May 19, 1936. M. MURINO ET AL 2,040,870

ADJUSTABLE BINDER APPARATUS

Filed Nov. 21, 1934

FIG. 1

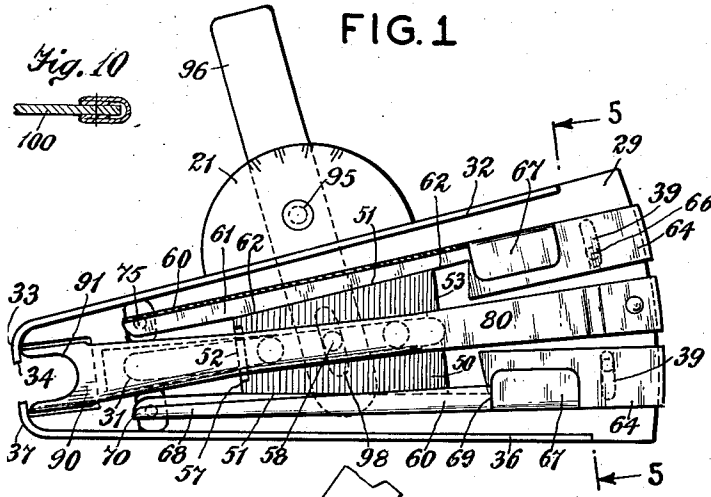


FIG. 5

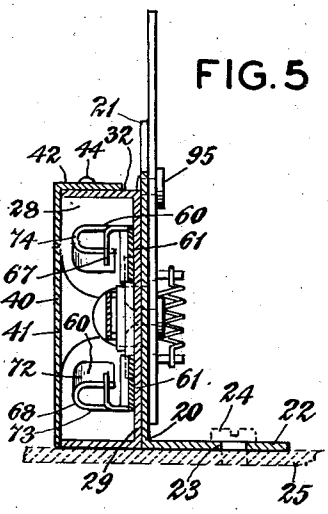


FIG. 2

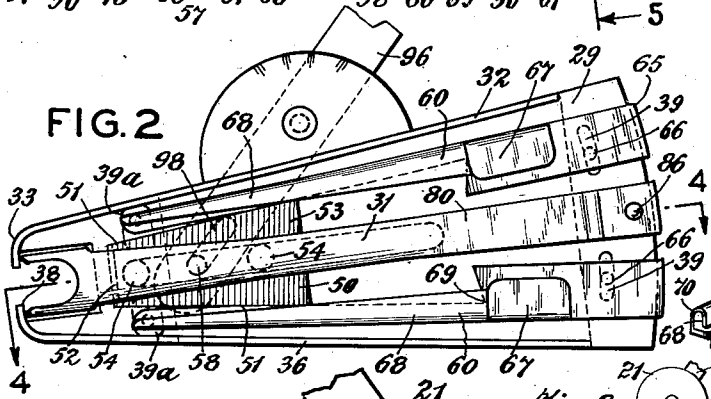


FIG 6

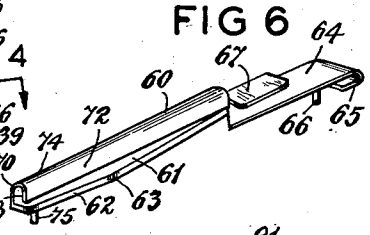


FIG. 3

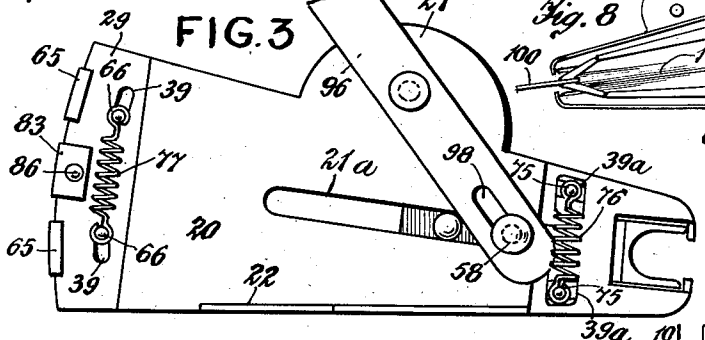


Fig. 8

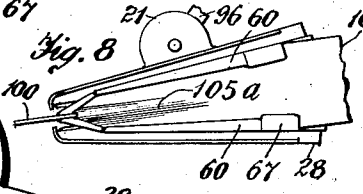


FIG. 7

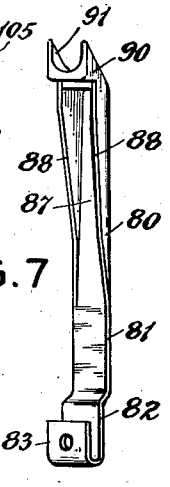


Fig. 9

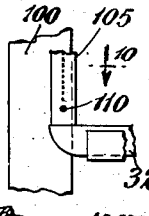
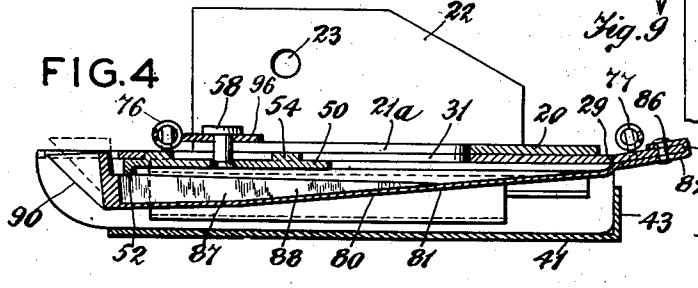


FIG. 4



INVENTORS
MATTHEW MURINO
AND
VINCENT PETILLI.
BY A A de Bonneville
ATTORNEY.

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# UNITED STATES PATENT OFFICE

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## ADJUSTABLE BINDER APPARATUS

Matthew Murino and Vincent Petilli,
New York, N. Y.

Application November 21, 1934, Serial No. 754,191

5 Claims. (Cl. 112—138)

This invention relates to an adjustable binder apparatus.

The object of the invention is the production of a binder apparatus, by means of which binding material, such as tape of various widths can be easily and quickly sewed to a material such as cloth.

The second object of the invention is the production of a binder apparatus, having folders which can easily be adjusted for binding material of different widths.

The organization of the invention comprises a housing having a pair of folders adjustably positioned thereon. Said folders converge from their entrance ends to their exit ends, to guide and fold the longitudinal edge portions of a binding material or tape as it is pulled through said folders. Means are provided to locate said binding material as leaves said housing in a position at right angles to said folders to sew the folded binding material to a second piece of material.

In the accompanying drawing Fig. 1 represents a front elevation, partly in section of the adjustable binder apparatus with its cover removed; Fig. 2 shows an elevation similar to Fig. 1 with some of its elements in a different position; Fig. 3 indicates a rear view of Fig. 2; Fig. 4 is a section of Fig. 2 on the line 4—4; Fig. 5 represents a section of Fig. 1 on the line 5—5; Fig. 6 indicates a perspective view of one of the folders of the invention; Fig. 7 shows a perspective view of the adjusting fork of the invention; Fig. 8 shows an elevation on a reduced scale similar to Fig. 2 with the binding material and the material to which it is being sewed; Fig. 9 indicates a partial top view of Fig. 8; and Fig. 10 is a section of Fig. 9 on the line 10—10.

The adjustable binder apparatus in this exemplification is indicated to comprise the angle shaped support having the vertical member 20 with the semi-circular projection 21, the opening 21*a*, and the horizontal member 22 with the opening 23. A screw 24 extends through the opening 23 and is in threaded engagement with the base plate 25 of the sewing machine indicated in dotted lines.

The housing 28 of the adjustable binder apparatus converges from its entrance end to its exit end. The said housing 28 comprises the vertical wall 29 having the longitudinal elongated guide opening 31, the top inclined wall 32 having the curved leg 33 with the end 34, the bottom wall 36 having the curved leg 37 with the end 38. A pair of elongated guide openings 39 are indicated in the wall 29 at the entrance end of the apparatus and a pair of elongated guide openings 39*a* are indicated in the wall 29 at the exit end of the apparatus.

A cover for the housing is designated in its entirety by the numeral 40, and comprises the vertical wall 41, the top wall 42 and the end wall 43. The wall 42 is secured to the wall 32 by screws 44, one of which is shown.

A wedge shaped adjusting plate indicated at 50 has the front end with the flange 52 and the rear end 53. Guide discs 54 extend from the plate 50. A pin 58 connects the adjusting plate 50 and the operating handle 96 to be described. The said pin 58 extends through the openings 21*a* and 31. The adjusting plate 50 slidably bears again the wall 29 with the guide discs 54 guided in the elongated opening 31.

A pair of U shaped adjustable folders are each designated in its entirety by the numeral 60. Each of said folders comprises the bottom plate 61 having the bearing edge 62, which latter tapers from about its center portion 63 to its ends. Each bottom plate 61 has integral therewith the wider portion 64 at the entrance end of the folder and which terminates in the U shaped end 65. A pin 66 extends from each portion 64 through the adjacent guide opening 39. A guide shelf 67 is spaced from each wider portion 64. A longitudinal U shaped folder channel 68 extends forwardly from each shelf 67 and tapers somewhat from its entrance end 69 to its exit end 70.

Each of the folders 60 is indicated having the walls 72 and 73 and the crown 74. From each plate 61 of the folders 60 extends a pin 75 and the latter are connected by the helical tension spring 76 for the exit ends of the folders 60. A similar spring 77 connects the pins 66 at the entrance end of the said folders 60. The U shaped ends 65 extend over the adjacent edge of the wall 29. A flexible adjusting fork is indicated in its entirety by the numeral 80. The said fork comprises the body portion 81 with the offset end 82 having the U shaped end 83. The latter is fastened to one end of the wall 29 by means of the rivet 86. The body portion 81 has an elongated cavity 87 having the inclined side walls 88. At the exit end of the fork 80 is indicated the forming head 90 having the semi-circular inner wall 91.

To the semi-circular projection 21 of the support is pivoted, by means of the pivot pin 95, the operating handle 96. The said handle is indicated having the elongated opening 98 which engages the pin 58 as already described.

Referring particularly to Figs. 8, 9 and 10, the

housing of the binder apparatus is again indicated at **28**. The folders are again indicated at **60** with their guide shelves **67**. The semi-circular projection **21** is again indicated with the operating handle **96**.

To operate the adjustable binder apparatus, it is first fastened in position on the base plate of a sewing machine by means of the screw **24**, the binder apparatus being positioned at right angles to the direction of the feeder of the sewing machine, see Fig. 9. The cloth **100** or other material to which a binder is to be sewed is placed in position to coact with the feeder of the sewing machine in the usual way.

The forward end of the binding material or tape **105** to be sewed to the cloth **100**, is entered between the shelves **67** and the bottom plates **61** of the folders **60**. The wedge shaped adjusting plate **50** has been previously located in proper position by means of the operating handle **96**, to adjust the adjustable folders **60** to suit the width of the binding material or tape operated upon. The operator pulls the binding material **105** through the adjustable folders **60**, so that its forward end extends somewhat out of the forming head **90**. While the binding material **105** is passing through the folders **60**, the longitudinal edge portions of the binding material are folded over, similar in shape to channels of the folders **60**. The operator now pulls the forward end of the binding material **105** through the forming head **90** and swings it at right angles to the longitudinal axis of binder apparatus, as shown in Fig. 9. The edge portions of the binding material are folded, as indicated in Figs. 9 and 10. The operator now places the material **100** between the folds of the binding material, as shown in Figs. 9 and 10, and the needle **110** of the sewing machine sews the binding material **105** to the material **100**.

The position of the fork **80** is controlled by the wedge shaped adjusting plate **50** and it automatically takes up the slack in the longitudinal center portion of the binding material for different widths thereof, as indicated at **105***a*.

It will be noted that the flexible adjusting fork **80** can flex at the jointure of its body portion **81** and its offset end **82**. Attention is also called to the inclined walls **88**, which are adapted to bear against the flange **52** of the adjusting plate **50**, and when said adjusting plate is moved from the position indicated in Figs. 2 and 4 toward the rivet **86**, the flange **52** slides on the said inclined walls **88**, and flexes the adjusting fork **80**, to position the latter different distances from the wall **29**, to take up the slack in the longitudinal center portion of binding materials of different widths. It is to be understood that the position of the adjusting plate **50** depends upon the width of the binding material operated upon, to take up the slack of said material.

Various modifications may be made in the invention and the present exemplification is to be taken as illustrative and not limitative thereof.

Having described our invention we claim:

1. An adjustable binder apparatus comprising a housing, a pair of folders adjustably supported in the housing for the longitudinal edge portions of a binding material to pass through, said folders each having an entrance end and an exit end, means to position the folders different distances apart, and a flexible fork positioned between said folders with one end thereof fastened to said housing, said fork taking up the slack at the longitudinal central portion of said binding material as it passes through the folders.

2. An adjustable binder apparatus, comprising a housing, a pair of converging adjustable folders supported in the housing for the longitudinal edge portions of a binding material to pass through said folders, each having an entrance end and an exit end, a flexible fork positioned between said folders and having one end fastened to said housing, a forming head integral with said fork and positioned beyond said folders at their exit ends, said fork taking up the slack at the longitudinal central portion of said binding material as it passes through the folders and means to space the folders different distances apart.

3. An adjustable binder apparatus, comprising a housing, a pair of converging adjustable folders supported in the housing, each of said folders having integral therewith a bottom plate with a bearing edge, springs at the ends of the folders to draw them to each other, a wedge shaped adjusting plate with its longitudinal edges in contact with the bearing edges of the folders, means to vary the position of the wedge shaped adjusting plate, to vary the distance between the folders, a flexible adjusting fork having one end thereof fastened to one end of said housing and a forming head integral with the said fork and extending beyond said folders at the exit end of the housing.

4. In an adjustable binder apparatus the combination of a housing, means to fasten the housing in operative position to a sewing machine, said housing comprising a vertical wall, a bottom wall and a top inclined wall, said vertical wall having a pair of guide openings adjacent to each of its ends, a pair of longitudinal U shaped folders each having an entrance end and an exit end, a bottom plate having a bearing edge integral with each folder, said bottom plate bearing against said vertical wall of the housing, a pin extending from each end of each folder, said pins extending through the guide openings of said vertical wall, springs connecting the pins at the ends of the folders, a wedge shaped adjusting plate bearing on said vertical wall of the housing, with its longitudinal edges bearing against the bearing edges of the holders, an operating handle pivoted to an extension of said vertical wall of the housing, a connection between said operating handle and said adjusting plate to vary the distance between said folders and an adjusting fork positioned between the folders and having one end thereof fastened to said housing, said folders constructed to have the longitudinal edge portions of a binding material to pass therethrough, said binding material having its end portions folded as it passes through the folders, said adjusting fork bearing against the longitudinal central portion of the binding material to take up the slack thereof.

5. In an adjustable binder apparatus the combination of a housing, means to detachably fasten the housing in operative position to the base plate of a sewing machine, said housing comprising a vertical wall, a bottom wall and a top inclined wall, said vertical wall having a pair of guide openings adjacent to each of its ends, a pair of longitudinal U shaped folders, each having an entrance end and an exit end, a bottom plate having a bearing edge integral with each folder, said bottom plates bearing against said vertical wall of the housing, a pin extending from each end of each folder, said pins extending through the guide openings of said vertical wall, springs connecting the pins at the ends of the folders, a wedge shaped adjusting plate bearing

on said vertical wall of the housing with its longitudinal edges bearing against the bearing edges of the folders, an operating handle pivoted to an extension of said vertical wall of the housing, a pin extending from the adjusting plate engaging an opening in said operating handle, said handle when swung to different positions varying the distance between the folders, a flexible adjusting fork having one end thereof fastened to said vertical wall at the entrance end of the folders, and a forming head integral with the fork and positioned beyond said folders at their exit ends, said folders constructed to have the longitudinal edge portions of a binding material to pass therethrough from their entrance ends to their exit ends, said binding material having its end portions folded as it passes through the folders, and the folded portions approaching each other as they approach the exit ends of the folders, said adjusting fork bearing against said binding material to take up the slack thereof between its edge portions.

MATTHEW MURINO.
VINCENT PETILLI.