June 9, 1953 E. H. VICK 2,641,051

PAPER CLIP APPLICATOR

Filed June 13, 1951 2 Sheets-Sheet 1

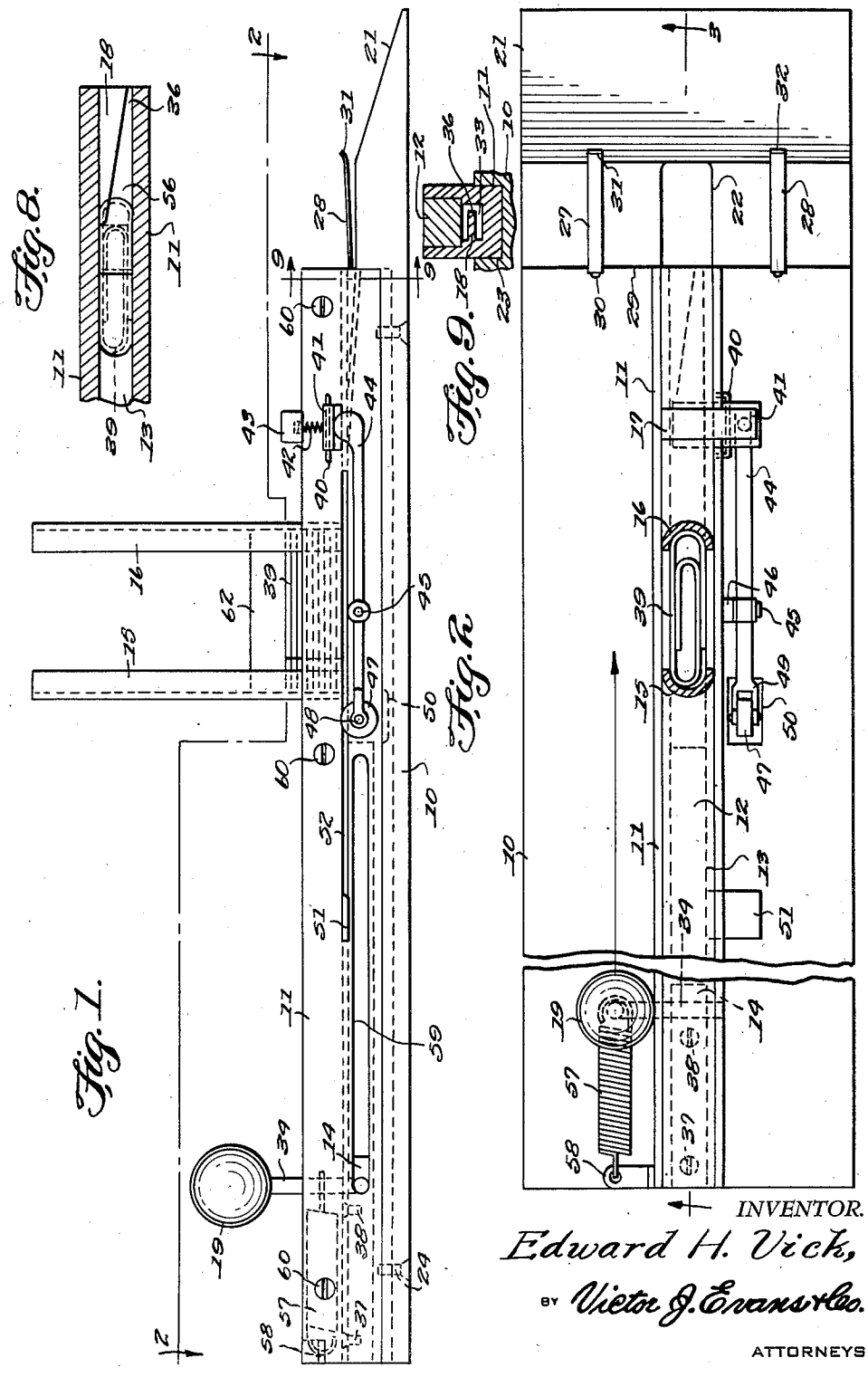


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 8.

INVENTOR.

Edward H. Vick,

BY Victor J. Evans & Co.

ATTORNEYS

June 9, 1953 E. H. VICK 2,641,051

PAPER CLIP APPLICATOR

Filed June 13, 1951 2 Sheets-Sheet 2

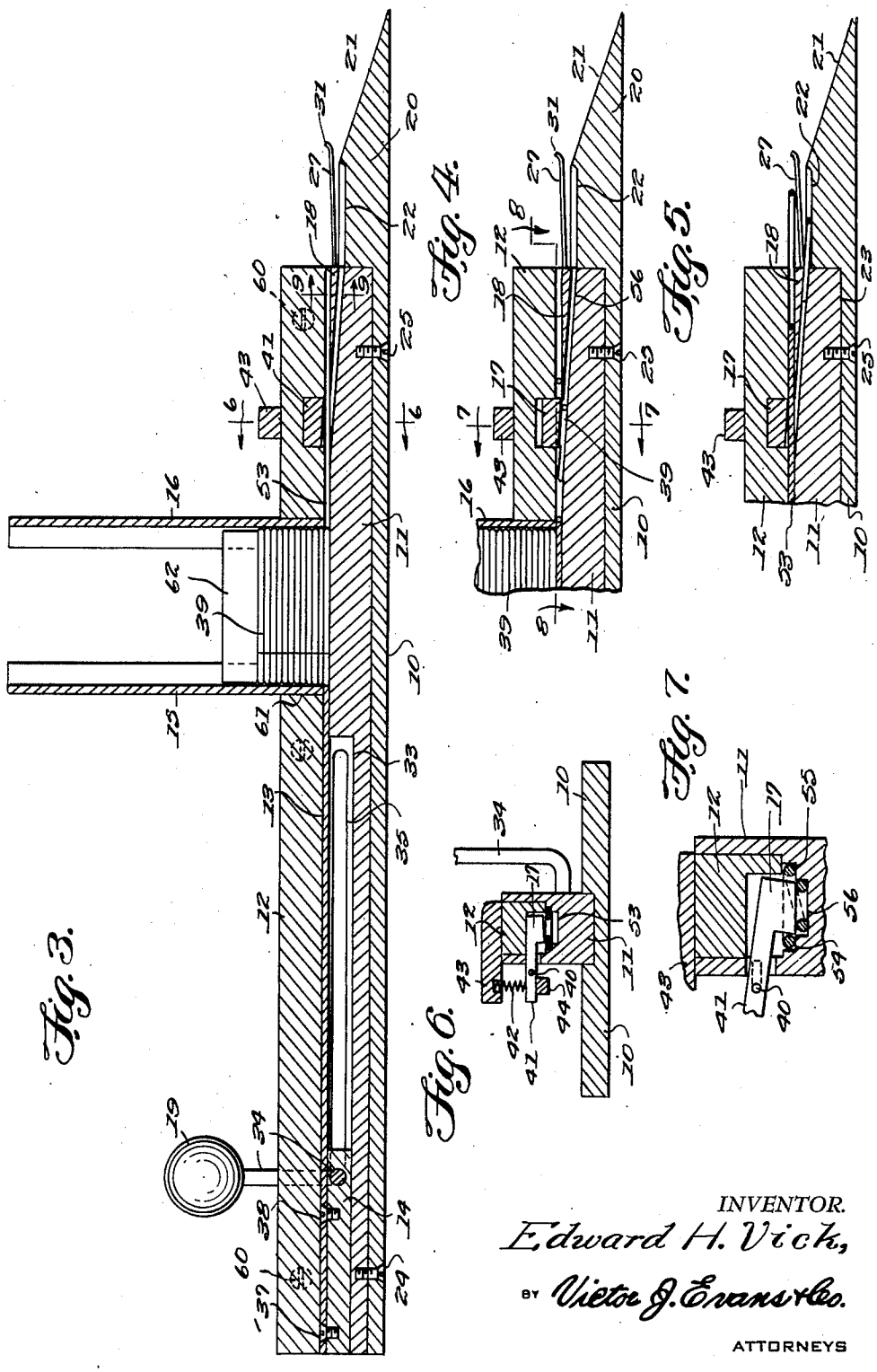


Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

INVENTOR.

Edward H. Vick,

BY *Victor J. Evans & Co.*

ATTORNEYS

Patented June 9, 1953

2,641,051

UNITED STATES PATENT OFFICE

2,641,051

PAPER CLIP APPLICATOR

Edward H. Vick, Orlando, Fla.

Application June 13, 1951, Serial No. 231,311

1 Claim. (Cl. 29—211)

1

This invention relates to mechanical devices for applying sheet material holding devices such as staples and the like, and in particular a mechanical device for spreading the sections of a wire paper clip whereby with sheets of material inserted in holding clips at the end of the machine paper clips are spread and installed over the edges of the material as a lever is moved forwardly.

The purpose of this invention is to eliminate the necessity of spreading paper clips by hand when it is desired to place clips over the edges of sheet material.

In the conventional method of spreading paper clip sections with the finger nails, nails are often broken and sheet material is damaged when attempts are made to hold the paper clip and material at the same time. With this thought in mind this invention contemplates a machine having a magazine or paper clip holding chute and a plunger in combination with cams and gripping elements whereby a paper clip is picked off of the end of a chute, spread, and applied to the edges of sheet material as a lever or knob is manually actuated.

The object of this invention is, therefore, to provide means for mechanically spreading a paper clip whereby, with a single movement of an operating rod or lever, the clip is spread and applied to the edges of sheets of material.

Another object of the invention is to provide means for applying paper clips of a conventional design whereby it is not necessary to change the design or arrangement of the paper clip.

A further object of the invention is to provide mechanical means for spreading and applying paper clips wherein a paper clip applicator of a simple and economical design is provided.

With these and other objects and advantages in view the invention embodies an elongated base having a paper clip holding chute extended upwardly therefrom, a slider having a plunger thereon mounted in a slot in the base, and means for spreading and ejecting a paper clip as the slider is moved forwardly.

Other features and advantages of the invention will appear from the following description taken in connection with the drawings wherein:

Figure 1 is a side elevational view of the paper clip applying machine showing the slider and plunger in retracted positions.

Figure 2 is a plan view of the machine taken on line 2—2 of Figure 1, with parts broken away and shown in section and in this view the parts are also in the position shown in Figure 1.

2

Figure 3 is a longitudinal section through the machine taken on line 3—3 of Figure 2 also showing the parts in the retracted positions as shown in Figure 1.

Figure 4 is a section similar to that shown in Figure 3 showing only the forward end of the machine and illustrating a paper clip in the partly opened or spread position.

Figure 5 is a similar view showing the paper clip moved forwardly to the open position and in the position in which it is installed over edges of sheets of material.

Figure 6 is a cross section taken on line 6—6 of Figure 3 illustrating a rocker cam which forces the small inner section of a paper clip downwardly in the spreading action.

Figure 7 is a similar section on an enlarged scale showing the inner section of the clip moved downwardly by the rocker cam.

Figure 8 is a sectional plan taken on line 8—8 of Figure 4 showing a section through the paper clip slot of the machine and illustrating a paper clip sliding over a spreading cam in the outlet end of the slot.

Figure 9 is a detail showing a cross section through the outer end of the slot being taken on line 9—9 of Figure 1.

Referring now to the drawings wherein like reference characters denote corresponding parts the improved paper clip applying machine of this invention includes a base 10, a bed 11, a mounting bar 12, a plunger 13 carried by a slider 14, a paper clip holding chute formed with end members 15 and 16, a rocker cam 17, a spreader cam 18 and a knob 19 by which the machine is manually actuated.

The base 10, which is provided with a table 20 having a beveled upper surface 21 and a recess 22 therein is provided with an elongated slot 23 in which the bed 11 is secured by screws 24 and 25. The table section of the base is provided with spring fingers 27 and 28 that are secured to the vertical section 29 by screws 30 and the fingers are positioned with the forward end extended over the upper surface of the table and inclined upwardly. The outer ends of the spring fingers are provided with arcuate sections 31 and 32 which extend upwardly.

The bed 11 is provided with an elongated slot 33 in which the slider 14 is mounted and an arm 34 extended from one side of the slider extends through a slot 35 in the bed 11. The outer end of the arm extends upwardly and the knob 19 is positioned on the upper end thereof.

The cam 18 which is wedge-shaped in vertical section and triangular shaped in plan extends

inwardly from one side of the bed 11 into the slot 33, as shown in Figure 9 and a slot 36 is provided between the edge of the cam and the opposite wall of the bed to provide passage for side wire connecting the large and small sections of the paper clip.

The plunger 13 is mounted on the upper surface of the slider 14 by screws 37 and 38 and as the plunger is moved forwardly by the knob 19 through the slider 14 a paper clip, as indicated by the numeral 39 is picked from the end of a stack of clips in the chute and moved forwardly over the cam 18 which, in combination with the rocker cam 17 spreads the clip, as illustrated in Figures 4 and 5.

The rocker cam 17 is pivotally mounted by a pin 40 which extends outwardly from the side of the bed 11, in the form of a staple, as shown in Figure 2 and the outer end of the arm 41, through which the pin 40 extends is urged downwardly by a spring 42 carried by a plate 43 on the bar 12 and, as shown in Figure 6 the arm 41 rests upon the end of a lever 44 that is pivotally mounted by a pin 45 in a bearing 46 and that is provided with a roller 47 that is journaled by a pin 48 in a yoke 49 on the end of the lever. The base 10 is provided with a recess 50 that is positioned to receive the roller 47 when the roller is moved downwardly by a plate 51 extended outwardly through a slot 52 and carried by the plunger 13. Forward movement of the plunger by the knob 19 brings the plate 51 into engagement with the roller 47 whereby the roller is moved downward with the opposite end of the lever 44 moving upwardly carrying the extended end of the arm 41 upwardly and the rocker cam 17 on the opposite end of the arm downwardly whereby the small inner section of the paper clip is moved downwardly as shown in Figure 7.

In the ejecting action of the paper clip the clip slides through a throat 53 between the bar 12 and bed 11 and with continued movement of the clip the sides of the large section of the paper clip slide on shoulders 54 and 55 of the bed 11 with the smaller inner section forced downwardly by the rocker cam 17 to an inclined slot 56 that is positioned below the cam 18.

As the forward or ejecting action of the paper clip is continued the inner small section of the clip passes into the recess 22 in the upper surface of the table on the end of the base with the larger section extended upwardly by the spreading cam 18 whereby the sections are retained in the positions shown in Figure 5 and sheets of paper or other material extended below the clips 27 and 28 will be positioned between two sections of the paper clip whereby as the clip is finally ejected from the end of the bed of the machine the two sections snap together over edges of the sheets of material.

Upon completion of this action the plunger, slider and knob are retracted by a spring 57, one end of which is connected to the arm 34, and the other to a bearing 58 extended from one side of the bed 11. The opposite side of the bed 11 may also be provided with a slot 59, similar to the slot 35 so that the knob 19 may be placed on either side of the machine.

The bar 12 may be secured in the slot in the bed 11 by screws 60 and the sections 15 and 16 of the paper clip holding chute may be secured in the bar 12 by welding or other suitable means. In the design illustrated, the lower ends of the members 15 and 16 extend into an elongated slot 61 and a weight 62 is positioned on paper clips in the chute to provide a follower.

It will be understood that modifications may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

In a paper clip applicator, the combination which comprises an elongated horizontally disposed base having a longitudinally disposed slot therein, a bed having slots therein positioned in the slot in the base, a bar having a paper clip receiving opening therethrough mounted in the bed, a vertical upwardly disposed paper clip supply chute extended from the opening in the bar, a horizontally disposed plunger slidably mounted in the bed, a knob extended from one side of the bed for manually actuating the plunger, said plunger being positioned to remove a paper clip from the chute, a throat in the bed below the bar, said throat having oppositely disposed shoulders which support the outer portion of a clip as it is moved forward by the plunger, an inclined slot between the said shoulders, a rocker cam pivotally mounted on said base and overhanging the inclined slot, means actuating the rocker cam by the plunger so that the cam will move the inner portion of the clip downwardly into the inclined slot, and a spreader cam positioned in the bed for spreading sections of the paper clip when the paper clip is ejected by the plunger.

EDWARD H. VICK.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,077,154	Mullany et al.	Oct. 28, 1913
1,205,219	Kennedy	Nov. 21, 1916
2,156,743	Skrebba	May 2, 1939
2,158,168	Woodruff	May 16, 1939