May 12, 1931. A. M. BATES 1,805,070

METHOD OF AND APPARATUS FOR APPLYING COATING

Filed March 25, 1926

Fig 1

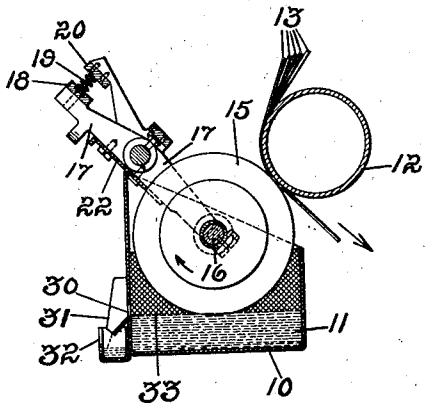
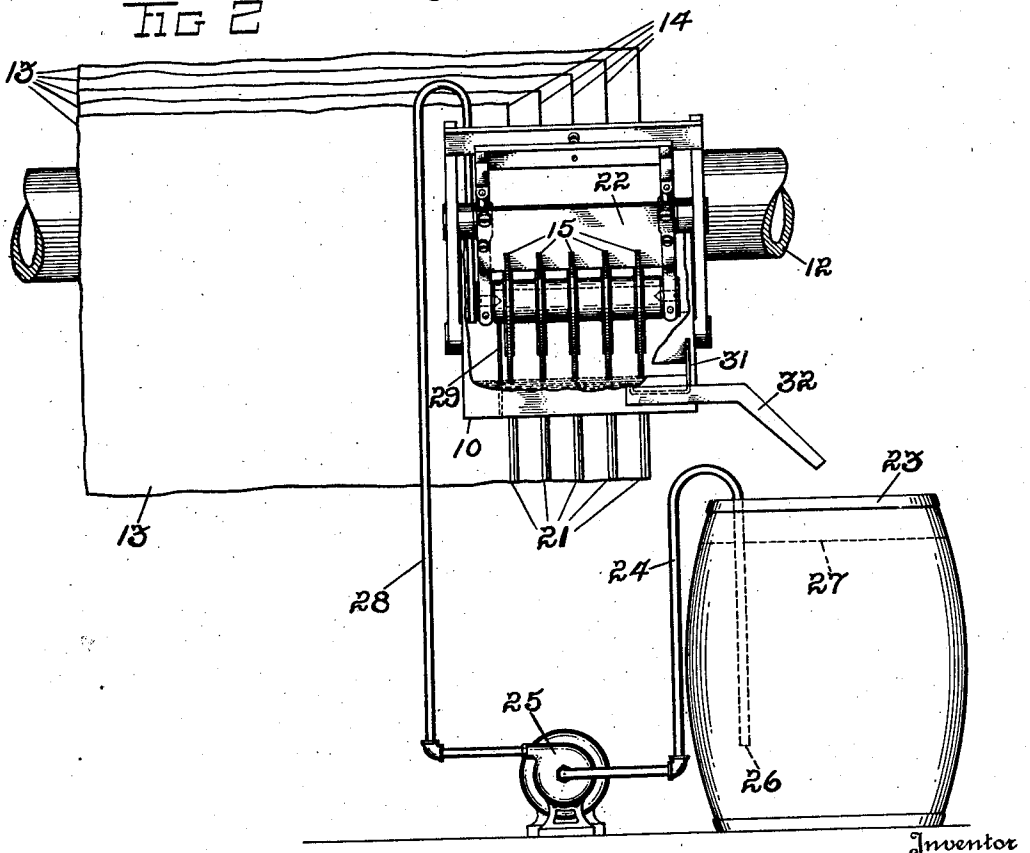


Fig 2



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UNITED STATES PATENT OFFICE

ADELMER M. BATES, DECEASED, LATE OF CHICAGO, ILLINOIS, BY CLARA H. BATES, ADMINISTRATRIX, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO ST. REGIS PAPER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

METHOD OF AND APPARATUS FOR APPLYING COATING

Original application filed January 19, 1925, Serial No. 3,438, and in Great Britain January 22, 1925. Divided and this application filed March 25, 1926. Serial No. 97,424.

This invention relates to a coating method and apparatus. More particularly, this invention relates to the application of a plurality of narrow, parallel strips of adhesive to a surface or surfaces.

In the accompanying drawings, forming a part of this specification, Figure 1, is a vertical section through apparatus embodying one form of this invention, and Fig. 2, is an elevation of the same apparatus, from the left side of Fig. 1, and with parts broken away.

The apparatus shown in the drawings comprises a tank 10 mounted upon any suitable support, not shown. The tank is adapted to contain adhesive 11.

A guide roll 12 is mounted above and slightly to one side of the tank, and the material to which adhesive is to be applied is moved past the guide roll on the side towards the tank. In the drawings, the material to receive the adhesive is shown as a plurality of sheets 13 of paper or the like, having their edges 14 in stepped relation. The apparatus is intended to apply a strip of adhesive to each sheet near its edge.

The adhesive-applying means comprises a series of discs 15 mounted upon a rod 16, which in turn is mounted on the ends of adjusting levers 17. A bar 18 connects the rear ends of levers 17, and a spring 19, between bar 18 and a fixed bar 20, normally presses the rear ends of the levers downward and thereby raises the discs against sheets 13 as they pass roll 12. The discs contact the surface of the adhesive in the tank and pick up and carry the adhesive to sheets 13, each disc applying a continuous strip 21 of adhesive to its respective sheet. A scraper blade or doctor 22 is provided for removing any excess adhesive from the edges of the discs.

A supply-receptacle 23 is provided for adhesive. A pipe 24 leads from receptacle 23 to a pump 25. Preferably, the end 26 of pipe 24 is well above the bottom of receptacle 23, while enough adhesive is maintained in the receptacle so that its upper surface 27 is well above pipe-end 26. In this way, adhesive is obtained which is comparatively free from any dregs which will settle to the bottom or any scum which will rise to the top.

Adhesive is forced from pump 25 through pipe 28 into the left end of tank 10, as viewed in Fig. 2. A portion of the receiving end of the tank is partitioned off from the body of the tank by a screen 29.

An overflow aperture 30 is provided in the rear side of the tank, near its right end as viewed in Fig. 2. An overflow spout 31 is attached to the tank in position to guide adhesive, flowing through opening 30, into a trough 32, which in turn discharges into receptacle 23.

During the normal operation of the apparatus, adhesive, comparatively free from dregs or scum, is pumped from receptacle 23 into the receiving end of tank 10. Thence it passes slowly through screen 29 into the main body of the tank. The screening is effective because of the slow movement of the adhesive through the screen, so that any stiff portion of the adhesive is stopped by the screen.

A quantity of adhesive in excess of that used is introduced into the tank, so that there is a constant overflow of adhesive from the surface 33 of the pool in the tank through aperture 30. Sheets 13 move in the direction indicated by the arrow in Fig. 1, and discs 15 are rotated by contact with the sheets, and consequently turn in the direction indicated by the arrow in Fig. 1 and impel the surface of the pool towards the side of the tank in which the overflow opening is situated. In this way, any bubbles or other surface imperfections in the adhesive are carried to the rear side of the tank and pass out of the overflow opening.

The scraper or doctor 22 is on the rear side of the discs, so that any scrapings falling back into the tank are carried directly to the overflow opening without again coming in contact with discs 15.

It will be readily seen that a means and method have been provided whereby comparatively uniform adhesive is supplied to the tank and is then screened while moving slowly towards the applying discs; and that this uniform and screened adhesive is continuously freed from surface imperfections, so that the applying discs, which contact the surface and pick up adhesive therefrom, are

supplied with a quality of adhesive which enables them to apply a thin line thereof uniformly and continuously.

While the apparatus has been described as intended for applying adhesive, and while it is particularly advantageous in such an apparatus as that disclosed in co-pending application, Serial No. 3,438, filed Jan. 19, 1925, of which this is a division, it will be readily understood that the advantages of the method and apparatus may be realized when materials other than adhesive are to be applied. One form of the apparatus has been shown and described, but it will be understood that the arrangement and construction of the parts may be varied widely within the scope of the appended claims, which define the invention.

What is claimed is:

1. Adhesive applying means comprising a tank adapted to contain adhesive material, a disc mounted rotatably with its lower edge in position to run in the surface of a pool of adhesive material in the tank, a scraper plate or doctor at the side of the disc which rises from the pool during operation, and an overflow opening in the side of the tank towards which the bottom of the disc moves and substantially at the level of the bottom of the disc.

2. Apparatus for applying adhesive comprising a tank adapted to contain adhesive material, a receptacle adapted to contain a larger supply of adhesive material, means to take material from a point spaced from the bottom of the receptacle and spaced from the top of the supply of material which said receptacle is adapted to contain and to deliver said material to the tank, an overflow opening in said tank, means to guide material flowing from said opening into the receptacle, and a disc mounted in the tank with its lower edge approximately on a level with said opening.

3. Adhesive applying means comprising a tank adapted to contain adhesive material, a disc mounted rotatably with its lower edge in position to run in the surface of a pool of adhesive material in the tank, a scraper plate or doctor at the side of the disc which rises from the pool during operation, there being an overflow opening in the side of the tank towards which the bottom of the disc moves and substantially at the level of the bottom of the disc, means to return to the tank adhesive flowing from said opening, and a screen between the disc and the point in the tank to which said adhesive is returned.

4. Apparatus for applying adhesive comprising a tank adapted to contain adhesive material, a receptacle adapted to contain a larger supply of adhesive material, means to take material from a point spaced from the bottom of the receptacle and spaced from the top of the supply of material which the receptacle is adapted to contain and to deliver the material to the tank, the tank having an overflow opening, means to guide material flowing from said opening into the receptacle, a disc mounted in the tank with its lower edge approximately on a level with said opening, and a screen in the tank between the disc and the point at which said material is delivered to the tank.

5. Apparatus for applying adhesive comprising a tank adapted to contain adhesive material, a receptacle adapted to contain adhesive material, means to take material from a point spaced from the bottom of said receptacle and from the top of the supply of material which said receptacle is adapted to contain and to deliver said material to the tank, the tank having an overflow opening, means to guide material flowing from said opening to the receptacle, a disc mounted in the tank with its lower edge approximately on a level with said opening and adapted to rotate with its lower edge moving towards said opening, a scraper adapted to scrape excessive adhesive from the side of the disc towards said opening, and a screen in said tank between the disc and the point at which the adhesive material is delivered to the tank.

In testimony whereof I have hereunto signed my name to this specification.

CLARA H. BATES,
Administratrix of the Estate of Adelmer M. Bates, Deceased.