

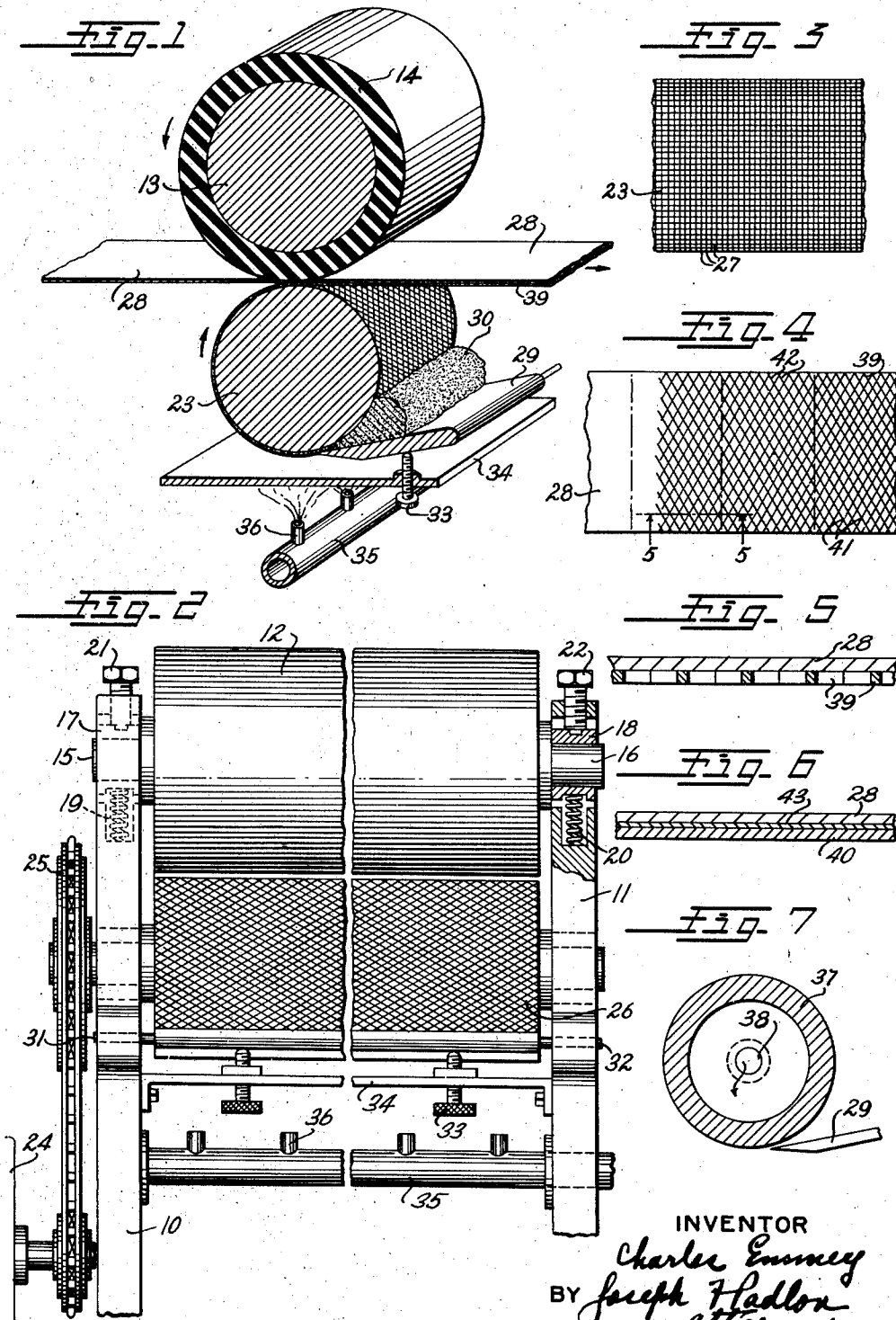
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APPARATUS FOR COATING TEXTILE MATERIAL AND THE LIKE

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APPARATUS FOR COATING TEXTILE MATERIAL AND THE LIKE

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6 Claims. (Cl. 91—48)

This invention relates to an apparatus for coating textile material and the like. More particularly it relates to apparatus for applying cementitious adhesive material to one surface of a fabric and the like.

Fabrics, textiles, and other materials, adapted for adhesion on to other surfaces as presently used, have a coating or film on one surface which is applied in solution and dried thereon. After application, the whole film is warmed and forms an intermediate joining layer with the wearing apparel. Such films on application do not permit easy spreading on the back of the fabric and require large amounts of adhesive material for the same. Furthermore, the film or cementitious composition when applied to a fabric, does not adhere very firmly since some of the solvents of the cementitious composition is not fully driven off and as such permit peeling of the same.

In view of the foregoing disadvantages it is one of the objects of the present invention to provide effective, simply constructed apparatus for making a reticulated cementitious material and applying the same to one surface of textile fabrics or other receptive material, while in a solid or plastic condition.

It is another object of the present invention to make a reticulated cementitious material of any desired geometrical outline and of applying the same to a receptive surface for subsequent application, to wearing apparel and the like.

One further object of the present invention is to provide apparatus for applying thermoplastic, cementitious material onto a moving surface to coat the same and render said surface adaptable for adhesion onto another surface.

Other objects and advantages will be apparent from the following detailed description taken in connection with the accompanying drawing.

In the drawing:

Fig. 1 is a fragmental perspective view of the apparatus illustrating a process embodying the present invention.

Fig. 2 is a fragmental elevation of the apparatus embodying the present invention.

Fig. 3 is a fragmental side elevation of a modified element taken from the apparatus shown in Fig. 2.

Fig. 4 is a plan view of coating onto a textile in accordance with the present invention.

Fig. 5 is an end view taken on line 5—5 in Fig. 4.

Fig. 6 is an end view of the article shown in Fig. 4, after application and adhesion to a receptive material, and

Fig. 7 is a modification of one of the elements shown in Fig. 2.

In the drawing, similar reference numerals relate to like parts thruout.

Referring to the accompanying drawing showing a preferred embodiment of my invention, a pair of opposed, vertically disposed supporting frame members 10 and 11, shown partly broken away in Fig. 2 are adapted to be mounted on any suitable floor base or frame work. Journalled onto frame members 10 and 11 is a rotary cylinder 12 made preferably of any suitable material, such as iron, 13 and having a periphery of resilient material, such as rubber 14. It is to be noted that such cylinder may be of any desired diameter and may have any desired resiliency. Said cylinder is mounted on and is supported at its ends 15 and 16 in bushings 17 and 18 respectively, on frame members 10 and 11.

Bushings 17 and 18 are mounted on spring members 19 and 20 in the respective frame members, and are retained in fixed position by means of adjustable screws 21 and 22 fitting into the tops of frame members shown in Fig. 2.

Also mounted in the frame members 10 and 11, is a non-resilient rotary cylinder 23. Said cylinder is disposed coaxially parallel with cylinder 12 and is driven by any suitable means, such as a motor 24 in connection therewith such as by a chain drive 25. It is to be noted that cylinder 23 may be provided on its peripheral surface with grooves 26 imparting in this particular instance a diamond shaped printed appearance to the cylinder surface, although I am not limited to an uneven peripheral surface. Such grooves, as shown, have a depth from the surface adapted to act as receptive carrying recesses for fusible material as will be hereinafter described. It is to be noted that such surface of rotary cylinder 23, may have any geometric shaped grooves, for example, circular, triangular, elliptical, and the like. Another example of the type of geometrical recesses in cylinder 23 is shown in Fig. 3 in which are shown rectangular grooves. The recesses or grooves are of sufficient depth to permit cementitious material to become imbedded therein. The cylinder as described may be of steel or other rigid material and is solid, although it may be hollow.

Cylinders 12 and 23 as shown in Fig. 2, may be brought into close peripheral contact by means of adjusting screw members 21 and 22, whereby pressure is exerted against cylinder 23 during the coating process hereinafter described. Said cylinders may be so spaced as to permit a textile strip or

cloth 28 to pass therebetween as shown in Fig. 1. The strip is forced thru between said cylinders 14 and 23 upon actuation of the lower cylinder 23, by drive 25. Furthermore, fabrics or textiles having raised surfaces may be passed between the cylinders whereby only the raised surfaces are coated.

Pivotally mounted on the frame members 10 and 11, is an adjustable spreading knife 29 for carrying a thermoplastic fusible cementitious material 30 against cylinder 23. Spreading knife 29 being retained by means of pivots 31 and 32 in frame members 10 and 11 respectively, may be raised or lowered by a plurality of equispaced adjustable setscrews 33 extending from a base or hotplate 34. Said hotplate is fixed to the frame members as shown, and is heated by means of a gas burner 35 also mounted on the frame members. The heat of the burning gas from jets 36 is evenly distributed over the hotplate in order to render material 30 relatively plastic for filling in only the grooves of cylinder 23, and at the same time prevent the material from being charred. The flame from jets 36 may be regulated in any well known manner.

Instead of using the gas heating arrangement above described and shown in Fig. 2, there is provided a modified type of cylinder 37 having a coaxial central tube 38, thru which steam is passed, thereby keeping the cylinder sufficiently hot to render the material plastic for working.

In the operation of the preferred apparatus described hereinabove, cylinders 14 and 23 are relatively adjusted to form a frictional contact with textile strip 28 which is passed between them. As the composition material 30 hereinafter described is rendered fusible, it is forced into grooves 26 by means of spreader 29. Said material in the grooves is carried during the rotation of cylinder 23 against the undersurface of strip 28 and adheres thereto when the strip is brought into frictional contact with pressure cylinder 12. Sufficient pressure is exerted by said cylinder on the strip during the operation to take up the material which becomes flexibly rigid thereon, having a reticulated geometric formation 39 as shown in Fig. 4. It is to be noted that the textile material may be of any desired width for receiving the reticulated layer of cementitious fusible material.

Said textile material once coated as above described may be cut into desired strips or sizes forming appliques ready for use by laying over a surface of any suitable material 40 such as silk, cotton, wool, fabrics, Celanese, rayon, and the like. In order to form a permanent union therewith, heat and pressure are applied whereby the reticulated geometrical formation of cementitious material particularly at the interlocking portions 41, as shown in Fig. 4 penetrate the fabric forming anchorage points while the extending portions 42 form lines of adhesion. There is also a slight spreading with the penetration of the cementitious material 30 forming a highly adhesive film between the textile materials thereby strongly uniting them.

In the method of application, the reticulated layer is picked up by the textile as it is forced thru between the cylinders and adheres to the textile upon cooling. The reticulated layer of such textile when laid over another textile or fabric, upon application of ironing heat to the surface of the top textile becomes soft and tends to spread out while at the same time penetrating and clinching a corresponding geometric area on the receiving textile as the geometric figure from

the reticulated layer thus forming a union or joint therewith. It is to be noted that the surface of the appliqué textile may be a decoration of any kind and remains smooth after application on to a receiving textile.

The method and products formed according to the invention herein are economical in saving large amounts of cementitious material. Furthermore, heretofore, the adhesive or cementitious material was applied in solution thus requiring inflammable solvents and involving extra expense.

The present invention is extensively used with respect to the garment industry where wearing apparel are decorated or tapes or tags or appliques are quickly applied without requiring sewing.

While my preferred embodiment has been described in connection with the accompanying drawing, it is to be noted that various modifications as to form, arrangement of parts, materials or use thereof may be made without departing from the spirit and scope of the invention as defined in the accompanying claims.

The present application is a division of my copending application, Serial Number 74,178, filed April 13, 1936.

I claim:

1. Apparatus for applying fusible material onto a receptive surface, comprising a plurality of superposed rotary peripherally contacting cylinders, means for rotating said cylinders counter to each other, opposed adjustable means for retaining the cylinders in relative fixed position, a spreader pivotally mounted on said opposed means contacting the peripheral surface of one of said cylinders for retaining a fusible material thereon and permit formation of a film on said cylinder in its rotation and permit adhesion on to a strip receptive surface intermediate said cylinders in their counter-rotary movement for taking up the spread fusible material on one of said cylinders, and means for heating one of the cylinders and the contacting spreader to permit working of the fusible material.

2. Apparatus for applying cementitious material onto a carrier strip, comprising a plurality of parallel disposed rotary cylinders in relative frictional contact, one of said cylinders having a resilient peripheral surface and the other a non-resilient surface with continuous geometric surface markings thereon, means for rotating said cylinders counter to each other and at the same speed, means in frictional contact with said latter cylinder for carrying a cementitious composition thereon, against said cylinder to fill in the surface markings thereon, and means for retaining the composition in plastic condition in abutment against the latter cylinder.

3. Apparatus for applying thermoplastic cementitious material onto a fabric and the like, comprising a plurality of coaxial parallel cylinders counter rotatable to each other, one of which has a resilient yieldable peripheral surface and the other has a non-yielding surface, means actuating one of the cylinders to permit frictional contact between the cylinders and permit passing of a fabric therebetween, adjustable means in contact with the peripheral surface of the second cylinder for carrying a mass of thermoplastic cementitious material, and means adjacent the adjustable means for heating the adjustable means, the material and the second cylinder, and permit said second cylinder to carry a film of the material.

4. Apparatus for applying thermoplastic ce-

mentitious material onto a fabric and the like, comprising a supporting frame, a plurality of coaxial parallel cylinders one of which has a resilient peripheral surface and the other has a non-yielding surface, means actuating one of the cylinders to permit frictional contact between the cylinders, and permit carrying of a fabric therebetween, adjustable means pivoted to the frame having a portion thereof in contact with the peripheral surface of the second cylinder for carrying a mass of thermoplastic cementitious material, means adjacent the adjustable means for heating the material and the second cylinder, and permit said second cylinder to carry a film of the material, and means in the frame for adjusting the cylinders in parallel relation on the frame.

5. Apparatus for spreading a thermoplastic cementitious material onto a fabric base, comprising a supporting frame, a plurality of cylinders counter-rotatable on said frame, one of the cylinders having a resilient yieldable peripheral surface adapted to pass the fabric therebetween and the other a non-yielding frame having one edge in frictional contact with the non-yielding surface, adjustable means pivoted to the supporting frame having one edge in frictional con-

tact with the non-yielding surface adapted to retain the cementitious material against said contacting cylinder to permit said cylinder to carry a film of the material, means for heating said adjustable means and the adjacent cylinder, and means for actuating one of cylinders counter to the other.

6. Apparatus for spreading a thermoplastic cementitious material onto a fabric base, comprising a supporting frame, a plurality of parallel cylinders mounted on the frame, one of said cylinders having a resilient peripheral surface, and the other having a non-yielding metal surface, said surfaces being adapted to form frictional contact with each other, an adjustable plate member pivoted to the frame for carrying the cementitious material, having one edge in frictional abutment with the cylinder having the non-yielding surface, means for heating said latter cylinder and the cementitious material, drive means in connection with said latter cylinder to rotate the same and permit said fabric to be passed between the cylinders thereby rotating the first cylinder counter to the second, and means in the frame for vertically adjusting the cylinder having the resilient surface.

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