May 6, 1924. 1,493,029

R. P. FRYE

MACHINE FOR COATING MATERIAL

Filed May 9, 1921 3 Sheets-Sheet 1

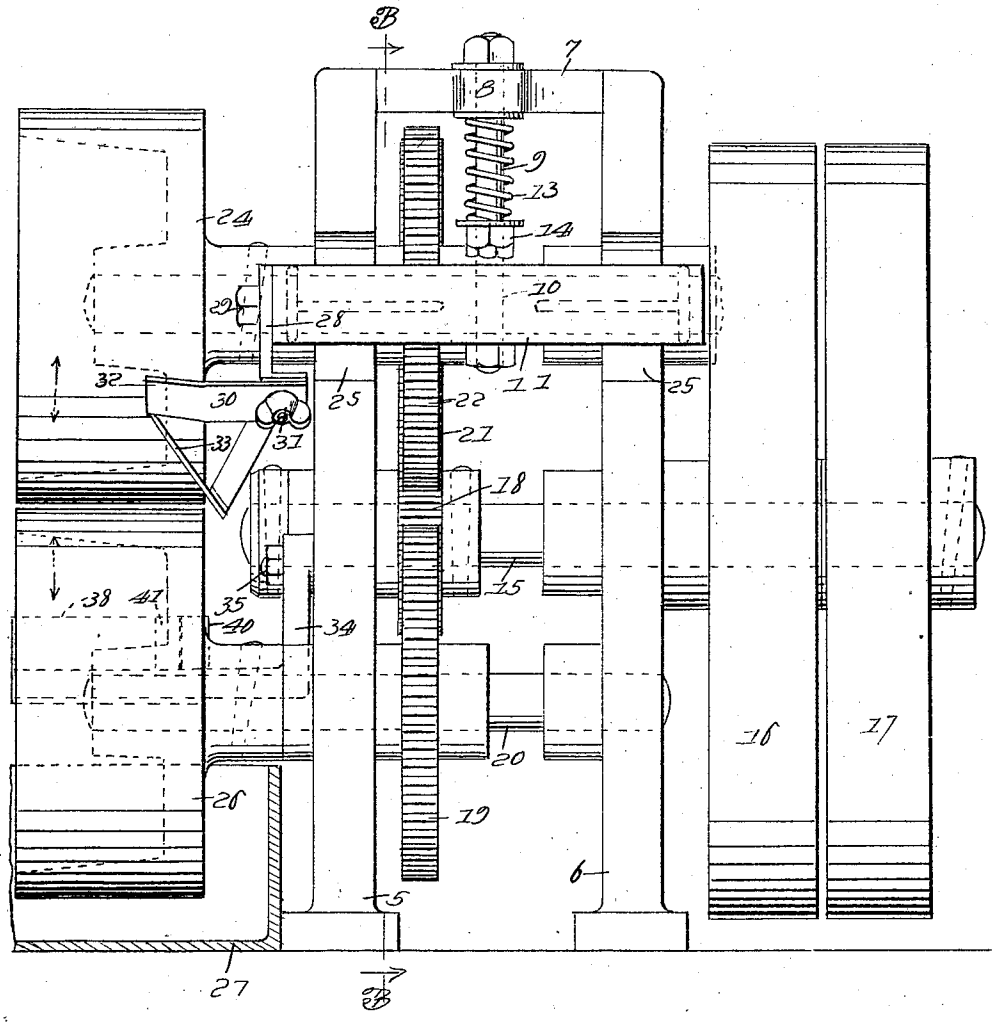


Fig. 1.

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Filed May 9, 1921 3 Sheets-Sheet 2

Fig. 2.

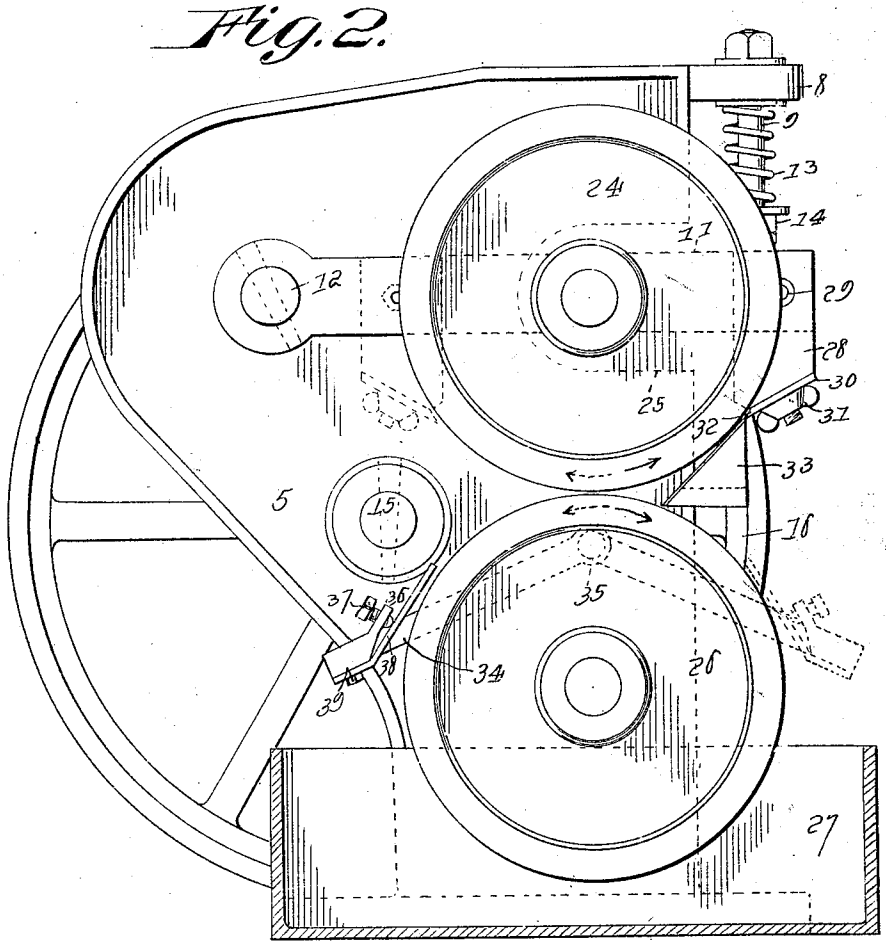


Fig. 4.

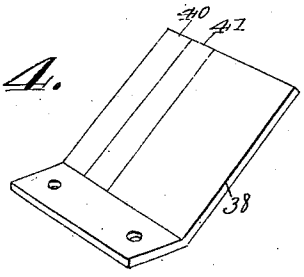
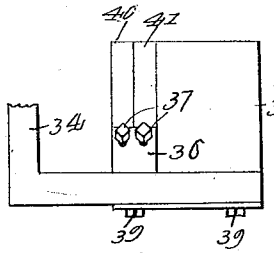


Fig. 5.



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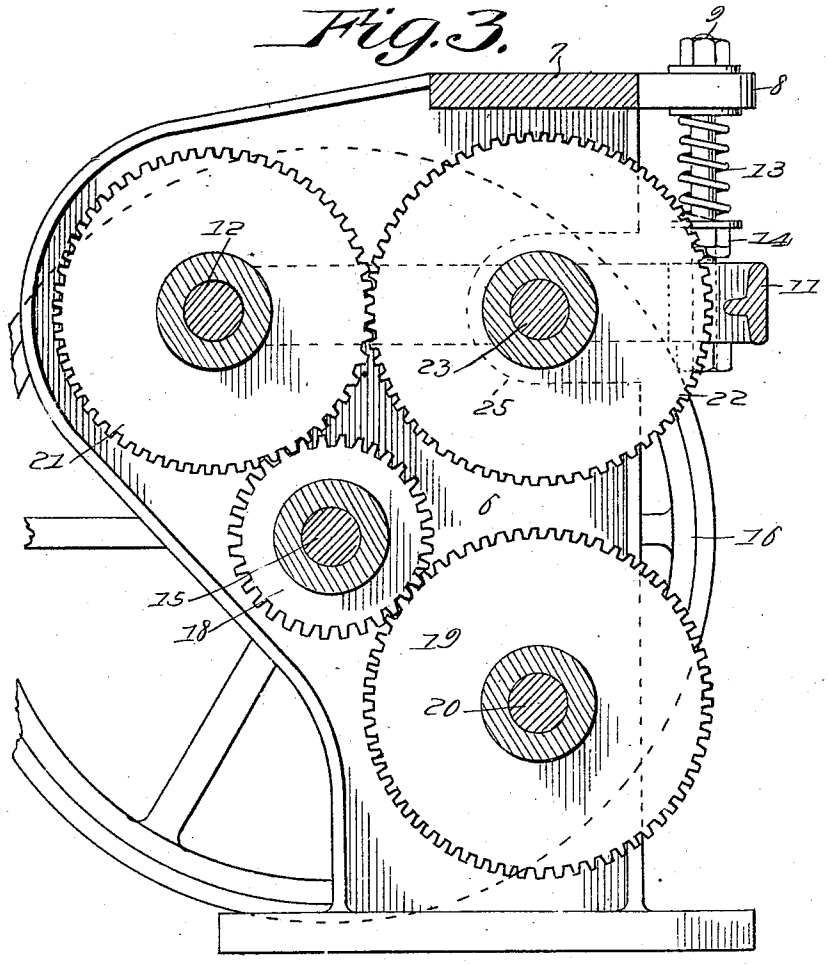
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Filed May 9, 1921 3 Sheets-Sheet 3

Fig. 3.



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UNITED STATES PATENT OFFICE.

ROBERT P. FRYE, OF MARLBORO, MASSACHUSETTS.

MACHINE FOR COATING MATERIAL.

Application filed May 9, 1921. Serial No. 468,027.

To all whom it may concern:

Be it known that I, ROBERT P. FRYE, a citizen of the United States of America, and resident of Marlboro, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Coating Material, of which the following is a specification.

This invention relates to machines for coating fabric with a stiffening material and for forcing the said stiffening fluid into the fabric for the purpose of increasing the amount of fluid carried by the fabric, as compared with the fabrics which are treated by the application of superficial coatings.

It is an object of this invention primarily to produce shoe boxings or stiffening for use in their manufacture; and it is a further object of this invention to provide novel means whereby fabrics such as felt or heavy material preferably formed of vegetable fibre may be coated and impregnated with a stiffening agent in a fluid or semi-fluid state, novel means being provided whereby the fabric may be coated on both sides throughout nearly the whole of its area, novel means being provided, however, for guarding against the application of the stiffening agent at one edge of the fabric in order that the fabric may be manipulated or operated with pliers or tools, in shaping the boxing without liability of fouling the implements or pliers employed in manipulating and shaping the said fabric.

It is a still further object of this invention to provide means for coating the two sides of the fabric and for providing novel means whereby the pressure of the coating carriers which engage the fabric may be regulated to increase or diminish the pressure, or for the purpose of accommodating fabrics of different thicknesses.

With the foregoing and other objects in view, the invention consists in the details of construction, and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

In describing the invention in detail, reference will be had to the accompanying drawings forming part of this application wherein like characters denote corresponding parts in the several views, and in which—

Figure 1 illustrates a front elevation of a machine embodying the invention, the receptacle for the stiffening material being in section;

Figure 2 illustrates a side elevation of the said machine;

Figure 3 illustrates a sectional view on the line 3—3 of Fig. 1;

Figure 4 illustrates a perspective view of the scraper blade; and

Figure 5 illustrates a face view thereof.

In these drawings, which illustrates one embodiment of the invention, the frame comprises the side members 5 and 6 connected at their upper ends by a yoke 7 and the said yoke has a forwardly extending apertured lug 8 through which a member 9 in the nature of a bolt or rod projects, the said member 9 extending through an aperture 10 of a yoke 11, which yoke is oscillatably mounted on a shaft 12 supported in the sides of the frame. A spring 13 encircles the member 9 between the lug 8 and a nut 14 which is threaded on the member 9 for the purpose of increasing or diminishing the tension of the spring and for regulating the position of yoke.

A drive shaft 15 receives power from any suitable source through one of the pulleys 16 and 17, one of which is an idler, and the said shaft carries a gear wheel 18 which meshes with a gear wheel 19 on a shaft 20, which shaft 20 is also supported in the sides of the frame. The gear wheel 18 meshes with a gear wheel 21 on the shaft 12, and the gear wheel 21 meshes with a gear wheel 22 on a shaft 23 which shaft 23 is journaled in the sides of the yoke 11 and the shaft therefore takes the motion of the yoke as it oscillates under the influence of the spring 13.

The shaft 23 projects beyond the sides of the frame and a roller 24 is fixed on the shaft at one end. The frame has clearances or recesses 25 in its edges which permits the shaft to move with the yoke in order that the roller 24 may have co-operative relation and movement with respect to a roller 26 which is fixed on the shaft 20, the said roller 26 having its periphery extending into a receptacle 27 intended to contain the material to be distributed on the surfaces of the fabric which is to be stiffened. As soon as the roller 26 rotates in the receptacle, it will distribute the stiffening material to the surface of the upper roller 24 prior to the time that the fabric is interposed between the rollers, and thereafter, the upper and lower

surfaces of the fabric will have the fluid or stiffening material applied to them.

As stated initially, it is highly desirable that certain portions of the fabric be left uncoated after it has been subjected to the action of the rollers and to that end, provision is made for preventing the application of the stiffening fluid to the fabric at its edges; and provision is furthermore made for increasing or diminishing the area of the fabric which may be uncoated after being subjected to the action of the rollers.

As shown particularly in Fig. 2, means are provided for removing the deposit of stiffening fluid from portions of the rollers 24 and 26, and in the full line positions of these devices, provision is made for preventing the accumulation of material on certain parts of the rollers when the rollers are rotated in one direction, whereas in the dotted line positions of these elements, provision is made for an adjustment of these elements if the machine were running in the opposite direction.

In carrying out that part of the invention which deals with the removal of surplus deposits from the roller 24, an arm 28 is secured to the side of the yoke at its outer end by a fastening 29 of any appropriate type and the said arm has a plate 30 adjustably secured to it by a nut and bolt connection 31, the said plate terminating in a blade 32 which may be caused to bear against a portion of the periphery of the roller 24 for the purpose of removing deposits therefrom. The blade is furthermore supplied with a shield 33 extending downwardly and inwardly in an inclined position for directing the material dislodged by the blade to a position past the edge of the roller 26 in order that the material may find its way by gravity into the receptacle 27 from whence it was originally taken by the lower roller 26.

In the dotted line position of the parts for removing the surplus material from the upper roller, the application of the device to a left or right hand drive will be understood, it is believed, by one skilled in the art.

As a means for removing the surplus material from the lower roller 26, an arm 34 is mounted on a stud 35. The arm has an apertured lug 36 in which a bearing screw 37 is threaded, the said bearing screw engaging a resilient blade 38 anchored to the arm, as at 39 so that the said blade is effective to be forced into engagement with a portion of the periphery of the roller 26 for the purpose of scraping off the surplus coating material which may be carried at the edge of the said roller.

The dotted line position of a device for accomplishing the removal of the surplus material is of identical construction with that heretofore described in connection with the description of the arm 34 and parts carried by it except as to the changes in position to adapt it to operate on the other side of the shaft. Provision is thus made for removing the surplus material when the machine has a right hand or a left hand drive.

From an inspection of the drawing and from the foregoing description, it will be apparent that when coating material which is usually employed for coating fabrics in making box toe linings, is placed in the receptacle 27 and power is applied for driving the shaft 15, motion will be communicated through the gearing heretofore described for rotating the shaft 23 in the opposite direction, and the arrangement of parts is such that the material carried on the periphery of the roller 26 will, to some extent, be delivered to the roller 24 in order that both rollers may be coated. The scrapers or blades will operate to remove stiffening material at the edges of the rollers and when fabric to be used as a base for the manufacture of box toe linings is delivered to the rollers, it will be carried between them and the stiffening material will be forced into the fabric on both sides, except as to the marginal edge or edges to which the stiffening material is inaccessible by reason of its having been removed from the rollers.

It will also be apparent that provision may be made for increasing or diminishing the pressure of the rollers or the said rollers may be adjusted to receive fabric of different thicknesses.

The blade 38 is preferably extensible in that it has sections 40 and 41 either one of which is movable independently of the blade 38 so that either or both may be adjusted to engage the surface of the roller to coact with the blade 38 in removing the coating material from the roller in a greater area, and each of these supplemental extensions of the blade will be independently controlled by a screw such as 37.

I claim:

1. In a machine for coating material, a frame, a yoke oscillatably mounted therein, a member supported by the frame and extending through the yoke, a spring interposed between the support and the said yoke for regulating the position of the yoke, a roller carried by the yoke, a roller with which the first mentioned roller coacts, means for driving the rollers, an arm carried by the yoke, and a blade carried by the said arm adapted to engage the periphery of the roller carried by the yoke.

2. In a machine for coating material, a frame, a yoke oscillatably mounted therein, a member supported by the frame and extending through the yoke, a spring interposed between the support and the said yoke

for regulating the position of the yoke, a roller carried by the yoke, a roller with which the first mentioned roller coacts, means for driving the rollers, an arm supported from the frame and extending outwardly beyond the periphery of the second mentioned roller, a blade carried by the said arm, and an adjustable element carried by the arm for engaging the blade and holding it in engagement with the periphery of the second mentioned roller.

3. In a machine for coating material, a frame, a yoke oscillatably mounted therein, a member supported by the frame and extending through the yoke, a spring interposed between the support and the said yoke for regulating the position of the yoke, a roller carried by the yoke, a roller with which the first mentioned roller coacts, and means for driving the rollers.

ROBERT P. FRYE.