower and serve to hold the projecting end folded back. This assembly may now be placed on top of the stack of leaves 1 and the paper fingers 4, guided by the steel fingers 18, 19, pushed through the perforations 2 and the slits 7 in binding strip 6 which is below the bottom leaf 1.

The leaves 1 and strip 6 rest on a bottom plate 20 having a row of pockets 21, one in alignment with each perforation 2. The fingers 4, 18 and 19 are long enough so that when assembled as above described, they will project through the perforations 2 and slits 7 and down to the bottoms of the recesses 21. Near the bottom of each recess two prongs 22 project from the back wall thereof, as viewed in Fig. 4. These prongs are in alignment with the edges of the paper fingers 4 which extend to the two sides of the steel fingers 18, 19, and as the assembly is forced past these prongs, they will distort the paper at the laterally cut portions into substantially the same form as shown in Fig. 1.

The top 16 is then removed as is the bottom plate 20. The cover 3 is then rotated into the position indicated in Fig. 1a, whereupon the bottom plate 15 can be removed.

Since in its preferred form the book itself, as well as the binding means, are of paper, it would be practicable to bind into book form large sheets and, after binding, cut them up into smaller sizes, each of the small size cut-off portions constituting a complete book already bound together. In other words, a number of books placed side by side can be bound together in one operation and then severed from one another, each severed portion being a completed book.

It will be obvious to those skilled in the art that instead of the arrangement here illustrated, any other suitable mechanism may be used to thread the fingers 4 through the perforations and to distort and lock against withdrawal their ends.

What is claimed is:

1. As a new article of manufacture, a binder and marginally perforated leaves, said binder comprising fingers held together at one end and having their free ends projecting through the perforations in the leaves, a binding strip covering said perforations and having slits through which the ends of the fingers project, and slits in the projecting finger ends along which the latter are distorted to lock them against withdrawal from said binding strip.

2. As a new article of manufacture, a paper binder and marginally perforated leaves, said binder comprising a paper cover sheet having marginally formed fingers projecting through the perforations in the leaves, said fingers having lateral slanting slits near their ends with portions near the slits distorted out of the plane of the finger, and a paper binding strip covering said perforations and having slits to permit passage of said fingers, the distorted ends of the fingers projecting past said lateral slits to lock them against withdrawal from the slits in the binding strip.

3. As a new article of manufacture, a binder and marginally perforated leaves, said binder comprising a ladder-like paper structure the rungs of which project through the perforations in the leaves and at least one of the sides of which is removable and is locked in position by deformation in the rungs formed along slits near the ends thereof engaging a removable side.

4. A book having two covers at least one of which is marginally perforated and marginally perforated leaves between them, and flexible fingers integral with the other of said covers projecting through said perforations in the leaves and said one of said covers and having their ends fastened to said other of said covers.

5. A book having two covers at least one of which is marginally perforated and marginally perforated leaves between them, flexible fingers integral with the other of said covers projecting through said perforations in the leaves and said one of said covers, and a binding strip locked on the distorted free ends of said fingers fastened to said other of said covers.

6. As a new article of manufacture, a binder and marginally perforated leaves, said binder comprising a cover sheet, fingers attached to the cover and projecting through the perforations in the leaves, said fingers having lateral slits near their ends with portions near the slits distorted out of the plane of the finger, and a binding strip covering said perforations and having slits to permit passage of said fingers, the distorted ends of the fingers projecting past said lateral slits to lock them against withdrawal from the slits in the binding strip.

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