

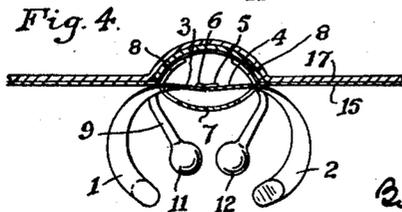
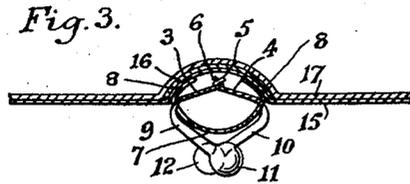
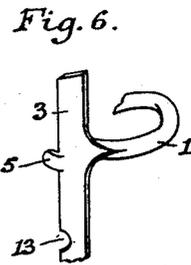
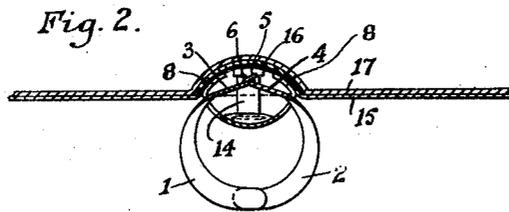
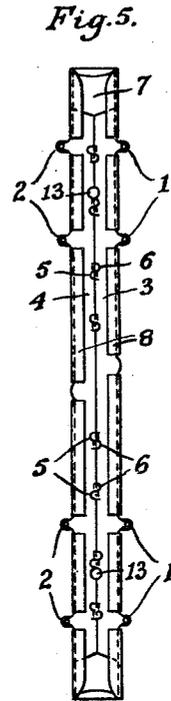
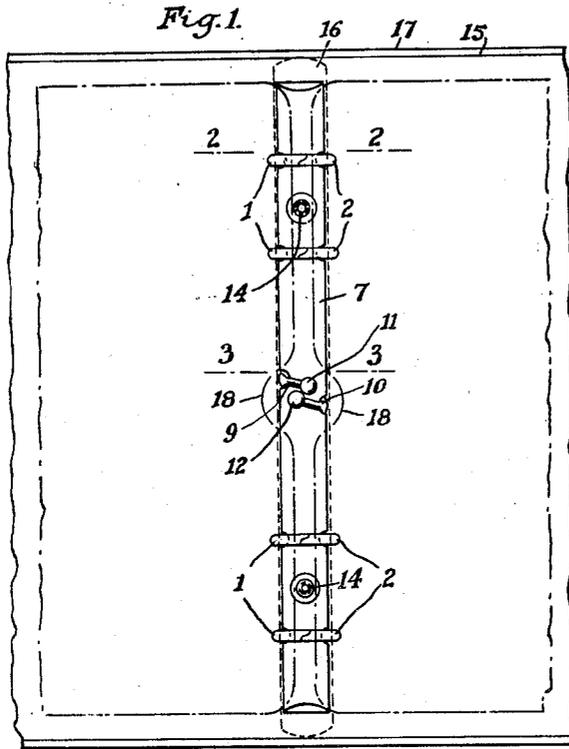
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LOOSE LEAF BOOK

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# UNITED STATES PATENT OFFICE

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## LOOSE LEAF BOOK

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This invention relates to loose leaf books of the kind in which the leaves or papers are filed upon loops of substantially circular form, each loop being made in halves or substantially semicircular portions in hinged relation so that they can be separated to receive the leaves or papers and then closed to prevent escape thereof when being turned over upon the said loops.

According to the invention a spring snap device is provided for holding the sections of the loops in a closed position.

Further according to the present invention there is provided a loose leaf book of the type referred to, wherein the sections of all the loops are arranged to be opened or closed and maintained closed by a snap action device comprising two ball heads arranged to ride one over the other.

In a suitable arrangement for carrying the invention into practice the halves of the loops are carried by metal strips each formed with lugs along one edge which interlock to form a hinge. To each of the strips is attached a ball or rounded member, which members bear against one another in the closed position of the loops in such a manner that they slightly obstruct one another's path of movement when opening the loops, and require to be moved apart during such opening movement, such movement apart being automatically effected by the action of the rounded members as they ride on one another when pressing them in the directions necessary for opening the loops. The said members are connected to the strips through the medium of resilient wires or rods allowing of a spring snap action of the said members.

The ends of the half loops may butt together in the closed position and the half loops and the rounded fastening members are advantageously formed integral with the strip members by stamping from sheet metal.

A specific embodiment of the present invention comprises a loose leaf book of the type referred to, wherein the loops for engaging the leaves of the book are made in halves, and corresponding halves of all the loops are formed integral with one edge of

a strip of metal and the other halves are similarly formed integral with a second strip of metal. The free edges of the strips of metal are provided with lugs arranged so that on the said edges being placed together the lugs on one strip will extend over the other strip and the two strips when so arranged will correspond to the leaves of a hinge. The strips arranged in the manner described are carried between the intumed edges of a spring metal member which is substantially of semi-circular cross-section so that a certain pressure is applied to the edges of the strips from which the half-loops extend. Substantially midway of each of said strips is provided one of a pair of arms each carrying a ball head so arranged that when the said balls are moved past each other, in a direction to close the loops, they will ride over one another in frictional contact and with a certain amount of spring action, which ensures their remaining in the position to which they are moved and thereby maintain the loops closed, and on the said balls being forcibly moved apart the rings will be opened.

The spring member is provided with holes, and each of the adjacent edges of the strips with registering semi-circular cut-away portions and post members are passed there-through and also through a strip of material and a metal back piece, whereby on the material being glued or otherwise secured to the back of a book, the whole will be held securely in position.

In order that the invention may be understood, the same will now be described with reference to the accompanying drawings, in which:—

Figure 1 shows an elevation of a portion of a loose leaf book constructed according to the present invention, with the fastening loops closed.

Figure 2 illustrates on an enlarged scale a section on the line 2—2, of Figure 1.

Figure 3 illustrates on an enlarged scale a section on the line 3—3 of Figure 1.

Figure 4 is a view similar to Figures 2 and 3, showing the loops in an open position.

Figure 5 is a rear view of the loop and

spring members assembled but detached from the book, and

Figure 6 is a perspective view of a detailed portion of the fastening device.

Referring to the drawings, 1, 2 are two series of half loops formed integral with metal strips 3, 4 on the abutting edges of which lugs 5, 6 are formed and 7 is a semi-circular spring member between the inturned edges 8, 8 of which the strips 3, 4 are secured. Arms 9 and 10 are provided on the strips 3, 4 substantially midway of the length thereof, and carry ball heads 11 and 12.

The spring member 7 is cut away at the edges to accommodate the half loops 1 and 2 and the arms 9 and 10.

The strips 3 and 4, when assembled with the spring member 7, appear on the under side as shown in Figure 5. Holes 13 are provided in the spring member 7 and conjointly in strips 3, 4 by forming semi-circular notches in the adjacent edges thereof. Post members 14 (Figures 1 and 2) are passed through the holes 13 and also through a piece of flexible material 15 and holes in a metal backing piece 16, so that the members 7, 15 and 16 are secured together in a manner which allows a certain amount of spring action for the member 7. The piece of material 15 is secured to the back of a book 17 by gluing or other suitable means.

When the loops are in the closed position the parts will be as shown in Figures 1, 2, 3 and 5, with the loops securely maintained in such closed position by the spring action of the member 7 on the strips 3, 4 and the interengagement of the ball heads 11 and 12.

To open the loops the ball heads 11 and 12 are forced over one another into the position shown in Figure 4, and move with them the strips 3 and 4 and the half loops 1 and 2. The parts are maintained in a fixed open position by the spring member 7 pressing upon the edges of the strips 3 and 4 and by the lugs 5 and 6 of the strips 3 and 4 resisting the pressure exerted by the spring member.

The leaves for the book are formed with cut-away portions 18, indicated by the dot and dash lines, Figure 1, so that the said leaves on being turned will pass the projecting ball heads 11 and 12.

Figure 6 illustrates the manner in which the half loops are formed integral with the strips 3 and 4, an extension of the said strip being pressed into tubular formation and thereafter suitably curved.

#### Claims:

1. In a loose leaf book of the type referred to, a plurality of leaf-securing sectional loops, arranged with one series of sections adjacent a corresponding series of sections, means for hingedly securing the adjacent sections together at one end, so that the free ends of the same abut when in closed position, and a snap action device including adjacent ball

heads, arranged to ride one over the other, for maintaining said loops in closed position.

2. A loose leaf book as claimed in claim 1 wherein said means for hingedly securing the adjacent sections together includes a pair of metal strips hingedly connected together and carrying the respective series of sections, and a projecting arm bearing a corresponding ball head at one end connected to each of said metal strips.

3. A loose leaf book as claimed in claim 1 wherein said means for hingedly securing the adjacent sections together includes a pair of metal strips hingedly connected together and carrying the respective series of sections, and a projecting arm bearing a corresponding ball head at one end connected to each of said metal strips, the abutting edge of each metal strip being provided with lugs adapted to extend over the edge of the adjacent metal strip to afford said hinge connection.

4. A loose leaf book as claimed in claim 1 wherein said means for hingedly securing the adjacent sections together includes a pair of metal strips hingedly connected together and carrying the respective series of sections, a projecting arm bearing a corresponding ball head at one end connected to each of said metal strips, and a spring member for maintaining said metal strips in abutting relation to one another.

5. A loose leaf book as claimed in claim 1 wherein said means for hingedly securing the adjacent sections together includes a pair of metal strips hingedly connected together and carrying the respective series of sections, a projecting arm bearing a corresponding ball head at one end connected to each of said metal strips, the abutting edge of each metal strip being provided with lugs adapted to extend over the edge of the adjacent metal strip to afford said hinge connection, and a spring member of substantially semi-circular cross section, having inturned edges for engaging said strips, to maintain the same in abutting relation.

6. A loose leaf book as claimed in claim 1 wherein said means for hingedly securing the adjacent sections together includes a pair of metal strips hingedly connected together and integrally carry the respective series of sections, and a projecting arm bearing a corresponding ball head at one end integrally connected to each of said metal strips.

7. A loose leaf book as claimed in claim 1 wherein said means for hingedly securing the adjacent sections together includes a pair of metal strips hingedly connected together and carrying the respective series of sections, and a projecting arm bearing a corresponding ball head at one end connected to each of said metal strips, the abutting edge of each metal strip being provided with lugs adapted to extend over the edge of the adjacent metal

strip to afford said hinge connection, a spring member of substantially semi-circular cross section having inturned edges for engaging said strips to maintain the same in abutting relation, a backing piece, and a piece of material secured between said spring member and said backing piece.

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