

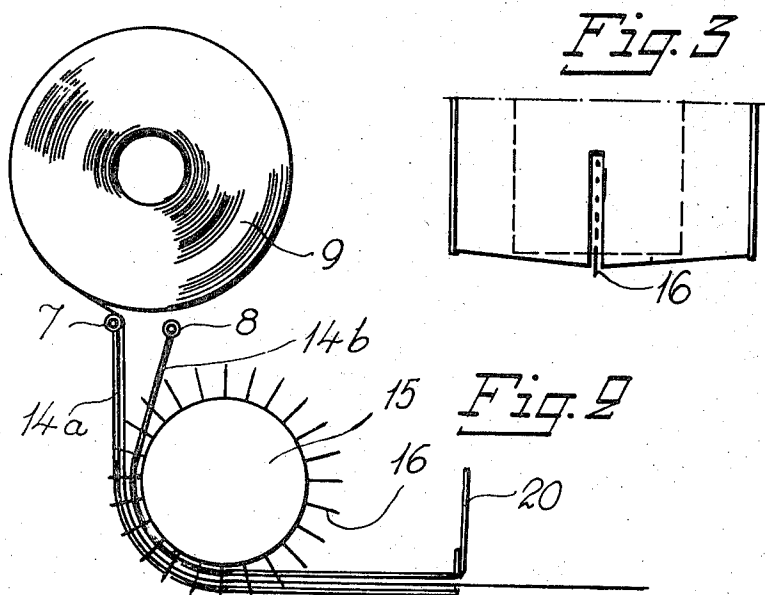
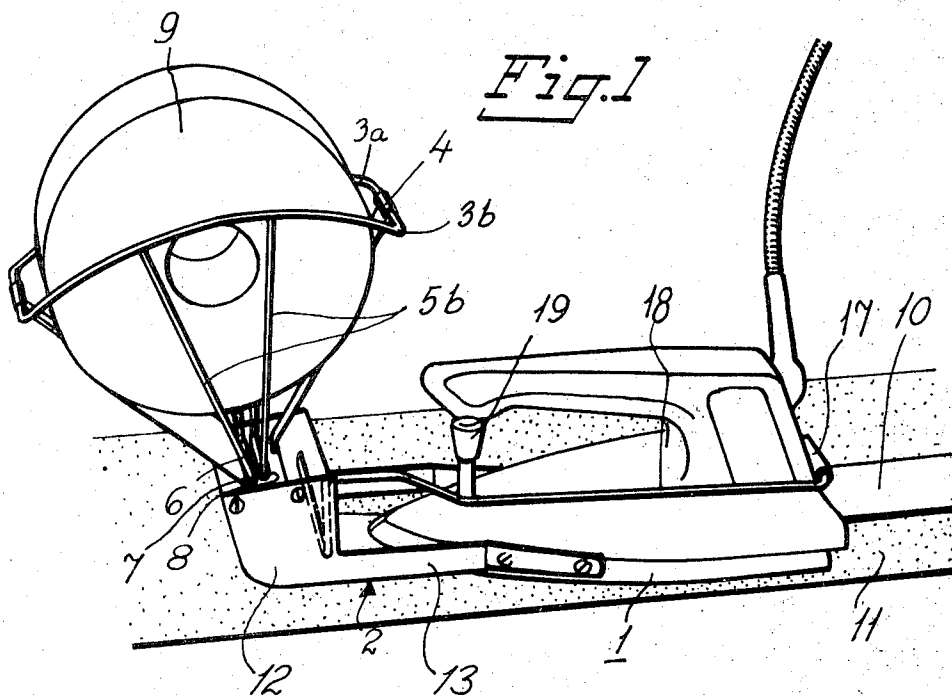
Sept. 24, 1974

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APPARATUS FOR APPLICATION OF STIFFENING BANDS  
OR THE LIKE TO PIECES OF CLOTH

3,837,976

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2 Sheets-Sheet 1



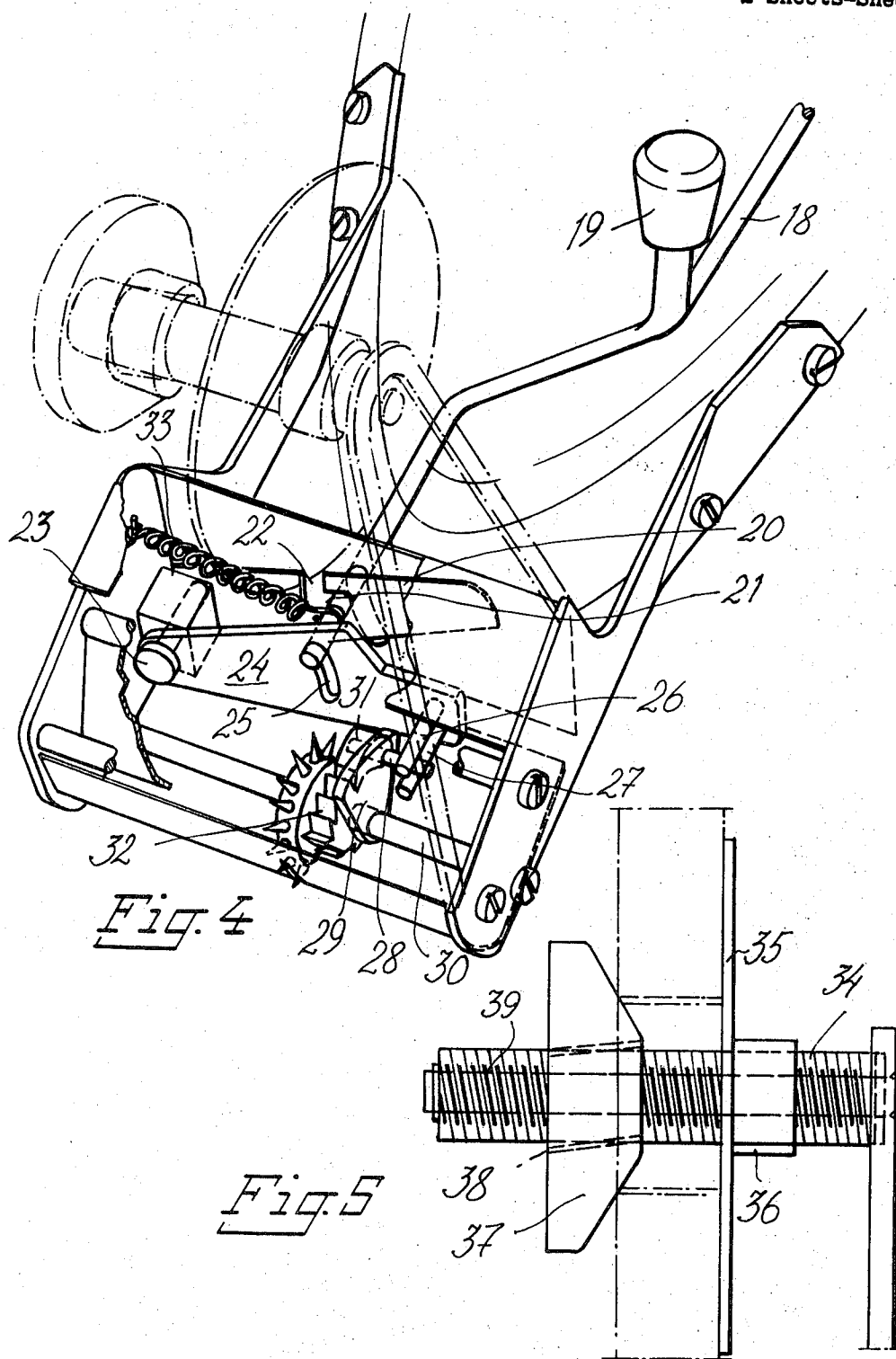
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## APPARATUS FOR APPLICATION OF STIFFENING BANDS OR THE LIKE TO PIECES OF CLOTH

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5 Claims

### ABSTRACT OF THE DISCLOSURE

An apparatus for applying stiffening bands to pieces of cloth uses bands with a covering that sticks to the cloth material upon heating and consists of a bracket secured to a smoothing iron and holding the band, a guide to feed the band in a path down towards the piece of cloth and in a direction towards the rear of the iron and a feeding roll having sharp points adapted to pierce the band and penetrate into the cloth lying below in such a manner that the iron upon movement causes the feeding roll to rotate and thereby feeds the stiffening band.

The present invention relates to an apparatus for applying stiffening bands or the like to pieces of cloth.

In the clothing industry stiffening bands are being used e.g. to stiffen the parts in which button holes are to be made, but of course, also other application fields are possible such as decorating purposes.

The stiffening bands according to the present invention are rolled and one side thereof has a covering, which has a certain adhesive effect upon being heated to a certain temperature.

The purpose of the invention is to provide an apparatus enabling the application of a stiffening band in a desired location in one single step.

To accomplish this and other purposes the invention has the characterizing properties disclosed in the following description.

In the accompanying drawing one embodiment of the invention is illustrated as an example, whereby

FIG. 1 is a perspective view of the present new apparatus on an iron of conventional type,

FIG. 2 is a side view of the left-hand part of the apparatus according to FIG. 1,

FIG. 3 is a front view of the stiffening band having an opening for band feeding means,

FIG. 4 is a perspective view, partly broken away of a modified apparatus for feeding the band, and

FIG. 5 is a side view of a modified bracket for the stiffening band.

In FIG. 1 reference numeral 1 refers to an iron of a substantially conventional type. A bracket, adapted to be connected to the iron, is generally designated by 2. This bracket supports a basket, divided into two parts 3a, 3b and made from a wire material, said parts 3a, 3b being displaceably mounted in relation to each other by sleeves 4 or the like in order to enable adjustment of the width of the basket. To obtain this the basket has supports 5b being connected to one guide 6 each, said guide being guided by shafts 7 and 8, respectively, the shafts being parallel to each other and provided in the transverse direction of the bracket.

The stiffening band 10 as mentioned above has a covering giving an adhesive effect on heating and is wound on a reel 9, the width and diameter of which can be varied. The piece of cloth to which the band is to be applied, is designated by reference number 11.

The bracket has sidewalls 12 and fixing parts 13 to fix the bracket to the iron by screws or similar means. Guid-

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ing surfaces 14a, 14b are being provided between the sidewalls, said surfaces preferably being designed as bent guiding plates, adapted to guide the band in the desired direction and a roll 15, provided with needle sharp points 16, is mounted in bearing rolls between the respective sidewalls. Thereby, these points are of such a length that piercing through the band 10 is made possible and also penetration into the piece of cloth 11.

An arm structure 18 is pivotally mounted around a horizontal axis 17 in the rear part of the iron, said arm structure being provided with an easily reachable operating means 19 supporting a knife 20 for the cutting of the band in the free end thereof. As seen in FIG. 2 said knife is located at such a distance from the roll 15 that the band after being fed into the container continuously is engaging the points of the said roll.

The above described apparatus operates in the following way:

After inserting one end of the stiffening band through the guide 14a, 14b and past the cutting knife 20 the apparatus is ready for use. By moving the iron forwards with the points 16 engaging the piece of cloth the band is automatically fed under the iron by the roll 15 having the points 16. The iron of course is heated having the temperature necessary for the adhesion of the band and thus the band sticks to the piece of cloth when the iron is moved forwardly. When it is desired to cut off the band the operating means 19 is simply pressed down whereby the band is cut off by the knife 20. Thereafter, the same procedure can be repeated.

Thus, the application of the band to the piece of cloth is accomplished in the simplest manner possible and in one single step, thereby eliminating need for any further alignment and fixing of the band before the application thereof. By the provision of the thread basket 3a, 3b for the band real being divided into two parts and adjustable in the side direction, the apparatus can be used for several different widths of band and diameters of the reels.

In the apparatus previously described the end of the band, after cutting of the same, is located a distance in front of the front part of the iron, resulting in that a further feeding of the band is required before the subsequent fixing step can take place. In order to avoid the additional step involved in this feeding of the band, the band feeding apparatus according to FIG. 4 is so formed that the feeding of the band takes place automatically in connection with the cutting of the band. To accomplish this the knife 20 may have a slot 21 through which the arm 18 passes in such a manner that the knife is carried in the movements of the arm. To make the assembling easier said slot 21 communicates with an insertion slot 22 for the arm 18, said slot being outwardly open. The knife 20 is pivotally mounted around a shaft 23, suitably passing through a block fixed to the inner side of the bracket 2. A feeding arm 24 is also pivotally mounted around the same shaft 23, said arm likewise being provided with a slot 25, through which the arm 18 passes. The slot 25 has such an extension, in opposition to the slot 21 embracing the arm 18, that the feeding arm only is carried during part of the movements of the arm 18. The feeding arm has two pins 26, 27 positioned a distance from each other and holding a pin 28 therebetween, said pin being fixed to a blocking disc 29, which is bearingly mounted around a shaft 30 provided between the side walls of the bracket 2, said shaft 30 also serving as a bearing axis for the feeding roll 15. A ratchet 31 is bearingly mounted to the blocking disc 29 through an axis, said ratchet being adapted to engage the blocking teeth of a blocking wheel 32, said wheel being connected

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to the feeding roll 15. The operation of the above described apparatus is the following:

After ironing the arm 18 is pressed down through the operating means 19. Hereby the knife 20 in cooperation with a stationary cutting means, not shown, cuts off the band. During the latter part of the oscillation movement of the knife the feeding arm 24 will be carried in the movement of the arm 18 and thus rotates in a clockwise direction. The pins 26, 27 of the feeding arm in cooperation with the pin 28 thereby provide a certain degree of rotation of the blocking disc 29, whereby the ratchet 31 slides over one or several blocking teeth of the blocking wheel 32. Thereafter, when the operating means 19 is released the spring 33 brings the arm 18 upwardly whereby the knife immediately starts to swing upwardly. By the provision of lost motion between the arm 18 and the feeding arm 24 the latter will be given a swinging movement only during the last part of the movement of the arm 18, resulting in that the feeding of the band does not take place until the knife has been brought to an idle position and thus such feeding is not prevented.

With reference to FIG. 5 the shown embodiment of the band apparatus has one side wall of the bracket 2 elongated (see FIG. 4) and a substantially horizontal, threaded axis 34 extends from said elongated part. Thereby a circular guiding plate 35, fixed to a hub 36, defines one of the side guides for the band reel 9. The other of the side guides comprises a centering cone 37 having an inclined inner thread cutting 38, the core diameter of which is larger than the outer diameter of the axis 34. Thus the centering cone may rapidly be displaced to a desired location by holding it oblique. Thereafter by bringing it into engagement with the band reel it automatically takes the position illustrated in the FIG. 5 in which the threads 38 engage the threads 39 of the threaded axis 34. Such an apparatus enables easy and rapid application of band reels having desired width and diameter.

Heating of the band for the adherence thereof to the cloth is accomplished by a conventional iron in the embodiment described, having the advantage that the apparatus can be made as a supplement to such an iron, but it is to be understood that the invention is not being limited thereto and other details can also be modified within the scope of the claims.

What is claimed is:

1. Apparatus for applying a stiffening band to a piece of cloth, which band has a coating that sticks to the cloth material upon heating, the apparatus comprising in combination heat transmitting means capable of having a heated surface, a holder for a supply of the stiffening band connected to said iron, a guide means having a first

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portion extending from said supply towards the piece of cloth and a second portion extending parallel to said heated surface, adjacent thereto and directed towards said heated surface of said heat transmitting means, said second portion having a slot parallel to its length direction, a feeding and applying roller having a plurality of sharp points extending from its periphery and being rotatably mounted in relation to said guide means in such a manner that said points extend through said slot and in operation penetrate into the piece of cloth thereunder causing said roller to rotate upon movement of the apparatus thereby feeding the band in under said heated surface, an operating arm and a cutting means connected to said operating arm and located intermediate said feeding and applying roller and the heat transmitting means and at the end of said guide means.

2. Apparatus as claimed in claim 1 wherein a feeding arm capable of rotating the feeding and applying roller is operatively connected to said cutting means whereby said arm provides a rotation of said feeding and applying roller when said cutting means is moved to an idle position.

3. Apparatus as claimed in claim 2 wherein said feeding arm via lost motion is connected to said operating arm by having an elongated slot through which said operating arm extends, a blocking disc operatively connected to said feeding arm for being rotating thereby, and a ratchet on said disc, and a blocking wheel being secured to said feeding and applying roller and engaging said ratchet.

4. Apparatus as claimed in claim 1 wherein said holder for a supply of the band consists of a basket being adjustable in its width.

5. Apparatus as claimed in claim 4 including a band reel bracket comprising a threaded substantially horizontal spindle, a first side guide for the band reel axially connected to said spindle and a second guide comprising a body having a conical part being insertible in the center of the band reel and further having a through threaded opening forming an angle with the symmetry axis of the body the core diameter of which being larger than the outer diameter of said spindle.

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