

[54] **STATIONERY**
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[56] **References Cited**
UNITED STATES PATENTS
1,231,812 9/1917 Tipperman..... 402/47
2,514,939 7/1950 Crary..... 402/14
1,389,658 9/1921 Heeter..... 402/70
992,465 5/1911 Wienss et al..... 402/58 X

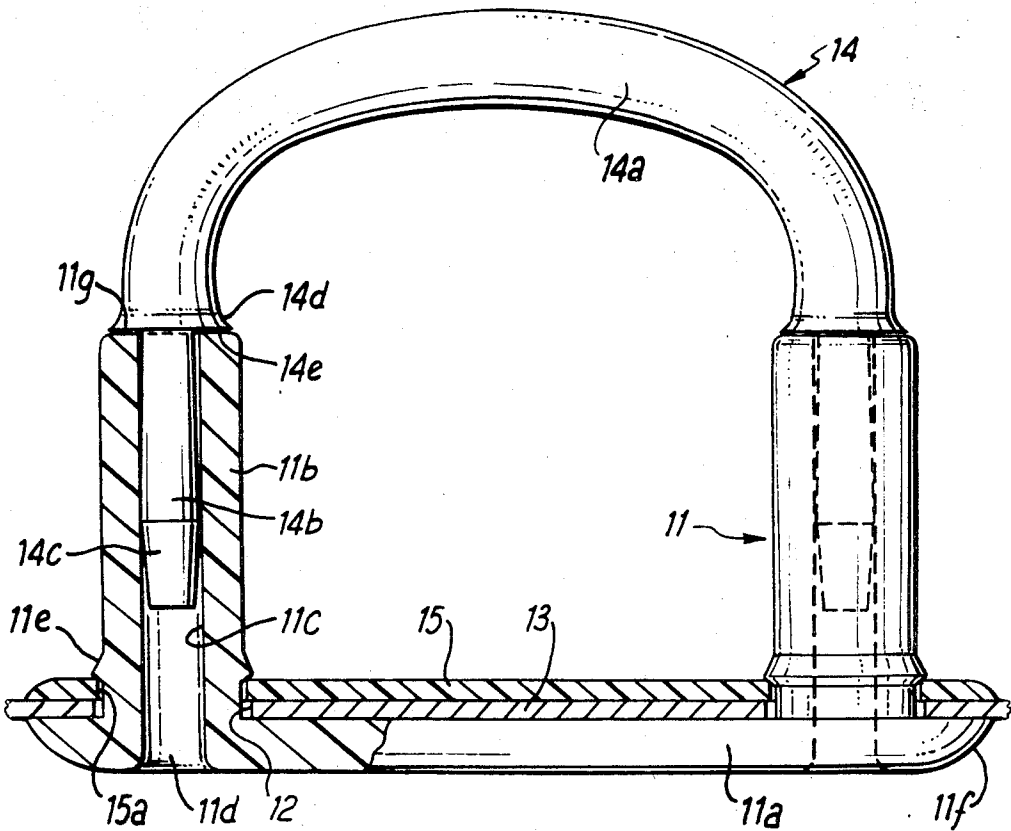
2,093,041 9/1937 Emery..... 402/58 X
1,558,807 10/1925 Horn..... 402/58 X
283,653 8/1883 Paxsox..... 402/59
1,150,442 8/1915 McLean et al..... 402/75

FOREIGN PATENTS OR APPLICATIONS
105,090 3/1917 Great Britain 402/70
25,924 1913 Great Britain 402/19
24,636 1899 Great Britain 402/47
1,169,985 9/1958 France 402/47
1,185,580 1/1965 Germany 402/70
1,277,195 9/1968 Germany 402/19
1,146,846 4/1963 Germany 402/70

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[57] **ABSTRACT**
A stud arrangement for use in the attachment of sheet material to a base or cover in the preparation of a stationery pad or binder, comprises a base part and two spaced stud members extending from such base part to receive the respective ends of a flexible element into engagement therewith.

10 Claims, 5 Drawing Figures



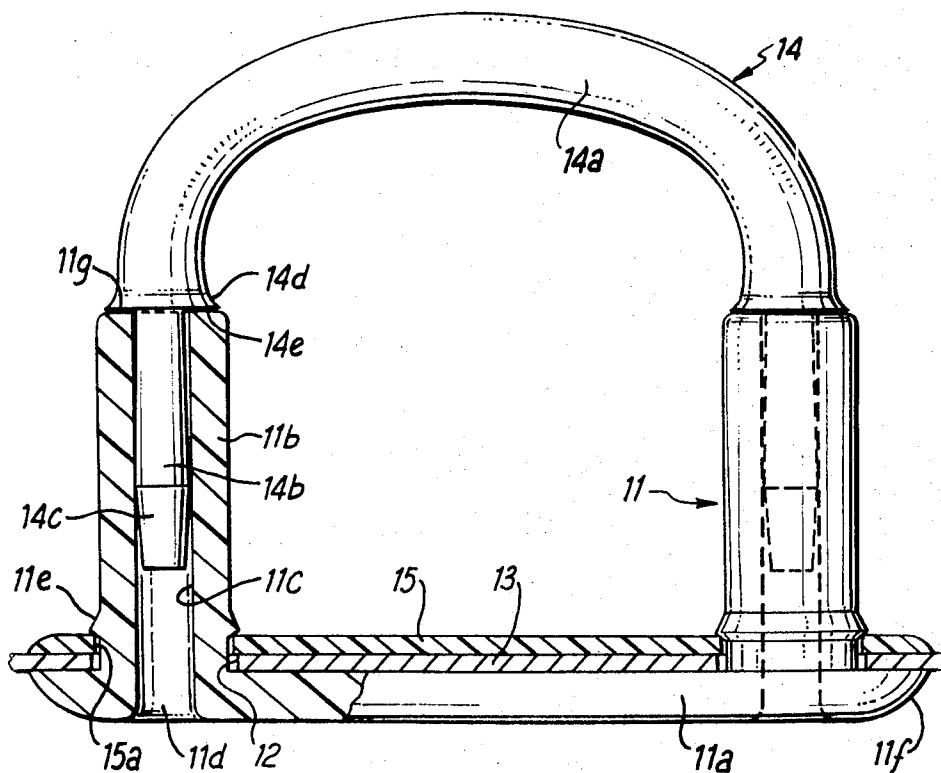


FIG. 1

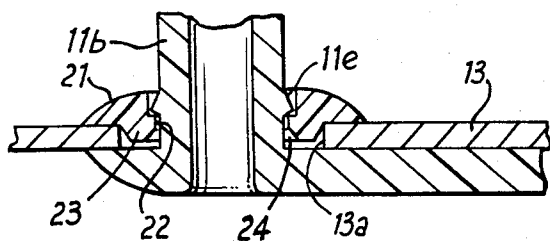


FIG. 2a

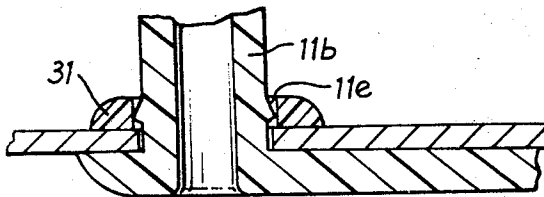


FIG. 2b

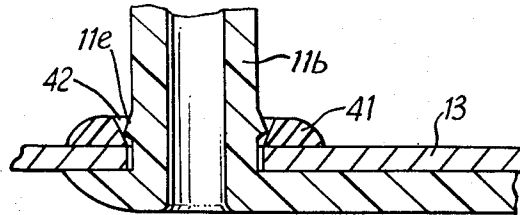


FIG. 2c

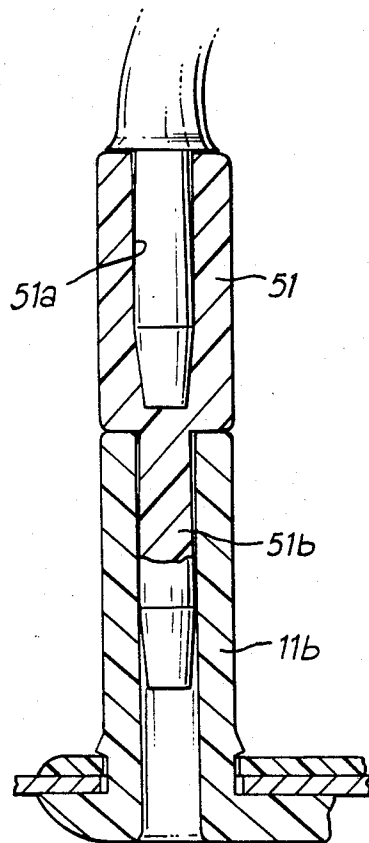


FIG. 3

STATIONERY

The invention concerns stationery and has particular reference to stud arrangements for embodying in loose-leaf binders and the like.

A binder has been developed which comprises a cover and a means for the attachment of a sheet or sheets of material thereto, the said means including a flexible element having one end secured to the cover at a first position thereon and the other end releasably engageable in coaxial relationship with a stud or the like at a second position on the cover and spaced from such first position.

The primary purpose of the present invention is to provide a stud arrangement of application in the context of the binder aforesaid or in any other like context.

Thus, according to the present invention a stud arrangement for use in connection with the attaching of a sheet or sheets to, for example, the cover member of a binder comprises a base part and a plurality of stud members extending outwardly from such base part, the said stud members being arranged in spaced apart disposition on and extending from a common face of the said base part.

Preferably the stud arrangement includes a location means for securing the same in position relative to a cover with which it is engaged.

The invention also includes a binder having an attachment means which includes a stud arrangement as aforesaid.

The invention will now be described further, by way of example only, with reference to the accompanying drawings in which:

FIG. 1 is a side elevation, with part in section, of an attachment means embodying the present invention as applied to a cover;

FIGS. 2a, 2b, 2c are fragmentary views corresponding to a part of FIG. 1 and illustrate various alternative forms of locating means whereby the stud arrangement is secured against removal from the cover; and

FIG. 3 is a further fragmentary view of a part of FIG. 1 showing an extension piece interposed between the stud arrangement and the flexible element.

Referring now to the drawings, and particularly to FIG. 1 thereof, an attachment means for securing a sheet or sheets of paper or the like in position relative to a binder comprising a stud arrangement 11 engageable with holes 12 in a cover 13 of the binder to extend therethrough and a flexible element 14 removably co-operable with the stud arrangement 11.

The stud arrangement 11 consists of a flat, generally rectangular base plate 11a of which the corners are radiussed and two upstanding studs 11b extending from a face thereof and formed integrally therewith. The studs 11b each have an axial bore 11c therein in register with a respective through hole 11d in the base plate 11a.

The base plate is conveniently 1.025 inches long and 0.312 inches wide, whilst each stud extends upwardly from the base plate by 0.500 inches, the base plate being 0.050 inches thick.

The studs are of generally cylindrical configuration and have an external diameter of 0.175 inches and an internal diameter of 0.080 inches, the outer peripheral edge of the remote end of the stud being radiussed and the studs being symmetrically placed upon the base plate.

A peripheral flange 11e is formed at the outer surface of the stud in closely spaced disposition relative to the base plate 11a, the flange 11e being of wedge-shaped cross-section and the apex thereof being spaced from the adjacent surface of the base plate by approximately 0.060 inches.

The lateral edges of the base plate are radiussed at the underside thereof, as at 11f, whilst the end of each through hole 11d in the base plate is likewise radiussed.

The flexible element is of generally arcuate form and comprises a body part 14a of circular cross-section, which body part is a diameter of approximately 0.125 inches, having an integral peg 14b provided at each end thereof, the pegs being 0.385 inches long and each having a reverse taper, the diameter increasing from 0.08 inches adjacent the body part to 0.086 inches towards the peg end. The remote ends 14c of the pegs are of reducing diameter outwardly thereof to facilitate engagement with the bore of the respective studs.

The ends 14d of the arcuate body part are of slightly increased cross-sectional dimensions.

An apertured location plate 15 is provided for cooperation with the flange 11e of the studs to hold the stud arrangement captive relative to the cover 13 apertures 15a are in the said plate and are so dimensioned that the plate is a force fit over the flange to engage the underside thereof, with the cover interposed between the plate 15 and the base plate 11a of the stud arrangement.

In applying the attachment means to a cover, the studs 11b are engaged with the through holes 12 in the cover, such holes being of a diameter approximately equal to the outer cross-sectional dimension of the stud to be received thereby in order that the said studs might be a free fit in the holes. The location plate is engaged with the studs and is forced over the flanges 11e to engage the same and hold the stud arrangement in position in the cover.

The flexible element 14 is applied to the stud arrangement 11 simply by engaging the pegs 14b at the ends of the body part 14a with a respective one of the studs 11b, the shoulder 14e formed by and between such body part and a peg seating against the annular end face 11g of the stud with which the peg is engaged.

By providing a slight increase in the diameter of the pegs towards the ends thereof and a frusto-conical terminal position, the engagement between the pegs and the bores to the studs is facilitated.

The attachment may be made from a variety of materials but preferably the stud arrangement and the flexible element are moulded from such as polypropylene.

If the attachment means is to be applied to a cover of, say, polypropylene then it may be found satisfactory to arrange that the stud arrangement is a press-fit in through holes provided in the cover and to dispense with the location means, the stud arrangement being held in position relative to the cover by the engagement of the flange to the studs with the inner face of the cover (not shown).

Various alternative forms of location means are shown in FIGS. 2a to 2c. The location means of FIG. 2a comprising an apertured disc 21, one for engagement with each respective stud, having a stepped bore 22 and an axially extending flange 23 at the periphery of the aperture 24, the flange 23 being bevelled at its inner and outer diameters. The location means is pro-

duced from nylon or other synthetic plastics material, as an integral element, by injection moulding.

In use, the location means is applied coaxially with a stud 11b, the smaller diameter of the bore being a close clearance on such stud, and the location means is forced over an abutment defined by a flange 11e provided adjacent to the root of the stud such that the shoulder formed by and between the different bore sections engages below such flange to secure the disc against outward movement axially of the stud.

The axial extension 23 of the disc engages the aperture 13a in the cover 13 thereby to locate the stud arrangement relative thereto.

In the case of FIG. 2b, the location means simply comprises an apertured disc 31 which is an interference fit on the flange 11e of the stud 11b, whilst FIG. 2c illustrates a location means which comprises an apertured disc 41 having a conical bore 42 therethrough, the said disc being forced past the flange 11e into an operative position against the cover 13 and being located axially of the stud 11b by the flange 11e.

By providing the flange 11e adjacent the root of the stud of generally triangular cross-section, the upwardly and outwardly directed face acts as a lead-on for the location means thereby to facilitate the application of such means to the stud, the cone angle of such face being selected accordingly.

The cone angle of the downwardly and outwardly directed face is greater than that of the upwardly directed face so as effectively to limit disengagement in the case of the embodiments of FIGS. 1 and 3.

Instead of providing an individual disc for each respective stud, in accordance with the disclosure of FIGS. 2a to 2e, a single apertured plate may be used after the fashion of the embodiment shown in FIG. 1.

In a still further arrangement, not illustrated, the stud arrangement can be secured relative to the cover by spring washers engaged with the studs and bearing against the cover. The washers will be snapped over the flanges, if such are provided.

For application in the context of a paper thickness in excess of the axial dimension of the stud an extension piece is provided for engagement with the stud and itself adapted to receive an end of the flexible element into engagement therewith. A typical extension piece is shown in FIG. 3 and comprises a generally cylindrical body 51 having a axially-directed, blind bore 51a therein and a coaxially aligned peg 51b extending from the closed end thereof, the blind bore 51a being of like transverse cross-sectional dimensions to the bore in the studs 11b and the peg 51b being of inverted tapered form in a like manner to the integral peg of the flexible element.

The invention is not restricted to the exact features of the embodiments hereinbefore described since alternatives will readily present themselves to one skilled in the art. Thus, instead of the flexible element being provided with terminal pegs for engagement with a bore to the stud, such element may be formed with tubular end regions for engagement outwardly of the studs.

What I claim is:

1. A loose leaf binder comprising at least one flat cover member with an upper surface and a lower surface, the upper surface of the cover member supporting perforated paper sheet or the like when in use, said cover member having at least a pair of spaced apart apertures therethrough, at least one molded, synthetic

plastic sheet retaining means including an elongate, substantially rectangularly shaped base member engaged against an adjacent portion of the lower surface of the cover member in substantial area contact therewith, a pair of tubular, elongate, upstanding studs integral at one end thereof with said base member adjacent to but spaced from the opposite ends of the base member, said studs projecting perpendicularly to the base member and through the apertures in the cover member, an integral, circumferential, tapered shoulder of substantially triangular cross section on each stud spaced closely adjacent the base member, said tapered shoulders including an upwardly and outwardly directed face and a downwardly and outwardly directed face, the downwardly and outwardly directed face more steeply tapered than the upwardly and outwardly tapered face, an axial bore in each stud opening through the other end thereof, locating and clamping means having apertures of less diameter than the tapered shoulders therethrough, said studs and tapered shoulders received through said apertures, with said locating and clamping means engaged in substantial area contact against the upper surface of said cover member, said upwardly and outwardly tapered face of said shoulder serving as a lead-on for the locating and clamping means, and said more steeply tapered downwardly and outwardly tapered face limiting disengagement of said locating said clamping means from said studs, thus effecting a snap fit of said locating and clamping means over said studs and against the upper surface of the cover member, and a separate, one-piece, molded, substantially U-shaped, synthetic plastic, flexible element having reduced diameter, substantially parallel opposite ends independently sliding frictionally received and releasably retained in the bores in the other ends of the studs to readily releasably attach the flexible element to the studs in spanning relationship thereto, the flexible element having a diametrically enlarged, tapered outer surface at the reduced diameter ends thereof defining a stop abutment against said other ends of the studs and blending smoothly with the shape of the studs at their said other ends, said locating and clamping means and said base member enabling said sheet retaining means to be used with very thin and easily torn cover members, and said shaped flexible element enabling sheets of paper and the like to be readily transferred from one stud to the other without snagging of the sheets.

2. A loose leaf binder as in claim 1 wherein the reduced diameter ends of the U-shaped flexible member taper to an enlarged cross section between the ends thereof to insure a tight fit within the respective bore.

3. A loose leaf binder as in claim 2 wherein the base member and locating and clamping means comprise a molded synthetic plastic material.

4. A loose leaf binder as in claim 3 wherein the base member has a width approximately one-third as great as its length.

5. A loose leaf binder as in claim 4 wherein the base member has a width of approximately 0.312 inches, a length of approximately 1.025 inches and a thickness of approximately 0.050 inches.

6. A loose leaf binder as in claim 5 wherein all corners of the base member are radiused, and the said other ends of the studs are radiused.

7. A loose leaf binder as in claim 6 wherein the locating and clamping means comprises a substantially rect-

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angularly shaped plate having a stud receiving aperture adjacent to each end thereof, the length of the locating and clamping plate being substantially the same as the length of the base member.

8. A loose leaf binder as claimed in Claim 1 wherein the apertures through the locating and clamping means are of conical axial section.

9. A loose leaf binder as claimed in claim 1 further including an extension piece releasably engaged and connected with a respective stud member, the said ex-

tension piece releasably engaged and connected with a respective end of the U-shaped flexible element.

10. A loose leaf binder as claimed in claim 9 wherein the extension piece comprises a generally cylindrical body part having a blind, axially directed bore in one end thereof and an outwardly extending peg integral with the other end thereof and axially aligned with the body part.

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