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CLOTHING PATTERN REPRODUCER

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Feb. 23, 1965

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3,170,394

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Filed July 19, 1962

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ATTORNEYS

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3,170,394

CLOTHING PATTERN REPRODUCER

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Filed July 19, 1962, Ser. No. 210,928

2 Claims. (Cl. 101-131)

This invention relates to a pattern reproducer of a type adapted for use in the garment industry wherein an elongated sheet carrying a master pattern is treated to transfer the pattern impressions therefrom to an impression receiving sheet, which latter comprises the actual pattern material from which the material for a garment is cut.

One of the objects of the invention is to provide means whereby the copy paper is moistened with a solvent and then brought into contact with the master pattern sheet, the moisture in the copy paper causing at least a portion of the ink delineating the master pattern to be at least partially dissolved and transferred to the copy paper, the two sheets being conveyed to a heater or dryer and the sheets then individually rewound upon suitable rewind mechanism.

Another object is to provide means for efficiently and effectively feeding the two sheets through the apparatus and past the heater or dryer including simple and effective drive means therefor.

A further object of the invention is to provide improved means for supplying a liquid solvent and for distributing the solvent over the copy paper to moisten the same before it is brought into contact with the master pattern.

A further object is to provide an improved heating device.

Another object is to provide simple and efficient means for unwinding and rewinding the two sheets.

Still a further object is to provide improved means for mounting the moistening, pressure and guide rollers.

The above and other objects will more fully appear from the following description in connection with the accompanying drawings:

FIG. 1 is a side elevational view of an embodiment of the invention;

FIG. 2 is a plan view thereof on an enlarged scale;

FIG. 3 is a longitudinal sectional view on an enlarged scale taken approximately on line 3-3 of FIG. 2;

FIG. 4 is an enlarged sectional view taken approximately on line 4-4 of FIG. 3; and

FIG. 5 is an enlarged sectional view taken on approximately line 5-5 of FIG. 4.

The device includes a frame 6 having a pair of forward end uprights 8 and a pair of rear end uprights 10. The pairs of uprights are joined by horizontal longitudinal frame members 12 and 14. Extending between the longitudinal or side members 12 and 14 is a bed 16 preferably of flat sheet material upon which is a felt cover 18. The bed 16 extends from the forward or left portion of the frame as viewed in FIGS. 2 and 3 to a heater lamp housing 20 having a glass top plate 22 which is in the same horizontal plane with and forms an extension of the bed plate 16. Within the housing 20 is a tube 24 of an infra-red or other suitable heat lamp energized by a source of electricity, not shown. The housing 20 and heat lamp tube 24 are shown in FIG. 2 to describe a tortuous path and provide spaced transverse heating areas which extend a substantial distance lengthwise of the frame 6.

Mounted between the forward end members 8 of the frame 6 is a lower roller 26 adapted to rotatably support a roll comprising an elongated sheet 28 of copy paper. The roll 26 is removably received in suitable notches 30 formed in the forward upright frame members 8.

Above the roller 26 is a roller 32 which carries a rolled sheet 34 of paper carrying the master pattern to be reproduced, said master pattern having a soluble ink or

other impression substance delineating the various parts of one or more garment pattern to be transferred to the copy paper 28. Mounted between the frame side members 12 and 14 at the left or forward end of the frame, is an idler roller 36 beneath which the copy paper 28 is fed and from said roller 36 to a moistening roller 38. Following the moistening roller 38 or to the right thereof, as viewed in FIGS. 2 and 3, in a series of pressure rollers 40, 42, 44 and 46. The moistening roller 38 and the pressure rollers 40-46 are placed in close proximity to the upper surface of the felt cover 18 on the upper side of the bed plate 16.

The master pattern sheet 34 is fed from its roller 32 above a diagonal guide plate 48 carried by the frame 6 so that said master pattern sheet will feed beneath the roller 40 to the right of or following the moistening roller 38, the master pattern sheet 34 and the copy sheet 28 being brought together between said roller 40 and the bed plate 16 with its felt cover 18. The copy paper is first moistened by the moistening roller 38 and then brought into contact with the master pattern sheet 34 and pressed beneath rollers 40 through 46 to cause the moistened copy sheet 38 to pick up the pattern impression from the master pattern sheet, after which the two sheets are passed over the heater or dryer 20, after which the two sheets are separated and rewound. When the two sheets leave the heater or dryer 20, they pass between guide rollers 50 and 52 which preferably come together on an extension of the plane of the upper side of the dryer 20 to keep the two sheets flat on the dryer. After passing through the guide rollers 50 and 52, the master pattern sheet 34, as shown in FIG. 1, passes upwardly and is rewound into a roller 54 on a rewind roller 56 mounted in notches 58 in the right frame end members 10. The copy sheet 28 passes over the guide roller 52 and thence downwardly and is rewound on a rewind roller 60.

Mounted beneath the side members 12 and 14 of the frame 6 is a sling 62 which supports an electric motor 64. The motor shaft 66 carries a sprocket 68. Chain 70 leads from the sprocket 68 to a sprocket 72 on the pressure roller 46. This roller has a second sprocket which lies behind the sprocket 72 as viewed in FIG. 1, the second sprocket not being shown, since it is beneath a chain 74 which runs over sprockets 76, 78, 80 and 82 respectively on pressure rollers 44, 42 and 40 and the moistening roller 38. The motor 64 rotates in a counter-clockwise direction, as viewed in FIG. 1, thereby similarly rotating the various sprockets mentioned and the rollers 38-46.

Also on the shaft 66 of motor 64 is a sprocket 84. A chain 86 extends from said sprocket to a sprocket 88 on a cross shaft 90 which is mounted between the right frame uprights or end members 10. The shaft 90 carries a second sprocket 92 about which is a chain 94 driving a sprocket 96 on the upper rewind roller 56. Another sprocket 98 on the shaft 90 drives a chain 100 which leads downwardly to drive a sprocket 102 on the lower rewind roller 60. These drive connections rotate the lower rewind rollers 56 and 60 in a counter-clockwise direction as shown.

Rollers 38, 40, 42, 44 and 46 and the copy sheet leading guide roller 36 are all mounted in generally the same manner, that is, between a channel iron 104 on each of the horizontal side frame members 12 and 14 and a superimposed angle iron 106, these two elements being separably connected by suitable bolts 108. Each of the members 104 and 106 is provided with a complementary semi-circular aperture to accommodate the ends or hubs of the various rollers. To keep each of the rollers 36-46 in its proper axial position, each roller is provided with a collar 110, the collar shown in FIG. 4 being typical. The collar in each instance extends

through slot 112 in the channel iron 104 and its lower portion lies in a recess 114 in the horizontal frame side member 14.

FIGS. 4 and 5 illustrate the structure of the moistening roller 38. It includes an inner cylinder 116 having apertures 118 and lying within an outer cylinder 120 having apertures 122. The outer cylinder 120 frictionally engages the inner cylinder 116 but may be rotated relative thereto by grasping it and turning it, the inner cylinder being held through its chain connection with the motor 64 in order to maintain the two cylinders in their desired relative positions the inner wall of the outer cylinder 120 is provided with dimples 124 which are adapted to releasably accommodate rounded projections 126 on the outer wall of the inner cylinder 116. Also, that portion of the inner cylinder defining each of the apertures 118 is provided with a rounded projection to seat within its respective aperture 122 in the outer cylinder 120. The outer cylinder 120 can be rotated from the position shown in FIG. 5 to a position where the apertures 122 thereof receive the projections 126 of the inner cylinder 116, thereby cutting off flow communication through the inner cylinder and outer cylinder, but when in the position of FIG. 5, the two cylinders are held to provide free flow from the interior of the inner cylinder to the exterior of the outer cylinder.

The right end of the moistening roller 38, as viewed in FIG. 4, is provided with a sleeve 128 which constitutes a hollow hub for said roller. The projecting end of said hub 128 is externally threaded to receive a collar 130 in which is an inwardly projecting O-ring 132. Removably extending into the collar 130 is a spout 134 of a container 136 adapted to hold a supply of pattern ink solvent. The container spout is provided with an external annular groove 138, and when it is inserted in the collar 130, the O-ring 132 will seat in the groove 138 to removably hold the spout in the collar. A suitable bracket 140 provides a support for the container 136 in conjunction with the detachable connection with the O-ring 132.

Liquid flowing from the contained 136 through the hollow hub 128 to the interior of the inner cylinder 116 will flow through the apertures 118 and through the registered apertures 122 of the outer cylinder and moisten a felt covering 142 which lies about the outer cylinder. This felt covering will cause the solvent to spread over the area of the outer roller and the felt covering 142 and thereby uniformly moisten the copy sheet 28 as it passes beneath the moistening roller 38.

The first pressure roller 40 is spaced a sufficient distance from the moistening roller 38 to create a time interval in the travel of the copy sheet 28 of sufficient duration to moisten the copy sheet 28 to the degree that it can begin to pick up ink on the master pattern sheet 34 which delineates the particular pattern piece. This pickup or transfer is further assisted by the succeeding pressure rollers 42, 44 and 46.

After leaving the pressure rollers the two sheets are carried across the heater or dryer housing 20 and lamp 24, the extend of said housing and lamp longitudinally of the frame 6 being sufficient to substantially dry the ink which defines the patterns. Having been heated, the ink or other transfer substance remaining on the master pattern sheet 34 and that which has been transferred to the copy sheet 28, will have dried by the time each of the said sheets is wound upon its respective rewind roller 56 and 60.

Inasmuch as it does not matter which end of the master pattern sheet 34 is first introduced into the apparatus, the roll 54 of rewind master sheet material can be removed from the right end frame members 10 to the left end frame members 8 ready for reintroduction and reuse, since the ink or other transfer substance is

applied to the master pattern sheet in sufficient quantity to permit the rerunning of several copy paper sheets with the resultant multiplication of the reproduction from the single master pattern.

It will of course be understood that various changes can be made in the form, details, arrangement and proportions of the various parts without departing from the spirit of the invention.

I claim:

1. In a clothing pattern reproducer, a frame comprising a front upright unit and a rear upright unit, side frame members extending longitudinally between said front and rear upright units, a flat bed supported between said side frame members at the front portion of said frame, a plurality of rollers extending between, and rotably supported by said side frame members, a heater assembly extending between and supported by said side frame members rearwardly of said flat bed and having a smooth flat top surface on a horizontal plane substantially coincident with the upper surface of said flat bed, said front upright unit extending above said flat bed and having a copy sheet and a master pattern sheet feed roll supported thereon, the rear upright unit having a copy sheet and a master pattern sheet feed roll supported thereon, said plurality of rollers extending transversely of said bed with their lower portions on a common plane and contacting said bed to produce pressure on superimposed portions of said copy sheet and master pattern sheet between said rollers and the bed, said rollers including a forwardly disposed sheet moistening roller and a following set of pressure rollers located between the front and rear of the bed, and means for driving said moistening pressure rollers and said rewind rolls.

2. In a clothing pattern reproducer, a frame, a flat bed on said frame, a set of rollers on said frame immediately above the upper surface of said flat bed, there being a leading moistening roller and at least one following pressure roller in said set, a heating device incorporated with said bed beyond said set of rollers, said heating device having a flat sheet traversing surface, means for introducing a sheet of impression-receiving material onto the bed ahead of the moistening roller and between it and said bed to moisten said impression-receiving sheet, means for introducing a master pattern sheet having soluble pattern markings between said moistening roller and said following pressure roller and between said following pressure roller and said bed on the upper side of said sheet of impression-receiving material, means for supplying a moistening solvent to said moistening roller, and said pair of sheet guides being in close proximity to each other to hold the two sheets together, the sheet guides being located respectively above and below the plane of said flat sheet traversing surface.

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