Jan. 16, 1923. 1,442,129.

W. H. CUNNINGHAM.

PLASTER BANDAGE ROLLING MACHINE.

FILED JULY 15, 1920.

Fig. 1.

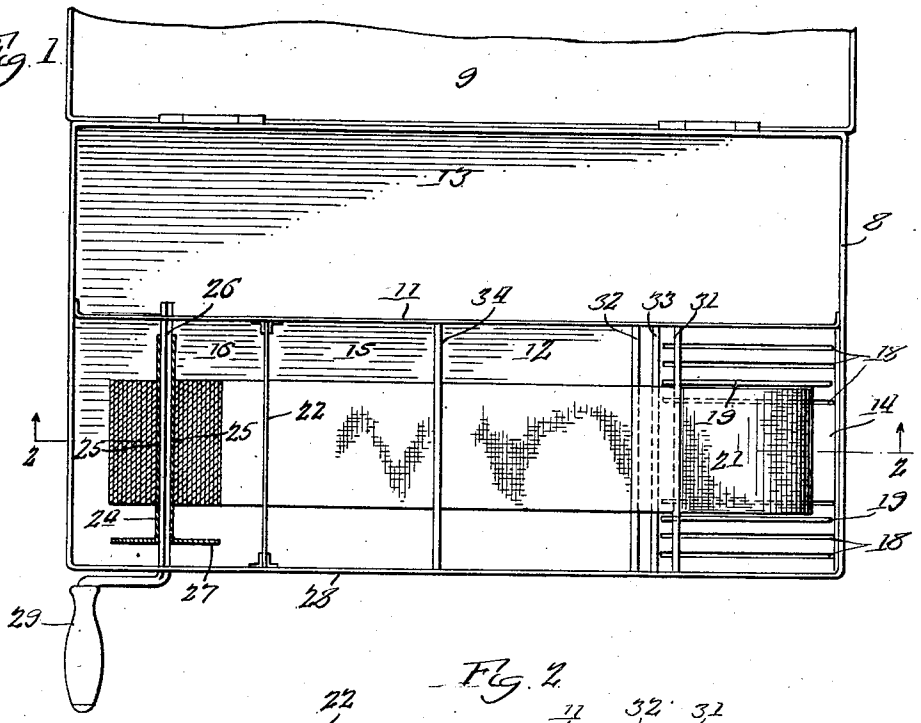


Fig. 2.

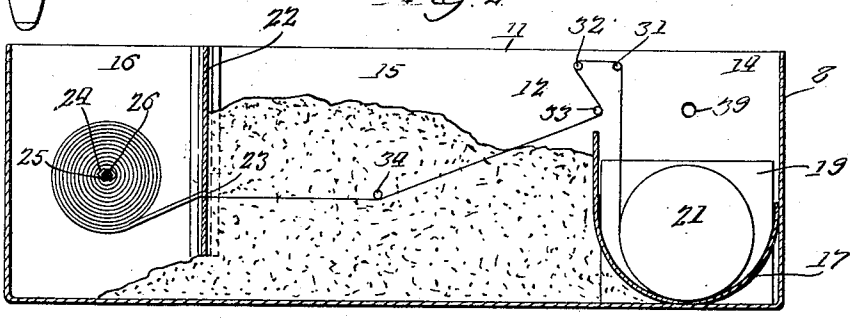


Fig. 3.

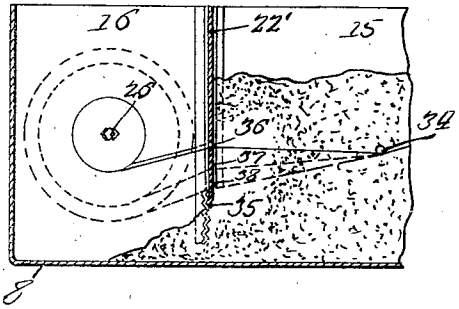


Fig. 4.

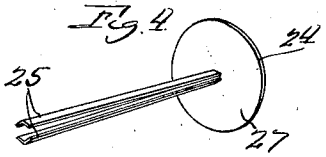
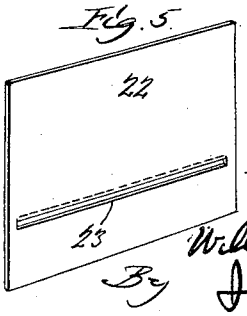


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM H. CUNNINGHAM, OF ROCKFORD, ILLINOIS.

PLASTER-BANDAGE-ROLLING MACHINE.

Application filed July 15, 1920. Serial No. 396,455.

To all whom it may concern:

Be it known that I, WILLIAM H. CUNNINGHAM, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Plaster-Bandage-Rolling Machines, of which the following is a specification.

This invention pertains to devices for rolling plaster of Paris bandages, such as are used principally for topical application in surgery.

The primary object of the present invention is to provide novel means by which bandages of this kind may be quickly and easily prepared at comparatively low cost. That is, my invention contemplates a self-contained device which may be conveniently carried and used at will for preparing in a very economical manner, plaster bandages of any desired width and having a coating of plaster of predetermined depth and uniformity throughout the length of the bandages.

In furtherance of these general objects I have provided a plaster container and devices therein for guiding a fabric strip or ribbon from a delivery roll to a winding drum and including means for properly tensioning the strip between said rolls and for depositing on such strip a layer of plaster of predetermined depth. In this regard, I have provided an exceptionally simple and practical means for gaging and determining the deposit of plaster on the strip so that the bandage will be of uniform character throughout its length.

Other objects are to provide an improved spool upon which the bandage is wound, an improved structure for guiding the bandage from a supply roll to the finished roll, and an improved container or housing forming a hopper for the plaster of Paris, and also a supporting means for the several cooperating instrumentalities employed for making the plaster bandage.

Other objects and attendant advantages will be appreciated as the invention becomes better understood by reference to the following description when considered in connection with the accompanying drawing, in which—

Figure 1 is a plan view, partly in section, of a plaster bandage rolling machine embodying my invention;

Fig. 2, a sectional view through the machine taken substantially on the line 2—2 of Fig. 1;

Fig. 3, a modified form of the plaster-gaging means;

Fig. 4, a perspective view of the spool for the finished roll; and

Fig. 5, a perspective view of one of the gage plates.

My improvements are arranged preferably, in a portable container or hopper of such size that it may be conveniently carried about by hand. In its present embodiment, this container designated generally by character 8, consists of an open-top box provided with a hinged cover 9. The cover may be equipped with a handle, and any suitable latch or lock may be provided for holding the cover closed. The box is divided by a wall 11 into two main compartments 12 and 13, the former of which constitutes a primary or service hopper and the latter a supply hopper. The primary hopper is divided into supply roll, plaster feed and finished roll compartments 14, 15 and 16, respectively. The supply roll compartment at one end of the primary hopper is defined in the present instance by a semi-circular bottom 17 provided throughout its length with spaced slots 18 or the equivalent, for the reception of end spacer members 19 which hold the supply roll of bandage fabric 21 in position against endwise displacement. The finished roll compartment 16 at the opposite end of the primary hopper compartment is defined principally by a gage plate 22. This plate has a narrow elongated horizontal slot 23 through which the bandage passes to be wound onto a spool designated generally by character 24. This spool in its prefered embodiment consists of a pair of separable members 25 angular in cross section to fit a square spindle 26, and joined at one end by a disk 27. The portions 25 of the spool are normally separated so that when a bandage strip is wound thereon, they will be compressed and exert an outward pressure on the finished roll, permitting the latter to be carried and handled by means of the spool. The spool in turn is slidable lengthwise upon and removable from the spindle 26, which latter is inserted through appropriate bearing holes in the partition wall 11 and front wall 28 of the box. By means of a crank handle 29 at one end of the spindle, the spool may be revolved by the operator to wind the bandage onto the spool.

Means is provided intermediate the supply roll and gage plate 22 for properly guiding and tensioning the bandage strip. This consists in the present instance of a plurality of tension rods 31, 32 and 33, grouped above the supply or delivery roll 21, and a guide rod 34 positioned in the feed compartment approximately in the plane of the spindle 26. A suitable tension will be imposed on the bandage strip by the rods 31, 32 and 33 and the strip will be guided under the rod 34 so as to pass through the opening 23 along the lower edge thereof.

In operation, the feed compartment 15 is filled with plaster with a substantial quantity on top of the bandage strip, so that when the crank 29 is turned in a clockwise direction, the strip will be drawn through the opening 23, over the lower edge thereof, and will carry on its top surface a quantity of the powdered plaster determined by the depth of the slot 23. In other words, the slot 23 constitutes a depth gage for positively determining the amount of plaster which will be delivered onto the strip when wound onto the finished roll, and serves as a means for insuring that the plaster shall be spread evenly throughout the width of the strip. During this operation the body of plaster above that portion of the strip between the slide 22 and guide rod 34 will feed by gravity onto the strip, or in other words, a gravity hopper feed is provided, and the supply of plaster must be replenished by the operator whenever exhausted.

Thus, in order to make a plaster bandage, it is only necessary to turn the crank for winding the bandage onto the finished spool and see that the primary hopper is filled sufficiently to feed throughout the width of the strip before it enters the gage. It will be particularly noted that the resultant bandage will be of uniform character in that plaster will be laid evenly on the bandage to a predetermined depth, determined positively and accurately and unaffected by atmospheric conditions.

From the foregoing illustration of my invention, it will be observed that the axis of the spool 24, the opening 23 and the guide rod 34 are approximately in a common plane, so as to insure guiding of the bandage strip over the lower edge of the opening 23. This result, however, may be obtained in other ways, and to this end my invention contemplates the provision of relative movement between at least one of these three elements with respect to the others, such for example as by moving the plate 22 vertically to lower the opening 23 in proportion to the diameter of the finished roll. This movement of the plate 22 may be effected by manually shifting the plate downwardly as the diameter of the finished roll increases, and for this purpose I have provided suitable means acting on the plate for imposing a tension thereon and for holding it in any set position. For example, referring to Fig. 3, it will be observed that one of the guides is serrated and the plate 22′ is formed to provide a detent 35 adapted to engage such serrations and hold the plate in any position to which it is moved. Thus, when commencing to make a bandage the plate 22′ might occupy a position with its opening 23 located at 36 and as the diameter of the roll increases the plate would be moved downwardly successively to positions 37 and 38, or to any suitable position according to the conditions at hand.

It will be observed that the depth of the plaster on the bandage may be varied by the substitution of one plate for another having a slot of the requisite depth, such differences in depth being indicated by dotted lines in Fig. 5.

The spindle 26 is also adapted to be used for winding the bandage tape into a delivery roll such as 21; and to this end the spindle may be removed from the spool and inserted in openings 39 in the walls 11 and 28 at the compartment 14, as will be obvious.

It is believed that the foregoing conveys a clear understanding of the objects prefaced above, and it should be understood that in putting these objects into effect various changes might be made in the design and construction without departing from the spirit and scope of the invention as expressed in the appended claims, in which—

I claim:

1. A plaster bandage machine of the character described, comprising a box having at opposite ends a supply roll compartment and a finished roll compartment and an intermediate plaster feed compartment, means for guiding the bandage strip from the supply roll compartment to the finished roll compartment through the feed compartment, and laterally adjustable end spacer members in the supply roll compartment for preventing endwise displacement of the supply roll.

2. In a bandage machine of the character described, the combination of a supply roll, a finished roll, a gravity feed hopper intermediate said rolls and adapted for delivering a surplus quantity of plaster on a bandage strip moving between the rolls, and interchangeable plates each having a relatively narrow gage opening of different width from the other and through which said bandage strip passes for determining the depth of plaster on the bandage.

3. In a bandage machine of the character described, the combination of a supply roll, a finished roll, a gravity feed hopper intermediate said rolls and adapted for delivering a surplus quantity of plaster on a

bandage strip moving between the rolls, a plate having a relatively narrow gage opening through which said bandage strip passes and for determining the depth of plaster on the bandage, and means permitting relative vertical adjustment between said opening and the axis of the finished roll.

4. In a machine for making plaster bandages, the combination of a delivery roll and a finished roll, a gravity feed hopper intermediate said rolls for delivering a surplus amount of plaster onto the bandage strip, and a gage plate removably mounted in the path of said strip adjacent to the finished roll and having a gage opening for positively determining the depth of the plaster on the strip passing through such opening, whereby said plate may be removed and substituted by a new plate with a gage opening of different depth.

5. In a bandage making machine of the character described, the combination of a plaster compartment having a gage opening, a finished roll spool, a guide for the bandage before it enters the gage opening, said opening, the axis of said finished-roll spool and guide being in a substantially common plane, as and for the purpose described, and means for vertically adjusting the gage opening.

6. In a bandage making machine, the combination of a plaster compartment, a finished roll spool, and interchangeable gage slot plates having gage slots of different width and through any one of which, when in operative position between the said compartment and said spool, the bandage will pass, whereby to positively regulate the thickness of plaster on the bandage.

WILLIAM H. CUNNINGHAM.