

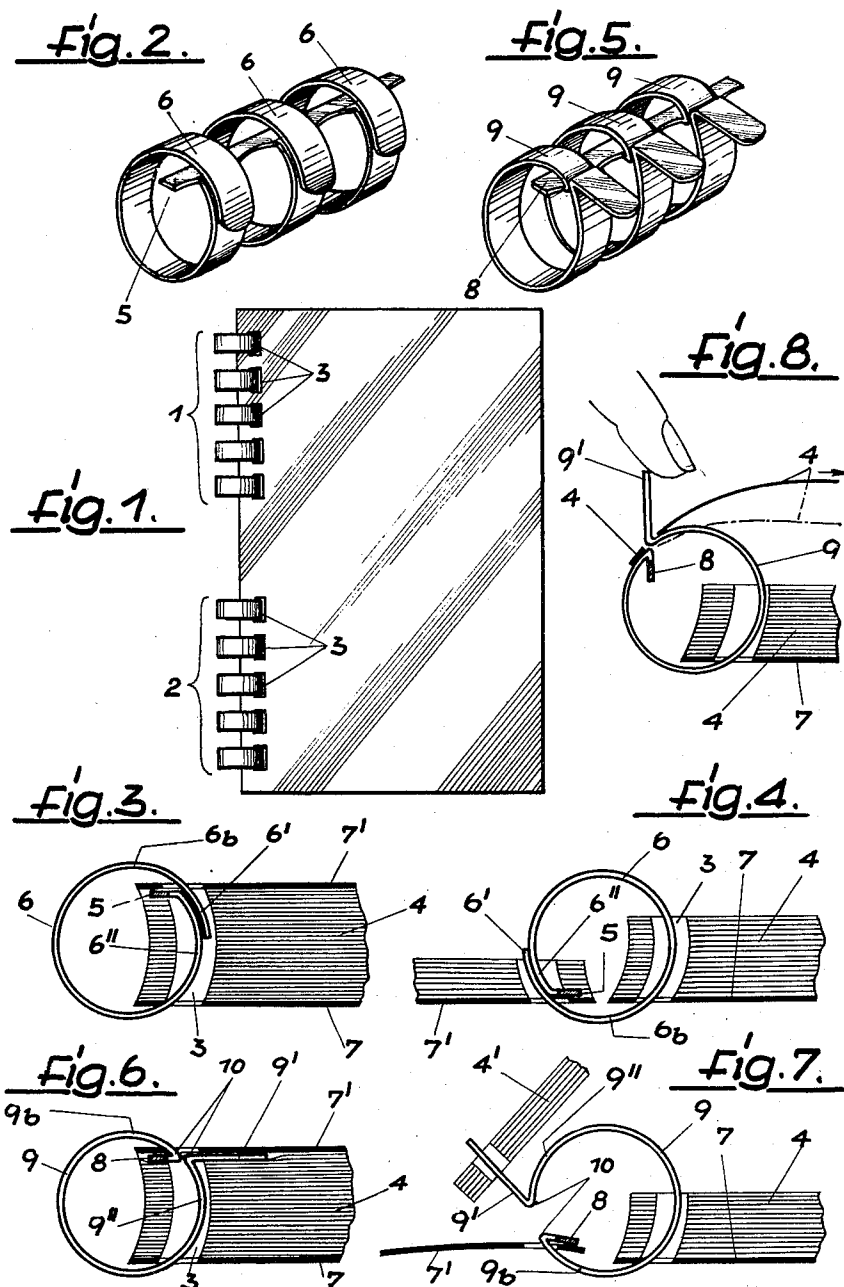
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RING UNIT FOR INTERLOCKING LOOSE LEAVES

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RING UNIT FOR INTERLOCKING
LOOSE LEAVES

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1 Claim. (Cl. 129—1)

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The invention relates to a ring unit made of spring-like flattened material, for instance Celuloid, Bakelite, thermoplastics etc., for interlocking loose leaves,

The ring units known hitherto were split rings attached to a connecting bar which are rectangular, one-sided, and parallel to each other. As a rule, the cross section of the connecting bar, seen in the longitudinal direction of the bar, extends across the arc of a circle represented by the rings, and the free ends of the rings lie either close to the parts of the rings adjacent to the connecting bar or they project radially.

Ring units of the above-mentioned kind have the disadvantage that the connecting bar, when arranged within the pack of leaves, causes a separation so that the pack of leaves is expanded so that it lifts the cover off the pack of leaves, if the connecting bar is arranged between the pack of leaves and one of the covers.

It is the object of the invention to provide a ring unit without the above-mentioned disadvantages. This problem, according to the invention, is solved by the profile of the connecting bar being arranged in the direction of a chord of each ring and by the ends of the rings adjacent to the connecting bar as well as the ring parts adjacent to the free ends of the rings touching elastically.

In particular, the structure can be arranged so that the arc of the ring coordinated with the chord is formed by the parts of the rings adjacent to the free ring ends and the free ring ends cover the ring parts adjacent to the connecting bar. In this case it is appropriate to file the loose leaves on the parts of the rings adjacent to the connecting bar.

The arc coordinated with the chord may also be formed by the parts of the rings adjacent to the connecting bar and by the free ring ends being bent outward so that they form the extension of the chord. In this case the loose leaves are placed on the parts of the rings adjacent to the free ring ends. It is a particular advantage of this design that the loose leaves can easily be exchanged.

In the drawing the object of the invention is illustrated in two examples of design in which:

Fig. 1 is a plan view of a loose-leaf-book with a ring unit according to the invention,

Fig. 2 is a perspective view of the ring unit,

Fig. 3 is a section through a closed loose-leaf-book provided with a ring unit,

Fig. 4 is a section through an open loose-leaf-book provided with a ring unit,

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Fig. 5 is a perspective view of a modified ring unit,

Fig. 6 is a section through a closed loose-leaf-book provided with a ring unit according to Fig. 5,

Fig. 7 is a section through an opened loose-leaf-book provided with a ring unit according to Fig. 5, in which the loose leaves are just being inserted or taken out, and

Fig. 8 is a section of the book in which a loose leaf is just being inserted.

Fig. 1 illustrates an arrangement in which two ring units 1 and 2 are applied, the rings being conducted through slots 3 of loose leaves 4. Of course, the loose leaves 4 may also be covered by book covers.

The ring unit, according to the first example of design as illustrated in Figs. 2 to 4, consists of the connecting bar 5 and the rings 6. The connecting bar may have any length, and accordingly many rings may be arranged at spaced intervals.

In this example of design, seen in the longitudinal direction of the connecting bar, the latter forms part of a chord of a circle defined by the rings 6. In this case the arc 6b of the rings coordinated with the chord is formed by the parts of the rings adjacent to the free ends 6'. Accordingly the loose leaves 4 with their slots 3 are filed on the parts 6'' of the rings adjacent to the connecting bar 5. The parts 6'' of the rings 6 adjacent to the connecting bar 5 and the free ring ends 6' touch each other elastically.

In the illustrated example the loose leaves are covered by book covers 7', the arrangement being such so that the connecting bar 5 is between the one book cover 7 and 7' and the loose leaves 4. In this way the connecting bar 5 cannot be seen from the outside.

This invention has the advantage that the connecting bar 5 might also be disposed at any other place of the pack of loose leaves 4 without expanding this pack.

In Fig. 4 the loose-leaf-book according to Fig. 3 is illustrated in the open position. It will be seen that the leaves lie quite flat and cannot fall off the ring unit by themselves. An exchange of the leaves is also made possible by expanding the rings.

In the second example of design according to Figs. 5 to 7 the connecting bar 8, seen in its longitudinal direction, is also so disposed that it lies on a chord of the circle represented by the rings 9. In this case, however, in comparison with the example of design according to Figs.

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2 to 4, the arc 9b coordinated with the chord is formed by the parts of the rings 9 adjacent to the connecting bar 8, and accordingly the loose leaves 4 with their slots 3 are filed on the parts 9'' of the ring 9 adjacent to the free ring ends 9'. Moreover, the free ring ends 9' are bent outward so that they form the extension of the chord in which the cross section of the connecting bar 8 is disposed. In this example of design, therefore, the rings are closed by the knees 10 which are formed by bending the connecting bar 8 and the free ring ends 9' out of the circular form contacting elastically. In this case they will slightly overlap.

In the illustrated example there are also book covers 7, 7' provided, and the connecting bar in relation to the loose leaves 4 and the book covers 7 is arranged in the same way as in the example of design according to Figs. 2 to 4.

It will be seen in Fig. 7 that after opening the loose-leaf-book so that at first only the book cover 7' is opened, the rings appropriately being turned around their axis, loose leaves 4' may be taken out of the ring unit or inserted into the same, if the rings 9 are expanded so that the knees 10 move away from one another.

The insertion of single loose leaves is very simple, as particularly illustrated in Fig. 8. A loose leaf 4 is filed on the free ring ends 9', which for this purpose are appropriately disposed vertically, and then the vertically disposed ring ends 9' are held by the hand and the leaf is filed by being pulled in the direction of the arrow, whereby the rings enter the slots 3 automatically.

It is evident that for obtaining an appropriate arrangement of the ring unit in a loose-leaf-book, the arc height of the chord must be small in relation to the diameter of the rings, if the connecting bar is to be arranged between a book cover and the pack of leaves.

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What I claim is:

A ring unit binder for slotted loose leaves comprising a bar, and split rings integral with the bar, the bar and the rings being composed of a spring-like flattened material, said rings being arranged parallel to each other and one end of each ring being connected to one side edge of the bar, the profile of the bar being arranged in the direction of a chord of each ring, and the part of each ring adjacent to the bar being arranged in the position of the arc coordinated to said chord, the free end of each ring being arranged in an outward position in the direction of said chord, each ring comprising two knee-shaped parts resiliently urged toward each other, one knee-shaped part consisting of the part of such ring connected to the bar and the adjacent part of the bar, the other knee-shaped part consisting of the free end of such ring arranged in an outwardly directed position in the direction of said chord and of the part of such ring adjacent to said outwardly directed free end, both knee-shaped parts being arranged in elastically contacting relation, said loose leaves being filled with their slots on the parts of said rings adjacent to the free ends of the rings respectively, and each bent-out free end of each ring being longer than the width of the slots of the leaves and being substantially in a plane with the bar in the normal position of the binder.

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