Aug. 26, 1941. C. E. BROOKS 2,254,165

BINDING TOOL

Filed Jan. 8, 1941

Fig. 1.

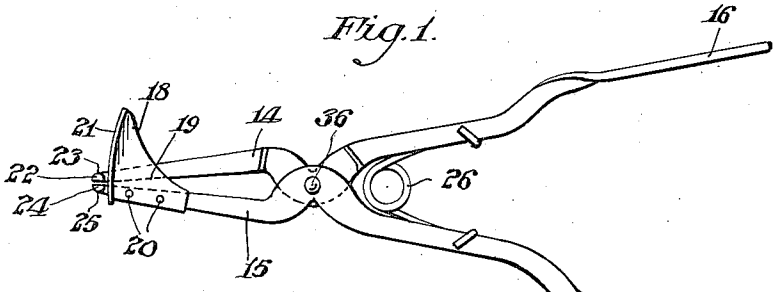
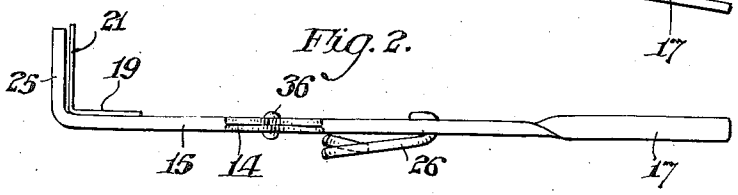


Fig. 2.



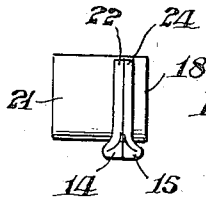


Fig. 3.

Fig. 4.

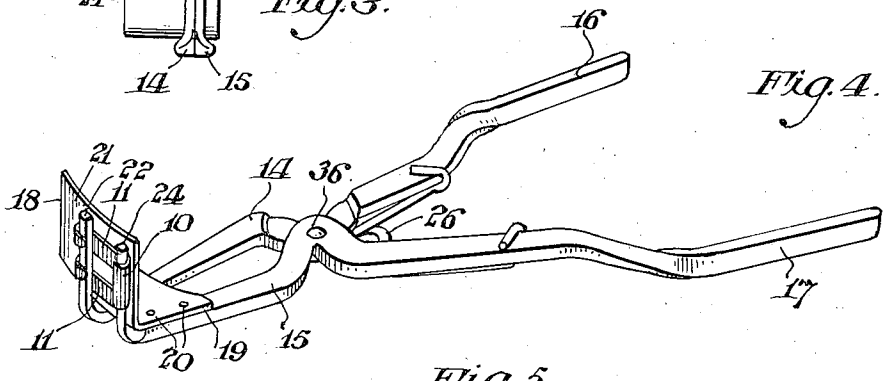
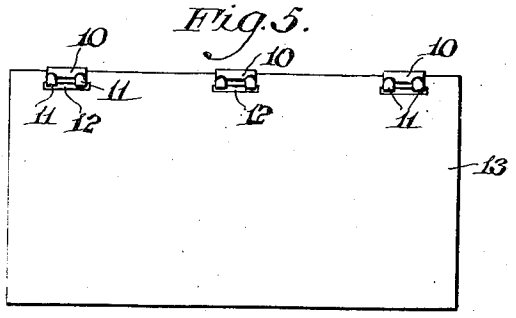


Fig. 5.



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Patented Aug. 26, 1941

2,254,165

UNITED STATES PATENT OFFICE

2,254,165

BINDING TOOL

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Application January 8, 1941, Serial No. 373,581

8 Claims. (Cl. 11—1)

This invention relates to binding tools and more particularly to a tool for applying elastic binder clips to packs of punched sheets in the binding of books, pamphlets and the like.

In the binding or assembly in book form of sheets punched at one edge for mechanical binding and particularly binding by short length elastic binder clips no satisfactory instrumentality or machine has heretofore been available and it has been necessary to apply the clips by hand. This manual application of the binder clips is time consuming and costly and unduly increases the time required for and the cost of binding sheets in book form with such clips.

It is the principal object of the present invention to provide a binding tool by means of which elastic binder clips may be quickly and easily applied to stacks of edge-punched sheets for binding of the sheets in book form.

It is a further object of the present invention to provide a binding tool of the character aforesaid which will be simple yet rugged in construction, easy to operate and which will be adaptable for use with different sizes of binder clips.

Other objects of the invention will be apparent from the annexed specification and claims.

The nature and characteristic features of the invention will be more readily understood from the following description, taken in connection with the accompanying drawing forming part hereof, in which:

Figure 1 is a top or plan view of a preferred embodiment of a binder tool in accordance with the present invention;

Fig. 2 is a side elevation of the binder tool shown in Fig. 1;

Fig. 3 is an end elevation of the binder tool shown in Fig. 1;

Fig. 4 is a view in perspective of the binder tool illustrated in Fig. 1 and showing the mode of operation thereof; and

Fig. 5 is a top or plan view of a book bound with binder clips of the type for which the binder tool of the present invention is particularly adapted.

It will, of course, be understood that the description and drawing herein are illustrative merely, and that various modifications and changes may be made in the structure disclosed without departing from the spirit of the invention.

Referring more particularly to the drawing one type of binder clip employed for fastening sheets together in book form consists of a longitudinal back strip or band 10 intended to be longitudinally disposed along the edge of the book, and a plurality of spaced fingers 11 laterally disposed with respect to the back strip 10. The binder clip in its normal position has both the back strip 10 and the fingers 11 curled into tubular form, the fingers 11 being adapted to extend through suitable punchings or perforations 12 in the sheets 13 to provide, with the back strip 10, hinges for the sheets 13 and thus form the book. A single broad finger portion may, if desired, be used in place of the plurality of fingers. The binder clip is made of any preferred resilient material, such as spring metal, or synthetic plastic, of cellulosic or non-cellulosic constituents, and including Celluloid, pyroxylin and the like.

The binder tool comprises a pair of lever arms 14 and 15 and pivotally connected intermediate their ends by means of a pivot pin 36, the lever arms 14 and 15 being provided with gripping portions 16 and 17 at one end thereof for engagement with the fingers and the thumb or heel of the hand of the user. One of the lever arms, and preferably the lever arm 15, has a supporting or backer plate 18 mounted thereon. The supporting or backer plate 18 includes a bracket portion 19 disposed along the lever arms 14 and 15 and secured in any desired manner, such as by rivets 20, and a curved face portion 21 the center of curvature being located in the axis of the pivot pin 36.

The prong or end portion 22 of the lever arm 14 is disposed at right angles to the lever arm 14 and is spaced a sufficient distance from the face 21 of the supporting plate 18 to accommodate the binder clips and permit of the easy insertion of a clip thereon. The outer face 23 of the end portion 22 is preferably curved to aid in spreading binder clips, as hereinafter pointed out.

The prong or end portion 24 of the lever arm 15 is also disposed at right angles to the lever arm 15, in alinement with the end portion, and is similarly spaced from the face 21 of the supporting plate 18. The outer face 25 of the end portion 24 is preferably curved to aid in spreading binder clips by engagement therewith, as hereinafter pointed out.

A spring 26 is provided for spreading the gripping portions 16 and 17 and for bringing the end portions 22 and 24 into engagement when the gripping portions 16 and 17 are released.

The manner of use of the binding tool will now be pointed out.

With the prongs or end portions 22 and 24 of the lever arms 14 and 15 in engagement as shown

in Figs. 1 and 3, a binder clip is slipped onto the end portions 22 and 24. If the resilient binder clip is of the character referred to above, that is with a back strip 10 and fingers 11 extending therefrom the back strip 10 is preferably located adjacent the end portion 24 and away from the face 21 of the supporting plate 18. The gripping portions 16 and 17 of the lever arms 14 and 15 are then manually moved toward each other and the prongs or end portions 22 and 24 are separated the desired distance. In the separation of the end portions 22 and 24 the outer curved faces 23 and 25 permit of the sliding thereover of the interior of the binding clips during the spreading or opening of the binder clips. In the separation the end portions 22 and 24 remain in a parallel relationship and equidistant from the face 21 of the supporting plate 18. The separation of the end portions 22 and 24 opens up the binder clip as shown in Fig. 4, the finger portions 11 being unrolled along and supported by the curved face 21 of the supporting plate 18. When the binder clip is in the position shown in Fig. 4, the opened clip may then be readily positioned at one set of perforations or punchings 12 of the sheets 13. The pressure applied to the gripping portions 16 and 17 is then relaxed and the elasticity of the binder clip will cause the clip to curl up into its holding or binding condition in engagement through the perforations 12 of the sheets 13. The end portions 22 and 24 may then be easily removed by moving the same longitudinally with respect to the binder clip and the tool is then ready for applying another binder clip.

The binding tool is not limited in its use to the application only of the binder clips having laterally disposed fingers and specifically referred to herein but may be used for other resilient binder clips of generally tubular form and capable of being opened out for application to punched sheets for binding the same in book form.

I claim:

1. Apparatus for assembling a plurality of punched sheets with a resilient tubular binder comprising lever members, means for pivotally connecting said members intermediate their ends, laterally disposed binder engaging end portions on said lever members, and a curved supporting plate member adjacent said end portions, said plate member being curved about the axis at the pivotal connecting means for said lever members.

2. Apparatus for assembling a plurality of punched sheets with a resilient tubular binder comprising manually operable lever members, means for pivotally connecting said members intermediate their ends, parallel laterally disposed binder engaging end portions on said lever members, and a binder supporting plate member mounted on one of said lever members, said plate member being curved about the axis at the pivotal connecting means for said lever members.

3. A binding tool comprising a plurality of lever members, means for pivotally connecting said lever members intermediate their ends, laterally disposed separable end portions on said lever members, resilient means in engagement with said lever members for normally holding said end portions in engagement, and a supporting member carried by one of said lever members and having a face portion adjacent said end portions and substantially equidistant from said end portions in the respective positioning thereof.

4. A binding tool comprising a plurality of manually operable lever members, means for pivotally connecting said lever members intermediate their ends, parallel laterally disposed separable end portions on said lever members, resilient means in engagement with said lever members for normally holding said end portions in engagement, and a supporting plate member carried by one of said lever members and having a curved face portion adjacent said end portions and substantially equidistant from said end portions in the respective positioning thereof.

5. A binding tool comprising lever members having manually engageable portions at one end thereof, means for pivotally connecting said lever members intermediate their ends, the other end portions of said lever members being laterally disposed with respect to said lever members, resilient means in engagement with said lever members for normally holding said laterally disposed end portions in engagement, and a supporting member carried by one of said lever members and having a face portion adjacent said laterally disposed end portions, said laterally disposed end portions being substantially equidistant from the face portion in the respective positioning thereof.

6. A binding tool comprising a plurality of manually operable lever members, means for pivotally connecting said lever members intermediate their ends, parallel laterally disposed separable end portions on said lever members, resilient means in engagement with said lever members for normally holding said end portions in engagement and resistant to separation, and a supporting plate member carried by one of said lever members and having a curved face portion adjacent said separable end portions and spaced therefrom, said laterally disposed end portions being substantially equidistant from said face portion in the respective positioning of said end portions.

7. Apparatus for assembling a plurality of punched sheets with a resilient tubular binder comprising a binder backer, a prong fixedly mounted with respect to said backer and spaced from said backer for the reception of the binder, another prong parallel to said first prong and movably mounted with respect thereto for opening said tubular binder upon the separation of said prongs, said movable prong being movable colinear with the surface of the backer in spaced relation thereto, and means for separating said prongs in parallel relationship.

8. Apparatus for assembling a plurality of punched sheets with a resilient tubular binder comprising a binder backer plate, a prong fixedly mounted with respect to said plate and spaced from said plate for the reception of the binder, another prong parallel to said first prong and movably mounted with respect thereto for opening said tubular binder upon the separation of said prongs, said movable prong being movable colinear with the surface of the plate in spaced relation thereto, and means for separating said prongs in parallel relationship.

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