

Dec. 4, 1962

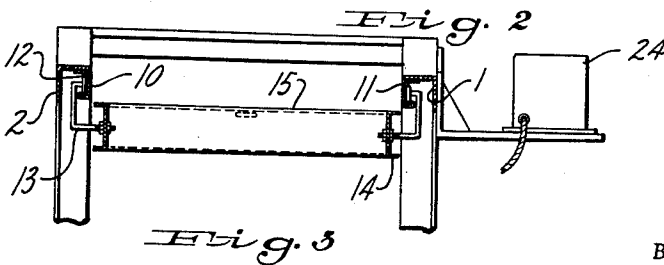
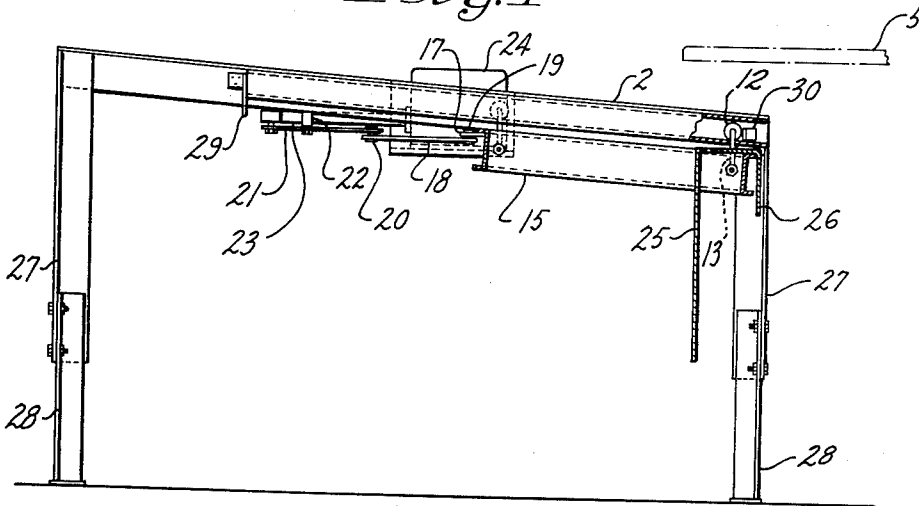
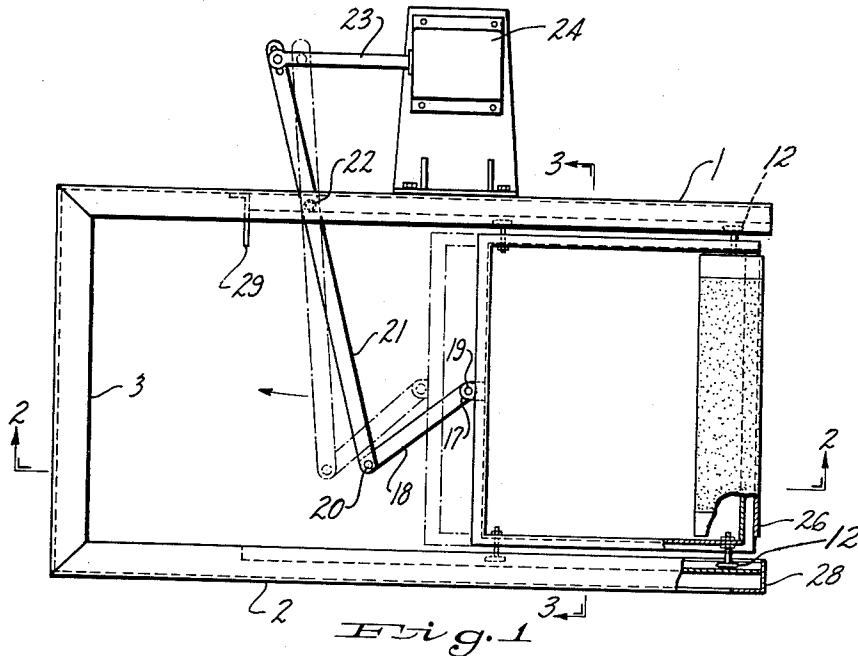
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3,066,563

APPARATUS FOR FOLDING SHEET MATERIAL

Filed Dec. 3, 1958

2 Sheets-Sheet 1



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APPARATUS FOR FOLDING SHEET MATERIAL

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2 Sheets-Sheet 2

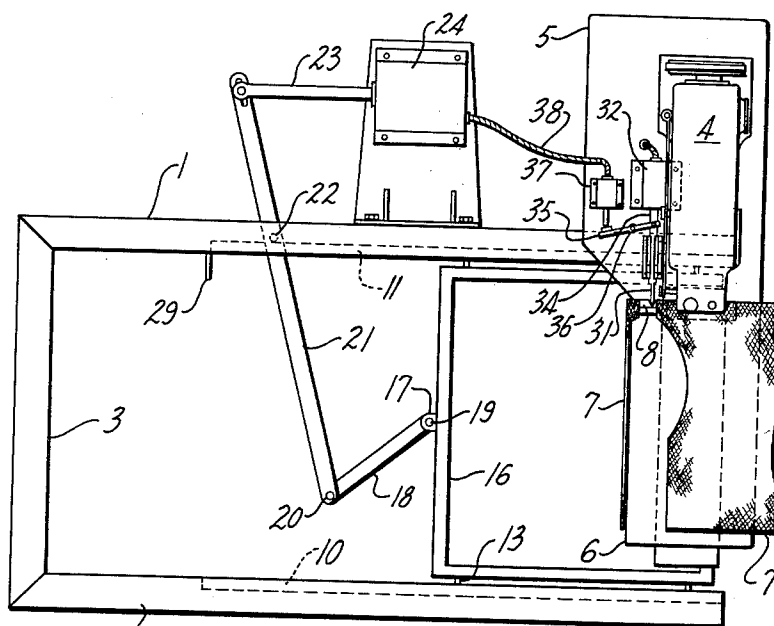


Fig. 4

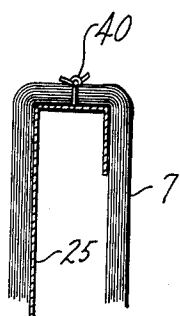


Fig. 7

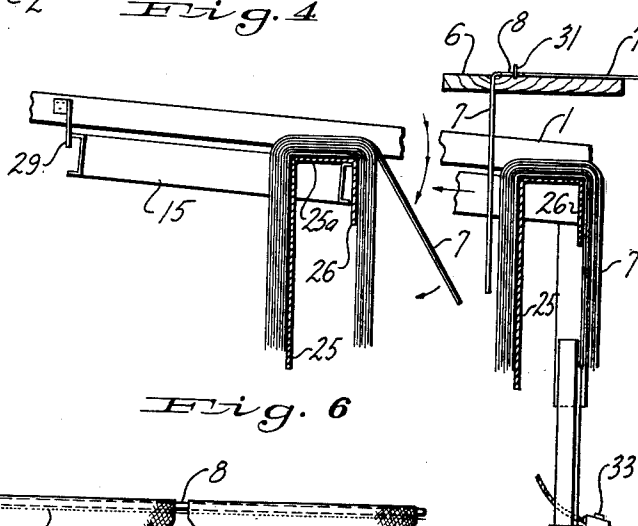


Fig. 6

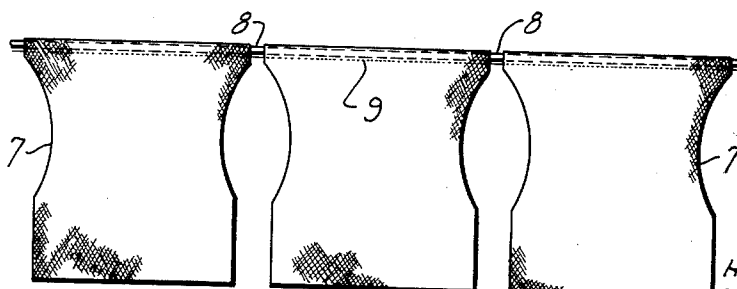


Fig. 8

Fig. 5

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3,066,563

APPARATUS FOR FOLDING SHEET MATERIAL
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Filed Dec. 3, 1958, Ser. No. 777,938
2 Claims. (Cl. 83-81)

This invention relates to new and useful improvements in apparatus for folding fabric material as it passes from a sewing machine table after it has been sewed, and it is among the objects thereof to provide a device which shall engage the sewed material as it passes from the sewing machine table and fold the same on a rack so that it can be handled in bundles or stacks for transportation to other sewing stations or for other operations, as the case may be.

The invention will become more apparent from a consideration of the accompanying drawings constituting a part hereof in which like reference characters designate like parts and in which:

FIGURE 1 is a top plan view of apparatus for folding and stacking sewed fabric embodying the principles of this invention;

FIGURE 2, a side elevational view thereof, partially in cross section;

FIGURE 3, an end elevational view, partially in cross section, of a carriage and its support;

FIGURE 4, a top plan view of the folding and stacking apparatus and a portion of a sewing machine with which it is used;

FIGURE 5 is an end elevational view of the sewing machine table and a stacking and folding rack;

FIGURE 6, a similar view showing the folding rack on the movable carriage advanced to the position where the cloth material has been partially folded and stacked thereon;

FIGURE 7 an end elevational view of the folding and stacking rack with the material stacked thereon; and,

FIGURE 8, a top plan view of a series of sewn fabric articles as they pass from the sewing machine preliminarily to being severed and stacked.

With reference to FIGURES 1 and 4 of the drawing, the numerals 1 and 2 designate a pair of angle bars constituting side frames of a folding and stacking device having an end frame 3 mounted on vertical legs. The device is mounted adjacent a sewing machine generally designated by the numeral 4, FIGURE 4, having a table 5 with an extension 6 over which the fabric 7 travels as it is being sewn. In the particular instance, as shown in FIGURE 8, the fabric is cut out into garment shapes which are connected by seam binding or elastic material 8. The numeral 9 designates the thread by which the seam binding or elastic material was sewn to the cut-out fabric pieces 7.

As shown in FIGURE 3, the side frames 1 and 2 have tracks 10 and 11 attached thereto for receiving rollers 12 mounted on arms 13 that extend from channels 14 that, together with cross frames 15, constitute the frame of a carriage. As shown in FIGURE 4, the carriage is connected by a lug 17 with a link 18 at 19, the link being pivotally connected at 20 to a lever 21 that is pivotally mounted on the side frame 1 at 22. The short arm of lever 21 is connected to the armature or rod 23 of a solenoid 24. As shown in FIGURE 2, an inverted L-shaped aluminum rack 25 is mounted for movement with the carriage 15, the member 25 having a relatively long apron at the front and a relatively short apron 26 at the rear.

The side frames 1 and 2 and the end frame 3 are mounted on adjustable uprights or legs 27 and 28 to suit the particular length of material that is being worked

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upon. The frame member 1 is provided with a stop 29 against which the carriage 15 abuts at the end of its travel. It will be noted that the side frames 1 and 2 are inclined and after the carriage has been moved the full distance against the stop 29, it will return down the inclined tracks by gravity until rollers 4 strike a stop 30, FIGURE 2.

The sewing machine 4 may be provided with a cut-off knife 31, FIGURE 4, which is actuated by a solenoid 32 having a control switch 33, FIGURE 5. The knife actuating rod 34 is connected by a lever 35 pivoted at 36 which operates an electric switch 37 that is electrically connected by a conductor 38 with the solenoid 24.

The operation of the above-described apparatus is briefly as follows:

When the operator has finished sewing one of the items 7; that is when the seam binding has been attached in the manner shown in FIGURE 8 and the binding or thread is bare in the space between the sewed pieces 11, she will depress the foot switch 33 causing the knife blade 31 to sever the seam binding material 8, as shown in FIGURES 4 and 5. As the knife severs the tape, switch 37 will energize solenoid 24 which will retract the arm 23 and cause the carriage 15 to travel forward up the track 10 and 11 and in doing so, the front apron 25 will engage the depending material 7, FIGURE 5, and move it forward and cause it to fold over the top flat section 25a of the aluminum rack, as shown in FIGURE 6. As the carriage continues its forward movement, the loose end will fold over and drop across the back apron 26 in the manner shown in FIGURE 6 of the drawing, the severed pieces finally dropping in the position, as shown in FIGURE 7 of the drawing.

As the carriage moves forward and strikes the stop 29, it will return by gravity and come to rest against the stop 30, as shown in FIGURE 2. Upon the completion of the next sewing step, the operator will again depress the foot switch 33 and repeat the operation of severing the seam binding and causing the carriage to move forward to engage the severed fabric and fold and stack it in the manner shown in FIGURES 5, 6 and 7.

The stack of folded cloth material may be tied in bundles by a string 40 and may be transported to other sewing stations in the plant for further fabrication.

By means of the above-described apparatus, the machine operator, by simply pressing the foot switch 33, can keep on sewing without paying any attention to what happens to the finished material. By severing the seam binding material after each item has been sewn, it will be unnecessary to handle the material and cut them off separately after a number of them have been sewn. Also, by neatly stacking the severed articles in bundles, as herein described, the material can be further handled and worked upon with a minimum loss of time and without the loss of any production capacity of either the operators or the plant equipment.

Although one embodiment of the invention has been herein illustrated and described, it will be evident to those skilled in the art that various modifications may be made in the details of construction without departing from the principles herein set forth.

I claim:

1. A machine for severing and stacking sewed fabrics in accordance with claim 3, wherein the linkage means comprises a lever pivotally secured to the frame, one end of said lever being pivotally connected to the solenoid armature, the other end of the lever being pivotally connected to one end of a link, the other end of said link being pivotally connected to the carriage; stop means secured to the inclined frame in the vicinity of each end thereof adapted to limit the sliding movement of the carriage along the frame, whereby, upon actuation of the

linkage by the solenoid, the carriage is pulled upwardly along the frame into abutting relation with the stop means at the upper end of the frame, and thereafterwards the carriage slides downwardly on the frame, under the influence of gravity, into its initial abutting relation with the stop means at the lower end of the frame.

2. A machine for severing and stacking sewed fabrics comprising a downwardly inclined frame having its lower end positioned below and adjacent one edge of a sewing machine table, a carriage slidably mounted on said downwardly inclined frame, stop means secured to the inclined frame in the vicinity of each end thereof for limiting the sliding movement of the carriage along the frame, severing means mounted on the sewing machine table for severing the fabric after it has been sewn, a stacking rack mounted on the carriage, said rack comprising an inverted L-shaped member having a relatively long apron for engaging the leading portion of the severed fabric and a relatively short apron for supporting the trailing portion of the severed fabric as the fabric passes over the edge of the sewing machine table, a solenoid carried by the frame, linkage means connected between the solenoid armature and the carriage for pulling the carriage along the inclined frame and upwardly thereof, and switch means connected between the solenoid and the fabric severing means, whereby upon actuation of the fabric severing

means, the switch means is simultaneously closed to actuate the solenoid and the linkage means, thereby pulling the carriage and its associated rack upwardly on the inclined frame so that the severed fabric is engaged by the rack and is folded and stacked thereon; said carriage sliding into abutting relation with the stop means at the upper end of the frame, and thereafterwards sliding downwardly on the frame, under the influence of gravity, into its initial abutting relation with the stop means at the lower end of the frame.

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