March 26, 1935. L. STAAB ET AL 1,995,590

FILE FOR PERFORATED SHEETS

Filed Nov. 25, 1932

Fig. 1.

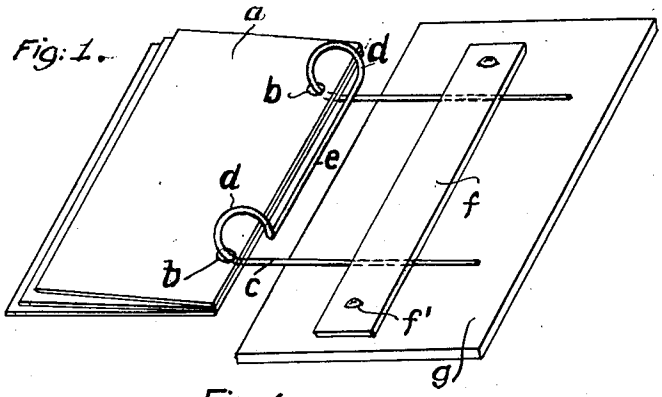


Fig. 2

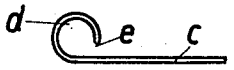


Fig. 3

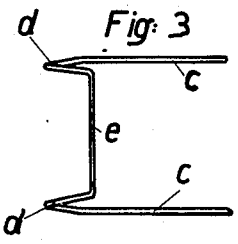


Fig. 4

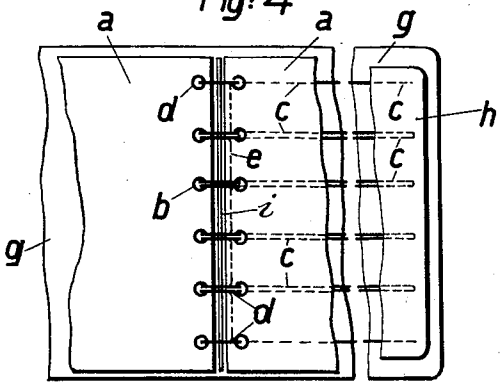


Fig. 6

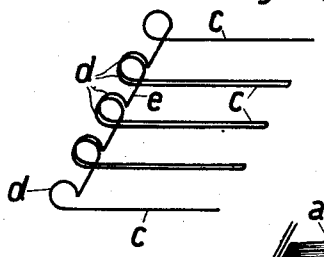


Fig. 7

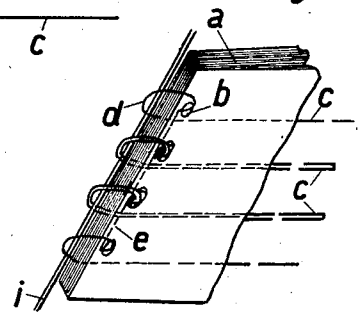


Fig. 5

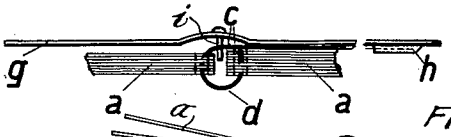


Fig. 10.

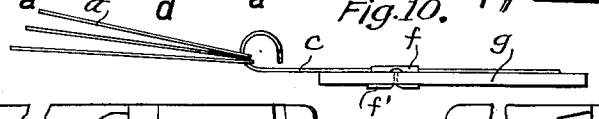


Fig. 8.

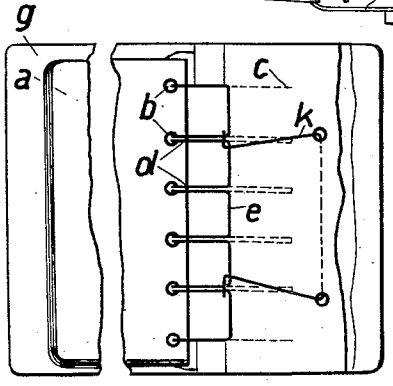
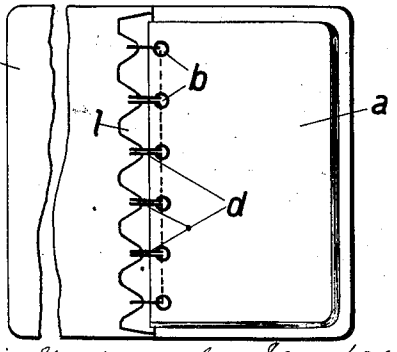


Fig. 9.



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by Marks, Addeman, Attorneys.

Patented Mar. 26, 1935

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UNITED STATES PATENT OFFICE

1,995,590

FILE FOR PERFORATED SHEETS

Ludwig Staab and Gisela Staab, Munich, Germany

Application November 25, 1932, Serial No. 644,355
In Germany November 30, 1931

4 Claims. (Cl. 129—23)

We have filed application in Germany on November 30, 1931.

Various devices have already been made known for filing and holding together paper sheets with marginal perforations in document, pamphlet or book form. The commonest form of such device consists of a screw spring, which is screwed into the perforations. This device has the disadvantage that the removal and replacement of sheets is difficult and time-consuming. The screw spring must also be prevented from becoming loose, for which purpose its ends are bent inwards. When removing or filing sheets, it is therefore necessary to cut off these ends, so that the safeguard is again lost. The sheets must also be perforated very narrowly, since only screw springs with a low pitch of thread can be employed.

The present invention removes all these disadvantages by providing a wire binder removably attached to the cover of the file, the prongs of which form rings partly open and connected by a transverse bar.

The accompanying drawing shows different forms of execution of the present invention.

Figure 1 illustrates a perspective view showing one form of the invention;

Figure 2 illustrates a side elevation of the wire used in this form;

Figure 3 illustrates a plan view of such wire;

Figure 4 illustrates a face view of an open book showing a slight modification of the invention;

Figure 5 illustrates a top view of Figure 4;

Figure 6 illustrates a perspective view of the wire employed in this modification;

Figure 7 illustrates a perspective view showing a number of leaves held by the modified wire;

Figure 8 illustrates a face view of an open book embodying a third form of the invention;

Figure 9 illustrates a face view of an open book embodying a fourth form thereof; and

Figure 10 is an end view of the device shown in Figure 1.

Figs. 1, 2 and 3 show one form of execution of the present invention, in which *a* are loose sheets with the perforations *b*. The filing device in this case consists of a binder element of wire or other suitable material with two prongs *c* of suitable length, which are formed into rings *d* at the base of the element and connected by the tie or bar *e*. The prongs *c* are removably attached to the cover *g* of the file, for instance, by means of a strip of suitable material *f* held to the cover by releasable clips *f'* such as ordinary paper fasteners. To insert or remove a sheet, the sheet which carries the strip *f* is first opened, the binder element *c, d, e* then drawn out of the pile of sheets, the new sheet inserted or the desired sheet removed and the binder element then again placed in position.

Figs. 4 and 5 illustrate a form of execution of the present invention for filing and holding together a thick pile of sheets of any desired size in the form of a book. The marginal perforations *b* may be arranged closer together or further apart, according to conditions. The binder element in this case has several prongs *c*, each of which is formed into an open ring *d*, the individual prongs and rings being connected with each other by means of the tie bar or bars *e*. This element can also be made of a single piece of wire, as shown in Fig. 6, the inner prongs and rings then consisting of a double wire, this increasing the rigidity of the element. Further, the two wires of these inner prongs may be twisted together, or otherwise connected, for instance, by steeping in a metal bath, or by soldering and the like. Or again, the same end may be attained by arranging several two-prong elements according to Figs. 1 to 3 beside each other and fastening them together by suitable means.

In the form of execution according to Figs. 4 and 5 a pocket *h* is provided on the cover *g* of the file or book, into which pocket the prongs *c* may be pushed and thus held in position.

Fig. 7 is a view of the back of the book or file, which is enclosed by the rings *d*. A pin or wire *i* may pass through the rings *d* and have its ends riveted or otherwise suitably secured to a book cover *g* so that the rings are held from detachment from the back.

Fig. 8 shows another form of the means for locking the binder element in position; this consists of a spring fork *k* fastened to the file cover *g*, the ends of which fork engage with the rings *d* of the binder element. In the case of heavy books, the locking position of the entire binder element may be attained by means of a piece of cardboard, metal or other suitable material indented along one side, as shown in Fig. 9. This indented piece *l* is also pushed into the pocket *h* of the file cover above prongs *c* and engages with the rings *d*, thus holding them in position.

What we claim as our invention, is:

1. A loose leaf binder including a wire binder formed of a single piece of wire having a pair of substantially parallel open ring members having corresponding ends connected by a straight tie portion perpendicular to the planes of the rings, the remaining ends of said rings being extended

in parallelism to each other and forming tangential portions each lying substantially in the plane of a respective ring, the two ends of each of said rings being spaced circumferentially from each other to leave a gap between said ends.

2. A loose leaf binder including a wire binder formed of a single piece of wire having a plurality of pairs of parallel open ring members, the ring members of each pair having corresponding ends connected by a straight tie portion perpendicular to the planes of the rings, said tie portions being longitudinally alined with each other, the remaining ends of the rings being extended in parallelism to each other and forming tangential portions each lying in the plane of a respective ring, the tangential portions of the adjacent rings of the pairs being connected together by bends in the wire to form a continuous wire structure.

3. A loose leaf binder including a wire binder formed of a single piece of wire having a pair of substantially parallel open ring members having corresponding ends connected by a straight tie portion perpendicular to the planes of the rings, the remaining ends of said rings being extended in parallelism to each other and forming tangential portions each lying substantially in the plane of a respective ring; in combination with a file cover having a pocket wherein said tangential portions engage.

4. A loose leaf binder including a wire binder formed of a single piece of wire having a plurality of pairs of parallel open ring members, the ring members of each pair having corresponding ends connected by a straight tie portion perpendicular to the planes of the rings, said tie portions being longitudinally alined with each other, the remaining ends of the rings being extended in parallelism to each other and forming tangential portions each lying in the plane of a respective ring, the tangential portions of the adjacent rings of the pairs being connected together by bends in the wire to form a continuous wire structure; in combination with a file cover having a pocket wherein said tangential portions engage.

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