

Jan. 6, 1970

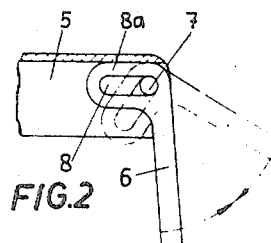
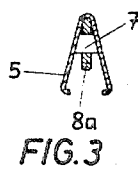
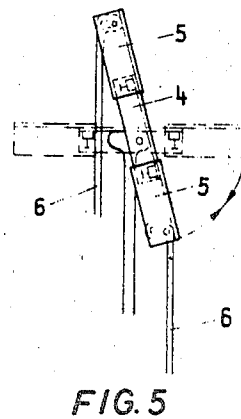
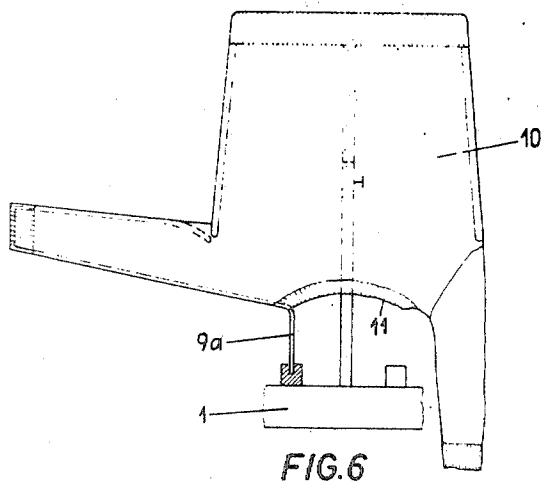
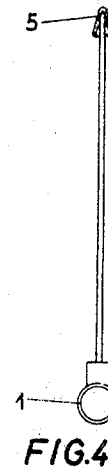
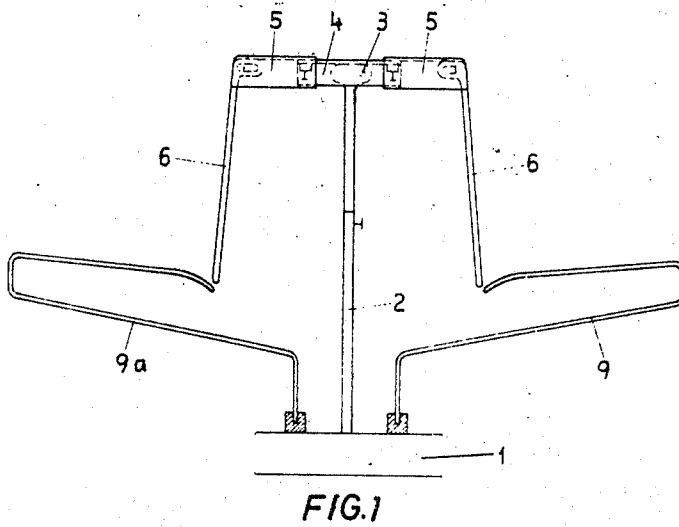
C. KRONSEIN

3,487,983

STAND FOR SUPPORTING PULLOVERS DURING PROCESSING OPERATIONS

Filed Dec. 26, 1967

3 Sheets-Sheet 1



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STAND FOR SUPPORTING PULLOVERS DURING PROCESSING OPERATIONS

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3 Sheets-Sheet 2

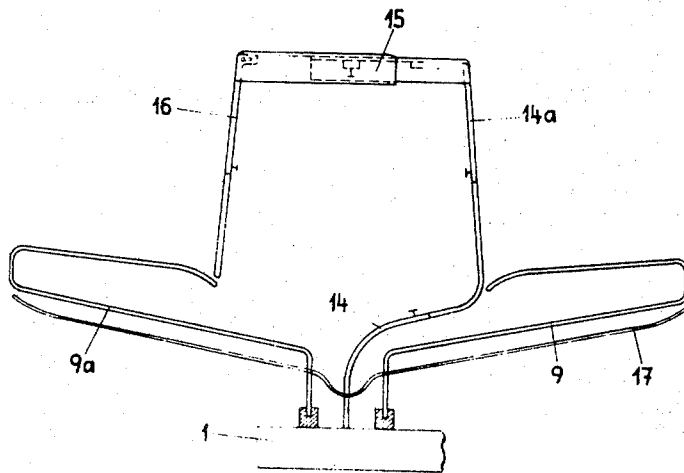


FIG. 7

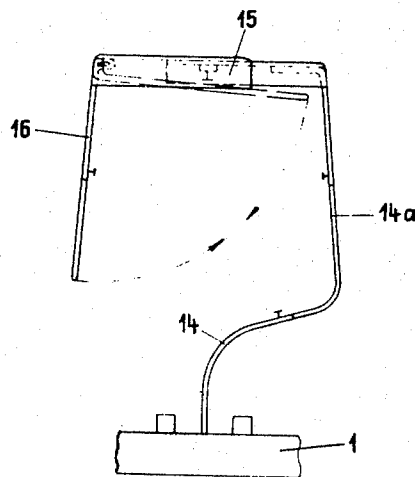


FIG. 8

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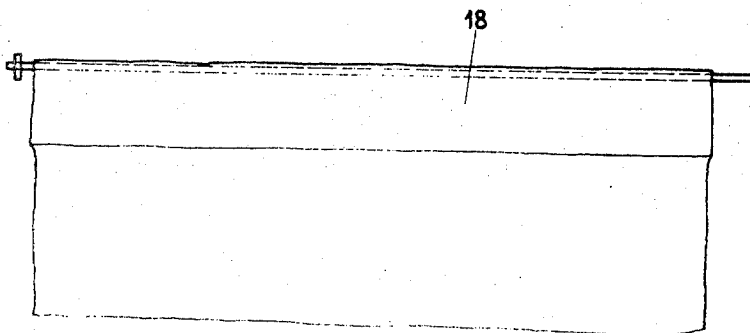


FIG. 9

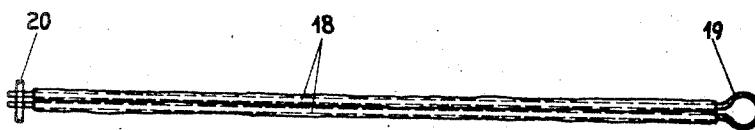


FIG. 10

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STAND FOR SUPPORTING PULLOVERS DURING PROCESSING OPERATIONS

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10 Claims

ABSTRACT OF THE DISCLOSURE

A stand for supporting pullovers during processing operations thereof, e.g. during dyeing operations, is shaped and adapted to support pullovers in an inverse or upside down position, i.e. with their waist portions at a higher level than their neck portions.

BACKGROUND OF INVENTION

In order to process knitted wares such as, for instance, pullovers, e.g. to steam treat pullovers, or to dye pullovers, the same must be supported by an appropriate stand. During processing the pullover is soaked with liquid, e.g. dyes, and as a result its weight is greatly increased. If the pullover is supported during processing in an upright position, i.e. with its neck portion at a relatively high level and with its waist portion at a relatively low level, the neck portion of the pullover is subjected to severe stresses on account of the greatly increased weight thereof, caused by its being liquid soaked. These stresses may be very damaging, depending upon the kind of fibers of which the pullover is made. Pullovers made of wool are being damaged under the aforementioned conditions, and the same applies in regard to pullover whose fibers are oriented in a certain fashion, particularly in regard to pullovers made of nylon type fibers, or of polyester fibers.

Excessive stressing of the constituent fibers of pullovers during wet processing of the latter can be avoided, or reduced, by maintaining the pullovers in a horizontal position while being wet processed. This results, however, in another serious drawback, i.e. the coloring imparted by dyes to the pullover cannot be maintained uniform if dyeing is effected while the pullover is in a horizontal position.

The present invention relates to a stand for supporting pullovers during wet processing thereof, in particular for supporting pullovers which are being dyed by spray-dyeing. This stand is particularly applicable for treating pullovers with sprays of hot dyes, or with sprays of cool dyes, followed by treatment of the pullovers with hot steam. The stand according to the present invention is also applicable in instances where dyeing is effected in batches, involving total submersion of the pullovers in a dye bath. In all these instances the weight of the pullovers is greatly increased on account of their saturation with liquid, and yet, if processing is effected with stands embodying the present invention, stresses to the fibers can be minimized, and damage to the same entirely avoided.

SUMMARY OF INVENTION

A stand according to this invention for supporting pullovers during processing operations includes a common base and a bar support. The latter has a lower end supported by said common base. The bar support extends in an upward direction and has an upper end on which a horizontal or transverse bar means is supported. The aforementioned horizontal bar means is shaped to engage and to suspend from it the waist portion of a pullover in

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inverted or upside-down position. The stand further comprises a pair of separate frame structures supported by the aforementioned common base, arranged below the aforementioned horizontal bar means and shaped to engage the neck portions and the sleeves of a pullover suspended on said bar means.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a front elevation of a first embodiment of the invention;

FIG. 2 shows a detail of the structure of FIG. 1 on a larger scale than FIG. 1;

FIG. 3 is a cross-section of the bar means of the structure of FIG. 1 intended to suspend from it the waist portion of a pullover and is drawn on a large scale than FIG. 1;

FIG. 4 is partly a vertical section and partly a side elevation of the structure of FIG. 1;

FIG. 5 shows a portion of the structure of FIG. 1 in a different position than FIG. 1;

FIG. 6 shows steps in mounting a pullover on the structure of FIG. 1;

FIG. 7 is a front elevation of a second embodiment of the invention, or of modification of the structure of FIG. 1;

FIG. 8 is a front elevation of a portion of the structure of FIG. 7 in the process of being used for mounting a pullover thereon;

FIG. 9 is a side elevation of a horizontal pullover suspension which differs from that of the preceding figures, and is particularly intended for suspending pullovers which have a folded-up waist portion overlying, or overlapping, the waist portion proper of the pullover; and

FIG. 10 is a top plan view of the structure of FIG. 9.

DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

A pullover in order to be suspended from the structures shown in FIGS. 1 to 8, inclusive, must be specially prepared for this purpose. This preparation consists in closing the waist opening, and in closing the lower openings or ends of the sleeves, by a few stitches. These stitches are preferably made in such a fashion that they can be removed by a single thread-pulling-motion when the pullover has been completely processed. Making the aforementioned stitches, and removing the same after processing of the pullover, are additional operations, but they do not increase the ultimate cost of production because of the great aforementioned advantages resulting from the way in which the pullovers are supported on stands embodying the present invention during the processing of the pullovers.

Referring now to the drawings, and more particularly to FIGS. 1 to 6, thereof, reference numeral 1 has been applied to indicate a common base which may be formed by a tube, as clearly shown in FIG. 4. Bar support 2 is formed by a vertical rod having a lower end supported by common base 1, and having an upper end. The upper end of support 2 supports a composite horizontal bar means 5, 4, 5 shaped to engage and to suspend from it the waist portion of a pullover in inverted or upside down position. The aforementioned horizontal bar means 5, 4, 5 further includes a pin 3 projecting transversely through the upper enlarged end of bar support 2 and through an angular beam 4, including two flanges which enclose an acute angle and define an upper edge. The aforementioned horizontal bar means 5, 4, 5 further includes two lateral extensions 5 telescopically supported by angular beam 4, thus making it possible to move extensions 5 at will either outwardly, or inwardly, to adjust at will the length of the aforementioned pullover-suspending bar

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means 5, 4, 5 to the particular size of the pullover to be suspended from it. Extensions 5 have substantially the same angular geometry as center portion 4. The outer ends of axial extensions 5 support pivotally a pair of arms to which reference numeral 6 has been applied. Arms 5 are preferably circular in cross-section and have upper ends which are flattened and substantially bell-crank shaped. Reference character 8 has been applied to indicate an oblong hole in each of the upper ends of arms 6. A pin 7 projects transversely through each hole 8 of each arm 6 and through each extension 5. Portions 8a of arms 6 form an abutment engaging the edge formed between the flanges of angular extensions 5 and thus limiting the pivotal movement of arms 6. If arms 6 are in the lower limit positions thereof they are not vertical, but slightly inclined or slanting, as clearly shown in FIG. 1, thus conforming to the slant of an inverted pullover. (See also FIG. 6.)

The common base 1 further supports frame structures 9, 9a preferably made up of two substantially hair-pin shaped wire loops each having a vertical foot portion engaging, and supported by, common base 1. Frame structures 9, 9a are arranged below horizontal bar means 5, 4, 5, and shaped to engage the neck portions and the sleeves of a pullover suspended from bar means 5, 4, 5, and to support said sleeves thereof.

As shown in FIGS. 1 and 4, the common base 1 in form of a tube supports intermediate members integral with tubular base 1 affixed to the upper surface of base 1 (e.g. welded or cemented to the same), and having bores for receiving the lower ends of the wire frame structure 9, 9a.

Parts 5, 4, 5 are adaptable to any pullover, regardless of its size. Separate parts 9, 9a make it possible to adapt the support to pullovers having sleeves of different length. This is effected by replacing frames 9, 9a by longer frames, or shorter frames, as the case may be.

To mount a pullover on a support according to FIG. 1, the parts 5, 4, 5 are tilted, or pivoted, about pin 3 as illustrated in FIG. 5. This makes it possible to move the structure of FIG. 5 through the neck opening of an inverted pullover. Then support 5, 4, 5 is tilted back to its horizontal position. Thereafter the two wire frames 9 and 9a are inserted into the sleeves of the pullover. FIG. 6 shows the structure of FIG. 1 after parts 5, 4, 5 have been shoved through the neck portion 11 of a pullover 10, and the parts 5, 4, 5 have been pivoted back to their initial horizontal position, thus suspending the pullover 10 in reverse position, or upside-down position, and after wire frame 9a has been inserted into one of the sleeves of the pullover, appropriately stretching the same. As shown in FIG. 6, the other sleeve of the pullover hangs down in a loose fashion, awaiting insertion into it of wire frame structure 9. The units 9a and 9 are being inserted into the pullover through the neck opening 11 thereof.

Referring now to FIG. 7 and to FIG. 8, the structure shown therein includes horizontal bar means to which reference character 15 has been applied. Bar means 15 may include several parts slidable relative to each other, or telescoped, to vary at will the length of bar means 15. The upper end of bar support 14 is secured to one end of bar means 15, i.e. to the right hand end thereof, as seen in FIG. 7. The lower end of bar support 14 is firmly attached to common base 1. Bar support 14 has an intermediate portion 14a between the ends thereof. Intermediate portion 14a is telescoping in order to make it possible to vary at will the spacing between common base 1 and horizontal transverse bar means 15. This has been indicated in FIG. 7 by a small set-screw in intermediate portion 14a which is tightened when horizontal bar means 15 have been adjusted to the required height thereof. A similar set-screw may be inserted into the lower portion of bar support 14 which may likewise be formed of two telescoping parts. The intermediate

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portion 14a is downward sloping and shaped to engage the right side of the body portion of a pullover suspended from bar means 15. The left end of horizontal bar means 15 supports a pivotable arm 16 which may be secured to bar means 16 in the same fashion as arm 6 in the structure of FIGS. 1 to 6 is pivotally secured to bar means 5, 4, 5, as shown in FIG. 2. When arm 16 is pivoted in counterclockwise direction, as shown in FIG. 8, horizontal bar means 15 may readily be threaded through the neck opening of a pullover to be mounted on the stand of FIGS. 7 and 8. After the pullover has been suspended on horizontal bar support 15 in inverse position, wire frames 9 and 9a are inserted through the neck opening of the pullover into the sleeve thereof, and the lower ends of wire frames 9, 9a are secured to common base 1. Reference numeral 17 has been applied in FIG. 7 to indicate a sleeve-stretching element whose use is useful, but optional. Sleeve-stretching element 17 is separate from the support structure for the pullovers, i.e. it is not connected by any fastener means to the aforementioned structure as clearly shown in FIG. 7. Sleeve-stretching element 17 is supported by the support proper of the pullovers only by the intermediary of the latter.

Certain kinds of pullovers have turned-over waist portions which form an overlap. In a like fashion the lower ends of the sleeves of such pullovers are turned over to form cuffs. In connection with this particular kind of pullover the provision of stitches at the waistline and the provision of stitches at the lower ends of the sleeves can be dispensed with. As shown in FIGS. 9 and 10 the overlapping waist portion of a pullover is provided with two clamping rods 18 for suspending the pullover in inverse position, or upside-down. Clamping rods 18 may be inserted through two small holes formed for this purpose at opposite ends of the waist portion of the pullover. As shown in FIG. 10 both clamping rods 18 may be integrated into a unitary clamp which is substantially hair-pin shaped, having a substantially circular loop-shaped portion 19 which is highly flexible. Reference numeral 20 has been applied to indicate a short strip of sheet metal having two adjacent holes each for receiving one end of one of clamping rods 18. Clamping means 20 may be replaced by any other appropriate clamp for rods 18. It is also possible to apply two separate clamping rods 18 rather than the structure of FIGS. 9 and 10, in which case clamping means must be provided on both ends of the clamping rods 18.

While there has been described what is at present considered to be the preferred embodiments in the invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the spirit of the invention, and it is, therefore, aimed to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. A stand for supporting pullovers during processing operations including

(a) a common base;

(b) a bar support having a lower end supported by said common base, said bar support extending from said common base in upward direction and having an upper end;

(c) substantially horizontal bar means supported by said upper end of said bar support, said bar means being shaped to engage and suspend therefrom the waist portion of a pullover in inverted position; and

(d) a pair of separate frame structures supported by said common base, arranged below said horizontal bar means and shaped to engage the inside of the neck portion and the inside of the sleeves of a pullover suspended from said bar means.

2. A stand as specified in claim 1 wherein said bar support supports said bar means substantially midway between the ends thereof, and wherein a pair of arms for

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engaging the sides of the body portion of a pullover suspended from said bar means are pivotally supported adjacent the outer ends of said bar means.

3. A stand as specified in claim 1 wherein said bar means is substantially angular in cross-section and has an upper edge and a pair of flanges forming said upper edge and enclosing an acute angle.

4. A stand as specified in claim 1 wherein a pair of arms for engaging the sides of the body portion of a pullover suspended from said bar means are pivotally supported adjacent the outer ends of said bar means, wherein each of said pair of arms is substantially circular in cross-section and wherein each of said pair of arms includes an abutment cooperating with said bar means for limiting the pivotal motion of each of said pair of arms.

5. A stand as specified in claim 4 wherein said bar means is angular in cross-section and includes a pair of flanges enclosing an acute angle, and wherein each of said pair of arms has a bell-crank shaped end defining an oblong hole arranged between said pair of flanges.

6. A stand as specified in claim 1 wherein each of said pair of frame structures is of wire and has a lower substantially vertical end mounted on said common base and each has an upper substantially hair-pin-shaped pullover-sleeve-engaging end.

7. A stand as specified in claim 1 wherein said upper end of said bar support is secured to one of the ends of

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said bar means and has an intermediate portion situated between said lower end and said upper end thereof sloping down from said upper end to said lower end and shaped to engage one side of the inside of the body portion of a pullover suspended from said bar means.

8. A stand as specified in claim 7 including an arm for engaging the other side of the inside of the body portion of a pullover suspended from said bar support pivotally supported by the end of said bar means remote from said bar support.

9. A stand as specified in claim 1 wherein said bar means includes a plurality of telescoping sections allowing to adjust the length of said bar means.

10. A stand as specified in claim 1 wherein said bar means comprises a center portion and a pair of telescoping extensions of said center portion supported by said center portion and wherein said center portion is pivotally supported adjacent the center thereof by said bar support.

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