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PLASTER BANDAGE FORMING MACHINE

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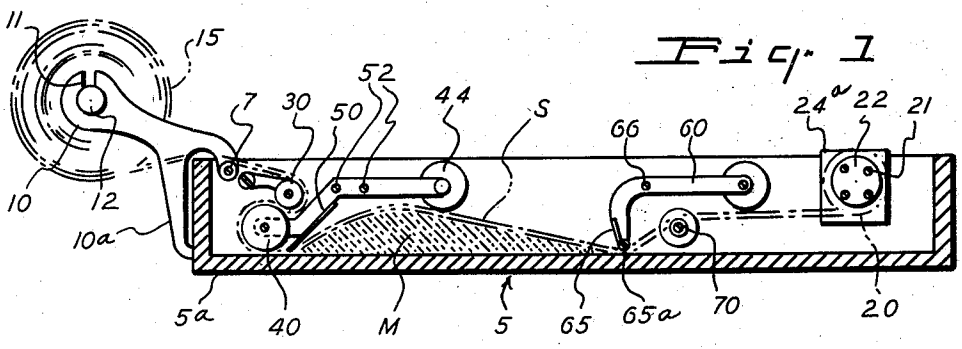


Fig. 1

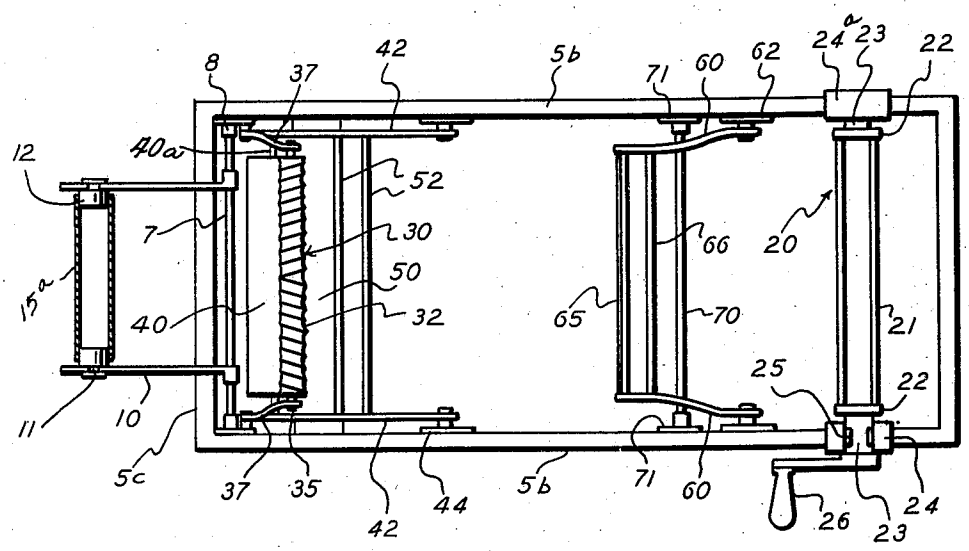


Fig. 2

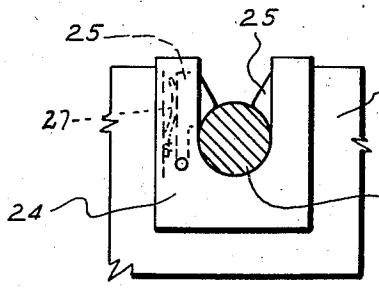


Fig. 3

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PLASTER BANDAGE FORMING MACHINE

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9 Claims. (Cl. 91—32)

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This invention has to do with devices for forming plaster bandages—that is, fabric or gauze bandages impregnated with suitable powdered material such as plaster of Paris.

Such plaster bandages are initially formed by impregnating loosely woven fabric or gauze strips, such as crinoline, with plaster of Paris in dry powdered form, the impregnated strip being then formed into a roll until ready for use. Just before application and use the strip is then thoroughly wetted, so that after being applied the plaster of Paris will set.

While machines for impregnating and rolling such bandages have been proposed, so far as I am aware they have possessed disadvantages. They comprise, generally a feed roll to carry the roll of impregnated fabric, a receiving roll upon which the impregnated fabric is rolled, and means for guiding the fabric through a body of powdered material. Many of the difficulties presented by prior art devices have arisen: from their rather inefficient and cumbersome guide means for the fabric; from the difficulty of threading the fabric strip through the machine without disturbing the powdered material; from the lack of proper or efficient means of confining the area of the pile of powdered material and preventing it from becoming too scattered. Another difficulty has been that there is too great resistance to movement of the fabric strip through the machine.

It is among the objects of my present invention to provide a plaster bandage forming machine embodying novel and efficient means for guiding the fabric strip over the surface of a pile of powdered material, such as plaster of Paris, positioned between the feed and receiving rolls.

It is another object of my invention to provide a bandage forming machine wherein the fabric strip may be threaded or inserted with maximum ease and speed without in any way disturbing the pile of powdered material.

One of the more specific objects of the invention is to provide in such a machine means for yieldably retaining the fabric strip in tension so that it will have such pressural engagement with a pile of powdered material that the interstices of the fabric will become thoroughly filled with the material.

Another object of my invention resides in the novel arrangement of the fabric guiding and retaining parts which prevents undue scattering of the powdered material as well as enables repiling of the powdered material by tipping the casing.

A still further object is the provision of a machine which, while effectively guiding the fabric strip through the machine in proper pressural engagement with the powdered material, does not offer undue resistance to movement of the strip.

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Other more specific objects and advantages will appear from the following description wherein I shall describe a presently preferred embodiment of the invention, making reference to the accompanying drawings, in which:

Fig. 1 is a longitudinal section;

Fig. 2 is a top plan view with the fabric strip removed; and

Fig. 3 is an enlarged fragmentary view showing one of the bearings for the receiving roll.

Referring now to the drawings, the numeral 5 denotes a rectangular, box-like, open-topped casing having a bottom wall 5*a*, side walls 5*b* and end walls 5*c*. A cross bar 7 of round cross-section is mounted at its ends in brackets 8, secured to the respective side walls 5*b*, and rotatably mounted upon the bar 7 are two swingable arms 10, each having adjacent its outer end a slot 11 to rotatably receive the reduced diameter portion of feed roll mounting members 12, which latter are inserted in the opposite ends of the core 15*a* of the fabric roll 15 in coaxial alinement so that the roll and the members 12 may rotate about a common axis relative to the arms 10. The arms 10 may be swung about the bar 7 and, when in position of use as shown in the drawings, the roll 15 overhangs the left-hand end wall of the casing, the arms 10 having feet 10*a* to engage the outer surface of the end wall of the casing.

A receiving roller 20 is journaled to rotate about an axis parallel to the axis of roll 15 and transversely of the opposite end of the casing, being comprised of rods 21, here shown as four in number, secured at their ends in discs 22, each of which discs carries a trunnion 23 journaled in bearing members 24, 24*a*, secured to the opposite sides of the casing. Bearing member 24 is open at its top (see Fig. 3) so that the roll 20 may be inserted and removed from the casing. Spring pressed pivoted detents 25 retain the trunnion within the bearing when the device is in use, being urged into such retaining position by leaf springs 27. To the last-mentioned trunnion there is secured a crank 26 by which the receiving roller is manually rotated.

A guide roller 30, having right and left-hand peripheral threads or spiral corrugations 32, has trunnions 35 journaled in openings in the outer ends of arms 37, said arms being pivotally connected at their other ends to the brackets 8 so

that the roller 30 may be swung upwardly from the position shown in Fig. 1.

A second guide roller 40, made of soft rubber or other suitable soft material, is journaled at its ends in the outer ends of arms 42 by means of axle 40a, which arms are pivotally connected at their other ends to brackets 44 carried by the sides 5b. Thus the roller 40 may be swung upwardly from its position as shown in Fig. 1 to facilitate threading the fabric strip through the machine. Secured at its respective ends to the arms 42 and extending transversely of the casing, there is a plate 50, said plate being disposed diagonally downwardly and outwardly as best shown in Fig. 1. This plate prevents powdered material from escaping towards the left-hand end of the casing and also permits the material to be easily re-piled by simply tipping the casing. Reinforcing rods 52 are secured at their respective ends to the arms 42.

Between roller 40 and roller 20 I provide a pair of arms 60 which are pivotally secured at their inner ends to brackets 62 on the sides 5b. These arms curve downwardly at their outer ends into a somewhat hooked shape and have secured thereto a transversely disposed stripper plate 65, the bottom edge of which plate is rounded in cross-section as shown at 65a. Thus the arms 60 and their carried stripper plate may be swung upwardly from the position of Fig. 1 to facilitate threading the fabric strip through the machine. A reinforcing cross bar 66 is secured at its respective ends to the respective arms 60.

A third roller 70 is journaled at its ends in brackets 71 carried by the sides 5b. This roller tends to further pack the powdered material in the interstices of the fabric.

When in use, a pile M of powdered material such as plaster of Paris is maintained on the floor or bottom wall of the casing and the fabric strip S from the roll 15 is dragged over the top surface of this pile of material by means of the roller 20. The strip S passes from the roll 15 first over roll 30, thence over roll 40, thence over the top surface of the pile of material, thence under the rounded bottom edge 65a of the stripper plate, thence over the roller 70, being secured at its end to the receiving roll 20 so that as the crank 26 is turned it causes the strip to be wound about the bars 24 and thus dragged over the surface of the pile of material M. The weight of roller 40 and the arm assembly upon which it is mounted is sufficient to maintain the fabric strip S in contact with the material at least throughout the surface of one portion of the pile M, while the stripper plate 65 is of a weight to maintain the strip against the remainder of the surface of the pile of material.

Since one-half of the surface of roller 30 has right-hand and the other half has left-hand threads or corrugations, and the fabric strip is compressed between roller 30 and the relatively soft rubber roller 40, the strip is positively maintained in a line. As the strip is thus dragged over the surface of the powdered material the interstices become thoroughly filled, and any excess will be stripped off by the stripper plate surface 65a. It will be observed that the pile of material M is therefore confined between the plate 50 and the stripper plate 65.

To fill the machine, the powdered plaster of Paris is first deposited on the floor. Then the arms 37, 42 and 60 are swung upwardly. The fabric strip is then passed over rollers 30 and 70, after which the arms 42 are swung downwardly to bring roller 40 into the illustrated position, and arms 60 are likewise swung downwardly to cause the stripper plate to press the strip against the floor, the free end of the strip being secured to the roller 20. Then arms 37 are lowered to cause roller 30 to press the fabric strip against the soft roller 40. Thus as crank 26 is turned, the strip is wound about roller 20, causing the strip to be dragged over the top surface of the powdered material. As the powdered material is used up, the roller 40 and stripper plate 65, which press the strip against the floor at opposite sides of the pile of material, maintain the strip in conforming engagement against the top surface of the pile.

I claim:

1. A machine for impregnating a fabric strip with powdered material, comprising: a casing having a floor adapted to support a pile of dry, powdered material, means for moving a strip of fabric along the casing, and means for maintaining said strip in tension throughout its contact with the top surface of the pile of material during said movement, said last-named means comprising, a first pair of arms pivotally connected to the casing to swing towards and away from the floor of the casing, a guide member carried by the outer end portions of the arms for engagement with the fabric strip adjacent one side of the pile of material, a material confining plate carried by said arms, a second pair of arms pivotally connected to the casing to swing towards and away from the floor of the casing, and a stripper plate carried by the outer ends of the last-named arms for engagement with the fabric strip at the opposite side of the pile of material, said first pair of arms being swingable independently of the second pair of arms.

2. A machine for impregnating a fabric strip with powdered material, comprising: a casing having a floor adapted to support a pile of dry, powdered material, means for moving a strip of fabric along the casing, and means for maintaining said strip in tension throughout its contact with the top surface of the pile of material during said movement, said last-named means comprising a pressure-applying member yieldably bearing against the strip adjacent one side of the pile of material, a pair of parallel guide rollers adjacent the opposite side of the pile of material, and means rotatably mounting each roller for swinging movement relative to the other, said rollers being adapted to receive and yieldably compress the strip therebetween.

3. A machine for impregnating a fabric strip with powdered material, comprising: a casing having a floor adapted to support a pile of dry, powdered material, means for moving a strip of fabric along the casing, and means for maintaining said strip in tension throughout its contact with the top surface of the pile of material during said movement, said last-named means comprising a pressure-applying member yieldably bearing against the strip adjacent one side of the pile of material, a pair of parallel guide rollers adjacent the opposite side of the pile of material, and means rotatably mounting each roller for swinging movement relative to the other, said rollers being adapted to receive and yieldably compress the strip therebetween, one of the rollers having right-hand threads in half its peripheral surface and left-hand threads in the other half of its peripheral surface.

4. A machine for impregnating a fabric strip with powdered material, comprising: a casing

having a floor adapted to support a pile of dry, powdered material, means for moving a strip of fabric along the casing, and means for maintaining said strip in tension throughout its contact with the top surface of the pile of material during said movement, said last-named means comprising, a pressure-applying member yieldably bearing against the strip adjacent one side of the pile of material, a pair of parallel guide rollers adjacent the opposite side of the pile of material, and means rotatably mounting each roller for swinging movement relative to the other, said rollers being adapted to receive and yieldably compress the strip therebetween, one of the rollers having right-hand threads in half its peripheral surface and left-hand threads in the other half of its peripheral surface, and the other of said rollers having a soft peripheral surface.

5. A machine for impregnating a fabric strip with powdered material, comprising: a casing having a floor adapted to support a pile of powdered material, power-actuated roller means journaled in the sides adjacent one end of the casing for longitudinally moving a fabric strip along the casing, means for feeding the strip into the other end of the casing, and means for guiding and tensioning the strip over the top surface of the pile of material, the last-named means comprising a pair of rollers rotatably and yieldably mounted adjacent the last-named end of the casing to pass and compress the strip therebetween and a stripper plate mounted in the casing for yieldable engagement with the strip adjacent the other end of the casing.

6. A machine for impregnating a fabric strip with powdered material, comprising: a casing having side walls and a floor adapted to support a pile of powdered material, power-actuated roller means journaled in the sides adjacent one end of the casing for longitudinally moving a fabric strip along the casing, means for feeding the strip into the other end of the casing, and means for guiding and tensioning the strip over the top surface of the pile of material, the last-named means comprising a pair of arms pivotally connected to the side walls to swing towards and away from the floor, a guide roller rotatably carried by the outer

ends of the arms for yieldable engagement with the strip at one side of the pile of material, a material-confining plate carried by said arms, a second pair of arms pivotally connected to the side walls to swing towards and away from the floor and a stripper plate carried by the outer ends of the last-named arms for yieldable engagement with the strip at the opposite side of the pile of material.

7. In a device having a feed roller adapted to carry a fabric strip and a power-actuated receiving roller adapted to pull said fabric strip from the feed roller, means adapted to be positioned between the rollers for guiding said fabric strip comprising a pair of parallel guide rollers adapted to compress the strip therebetween, one of said guide rollers having right-hand peripheral threads throughout one-half its length and left-hand peripheral threads throughout the other half of its length.

8. In a device having a feed roller adapted to carry a fabric strip and a power-actuated receiving roller adapted to pull said fabric strip from the feed roller, means adapted to be positioned between the rollers for guiding said fabric strip comprising a pair of parallel guide rollers adapted to compress the strip therebetween, one of said guide rollers having right-hand peripheral threads throughout one-half its length and left-hand peripheral threads throughout the other half of its length, and the other of said guide rollers having a soft peripheral surface.

9. In a device for impregnating a fabric strip with powdered material, a casing having a floor adapted to support a pile of dry powdered material, means for moving a strip of fabric along the casing, and means for maintaining said strip in tension throughout its contact with the top surface of the pile of material during said movement, said last named means including a pressure applying member yieldably bearing against the strip adjacent one side of the pile of material, a guide member adjacent the opposite side of the pile of material, a material confining plate adjacent said guide member, and means yieldably supporting said guide member and said plate.

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