Oct. 1, 1946. J. R. PAVA 2,408,577

PLASTER BANDAGE MACHINE

Filed Aug. 1, 1944

Fig. 1

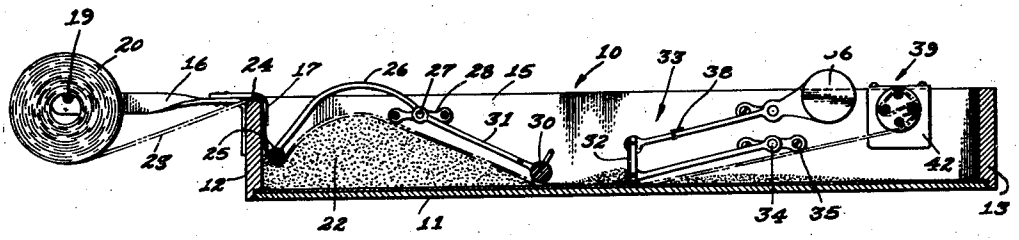


Fig. 2

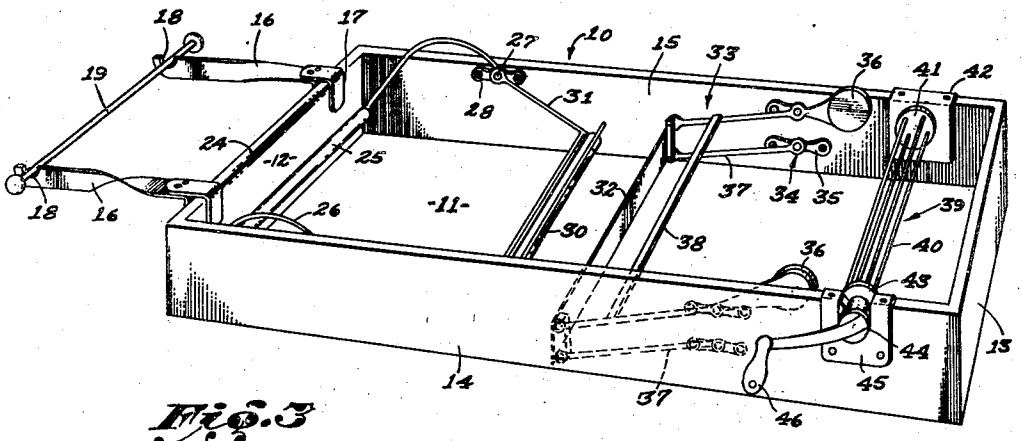


Fig. 3

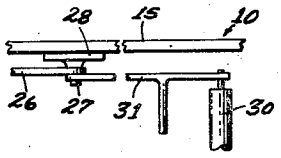


Fig. 4

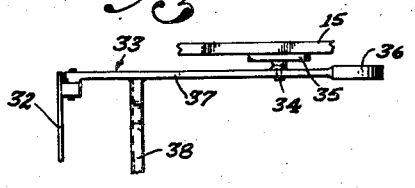


Fig. 6

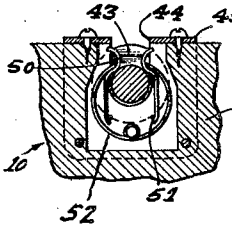
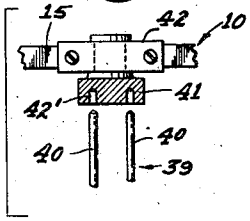


Fig. 5



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UNITED STATES PATENT OFFICE

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PLASTER BANDAGE MACHINE

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5 Claims. (Cl. 91—32)

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This invention relates to machines for impregnating fabric bandages with plaster of Paris or other dry powdered material.

Plaster bandages as commonly supplied to the patient are in the form of rolls which are impregnated with dry plaster. When used these rolls are first immersed in water and thoroughly wetted. It is quite important that the bandage throughout its entire area is wetted so that the bandaging operation may be performed quickly without the necessity of wetting the bandage during the actual bandaging operation.

Various means have been employed for impregnating the fabric, usually crinoline, but those in common use have proved unsatisfactory for the reason that the rolls of bandage produced, due to uneven or too great tension on the fabric or the character of application of the dry powder to the fabric such as pulling a strip of fabric through a mass of powdered material, are found to be unevenly impregnated with the powder and when wetted contain dry spots or portions which are not observed until the bandage is being used. When such unevenly wetted strips of fabric are being used the resultant bandage is unsatisfactory, and, although impractical, it may be attempted to apply moisture to the strip during the bandaging operation.

It is an object of this invention to produce a machine for producing rolls of fabric bandage material of simple form and construction upon which strips of bandaging material may be evenly impregnated with dry powdered plaster of Paris or other desired powdered material and in which the rolls produced are loosely wound to permit an even wetting of the material throughout the roll.

Other objects and advantages will appear hereinafter in the following description and the drawing.

Referring to the drawing, which is for illustrative purposes only:

Fig. 1 is a sectional elevational view of a machine embodying a form of the invention;

Fig. 2 is a perspective view looking down on the machine shown in Fig. 1;

Fig. 3 is an enlarged fragmentary plan view partly in section showing the manner of mounting one of the rollers;

Fig. 4 is an enlarged plan view of one end of the scraper blade and mounting of the blade on the arm;

Fig. 5 is an enlarged plan view partly in section showing the loose end construction of the rods upon which the bandage is rolled; and

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Fig. 6 is an enlarged sectional view of one of the roll supporting brackets.

Referring more particularly to the drawing, 10 designates a container which in the form shown is an open box having a bottom 11, end walls 12 and 13, and side walls 14 and 15. 16—16 indicate brackets which are provided with depending arms 17 which fit over the upper edge of the end wall 12. The brackets 16 are each provided with a notch 18 which receives a shaft or rod 19 upon which is loosely mounted a roll of fabric such as gauze or crinoline, indicated at 20. These brackets 16 are independent of each other and may be moved in the box to accommodate different widths of fabric.

Before the fabric is threaded through the machine a mass of loose plaster of Paris, or other material suitable for the purposes, indicated at 22 is piled in one end of the container. The loose end 23 of the roll of fabric extends over the rounded upper edge 24 of the end wall 12 of the container. The fabric is then threaded downwardly under a guide roller indicated at 25 which is supported on arms 26 pivotally mounted on a pin or stud indicated at 27 mounted in brackets 28, there being one such bracket for each end of the roller secured to the side walls of the container. This roller 25 is of sufficient weight to hold the strip of fabric down into contact with the rounded upper surface of the mass of powder 22 in the container, it being understood that the roller is freely pivoted on the pins 27 so that as the powder is used up the roller will move downwardly and keep the fabric in contact with the powder. After passing under the roller 25 the fabric follows the contour of the upper face of the mass of powder and is held in contact with the upper face or surface of the powder by means of a follower roller indicated at 30 which is mounted on a frame 31 which is loosely pivoted on the pin 27. This roller 30 is arranged at the point where the fabric leaves the mass of powder and only bears downwardly against the fabric with sufficient pressure to merely hold the fabric loosely in contact with such loose powder as may be on the floor or bottom of the container.

During the passage of the fabric over the top of the mass of powder, the powder enters the interstices of the fabric and impregnates the fabric evenly with the desired amount of powder, it being understood that this fabric or gauze is loosely woven such as the crinoline above referred to. After passing under the roller 30 there may be some small amount of powder on top of the

fabric and to remove and save this excess powder I have provided a thin blade scraper indicated at 32. This scraper is pivotally mounted at its ends to a frame generally indicated at 33, this frame 33 being pivotally mounted on the side walls of the container by means of studs or pins 34 mounted in brackets 35. It is desirable that this scraper 32 should engage the top of the fabric as it passes thereunder very lightly and consequently the pivoted frame 33 is balanced by means of weights 36. The frame 33 may be of any desired construction but in the form shown it consists of a pair of arms 37 on each side of the container joined by means of a strut indicated at 38. The impregnated fabric, after passing under the blade or scraper 32, is then mounted on a holder generally indicated at 39. This holder consists of a plurality of rods indicated at 40, the free ends of which enter a rotatable disk 41 mounted on a bracket 42 on one side wall of the container. The other ends of the rods 40 are fixed in a spool 43 which is rotatably seated in a slot 44 formed in a bracket 45 secured to the opposite side wall of the container. 46 indicates a handle which is attached to the spool 43 so that the holder 39 may be rotated to wind the impregnated fabric loosely thereon. The spool 43 is yieldingly held in the slot 44 by means of curved plates 50 pivotally mounted in the bracket 45 at 51. These plates are pressed into contact with the spool by means of a spring 52.

From the above description of the apparatus it will be readily apparent that, the fabric merely being drawn over the mass of powder in the container and the rollers 25 and 30 merely placing sufficient pressure on the fabric to hold it loosely in contact with the surface of the powder and the scraper 32 being balanced, very little pull is required to draw the fabric through the apparatus. This results in a comparatively loose winding of the impregnated fabric on the holder so that when the roll of impregnated fabric is removed from the apparatus and immersed in water the whole roll of fabric is uniformly moistened, which allows an uninterrupted bandaging operation which can only be properly performed when the impregnated fabric is unwound from the roll, as noted above, is uniformly wetted throughout. It will be understood that the impregnated roll on the holder 39 is removed from the apparatus merely by lifting the holder 39 by its handle 46 so that the spool 43 is released from the slot 44, and when completely disengaged so that the rim of the spool 43 can pass over the bracket 45, the holder 39 is then permitted to be pulled so that the ends of the rods 40 come out of the disk 41, thus completely disengaging the entire holder 39 with the roll of impregnated fabric thereon from the apparatus, and the rods 40 being fixed in the spool 43 at one end collapse to some extent at their free ends and may be easily withdrawn from the roll. In this connection it is understood that the spool 43 is wide enough to permit the withdrawal at a slight angle upward from the bracket 45 before the rods 40 of the holder 39 are withdrawn from the rotable plate or disk 41.

While I have shown a particular form of my invention, it is to be understood that I do not limit the invention to the exact form of apparatus shown, but desire to cover such modification as may come within the spirit of the appended claims.

I claim as my invention:

1. A machine for impregnating a fabric strip with a dry powder which comprises: a container; means for conducting a strip of fabric in yieldable contact with the upper surface of a mass of powder in the container; scraper means for removing excess powder from the surface of the strip of fabric; and means for forming a loose roll of the powder impregnated strip of fabric.

2. A machine for impregnating a fabric strip with a dry powder which comprises: a container; means for supporting a roll of fabric on the container; means for conducting a strip of fabric from the roll downwardly in the container into contact with the mass of powder therein; means for yieldingly holding said fabric strip in engagement with the upper surface of the mass of powder; means for yieldingly drawing the strip of fabric over the surface of the mass of powder, scraper means for removing excess powder from the fabric; and means for forming a roll of the powder impregnated fabric.

3. A machine for impregnating a fabric strip with a dry powder which comprises: a container; means for supporting a roll of fabric on the container; a guide roller mounted in the container arranged to yieldably hold a strip of fabric from said roll on a mass of powder in the container; a follower roller engageable with the strip of fabric as it leaves the mass of powder; a scraper engageable with the upper face of the strip of fabric; weight means for balancing the scraper; and rotatable means for forming a loose roll of impregnated fabric.

4. A machine for impregnating a fabric strip with a dry powder which comprises: an open top container; means for supporting a roll of a strip of fabric on one end of the container; a guide roller pivotally mounted on said container engageable with the strip of fabric to yieldably hold the strip of fabric in contact with the upper surface of a mass of powder in the container; a follower roller engageable with the strip of fabric as it leaves the mass of powder; said follower roller being pivotally mounted on the container; and a scraper pivotally mounted on the container yieldably engageable with the upper face of the strip of fabric to remove excess powder from the fabric strip; means for balancing the scraper; and rotatable means detachably mounted on the container for forming a loose roll of the impregnated fabric.

5. In a plaster bandage forming machine, a container having a portion adapted to support a mass of dry powder, means for conducting a strip of fabric over the top surface only of the mass of powder and yieldable means urging the strip downwardly into contact with the said upper surface of the mass of material.

JACK R. PAVA.