

Feb. 9, 1960

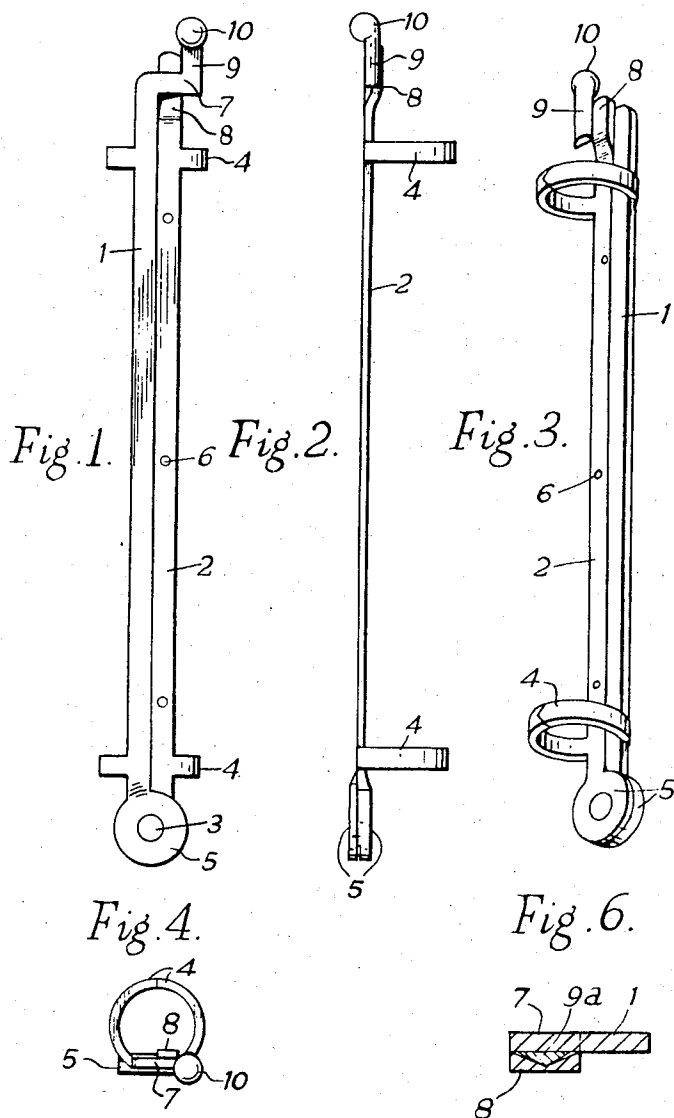
E. D. DUDLEY-SMITH

2,924,221

LOOSE LEAF BINDERS

Filed Jan. 21, 1958

3 Sheets-Sheet 1



INVENTOR
E. D. DUDLEY-SMITH

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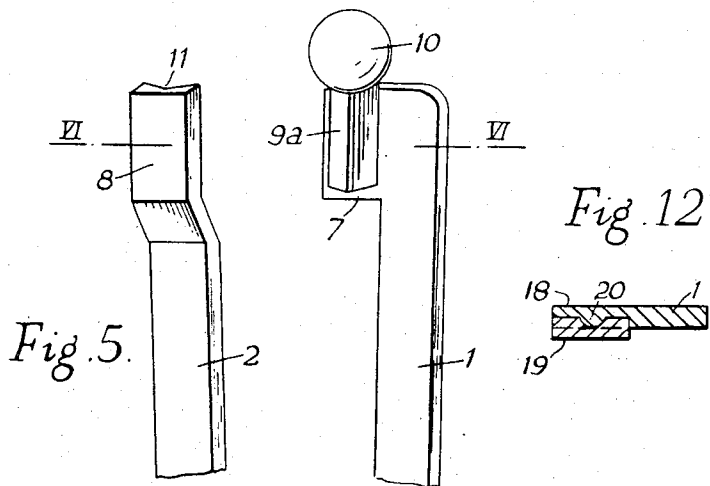
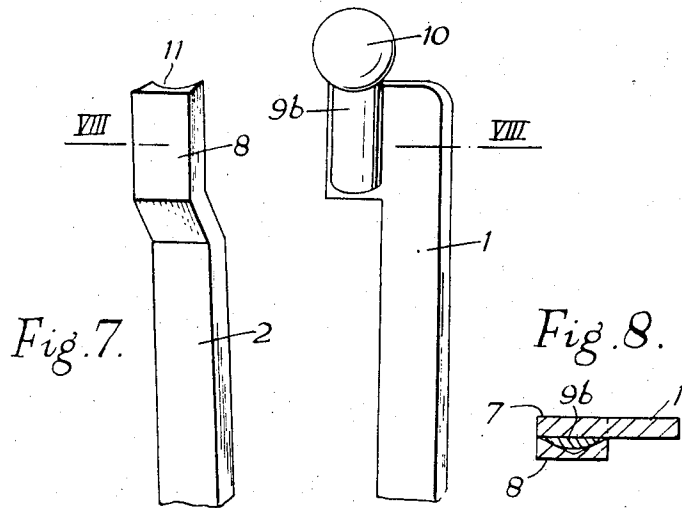
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INVENTOR
E. D. DUDLEY-SMITH
By *[Signature]* A/H/g

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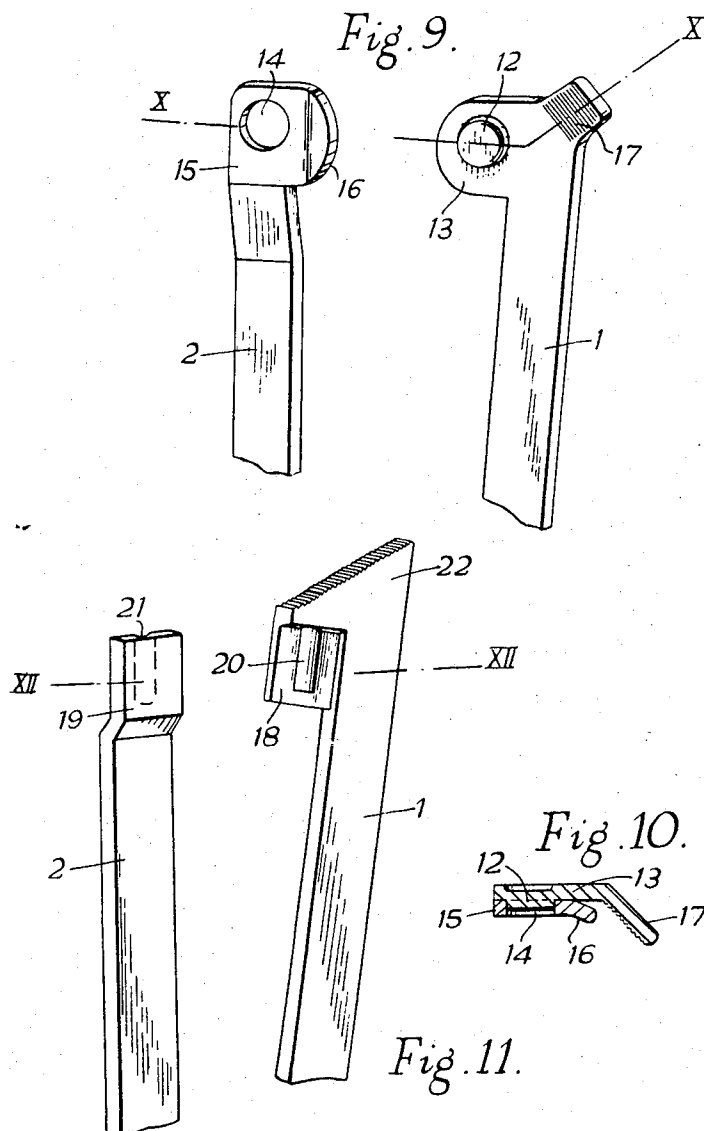
E. D. DUDLEY-SMITH

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INVENTOR
E. D. DUDLEY-SMITH
By *[Signature]* Att'y.

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2,924,221

LOOSE LEAF BINDERS

Edward Dudley Dudley-Smith, London, England

Application January 21, 1958, Serial No. 710,229

1 Claim. (Cl. 129—10)

The present invention relates to loose leaf binders of the kind comprising a stationary strip or bar adapted to be secured to the cover of a folder or the equivalent, and a relatively movable strip or bar which is pivoted to one end of the stationary bar or strip for swinging movement away from the stationary bar, the two bars being fitted with arcuate posts which co-act when the bars are closed together to form closed loops. When the loops are opened by swinging the movable bar, papers which are suitably perforated along their edges, can be added to or removed and the loops subsequently closed to prevent unintentional separation of the papers from the folder or the like.

The object of the present invention is to provide an improved loose leaf binder of the kind referred to which is of a compact nature so as to be of a minimum thickness so as not to add materially to the thickness of the folder to which it is fitted and the papers therein, and which also comprises fastening means for releasably holding the strips or bars closed together which also does not add materially to the thickness of the folder and which is particularly of simple and inexpensive construction.

According to the present invention there is provided a loose leaf binder of the kind referred to, where in the opposed longitudinal edges of the strips or bars meet and abut when they are closed together so that both strips or bars are contained in the same plane and are not superimposed one upon the other, and wherein the free or outer end of the movable bar is formed with a lateral extension directed towards the associated end of the fixed bar and the latter formed with a raised portion beneath which the lateral extension of the movable bar may be engaged, the lateral extension being provided or formed with a locking nose which co-acts with the raised portion of the fixed bar when the lateral extension is engaged thereunder to lock the two bars releasably together.

According to one embodiment the underside of the raised portion of the fixed bar is formed with a recess for accommodating a locking nose provided on the upper face of the lateral extension. In this embodiment the locking nose does not protrude beyond the side edge of the raised portion.

Alternatively, the said locking nose may comprise a lug extending at right angles from said lateral extension in parallelism with the raised portion and the face which contacts the edges of the raised portion is tapered or chamfered to provide a cam surface which will ride easily under the edges of the raised portion to facilitate opening apart and closing together of the two bars.

With this alternative arrangement, when closing the movable bar, it is swung about its pivot towards the fixed bar and the locking nose with said lateral extension will pass under the raised end of the fixed bar and when the locking nose has passed completely under the raised portion, the lateral extension will spring up under the influence of the inherent resiliency of the material of the bars against the underside of the raised end of the fixed

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bar with the side face of the locking nose in engagement with the side edge of the raised portion opposite to the edge of the fixed bar which is abutted by the edge of the swingable bar. To release the fastening the locking nose is pushed sideways and slides under the raised portion of the fixed arm whereupon the movable arm can be swung away from the fixed arm to permit the addition or removal of papers to or from the folder.

The foregoing arrangements provide an extremely flat construction which would not be achieved if the fastening comprised two interlocking ball boosters provided one respectively on each of the two bars. The fastening of the present invention also has the advantage that the interlocking portions can be fashioned out of the associated ends of the bars whereas in the case of ball boosters these would have to be welded to the ends of the bars and would have to be made very small in order to clear the leaves of the folder in normal use.

Thus, the present invention provides a loose leaf binder which avoids the use of overlapping bars so that the thickness thereof can be kept to a minimum, and in addition provides a very flat form of locking means.

According to a still further modification, the locking nose may be formed by rolling the free end of the lateral extension into a spiral or scroll formation.

To enable the invention to be clearly understood embodiments thereof will now be described by way of example with reference to the accompanying drawings, wherein

Figure 1 is an inverted plan view of one embodiment. Figure 2 is a side elevation.

Figure 3 is a front perspective view.

Figure 4 is an end view.

Figure 5 is a fragmentary view, drawn to a larger scale, illustrating a second embodiment, with the bars opened apart.

Figure 6 is a section taken on the line VI—VI of Figure 5 but showing the bars closed.

Figure 7 is a view isimilar to Figure 5 but illustrating a modification.

Figure 8 is a section taken on the line VIII—VIII of Figure 7 but showing the bars closed.

Figure 9 is a view similar to Figures 5 and 7 illustrating a fourth embodiment.

Figure 10 is a section taken on the line X—X of Figure 9 but showing the bars closed.

Figure 11 is a view similar to Figure 9 illustrating an embodiment intended to be made of a plastic material, and

Figure 12 is a section taken on the line XII—XII of Figure 11.

Referring firstly to Figures 1 to 4 of the drawings, the loose leaf binder comprises two flat bars or strips 1 and 2 which are pivoted together at one of their ends as at 3 so that they can be opened apart or closed together so that their opposed longitudinal edges meet and abut with the two bars disposed in the same common plane.

The two bars are fitted or formed integral with any desired number of arcuate semi-circular posts 4 which may be formed integral with the bars 1 and 2 or welded thereto. When the bars are closed together the semi-circular posts 4 on the two parts register and form closed loops.

The ends of the bars 1 and 2 which are pivoted together are formed with bosses or lugs 5 which have their centres offset slightly with respect to the longitudinal axis of the bar so that said bosses or lugs are directed slightly to one side of the bar so that the two lugs 5 of the two bars 1 and 2 will seat nicely one upon the other with the axis thereof in line with the meeting edges of said bars. In other words the lugs can be said to be eccentrically disposed.

Each of the eccentric lugs or bosses 5 for receiving the pivot pin 3 has a piece machined away so that a stop is formed which prevents the bars being swung apart beyond a certain distance.

The device is secured to a base plate (not shown) which may comprise a strip of metal which is adapted to be anchored to the cover of a folder or the like in any convenient manner. This base plate is riveted to the fixed bar 2 which is formed with rivet holes 6 for this purpose. Alternatively, the base plate may be formed with openings for receiving locking tongues on the fixed bar 2, these locking tongues being adapted to be slid through said openings so as to slide and engage flush against the underside of the base plate.

A fastening device is provided at the outer ends of the bars 1 and 2 and such a device comprises forming the outer end of the movable bar 1 with a lateral extension 7 directed towards the associated end of the fixed bar 2 and which is intended to be engaged beneath a raised portion 8 of said end of the fixed bar 2, the end of the lateral extension 7 being provided or formed with a locking nose 9 which co-acts with the edge of the raised portion 8 of the fixed bar 2 when the lateral extension 7 is engaged thereunder to lock the two bars 1 and 2 releasably together.

The locking nose 9 comprises a lug extending at right angles from said lateral extension 7 and in parallelism with the raised portion and the face which contacts the edges of the raised portion 8 is tapered or chamfered to provide a cam surface which will ride easily under the edges of the raised portion to facilitate opening apart and closing together of the two bars. Conveniently, the locking nose 9 is substantially half round in cross section and is formed with a ball portion 10 at its outer end which constitutes a finger grip.

Alternatively, the locking nose 9 may be formed by rolling the free end of the lateral extension 7 into a spiral or scroll formation.

Referring next to Figures 5 and 6, the arrangement is similar to that described with references to Figures 1 to 4, except that the interlocking means provided at the free ends of the bars 1 and 2 is more compact and avoids the lateral extension 7 and the locking nose 9 protruding beyond one side of the fixed bar 2. According to this embodiment the underside of the raised portion 8 of the fixed bar 2 is formed with a shallow V-shape recess 11 into which can snap a V-shape locking nose 9a on the upper face of the lateral extension 7 so that the locking nose 9a engages snugly in said recess when the two parts are closed together as shown in Figure 6.

The embodiment illustrated by Figures 7 and 8 is very similar to that illustrated by Figures 5 and 6, with the exception that the recess 11 is substantially half round and the locking nose 9b is shaped likewise.

The locking noses 9a and 9b of the last two embodiments are provided with ball portions 10 constituting finger grips.

The fastening operates in the manner substantially as hereinbefore described.

The base plate (not shown) is preferably equal in width to the width of the two bars 1 and 2 when they are closed together and is approximately the same length as said bars and has three hollow recesses stamped into it for receiving the rivet heads for fixing the bar 2 in position so that no bolts appear down the spine of the book, folder or the like.

Referring next to the embodiment illustrated by Figures 9 and 10, the device, which can conveniently be made in metal, comprises bars 1 and 2 as before, but the

interlocking means comprises a thin stud 12 formed on a lateral projection 13 at the free end of the bar 1 which engages in a hole 14 formed in a part 15 at the outer end of the bar 2 and which is cranked upwardly away from the main part of this bar 2, the part 15 being formed with a guiding lip 16 and the lateral extension 13 on the bar 1 with a lip 17 which is angularly disposed and formed with a milled face and which when pressed down and then sideways disengages the stud 12 from the hole 14 to permit the bars 1 and 2 to be separated.

Although generally, metal is satisfactory for constructing the loose leaf binder, it is also possible to employ other materials, such as plastic and nylon.

In this latter respect the fastener can be constructed of a suitable plastic material as shown in Figures 11 and 12. In common with previous embodiments the movable arm 1 is formed with a lateral projection as indicated at 18 which is adapted to be engaged beneath a raised portion 19 of the arm 2. The lateral projection is formed with a locking nose 20 of semi-circular cross section which snaps into a recess 21 of semi-circular section in the raised portion 19. The free end of the bar 1 terminates in a finger piece 22 formed along its edge with serrations.

It will be appreciated that the finger pieces at the outer ends of the movable arms 1 as shown in the drawings may be different to those illustrated and may be of any required shape.

I claim:

30 In a loose leaf binder, a pair of longitudinal, resilient strips disposed edge to edge in the same horizontal plane, a pivotal connection at one end for securing said strips together and providing for lateral separation of the opposite free ends of the strips, means for fixing one of said strips against movement, fastening means for locking the fixed and movable strip in edge to edge abutment, said fastening means comprising an integral lateral projection at the free end of the movable strip directed towards the associated end of the fixed strip and disposed within the same horizontal plane as said movable strip, a stud on said projection, an integral raised portion at the free end of the fixed strip extending towards the lateral projection of said movable strip and having its bottom surface disposed in the same plane as the upper surface of said lateral projection such that when the two strips are closed said raised portion overlaps said lateral projection, said raised portion provided with a chamfered lip along the edge facing the movable strip, said raised portion having an opening therein so that when the movable strip is pivoted towards the fixed strip, said stud will engage said lip and due to the inherent resiliency of the movable strip said stud will be deflected downwardly enabling the stud to slide along the undersurface of the raised portion until it reaches said opening in the raised portion whereupon the stud will snap into the opening due to the natural resiliency of the movable strip and the binder will be positively locked.

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