

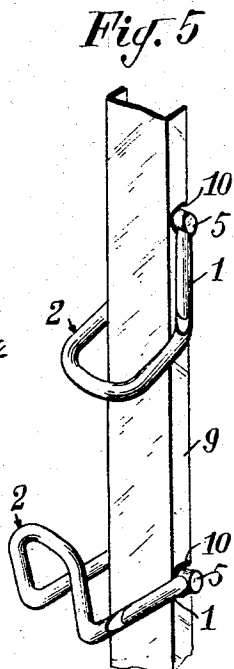
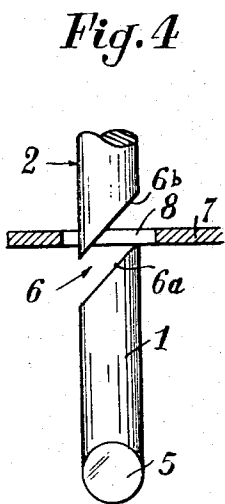
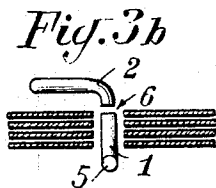
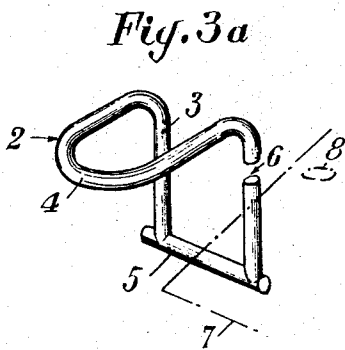
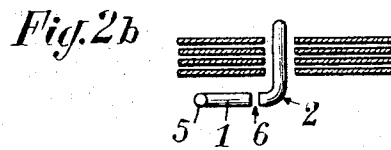
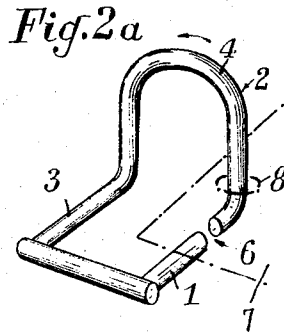
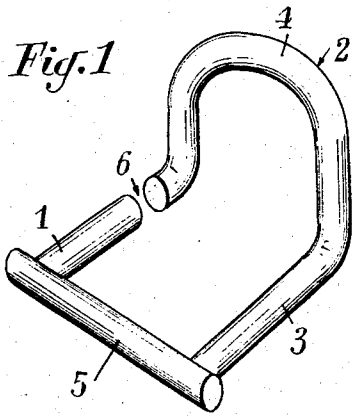
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G. E. COTT

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LOOSE-LEAF BINDERS HAVING PIVOTABLE RINGS

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LOOSE-LEAF BINDERS HAVING PIVOTABLE RINGS

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7 Claims. (Cl. 129-24)

The present invention relates to binders comprising pivoted rings for the binding of loose sheets of paper.

Loose-leaf bindings of a known type generally comprise two rows of substantially semi-circular pins facing each other, on which are filed perforated sheets, the said pins co-operating with each other in the closed position of the binder so as to form continuous slide-ways of ring shape, said pins being movable apart from each other by means of a mechanical device for opening the binder in order to remove the sheets.

Binders of this kind have many disadvantages.

In fact, on the one hand, the opening device is generally bulky, of unattractive appearance and difficult to operate, and on the other hand, any displacement of the two rows of pins with respect to each other results in discontinuities in the guide-ways, through which the sheets are liable to escape.

An object of the invention is to provide a pivoted ring composed of elements which are fixed one with respect to the other and which can be mounted for use in a loose-leaf binder which will thereby overcome the drawbacks mentioned above and be opened in a particularly simple manner, without utilizing any intermediate member, by causing the rings to pivot.

The pivoted ring for a loose-leaf binder according to the invention is composed of two tubular members coupled to each other by a transverse member, one of the tubular members being co-planar with the transverse member and the other tubular member comprising a portion also co-planar with the transverse member, and connected by an elbow to an arcuate substantially semi-circular portion which is located in a plane parallel to the transverse member and forms, for a first position of the ring corresponding to the closure of the binder, a continuous slide-way for the perforated sheets on the said ring, said arcuate portion comprising an elbowed extremity located in alignment with the other element and separated from the latter by a space for permitting the extraction and insertion of the sheets in a second position of the ring which results from a rocking movement of the ring with respect to the transverse member, this rocking movement resulting in the transfer of the sheets from one element to the other.

In one preferred form of construction, one of the elements of the ring is straight and perpendicular to both the transverse member and to the plane defined by the arcuate portion of the second element, the other portion of which is also straight and parallel to the first element.

This form of embodiment of the invention, given by way of example and without limitation, will be described below with reference to the accompanying drawings, in which:

FIG. 1 is a perspective view of a pivoted ring for a loose-leaf binder according to the invention.

FIGS. 2a and 2b are views respectively in perspective and in end view of the ring shown in FIG. 1, in the closed position of the binder.

FIGS. 3a and 3b are views respectively in perspective and in end view of the ring shown in FIG. 1, in the open position of the binder.

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FIG. 4 shows a detail of an alternative form of the ring according to the invention.

FIG. 5 is a perspective view of a binder comprising two rings in accordance with the invention, one in the open position and the other in the closed position.

FIG. 1 shows a pivoted ring comprising a straight element 1 and 2 an element including a straight portion 3 parallel to the element 1, connected by an elbow to an arcuate portion 4, which is substantially semi-circular and located in a plane perpendicular to the element 1. A transverse member 5 extends perpendicular to the element 1 and connects the extremity of the straight portion 3 to one of the extremities of the element 1, the other extremity of element 1 being located opposite an elbowed extremity of the arcuate portion 4 and separated from the latter by a gap 6.

The elbows of the element 2 are rounded, the radius of curvature of these elbows being preferably equal to the radius of curvature of the arcuate portion 4. The elements 1 and 2 are shown as having circular cross-section in FIG. 1 but they may be of any desired shape and size, depending on the characteristics of the perforations of the sheets which are to be bound.

The method of use of the pivoted ring according to the invention is illustrated in FIGS. 2a and 2b, which show the ring in the closed position of a binder, and in FIGS. 3a and 3b, which represent the same ring in the open position.

In the closed position of the ring, sheets of paper 7 having perforations 8 slide on the continuous slide-way formed by the arcuate portion 4 of the element 2. The sheets 7 are constantly parallel to the element 1 and to the straight portion 3 of the element 2, and cannot therefore pass through the gap 6 which separates the two elements. In order to withdraw or place in position one of the sheets 7, it is only necessary to cause the ring to pivot about the member 5, as shown in FIGS. 3a and 3b.

After this pivotal movement, the element 1 and the straight portion 3 of the element 2 are perpendicular to the sheets 7. In order to displace the latter, it is thus only necessary to slide them along the element 1 so as to bring the perforations opposite the gap 6.

In consequence, it may be considered that the elements of the ring define two flat zones of utilization, one constituted by the arcuate portion 4 on which the sheets 7 slide on the closed position of the binder, the other constituted by the straight element 1 and the straight portion 3 of the element 2 on which the sheets 7 slide in the open position of the binder.

The advantages of such a division into two zones of utilization result from the fact that the passage of the sheets from one zone to the other for the purposes of insertion or removal of sheets is impossible in the closed position, the removal gap 6 being located below the sheets. The gap 6 is moved to operative position for removal of insertion of sheets without noise and without using any intermediate member, by a simple pivotal movement of the ring about the transverse member 5, the said pivotal movement producing a continuous sliding movement of the sheets from the arcuate portion on to the straight portions.

In order to prevent the sheets 7 from escaping through the gap 6 during the course of the pivotal movement, it is preferable to form the extremities of the elements 1 and 2 which define the gap 6 with a profile such that these two elements ensure continuous guiding of the sheets at the level of the gap 6. FIG. 4 illustrates an example of such a method of guiding, in which the extremities 6a and 6b of the elements 1 and 2 which face each other are constituted by parallel inclined planes which partially overlap each other.

The pivoted ring according to the invention may be

mounted in many different ways in order to constitute a detachable binding. In fact, it is only necessary to utilize at least two rings, separated from each other by a distance equal to the distance between the perforations 8 in the sheets 7 and mounted on a fixed unit such as for example the device 9 shown in FIG. 5, the said device being provided with housings 10 in which the members 5 can pivot.

The control of the pivotal movement can be effected either by the sheets themselves, which only require to be pushed or pulled parallel to the member 5, or by an auxiliary device, for example by a control slide.

The form of construction illustrated in the drawings is in no way limitative; in particular, the ring may have any desired cross-section and different dimensions or profiles. In addition, the constituent parts of the ring may be made separately and assembled, or may be produced in a single operation, for example by moulding a plastic material or by bending a metal wire. The binders may of course comprise additional members, for example for locking the ring in the open position and/or in the closed position.

What I claim is:

1. A loose-leaf binder comprising a flat support member and at least two rings pivotally coupled to said support member for receiving loose sheets, each ring comprising first and second tubular elements, and a transverse member rigidly fixed to each of said elements at extremities thereof, said transverse member being mounted on said support member for pivotal movement to locate said ring in first and second positions, said first element and said transverse member being co-planar, said second element comprising a first portion co-planar with said first element and with said transverse member, an elbow on said portion, and an arcuate, substantially semi-circular portion coupled to said elbow, said arcuate portion being located in a plane parallel to said transverse member and forming, in said first position of said ring, a continuous slide-track for perforated sheets threaded on said ring, said arcuate portion comprising an elbowed extremity located in alignment with said first element and separated therefrom to define a gap through which the sheets may be extracted from said ring or inserted

thereon when said ring is in said second position, said arcuate portion in said first position being in a plane perpendicular to the plane of said support member while said first element, first portion and elbowed extremity are in said plane of the support member, whereas in said second position said first element, first portion and elbowed extremity are pivoted out of the plane of said support member so that said gap is disposed for said extraction and insertion of sheets.

2. A loose-leaf binder as claimed in claim 1, in which said first element is straight.

3. A loose-leaf binder as claimed in claim 1, in which said first element is straight and perpendicular to said transverse member.

4. A loose-leaf binder as claimed in claim 1, in which said first element is straight and perpendicular to the plane of the arcuate portion of said second element.

5. A loose-leaf binder as claimed in claim 1, in which said first element is straight and parallel to the portion of said second element which is co-planar with said transverse member.

6. A loose-leaf binder as claimed in claim 1, wherein said tubular elements have extremities which define said gap of a form such that the sheets cannot be removed from the ring by movement parallel to said transverse member.

7. A loose-leaf binder as claimed in claim 6, in which the extremities of said tubular elements which define said gap are constituted by parallel planes inclined with respect to said elements and partially overlapping each other.

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