Aug. 19, 1941. R. SPECTOR 2,253,464

BINDER FOR SHEAVES AND THE LIKE

Filed Oct. 7, 1940

Fig. 1.

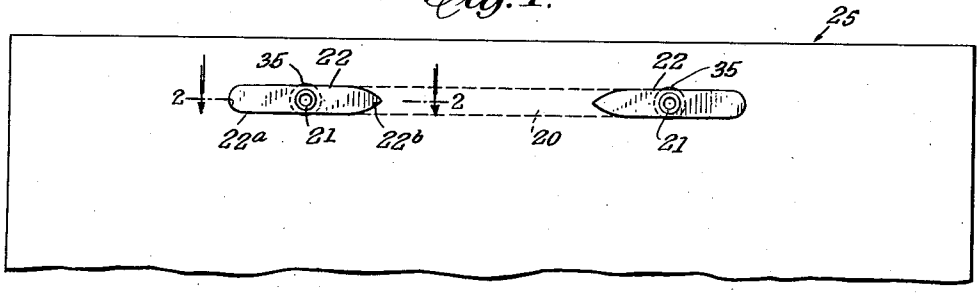


Fig. 2.

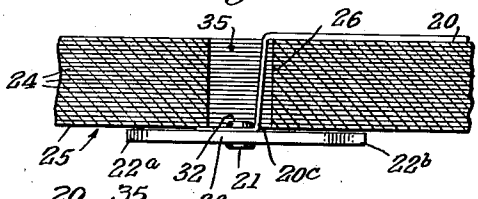


Fig. 3.

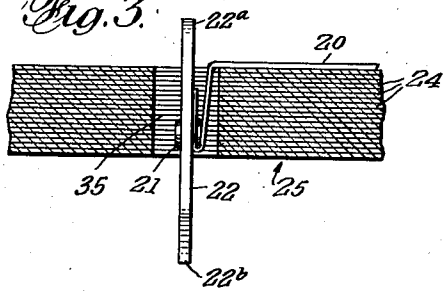


Fig. 8.

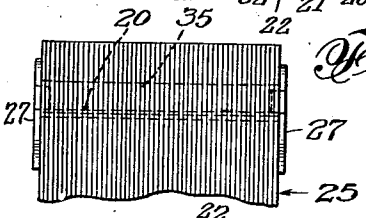


Fig. 4.

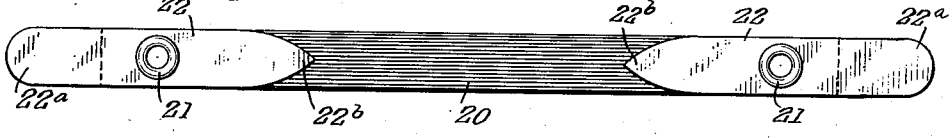


Fig. 5.

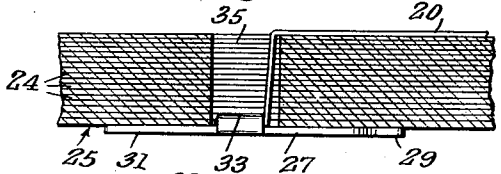


Fig. 6.

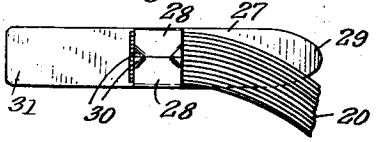
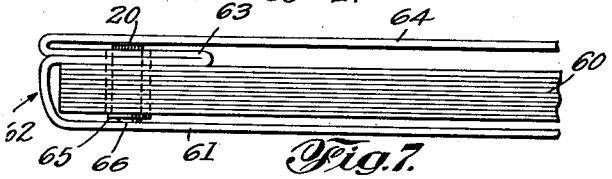


Fig. 7.



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BINDER FOR SHEAVES AND THE LIKE

Robert Spector, New York, N. Y.

Application October 7, 1940, Serial No. 360,015

6 Claims. (Cl. 24—153)

This invention relates to improvements in binding and fastening devices.

It is an object of the present invention to provide an economical, efficient, practical and simple binder or removable fastener for a sheaf of papers and the like.

It is another object of the present invention to provide a readily attachable and stretchable flat binding and fastening device for holding together sheets of material in stacked relation.

A further object of the present invention resides in the provision of a binding and fastening device having a flat stretchable part capable of spanning, extending through and/or across perforations of a sheaf of sheet material and relatively rigid terminals adapted to lie flat against the outermost sheet or sheets of the sheaf. By this provision the sheaves can be placed in stacked relation for filing purposes in a minimum of space and without danger of toppling over.

A still further object of the present invention resides in the provision of a binder for a stack or sheaf of perforated papers and the like which will bind the papers together at the perforations and yet will give sufficiently to permit the stack to be opened without appreciable rolling of the raised papers at the perforated end of the stack whereby a maximum area of the desired paper of the stack to be viewed or worked upon may be presented.

Yet another object of the present invention is to provide a preferably elastic binder for a stack of perforated elements or parts and having at least one relatively rigid end member adapted to be easily threaded through the perforations of the elements and to be laid across the perforation of an outermost element of the stack flat against said element.

Still a further object of the present invention is to provide a stretchable binding and fastening device of efficient utility capable of securing papers, cloth and other materials in stack relation through either one or more rows of perforations provided therein.

Another object of the present invention is to provide a binding and fastening device using a flat elastic element insertable through one or more rows of perforations of superimposed layers of material by a substantially flat relatively rigid member attached thereto, whereby, on account of its flatness the elastic element serves to reduce the danger of its cutting into or fraying the walls of the perforations, and further on account of its elasticity is capable, within limitations, of securing together varying quantities or thicknesses of layers of material.

The above and other objects and advantageous features of the invention and the means for their attainment will be more apparent from the following detailed description, taken in connection with the accompanying drawing, illustrating some embodiments by which the invention may be realized, and in which:

Fig. 1 is a front elevational view of the upper portion of a sheaf or stack of papers showing the application of one form of the invention;

Fig. 2 is an enlarged fragmentary cross-sectional view as taken in the plane of the line 2—2 of Fig. 1;

Fig. 3 is a similar view showing the manner of applying one of the terminal members of the binding device;

Fig. 4 is a front elevational view of the binding device shown in Fig. 1;

Fig. 5 is a cross-sectional view similar to Fig. 2 and showing another form of binding device;

Fig. 6 is a rear view of the terminal shown in Fig. 5;

Fig. 7 is an end elevational view showing the application of a sheaf of papers and a binding device as contemplated herein to a folder in which said sheaf is carried;

Fig. 8 is an end view of the upper portion of a relatively thick stack or sheaf of papers showing the application of the binding device contemplated herein, thereto.

Referring now to the drawing more in detail Figs. 1 to 4 disclose the invention in one of its preferred forms, while Figs. 5 and 6 illustrate the invention in another of its preferred forms, the remaining figures being illustrative of the invention in several modified forms.

In the embodiment shown in Figs. 1 to 4, the binding and fastening device comprises an elongated flat strip of elastic material **20**, to the ends of which are secured by means of eyelets **21** the flat relatively rigid abutting terminals or tips **22**. The terminals **22** by means of the eyelets **21** are pivotally connected to the respective ends of the stretchable strip **20** whereby they may be easily swung thereabout for manipulation through the perforations **35** of the stacked sheets **24** of the sheaf **25** and then for adjustment relatively to said sheaf or stack **25**.

Terminal **22** is made sufficiently stiff or rigid to permit its being threaded thorugh the perforations and to thereafter overlie the same without bending or being drawn into the perforations when the binder is adjusted onto the stack or

sheaf of sheet material. This applies also to the terminals which will be described later on.

Any suitable material may be employed for making the terminals such as, for examples, metal, leather, fibre, rubber, or any suitable plastic composition.

The strip or connector 20 may be made of any suitable preferably flat elastic or stretchable material, and preferably capable of stretching to about approximately double its length. This strip or connector should not exceed in width the diameter of the perforations in the sheaf or stack through which it is to be partially threaded and may be of any desired length, however, taking into consideration the distance between rows of perforations and the thickness of the said rows. The drawing shows the narrow strip as being made of elastic fabric or tape.

Terminal 22 is preferably rounded at one end and tapered at its other end as indicated at 22*a* and 22*b* respectively; and its width preferably should not exceed in width that of the elastic connector 20 to which it is secured.

As heretofore stated terminal 22 is secured to an end of the stretchable strip 20 by the eyelet or tubular rivet 21 (Figs. 1–4). This attachment is made in such manner that the tapered end 22*b* of the terminal 22 normally and after being adjusted on the stack or sheaf is in the direction of the elastic strip 20 as clearly shown in Figs. 1, 2 and 4. The eyelet 21 is substantially midway between the ends of terminal 22. This would position the free extremity 20*c* of strip 20 closer to end 22*b* than to end 22*a* of terminal 22. This arrangement permits the terminal to be held in a sort of balanced position and the extremity 20*c* of strip 20 to be located between the eyelet and the wall 26 formed in the stack by the perforations in sheets 24, when the binder is adjusted in working condition with respect to the sheaf or stack 25. This interposition of the elastic strip 20 between the eyelet and the said wall 26 will prevent the latter from fraying or tearing.

In Figs. 5 and 6 the terminal 27 is shown as having the bent-over integral lugs or tongues 28 for securing to it the end of the stretchable strip 20, in lieu of the eyelet 21. The location of the lugs 28 on terminal 27 is such as to bring about the results and advantages heretofore stated with respect to the location of eyelet 21 on terminal 22 regarding attachment of strip 20. The direction of the tapered end 29 of terminal 27 like end 22*b* of terminal 22, is toward the strip 20 and said end overlies the said strip. Where two terminals are employed the tapered ends thereof face each other as shown in Figs. 1–6.

In order to assure permanent and secure fastening of the terminal 27 to the end of the elastic strip 20 the material of lugs 28 may be crimped or indented against or imbedded in the elastic material as indicated at 30 in Fig. 6. The end 31 of terminal 27 may be rounded at the corners as seen in this figure.

It is to be particularly noted that the diameter of eyelet 21 and the maximum width and length across the bent-over lugs should be less than the diameter of the opening 35 of the stack, produced by the perforations in the sheets, the effect being clearly seen in Figs. 2 and 5, respectively. After a terminal in inserted or threaded through the opening 35 of the sheaf or stack, for example, as in a manner indicated in Fig. 3, and the terminal laid flat over the outermost sheet as indicated in Figs. 2 or 5, the raised or protruding portion 32 of the eyelet 21 or the raised or protruding portions 33 of the lugs 28, of the respective terminals, as the case may be, will project within the opening 35 and permit the terminal to abut or lie flat against the stack.

Referring to Figs. 5 and 6, the lugs or bent over lateral portions 28 are disposed between the ends 29, 31 of terminal 27 and overlying one side of the latter, an end of elastic member 20 being clamped by and between said overlying parts 28 and one side of terminal 27, substantially midway between said ends 29, 31 of terminal 27, the length of lateral portion 28 being less than the distance between the respective ends of portion 28 and the respective or corresponding adjacent ends 29, 31 of terminal 27. As seen in Fig. 5 this construction holds the terminal 27 in balanced position, locating the free extremity of strip 20 between the clamping lugs 28 and the perforated wall of the stack. Terminal 27 has flat faces, the lugs 28 being bent over on the inner one of the faces, the other or outer face remaining flat and smooth thereby facilitating its use, the only thickness over the stack being that of the thin plate-like terminal 27 as the lugs 28 and the clamped end of the elastic member 20 wholly extend within the perforation of at least that sheet 24 adjacent terminal 27. The part of elastic member 20 secured to lateral lug portions 28 are substantially coextensive therewith so that no part thereof may extend beyond the diameter of the perforation.

In this case one of the terminals 22 is inserted through one of the openings 35 of the pile or group 25 of sheets of papers 24 to be bound, and permitted to lie flat across said opening in abutment against one of the outermost sheets of paper and the elastic strip issuing from that opening on the other outermost sheet of the group is brought across to the other opening 35 and the other terminal of the binding device inserted through it until that other terminal comes through the opening of the first mentioned outermost sheet upon which the first mentioned terminal is also resting. The said other terminal will then lie flat across the said other opening. The parts of the elastic-to-terminal securing means that protrudes slightly beyond the terminals will find themselves within the openings and will remain there. Papers may be added to or removed from the stack or pile, the former operation being only limited by the maximum expansion of the elastic.

When it is desired to utilize the device where the pile of material has one opening or hole, one of the terminals of the device is inserted through this opening and permitted to lie flat across the perforation of one of the outermost members of the pile, while the other terminal will automatically assume a similar position on the other outermost member of the pile. This arrangement is seen in Fig. 8. It is understood that the pile of material to be bound is greater in thickness than the normal length of the elastic strip between its pivoted points so that the elastic will stretch somewhat and thereby securely bind together all the elements or members composing the pile. Members of the pile may be removed and other similar members may be added to the pile with comparative ease and simplicity.

When the papers are to be secured through three openings in the pile, one of the terminals is threaded through the first opening and then through the second opening in a direction opposite to that in which it was threaded through the first opening and lastly, the said terminal is

threaded through the third opening in the same direction as it was threaded through the first opening.

If there are more than three perforations in each of the sheets to be bound together, then a similar operation is repeated, the said terminal being threaded through the additional openings.

It is understood that the binding and fastening device may be employed with only one terminal, the other end of the elastic strip being free. This free end is sewn, stapled, pasted or otherwise secured to a portion of the article, whose parts or elements are to be bound, tightened, gathered or fastened. The terminal at the other end of the elastic strip may be inserted through one or more perforations in the article for accomplishing the desired result.

It will thus be seen that the constructions of the heretofore described embodiments are such as to permit the terminals to abut directly and flatly against the stack of material fastened together by the device thus diminishing the filing space required, particularly when the stacks are piled one over the other. Further, the said constructions permit full visibility on inside pages right up to the binding edge without increasing bulk of the stack at said edge.

Fig. 7 shows the application of the invention to a binder. The sheaf or pile of sheets of material **60** being disposed between the outer cover **61** of a folder **62** and of the double-portion **63** thereof. The folder is also provided with a rear cover **64**. The binder **65** is preferably applied so that the elastic strip **20** lays along the rear of the folded portion **63** with the terminals **66** disposed between the stack and the outer cover, so that the sheets may be readily added and removed from the folder without removal of the stack from the folder.

As many possible embodiments may be made of the invention within the scope thereof, and as many changes might be made in the embodiments above set forth, it is to be understood that all matter hereinbefore set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

1. A binder of the character described comprising an elongated elastic member, a flat terminal, and means securing said elastic member to said terminal, said means comprising a part overlying substantially the mid portion of one side of said terminal, an end portion of said elastic member being clamped by and between said overlying part and said one side of said terminal, the distance between the extremities of said overlying part being less than the distance between respective of said extremities and the corresponding ends of said terminal.

2. A binder of the character described comprising an elongated elastic member, a flat terminal, and means securing said elastic member to said terminal, said means comprising an eyelet having a part overlying substantially the mid portion of one side of said terminal, an end portion of said elastic member being clamped by and between said overlying part and said one side of said terminal, the diametrical distance between the extremities of said overlying part being less than the distance between respective of said extremities and the corresponding ends of said terminal.

3. A binder of the character described comprising an elongated elastic member, a flat terminal, and means securing said elastic member to said terminal, said means comprising a portion of said terminal overlying the mid portion of one side of said terminal, an end portion of said elastic member being in clamping engagement by and between said overlying portion and said mid portion, the length of said overlying portion being less than the distance between the respective ends of said overlying portion and the corresponding ends of said terminal.

4. A binder of the character described comprising an elongated elastic member, a flat terminal, and means securing said elastic member to said terminal, said means comprising a flat portion of said terminal overlying the mid portion of one side of said terminal, an end portion of said elastic member being in clamping engagement with and between said overlying portion and said one side of said terminal, the length of said overlying portion being less than the distance between the respective ends of said overlying portion and the corresponding ends of said terminal.

5. The combination with members each having a perforation, of means for binding together said members, said means comprising an elastic, a terminal having opposite flat faces, and means securing said element to said terminal, said securing means comprising a part overlying substantially the mid portion of one side of said terminal, an end portion of said elastic element being clamped by and between said overlying part and said one side of said terminal, said overlying part and said clamped end of said element being of such size relative to the size of the perforation of at least one of said members adjacent said terminal to wholly extend within said perforation, whereby said terminal flatly abuts the said one of said members when said binding means are in said operative position.

6. A binder of the character described comprising an elongated elastic member, a flat terminal, means securing said terminal to said elastic member, said means comprising at least one lateral flat portion of said terminal overlying the mid portion of one side of said terminal, an end of said elastic member being in clamping engagement with and between said overlying portion and said mid portion, said lateral flat portion having an inwardly directed part biting into said elastic member.

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