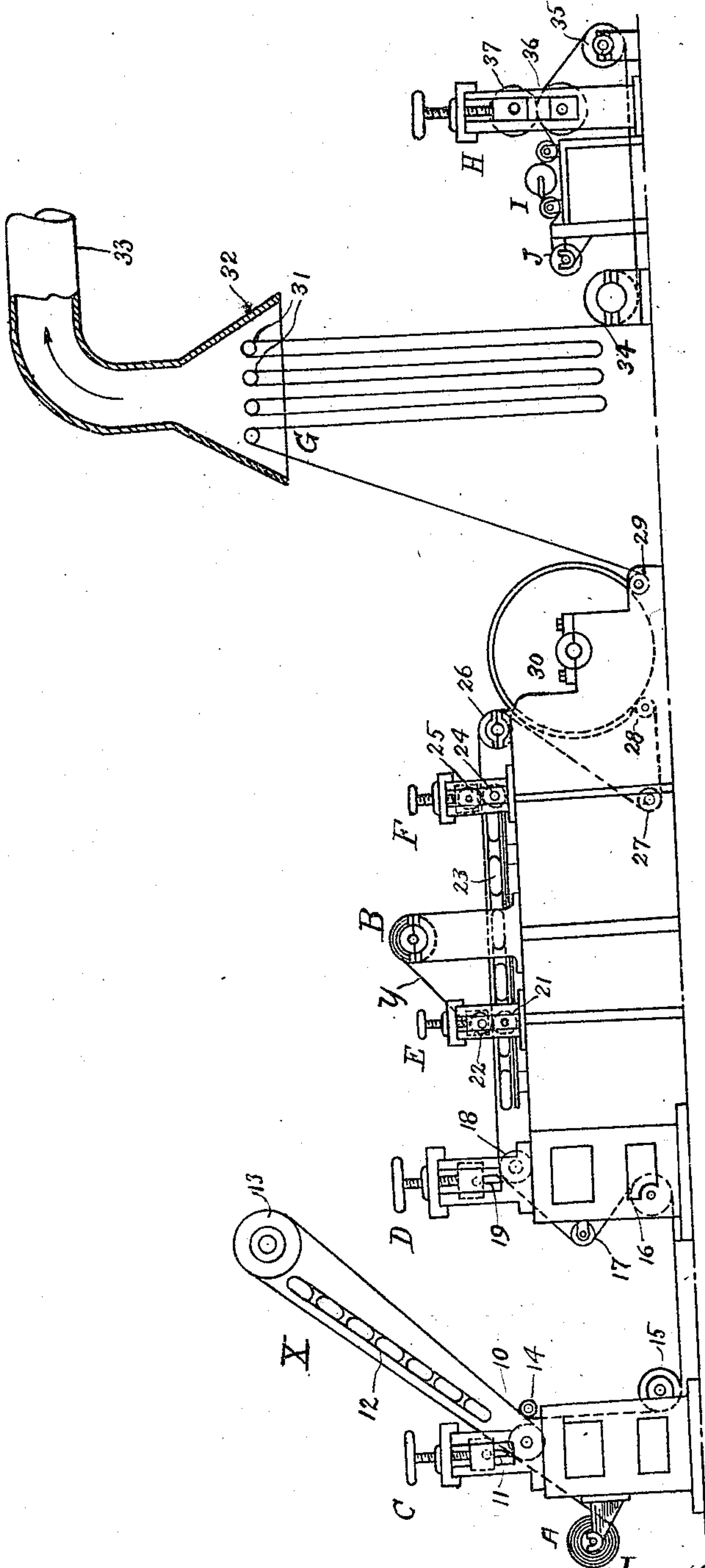


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J. MEADE.
METHOD OF COATING FABRICS.
APPLICATION FILED NOV. 20, 1911.

Patented Sept. 28, 1915.

1,154,875.



Witnesses:
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John Martin.

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by *William H. S. S. S.* Atty.

UNITED STATES PATENT OFFICE.

JAMES MEADE, OF STOUGHTON, MASSACHUSETTS.

METHOD OF COATING FABRICS.

1,154,875.

Specification of Letters Patent.

Patented Sept. 28, 1915.

Application filed November 20, 1911. Serial No. 661,228.

To all whom it may concern:

Be it known that I, JAMES MEADE, a citizen of the United States, residing at Stoughton, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Methods of Coating Fabrics, of which the following is a specification.

My invention concerns the coating of fabrics with waterproof substances, and particularly relates to doubled goods in which the coating is between plural layers of the fabric.

It consists in an improved method whereby a sufficient thickness of the waterproof substance may be quickly applied without danger of injuring the fabric.

The accompanying drawing illustrates somewhat diagrammatically one means for carrying out the invention.

Two sources of fabric, A and B, are illustrated. The former is rotatably mounted at one extremity of the apparatus, and from it the fabric X is shown passing upwardly over the bed-roll 10 of a spreader C and beneath its vertically adjustable gage-knife or spreading member 11. The latter is so adjusted as to apply to the fabric a comparatively light or shallow coating of a suitable waterproof substance, which is placed in a plastic condition upon the fabric over the bed-roll and against the knife. The fabric thus coated then travels on over drying means, conveniently a series of steam coils 12 arranged in an upwardly inclined plane, about a roll 13 driven at the proper speed to advance the goods, and then is directed along a path of some length by idle rolls 14, 17, and driven rolls 15, 16 to the bed-roll 18 and knife 19 of a second spreader D. By the time this element is reached, the solvent in the initial coating has sufficiently evaporated. This coating, on account of its light bulk or shallow character, so fills the surface of the fabric, without passing through to the other side, that said fabric is in condition to safely receive a comparatively heavy or deep coating, applied at the spreader D and provided for by the proper adjustment of the gage-knife. At this stage the second layer of fabric Y comes from the source of supply B, and is directed into cooperation with the now multiply coated fabric X. This may be effected by the means which first presses the layers to-

gether. As illustrated, this consists of a doubling device E having a lower roll 21 upon which the fabric X rests and a vertically adjustable upper roll 22 about and under which the fabric Y runs. The double rolls 21 and 22 are of small diameter, and are adapted to exert upon the goods a comparatively light pressure, which effectually smears and distributes the waterproof substance over the opposed faces of fabric without danger of forcing it through and defacing the outer surfaces. As the goods with the second coating leave the spreader D and proceed toward and through the doubler E, they are partially dried by some such means as steam coils 23 situated below their horizontal run, and are in better condition to receive the pressure of a second doubling device F, the light rolls 24 and 25 which may be in all respects similar to and act in the same manner as those of doubler E. By them the distribution of the coating is completed, and the bringing together of the layers of fabric carried as far as is possible without endangering the exposed surfaces.

After traversing the roll 26 which guides the goods through the light doubling devices, they are directed by idlers 27, 28 and 29 over the periphery of a heating drum 30, contacting with a considerable portion thereof to attain the necessary evaporation of the solvent in the coating. A further drying effect is given by the action of the succeeding element G, which, as illustrated, is often termed a "festooner". Over a horizontal series of small rolls or other supports 31, the goods travel from the idler 29, falling therefrom in long parallel folds. Above the supports is a hood 32 connected with a conduit 33, through which an upward current of air is maintained by any suitable exhaust means. In addition to acting as a drying means, the festooner furnishes a slack portion in the goods whereby the capacity for free variation in the amount included in the folds compensates for differences in speed in the elements of the apparatus at its opposite sides.

Upon leaving the festooner, the coating substance has been reduced to a condition in which the layers of fabric may be safely brought into intimate contact. They are, therefore, directed by rolls 34, 35 to a doubling device H, provided with a large fixed roll 36 and a corresponding adjustable roll

37, by which a heavy pressure may be applied to the goods to uniformly and smoothly join the layers. Thus completed, they pass through a measuring device I of any convenient design and are finally delivered to the receiving core or spindle J, about which the finished goods are wound for removal and shipment.

It will be evident that by applying a light coating of the waterproof substance to the fabric and then drying it and spreading a second coating upon the coated surface, the fabric first treated will be protected against penetration by the second coating. Therefore this may be as thick and the succeeding pressure as heavy as is necessary to attain the desired effect, without danger of the waterproof substance seeping through and injuring even the thinnest and most delicately colored fabrics. This is aided by the gradual drying and distribution of the second coating, together with the graduated pressure upon the goods, which guards the second layer of fabric against injury as well as the first.

I claim and desire to secure by Letters Patent:—

1. The method of coating fabric which consists in applying a comparatively shallow coating of waterproof substance to the face of a layer of the fabric, partially drying the shallow coating, applying a comparatively deep coating to the thinly coated

face, and pressing a second layer of fabric against this coated surface.

2. The method of coating fabric which consists in applying a comparatively light coating of waterproof substance to the face of a layer of the fabric, applying a comparatively heavy coating to the lightly coated face, successively pressing a second layer of the fabric against this coated surface, and drying the coated fabric between the applications of pressure.

3. The method of coating fabric which consists in applying a comparatively light coating of waterproof substance to the face of a layer of fabric, applying a comparatively heavy coating to the lightly coated face, applying a second layer of fabric to the coated surface, successively subjecting the doubled fabric to comparatively light pressures, drying the doubled fabric between the applications of pressure, further applying comparatively heavy pressure to the doubled fabric, and drying a greater area of the fabric between the applications of light and heavy pressure.

Signed at Stoughton, in the county of Norfolk and State of Massachusetts, this 11th day of November, 1911.

JAMES MEADE.

Witnesses:

PATRICK H. MAHONEY.
RICHARD VANSTOR.