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MEANS FOR APPLYING ADHESIVE PREPARATIONS TO THE SURFACE OF WOVEN FABRICS.

APPLICATION FILED JAN. 28, 1913.

1,112,134. Patented Sept. 29, 1914.

Fig. 3.

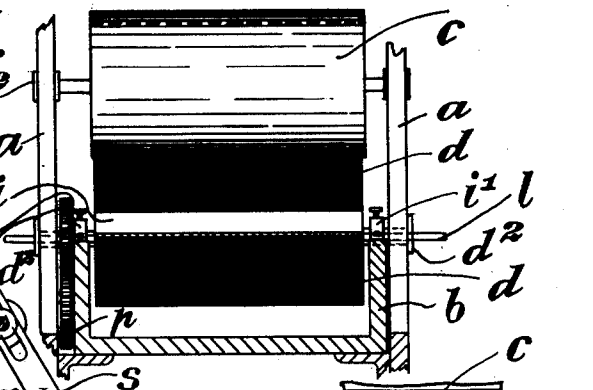


Fig. 1.

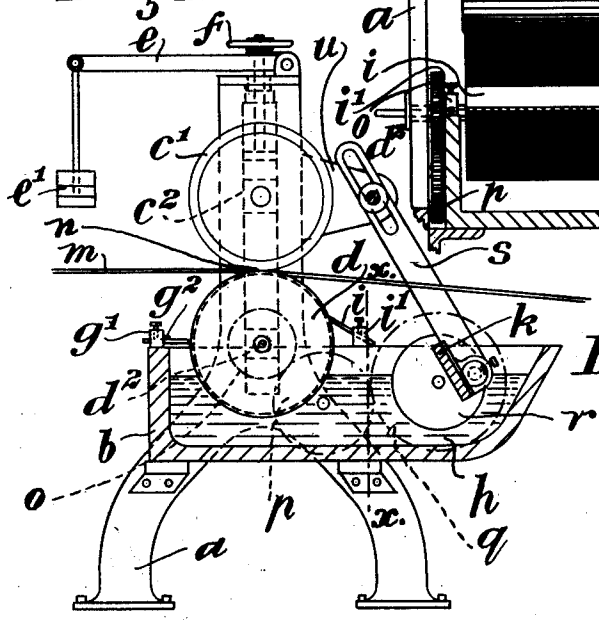
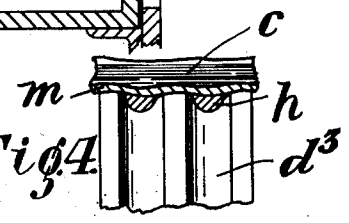


Fig. 4.



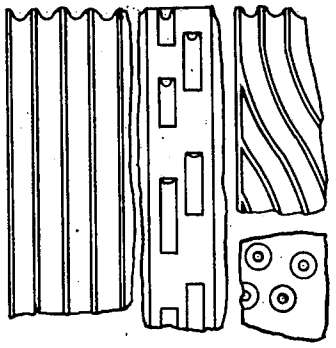


Fig. 2.

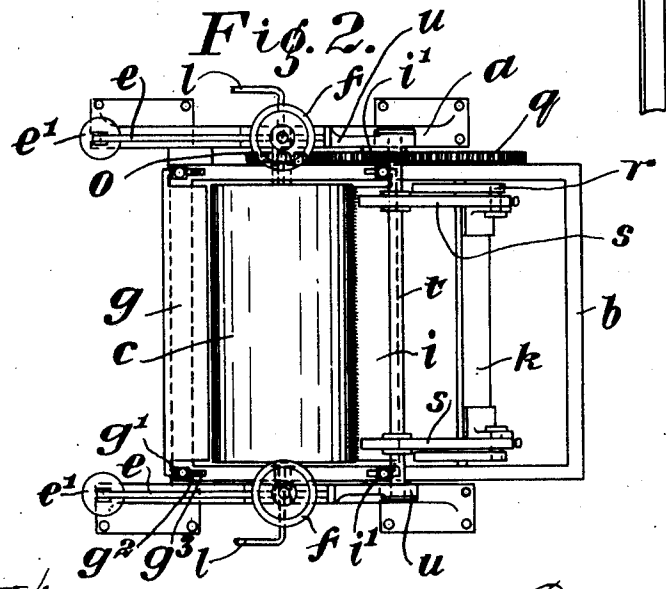


Fig. 5.

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UNITED STATES PATENT OFFICE.

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MEANS FOR APPLYING ADHESIVE PREPARATIONS TO THE SURFACE OF WOVEN FABRICS.

1,112,134. Specification of Letters Patent. Patented Sept. 29, 1914.

Application filed January 28, 1913. Serial No. 744,616.

To all whom it may concern:

Be it known that I, FREDERICK HANSING, residing at London, England, a subject of the King of Great Britain, have invented a certain new and useful Improved Means for Applying Adhesive Preparations to the Surface of Woven Fabrics, of which the following is a specification.

This invention relates to the application of an adhesive preparation to the surface of a woven fabric, the adhesive preparation being provided so that the fabric may subsequently be caused to adhere to another fabric, and it relates more particularly to the means for applying the adhesive preparation on to the surface of canvas, ducks, paddings or the like used for stiffening and retaining the shape of garments of various kinds. It has been proposed to smear the entire surface of canvas, ducks and paddings and like fabric with an adhesive preparation but it is found in practice that fabric so treated and afterward caused to adhere to another fabric makes the whole too stiff and unyielding so that the comfort, appearance and shape of a garment made with this class of material is far from being satisfactory and the older and more expensive method of securing the stiffening fabric in position by sewing is still generally used.

Under my invention I apply the adhesive preparation to the surface of a fabric so that it lies thereon in ridges which may be either continuous from one end of the fabric to the other and arranged in straight lines parallel to each other, or diverging or if desired, the lines of ridges of adhesive substance may be curved or arranged in any suitable and desired combination of curves and (or) straight or crooked lines or the ridges may be in short lengths with a break between and arranged in any desired combination of line and (or) curve as hereinbefore described. Under my invention I may also apply the adhesive substance to the surface of a fabric in spots instead of the ridges as hereinbefore described and in this case the spots would also be arranged in any desired combination of line and (or) curve. The adhesive substance is applied to fabric in the manner hereinbefore described by passing the fabric between two rollers arranged one above the other, the bottom roller being partly immersed in a tank or receptacle containing the adhesive preparation and the bottom roller is provided with longitudinal or circumferential grooves which may be continuous or in short lengths and parallel or otherwise and straight or curved or with other indentations in accordance with the way in which it is desired to apply the ridges and (or) spots of adhesive to the surface of the fabric, said grooves or indentations having a suitable space between them, the other roller being made with a covering of rubber or the like so that it has a more or less yielding surface and the latter roller, during operation of the machine, is maintained with a downward pressure by any suitable means and in connection with the bottom roller I preferably provide a gage knife or equivalent to control the amount of the adhesive preparation on the surface of the cylinder as it passes toward the nip of the rollers where the adhesive preparation is taken up by the cloth or fabric, this being effected by the passing of the cloth or fabric through between the rollers where the yielding pressure of the top roller on the fabric causes the latter to dip into the grooves or indentations in the surface of the bottom roller and so lift the adhesive substance out of same on to the undersurface of the fabric. When the surface of the roller has passed the nip or point where the adhesive preparation is taken up by the cloth or fabric a brush or comb or equivalent is provided to clean out any of the adhesive preparation which may have remained in the grooves or indentations of the roller and, if desired, an automatically acting shovel feed or equivalent may be provided to force the adhesive preparation in the tank or receptacle toward the roller as it passes therethrough.

In order that my invention may be clearly understood I have hereunto appended an explanatory sheet of drawings whereon I have shown by way of illustration or example a machine adapted for applying a semi-solid adhesive to fabrics, in accordance with my invention.

Figure 1 is a part sectional side elevation of the machine. Fig. 2 is a plan view thereof and Fig. 3 a part front sectional elevation on the line *x x*, Fig. 1. Fig. 4 is

an enlarged view of a portion of a grooved roller and also showing how the fabric is pressed into the grooves by the yielding surface of the upper roller. Fig. 5 shows some different forms of bottom rollers showing continuous grooves, short length grooves, curved grooves, and spot indentations.

The machine shown at Figs. 1 to 3 comprises a frame *a* supporting a tank *b* and top and bottom rollers *c* and *d*. The top roller *c* is in this case covered with thick rubber c^1 and it is adjustably supported in suitable adjustable bearing c^2 provided in the frame *a*. The roller *d* is adjustably supported on the frame *a* in suitable adjustable bearings d^2 and the roller *c* is adapted to be pressed downward by the action of the levers *e* and weights e^1 or springs or equivalent while adjustment of the roller *c* with reference to the roller *d* is also provided by the screw adjustment gear *f* adapted to raise and lower the bearings c^2 of the roller *c*. At the back of the roller *d* a knife *g* is adjustably supported in holders g^1 and if desired, a pointer g^2 may be provided on the holders g^1 and a scale provided on the part g^3 of the knife so that fine adjustments of the latter relatively to the surface of the roller *d* may be readily made, and only the requisite amount of adhesive substance allowed to remain on the roller *d* as it passes to the nip *n* between the rollers *c* and *d*. As the roller *d* must be cleaned each time before taking up a fresh supply of the adhesive *h* from the tank *b*, a cleaning brush or comb *i* is provided and adjustably supported in holders i^1 so that it cleans out the grooves or indentations in the surface of the roller *d* at each revolution and before the roller takes up a fresh supply of the adhesive preparation.

The adhesive preparation may be filled into the tank *b* in any convenient manner and in order to insure that the roller *d* will take up the required amount at each revolution I may provide a bar or shovel *k* which is rotatively mounted on the pins of cranks *r* and is secured to slotted guides *s* engaging a shaft *t* mounted in brackets *u* on the frame *a*. The shovel *k* is operated with a feathering action by driving, in any suitable manner, a gear wheel *o* mounted on the axle of the lower roller *d* and engaging a second gear wheel *p*, rotatably mounted in the tank *b*, which, in turn, engages a third gear wheel *q* mounted on the axle of a disk crank *r* rotatably mounted in the side of the tank, the preparation *h* is forced toward the roller *d*. The shovel *k* is or may be cleaned by contact with the back of the brush or comb *i* as it rises out of the tank *b*. The roller *d* is heated and for this purpose a steam pipe *l* may be led therethrough or it may be heated by gas jets or otherwise.

The portions of bottom rollers as shown at Fig. 5 show some of the variations of grooves and (or) other indentations which may be provided in the surface of the roller *d* to produce different formations of ridges and (or) spots of adhesive substance on a fabric *m* passed between the rollers *c* and *d*, and at Fig. 4 the action of the roller *c* with its yielding surface is shown clearly, the pressure of the roller *c* causing the fabric *m* to lick up the adhesive substance *h* out of the grooves d^3. After passing through between the rollers *c* and *d* the fabric *m* with the adhesive preparation on its underside is preferably passed to a drying cylinder of known construction.

Having now fully described my invention what I claim and desire to secure by Letters Patent is:—

In apparatus for applying a semi-solid adhesive preparation to the surface of a fabric the combination of an indented roller provided with heating means and adjustably and revolubly supported in a receptacle for containing the adhesive preparation so that as its periphery passes therethrough the indentations will take up a supply of the adhesive material, a second roller having a yielding surface superposed on the first mentioned roller and provided with means whereby its pressure on the under roller can be regulated, a knife adjustably disposed relatively to the first mentioned roller to remove adhesive material from its surface as it rises toward the upper roller, a comb adjustably disposed and having projections which fit into and remove adhesive material from the indentations in the first mentioned roller as its surface passes downward into the receptacle, and an automatically acting shovel for forcing the adhesive material toward the portion of the roller in the receptacle.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK HANSING.

Witnesses:
ANDREW HAMILTON,
GEORGE TODD.