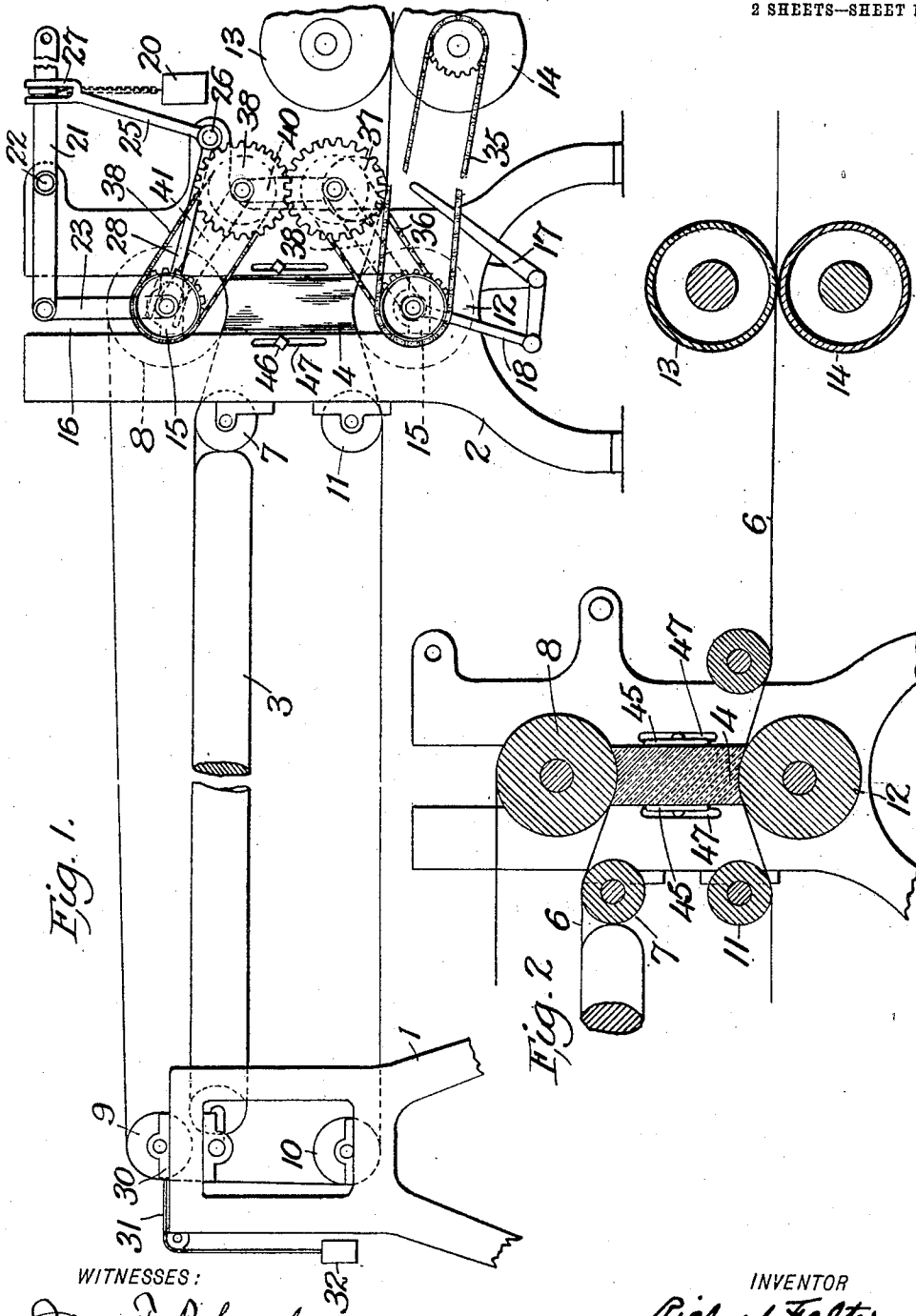


No. 836,743.

PATENTED NOV. 27, 1906.

R. FALTER.
FABRIC COATING MACHINE.
APPLICATION FILED FEB. 15, 1906.

2 SHEETS—SHEET 1.



WITNESSES:
James F. Duhamel
Geoff Jaekel

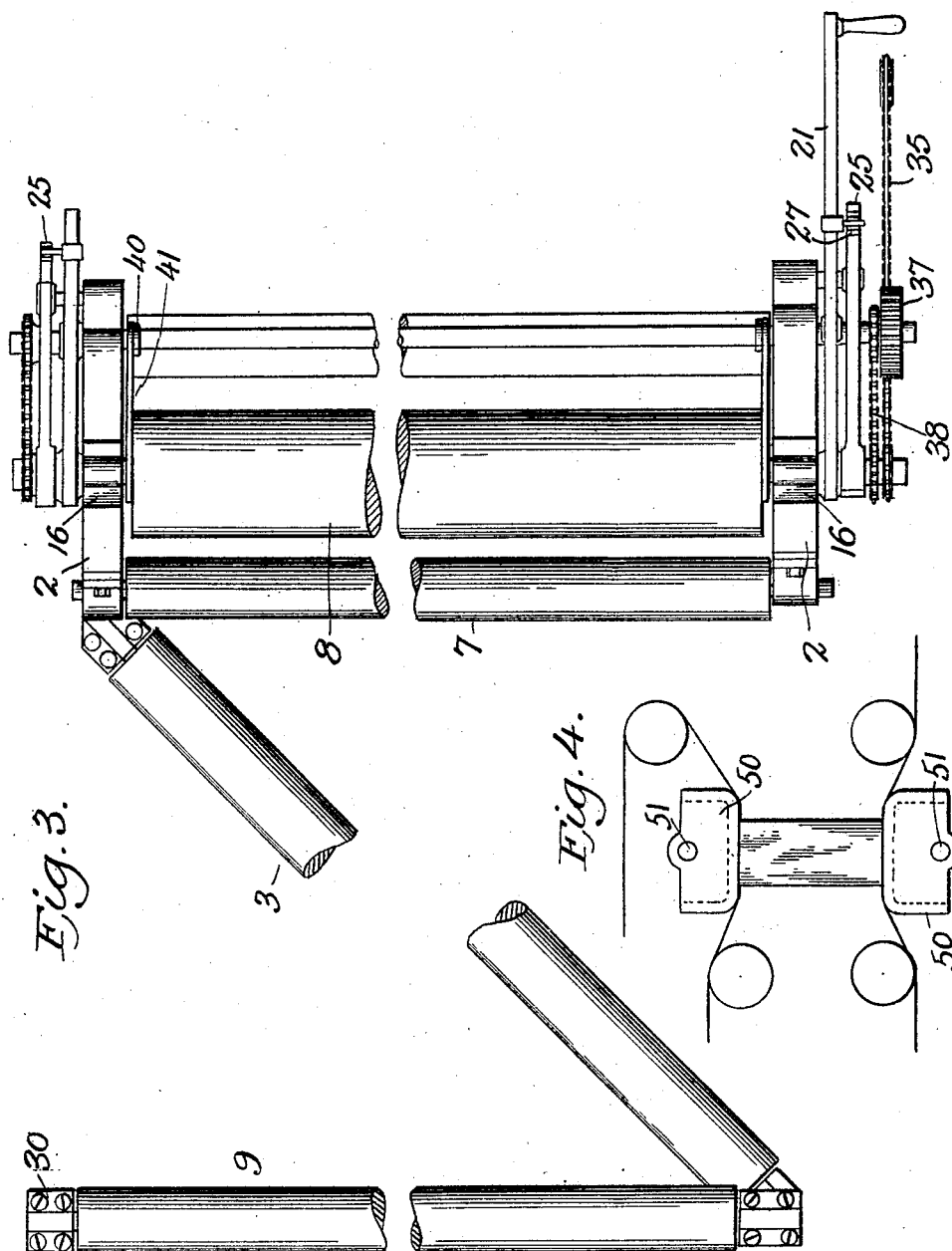
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WITNESSES:

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UNITED STATES PATENT OFFICE.

RICHARD FALTER, OF NEW YORK, N. Y.

FABRIC-COATING MACHINE.

No. 836,743.

Specification of Letters Patent.

Patented Nov. 27, 1906.

Application filed February 15, 1906. Serial No. 301,254.

To all whom it may concern:

Be it known that I, RICHARD FALTER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Fabric-Coating Machines, of which the following is a specification.

This invention relates to coating-machines and the like, such as are intended particularly for applying dry or solid waterproofing material to fabrics, although the machine of my invention may be used for other purposes, if desired.

It is well known that machines of the character specified usually employ one or more bars of solid waterproofing substance, over which the fabric is drawn. After taking up a certain amount of the waterproofing substance from the bars the fabric is passed between or over calender-rolls, which temporarily heat the waterproof substance and drive it into the fabric. The bars of waterproof substance usually rest upon the upper surface of the fabric. As such bars are comparatively heavy at first the fabric takes up a considerable amount of waterproofing substance. Then as the bars gradually wear away and lose weight the pressure on the fabric decreases, so that a lighter coating of waterproof material is applied to the fabric. In this way the fabric is unevenly coated with waterproof material. It has been proposed heretofore to overcome this difficulty by supporting the bar or bars below the fabric by means of pivoted frames having counterbalance-weights adapted to be manually adjusted from time to time as the bars wear away and lose weight, so as to maintain an approximately uniform pressure against the fabric. This construction does not entirely solve the problem, as the adjustment of the counterbalance-weights is dependent upon the presence and care of an attendant, who cannot be adjusting the weights constantly, and therefore does not move them until an appreciable part of the bar has worn away. For this reason even with the manually-adjustable counterbalance-weights the fabric is usually coated in an uneven manner.

Therefore one object of my present invention is to combine with a machine of the character specified efficient and thoroughly practical means for automatically changing the position of the counterbalance-weights as the waterproofing-bar wears away, whereby the waterproof material will always bear

with the same weight against the fabric, and even or uniform coating will result.

So far as I am aware machines of the character to which my invention relates have always employed at least two bars of waterproof material in coating both sides of the fabric.

Another object of my invention, therefore, is to coat both sides of the fabric with the use of only one bar of waterproof material.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a machine constructed in accordance with my invention. Fig. 2 is a vertical section through a construction such as shown in Fig. 1. Fig. 3 is a plan view. Fig. 4 is a detail view of a modification.

The frame of this improved machine may be of any suitable form and construction, and it is therefore not necessary specifically to describe the same. Suitably journaled between the members 1 and 2 of the frame is an obliquely-mounted roll 3, which serves to permit the fabric to be fed into the machine from one side and then turned at a right angle before being fed into contact with the bar 4 of waterproof material. After leaving the oblique roll 3 the fabric (which is designated 6) passes over a small idle roll 7 and around a large driven roll 8. From the roll 8, which serves to press one side of the fabric closely in contact with the upper end of the bar 4 of waterproof material, the fabric passes around the pair of idle rolls 9 10. From the rolls 9 10 the fabric passes under an idle roll 11 and over a driven roll 12, which serves to press the opposite or uncoated side of the fabric firmly against the lower surface of the bar 4 of waterproof material. From the roll 12 the fabric passes between a pair of ordinary calender-rolls 13 14, which serve temporarily to heat the waterproof substance which has been applied to the opposite sides of the fabric and to drive the same into the fibers thereof.

While the driving-rolls 8 and 12 may be mounted in any suitable manner which will adapt them to move toward each other as the bar of waterproof substance wears away, yet it is preferred that said rolls be journaled

in suitable bearings or blocks 15. (Indicated by dotted lines in Fig. 1.) The journal-blocks 15 of the rolls 8 and 12 are slidably mounted in suitable vertical slots 16, which are formed in the side members of the frame 2. The lower roll 12 preferably under normal conditions is held a short distance above the lower end of the slots 16 by means of a lever 17, which is provided at its front or lower end with a link 18, suitably connected with the bearing-block 15 of the roll 12. By means of the lever or other equivalent mechanism for accomplishing the same result the lower roll 12 may be moved downward away from the bar 4 whenever it is desired to "thread" or initially feed the fabric into the machine.

The upper roll 8 preferably is partially supported by means of a suitable weight or counterbalance 20, slidably mounted in any suitable manner upon a lever 21, which is pivoted at 22 upon the machine-frame and is connected, by means of a suitable link 23, with the journal-block 15 of the upper roll 8, so as to prevent the entire weight of said roll from bearing upon the fabric, and thus causing it to take up an excessive quantity of waterproof material. It will be understood that the mechanism comprising the lever 21, counterbalance 20, link 23, &c., is duplicated on opposite sides of the machine in order to support both ends of the roll 8.

As previously described, in order to effect an even coating of the fabric I have provided automatic means for compensating for the decreased weight of the bar 4 as it gradually wears away. The preferred means for accomplishing this result comprises an angle-lever 25, which is suitably pivoted upon the machine-frame, as indicated at 26. The upper end 27 of the lever 25 is suitably in contact with the attaching means of the counterbalance 20. The lower end 28 of the lever 25 is suitably forked so as to adapt it to embrace or fit the journal of the driven roll 8. By reason of the fact that the counterbalance 20 is slidable in a longitudinal direction upon the lever 21 it will be apparent that as the roll 8 gradually descends in the slot 16 as the waterproof bar wears away said roll rocks the lever 25 in such manner as to move the counterbalance 20 longitudinally toward its fulcrum-point 22. This movement of the counterbalance 20 serves to increase the weight of the roll 8 upon the bar 4 of waterproof material, for which reason it will be apparent that the gradually-increasing weight of the roll 8 automatically compensates for the gradually-decreasing weight of the bar 4, and consequently results in an even coating of the fabric of the waterproof material.

As the roll 8 gradually descends in the slot 16 it will be apparent that the distance in a straight line between the roll 8 and the roll 9 gradually increases. In order to prevent

this increased displacement of the rolls 8 and 9 from unduly stretching the fabric, I prefer that the journal-blocks 30 of the roll 9 be slidably mounted in any suitable manner from the upper end of the frame 1. The slidable blocks 30 are suitably connected, by means of flexible elements 31, with counterbalance-weights 32. By reason of the fact that the counterbalance-weights 32 permit the roll 9 to move toward the roll 8 whenever the fabric is placed under increased tension such construction effectively avoids any undesirable stretching of the fabric. While the calender-rolls 13 14, as well as the rolls 8 and 12, may be driven in any suitable manner, I prefer that the power be applied from any convenient source to the calender-rolls 13 and 14. From the calender-rolls the power is suitably transmitted, by means of a sprocket-chain 35, to the roll 12, from which it is transmitted, by means of a chain or belt 36, to a gear-roll 37, journaled upon a link 38, which is pivotally connected with the journal of the roll 12. The gear-roll 37 transmits its power to the gear-roll 38, which in turn transmits the power by means of a sprocket-chain 39 to the upper roll 8. The gear-rolls 37 and 38 are held in proper relative position by means of links 40 and 41. By means of the construction shown the rolls 8 and 12 can be driven simultaneously without preventing the roll 8 from moving downward toward the roll 12. In "threading" the machine the lever 21 is operated manually to raise the upper roll 8.

While the bar 4, of waterproof material, may be held in position by any suitable mechanism, it is preferred that said bar be inserted into the machine from the side—that is, through the slot 16—and that it be held in position by means of plates 45, provided at their opposite ends with suitable angular bolts 46, which project through vertical slots 47 in the side plates 2 of the frame. The vertical slots 47 permit the plates 45 to slide downward gradually as the bar 4 wears away.

It will be observed from Fig. 2 that the rolls 8 and 12 serve to concave the upper and lower ends of the bar 4. In some cases it may be desired to prevent this concaving of the bar 4. I accomplish this result by removing from the machine the rolls 8 and 12 and by substituting therefor suitable pressure-blocks 50, such as shown in Fig. 4. The pressure-blocks 50 preferably are provided with suitable trunnions 51, which engage the journal-blocks 15 of the rolls 8 and 12, whereby the same journal-blocks may be used for both constructions.

It will be apparent that the pressure-blocks 50 present flat surfaces to the ends of the bar 4, so as to permit the fabric to be drawn thereover without concaving the ends of the bar 4.

From the foregoing description, in con-

nection with the drawings, it will be observed that my invention provides a fabric-coating machine which permits the fabric to be fed into the apparatus at a right angle to the bar 4, of waterproof material, whereby a compact construction is secured. Furthermore, it will be observed that I have provided improved means for automatically compensating for the gradually-decreasing weight of the bar of waterproof material, whereby to effect uniform coating of the fabric. Moreover, it will be observed that by means of my construction a single bar of waterproof material can be employed for coating both sides of the fabric, whereas, so far as I am aware, it has always been necessary heretofore to employ at least two bars of waterproof material for accomplishing this result.

Having described the invention, what is claimed as new is—

1. A coating-machine comprising a pair of pressure elements, means for holding a bar of coating substance between said pressure elements, and means for moving a strip of material between the rolls and pressure elements with one side in contact with one portion of the bar and the other side in contact with another portion of the bar.

2. A coating-machine comprising means for moving a strip of material, means for holding a bar of coating substance in contact with said strip, and means for automatically maintaining a uniform pressure between the strip and the bar.

3. A coating-machine comprising means for moving a strip of material, means for holding a bar of coating substance in contact with said strip and means for automatically maintaining a uniform pressure between the strip and bar by compensating for loss of weight as the bar wears away.

4. A coating-machine comprising means for moving a strip of material, means for holding a bar of coating substance in contact with said strip, and automatically-adjustable

counterbalance means for maintaining a uniform pressure between the strip and bar as the latter wears away.

5. A coating-machine comprising means for holding a bar of coating substance, means for moving a strip of material into the machine at an angle to the bar of coating substance, and means for moving the strip of material through the machine with both of its sides in contact with said bar.

6. A coating-machine comprising a pair of pressure elements, means for holding a bar of coating substance between said pressure elements, means for moving fabric with both of its sides in contact with said bar, and counterbalance mechanism connected with one of said pressure elements for substantially the purposes set forth.

7. A coating-machine comprising a pair of pressure elements disposed one above the other, means for holding a bar of coating substance between the pressure elements, means for moving a strip of material through the machine with both of its sides in contact with said bar, and automatically-adjustable counterbalance mechanism connected with one of said pressure elements.

8. A coating-machine having an obliquely-mounted roll for feeding fabric into the machine, a pair of pressure elements disposed one above the other, means for holding a bar of waterproof substance between the pressure elements, means for moving the strip of material with both of its sides in contact with said bar, and automatically-adjustable counterbalance mechanism connected with one of said pressure elements.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 1st day of February, 1906.

RICHARD FALTER.

Witnesses:

CHARLES E. FLEMING,
O. GRANT ESTERBROOK.