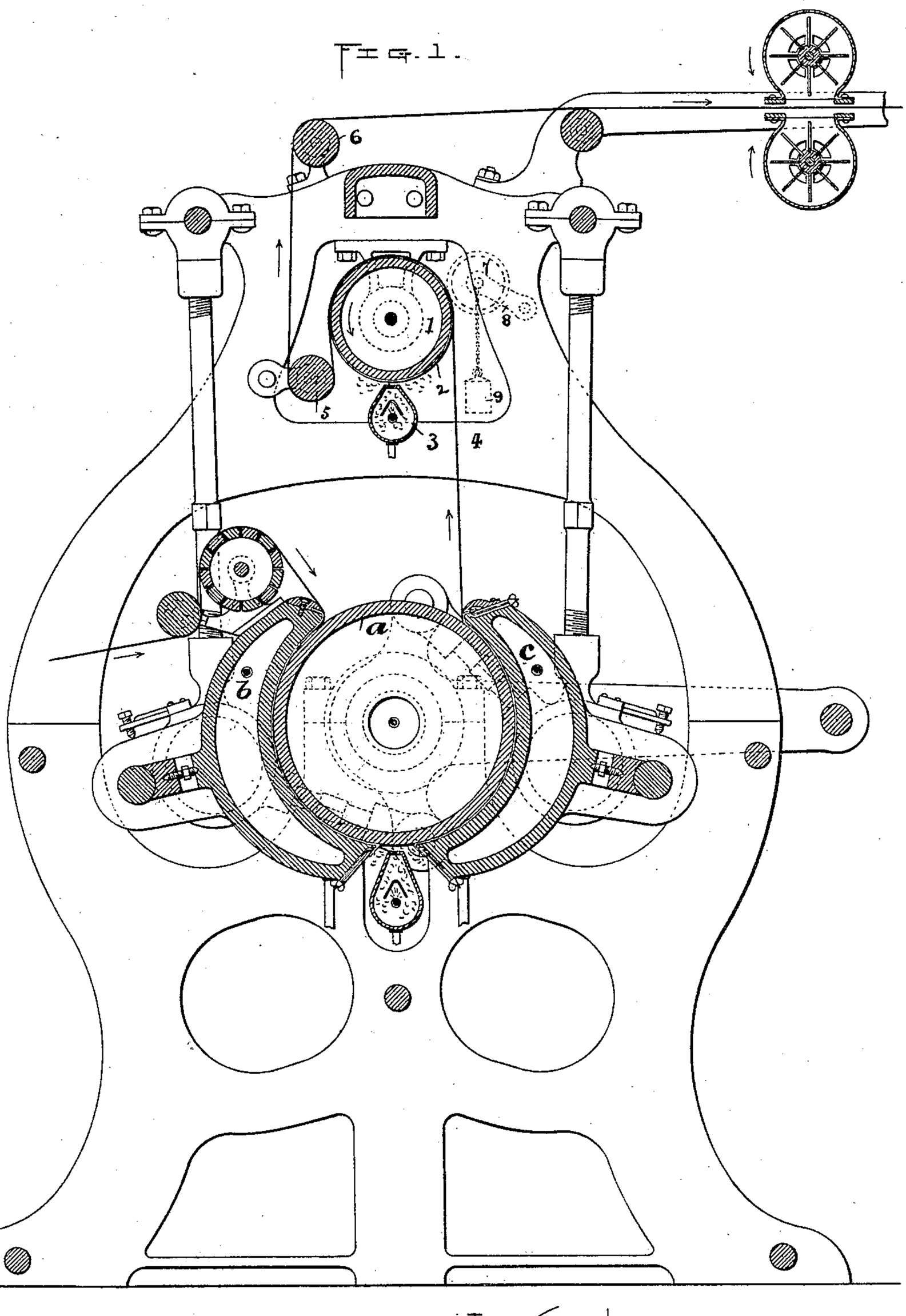
(No Model.) 2 Sheets—Sheet 1.

D. GESSNER.

CLOTH PRESSING MACHINE.

No. 411,144. Patented Sept. 17, 1889.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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FIG. 2.

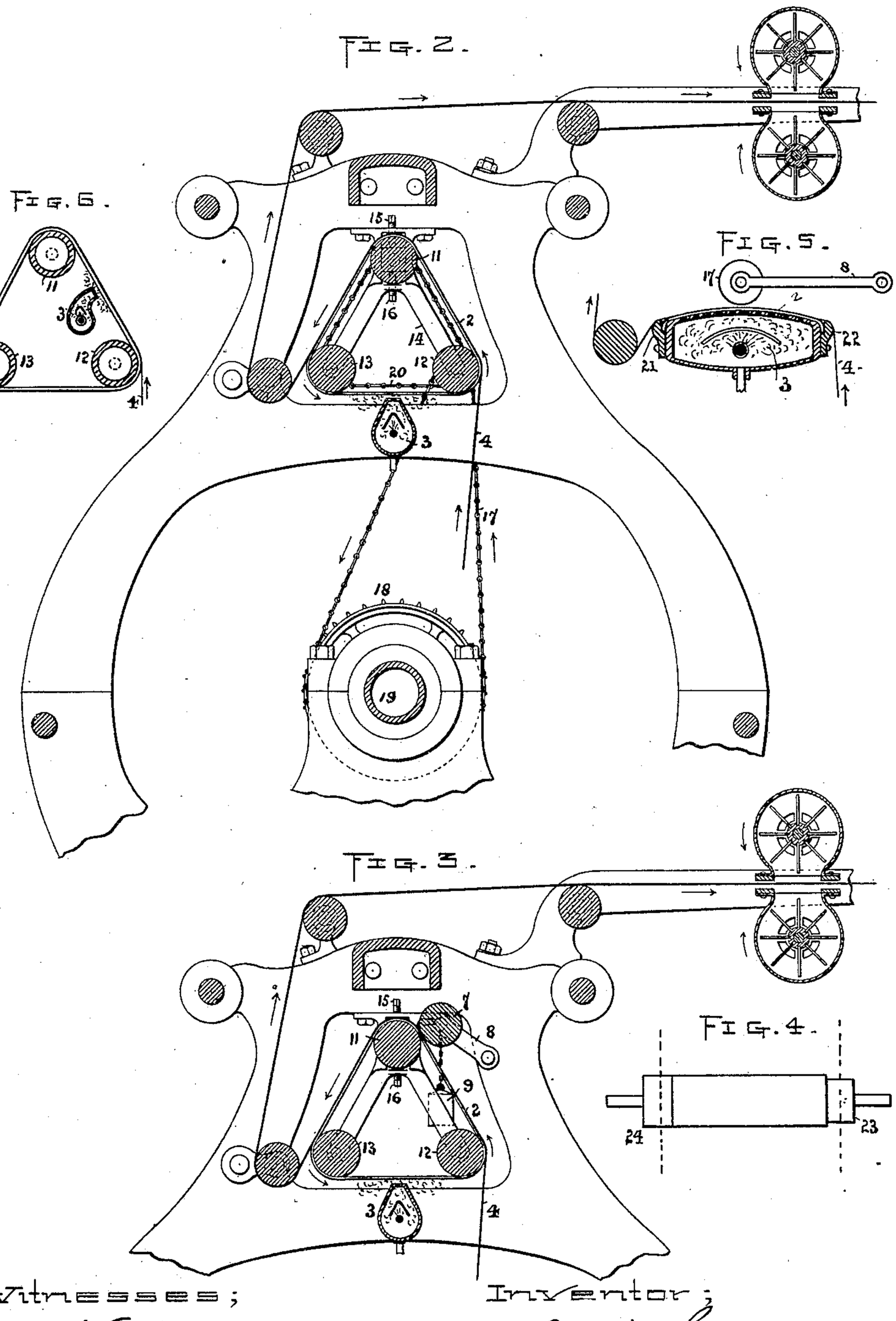

FIG. 6.

FIG. 5.

FIG. 3.

FIG. 4.

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UNITED STATES PATENT OFFICE.

DAVID GESSNER, OF WORCESTER, MASSACHUSETTS.

CLOTH-PRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 411,144, dated September 17, 1889.

Application filed October 13, 1888. Serial No. 288,032. (No model.)

To all whom it may concern:

Be it known that I, DAVID GESSNER, of Worcester, Massachusetts, have invented a new and useful Improvement in Cloth-Pressing Machines, of which the following is a specification.

In Letters Patent to me, numbered, respectively, 387,287, 387,288, and 387,290, I have described rotary cloth-pressing machines containing two cylinders, around which cylinders the cloth successively passes, being generally subjected to pressure between hot metallic surfaces on the first cylinder and brought into contact with a moistened fabric upon the second cylinder, so as to modify by the second cylinder the finish produced by the first cylinder. In the particular form of apparatus shown in those patents, however, for carrying out the invention, I have illustrated the employment with the second cylinder of mechanism, as a bed plate or roll, whereby the cloth was positively held against the second cylinder.

I have found in the use of the machine that the devices for producing a substantial pressing on the second cylinder may be dispensed with on some classes of goods, and that for certain reasons it is desirable that the same should be omitted where they can be dispensed with.

In the drawings I have shown my present invention as applied to the same machine as that described in Patent No. 387,290, and it will be understood that the parts which are not particularly hereinafter referred to are to be preferably constructed as described in said last-mentioned patent.

In the drawings, Figure 1 is a cross-section through the two cylinders, showing one of the end frames of the machine and the principal mechanism connected therewith employed in the treatment of the cloth and in the operation of the pressing-surfaces. Fig. 2 shows a modification to be used in the place of the upper cylinder. Fig. 3 shows the same thing with addition of the weighted roll to bear upon the cloth. Fig. 4 is a detail showing the construction of the rollers employed. Fig. 5 shows another modification to be employed in place of the cylinder. Fig. 6 shows a modification having the steamer inside the absorbent fabric.

a, *b*, and *c* are the main cylinder and its cooperating bed-plates, which are all heated, as usual, the bed-plates being faced with polished metal and the cylinder being roughened on its surface, as usual.

Referring first to Fig. 1, 1 is the upper cylinder, which is preferably hollow, and which revolves in the direction of the arrow, so as to be adapted for being heated by steam.

2 is an absorbent jacket, preferably of felt, by which the cylinder is enveloped.

3 is a steamer arranged to throw steam, preferably, upon the face of the jacket.

4 is the cloth, which is fed in the direction of the arrow.

5 and 6 are rollers by which the cloth is guided away from the cylinder 1.

In operation, the cloth, as it leaves the lower cylinder, (where, generally speaking, the back of the cloth is pressed in contact with the faces of the bed-plates,) will be in the highly-pressed condition resulting from the high pressure which it receives upon the first cylinder and in contact with the heated metallic surfaces of the first cylinder and its bed-plates. The cloth is brought around the second cylinder, as shown, where, generally speaking, its face is brought and continued in contact with the steamed fabric of which the jacket is composed while preferably under the influence of the heat, which is supplied from the steam-chamber in the interior of the cylinder. The moisture contained in the moistened fabric, being applied to one face of the cloth, will soak into that face so as to produce its effect upon it without necessarily going through the cloth so as to affect the opposite face. The cloth is preferably carried around the cylinder 1 for a large portion of its circumference, so as to continue the contact between the cloth and the moistened fabric for a considerable period, and the draft produced upon the cloth by the usual draft-roll will generally serve to hold the cloth firmly down upon the moistened fabric on the cylinder 1. To insure this contact, however, a holder (shown in dotted lines in Fig. 1) may be employed, consisting, preferably, of a roll 7, mounted at each end upon the extremities of pivoted arms 8, so as to have a motion toward and from the cylinder 1. The pressure of this holder, it will thus be seen, is yield-

ing, and may be regulated by a weight 9, if desired. The contact between the cloth and the moistened fabric is such that, while it receives the effect of the moisture and is held against the moistened fabric, it is not pressed, as would be the case by a bed-plate or a press-roll, and the capacity is maintained for a slight almost unobservable slip between the cloth and the moistened fabric, so that the moistened fabric may travel very slightly faster than the main cylinder *a* of the machine and without unduly straining the cloth.

In running the machine for a long period, it is very difficult to time the motions of the two cylinders so that the surface of the moistened fabric shall travel at precisely the same speed as the surface of the main cylinder *a*. Consequently, in the machine which is being described the cylinder 1 is so constructed and driven that the surface of the moistened fabric 2 moves very slightly faster than the surface of the main cylinder *a*, thus preventing the accumulation of any slack in the cloth between the two cylinders, and the capacity for a slip between the cloth and the surface of the moistened fabric, before referred to, prevents the difference in speed from injuring the cloth, even when the machine is run for long periods continuously.

The holder 7 may be made hollow, as indicated in dotted lines in Fig. 1, if desired, so as to be capable of being heated by steam in its interior.

In the modification shown in Fig. 2 the moistened fabric 2, in contact with which the cloth moves after pressing, is mounted upon the rollers 11, 12, and 13, which are journaled in a frame 14, and one of which, as the roll 11, has its bearings adjustable by the set-screws 15 and 16, so as to tighten or loosen the moistened fabric, which in this case forms a belt 2, which goes around the rolls. The rollers 12 may be driven by chain 17 from a sprocket-wheel 18, mounted upon the main-cylinder shaft 19, and the rollers 11 and 13 may be driven from the roller 12 by the chain 20.

In Fig. 6 the rollers 11, 12, and 13 are each shown as hollow, so as to provide for steam-heating chambers within each, and in Fig. 3 a holder is shown provided, consisting of a roller 7, mounted on the extremity of the pivoted arms 8 and controlled by the weight 9.

In Fig. 5 is shown a device which may be substituted for supporting the moistened fabric in lieu of the cylinder 1 or the rollers 11, 12, and 13, already described, and which consists of two stationary clamps 21 and 22, preferably rounded at their upper corners, as shown, which hold a stationary absorbent fabric 2, stretched over a steamer 3, which keeps the absorbent fabric above it continually steamed and moist, so that as the cloth passes along in contact with the moistened fabric the face in contact therewith will soak up the moisture therefrom. In this modification a yielding holder may also be employed, consisting of the roller 7, mounted upon the extremity of the pivoted arm 8.

In Fig. 4 I have shown a side view of one of the rollers in contact with which the cloth passes after being moistened—as, for instance, the roller 5, 6, or 7—which may be constructed of wood or metal or other suitable material. The ends of this roller are turned down, so as to be of slightly less diameter than the central portion, as shown at 23 in Fig. 4. Then a moisture-absorbing fabric, like felt, is wrapped around the reduced portion, as shown at 24 in Fig. 4, so that the surface of the fabric will be flush with the surface of the main portion of the roller, the fabric, of course, being applied at both ends of the roller. In passing in contact with this roller the edges of the cloth will pass in about the position shown in dotted lines in Fig. 4, so that the moisture-absorbing fabric upon the roll will be in contact with the cloth at or about its selvages. It will be observed in the other figures that this roll is applied to the opposite side of the cloth from that which comes in contact with the moistened fabric, and the object is to exclude the moisture as far as possible from that side of the cloth which is not in contact with the moistened fabric. Were it not for the presence of the moisture-absorbing fabric 24 upon the roll, as shown in Fig. 4, the steam or moisture applied on one side of the cloth would have a tendency after a while to find its way around the edges of the cloth, and thus moisten the edges of the opposite side of the cloth; but the presence of the absorbent fabric 24 in such position as to come in contact with the selvages of the cloth will take up any moisture which finds its way around the edge of the cloth and prevent its having any injurious effect upon the cloth. At the same time the roll shown in Fig. 4, being only provided with the absorbent surface toward its ends, has all of the useful qualities which are afforded by a roll having a smooth non-absorbent surface.

It will be understood that, in view of my former patents above referred to, I do not in this application claim the application of pressure to the cloth while being moistened by the moistened fabric in the sense in which pressure is produced by a bed-plate or press-roll, as described in my said former patents. The distinction between the effect produced by such devices and the devices as herein described will be apparent from the foregoing description. I do not, however, limit myself to the form of devices which I have above described, since I am aware that they may be greatly varied and certain of the parts omitted without departing from the principle of my invention; nor do I limit myself to the position of the steamer as shown, since I am aware that it might be varied—as, for instance, as shown in Fig. 14 of Letters Patent No. 387,287, granted to me, or as shown in Fig. 6 herein, where the absorbent fabric, in

the form of a belt, is moistened or steamed from within by the steamer 3, in which case the rolls 11, 12, and 13 would be preferably made hollow and heated by steam from within.

I claim—

1. In combination with a cylinder and its co-operating bed-plate or bed-plates, a moisture-absorbing fabric, means for supporting the same, a moistening device or steamer for moistening said fabric, and means whereby the cloth after being pressed is held in contact with said moistened fabric without substantially compressing the cloth, substantially as described.

2. In combination with a cylinder and its co-operating bed-plate or bed-plates, a traveling moisture-absorbing fabric, means for actuating the same, a moistening device or steamer for moistening said fabric, and means whereby the cloth after being pressed is held to travel in contact with said traveling moistened fabric without substantially compressing the cloth, substantially as described.

3. In combination with a cylinder and its co-operating bed-plate or bed-plates, a traveling moisture-absorbing fabric, means for actuating and heating the same, a moistening device or steamer for moistening said fabric, and means whereby the cloth after being pressed is held to travel in contact with said traveling moistened fabric without substantially compressing the cloth, substantially as described.

4. In combination with a cylinder and its co-operating bed-plate or bed-plates, a traveling moisture-absorbing fabric, means for actuating the same, a moistening device or steamer for moistening said fabric on the side coming in contact with the cloth, and means whereby the cloth after being pressed is held to travel in contact with said traveling moistened fabric without substantially compressing the cloth, substantially as described.

5. In combination with a cylinder and its co-operating bed-plate or bed-plates, a traveling moisture-absorbing fabric, means for actuating the same, a moistening device or steamer for moistening said fabric, and means whereby the cloth after being pressed is held to travel in contact with said fabric, admitting of a slip between the cloth and the fabric, substantially as described.

6. In combination with a cylinder and its co-operating bed-plate or bed-plates, a moisture-absorbing fabric, means whereby the same is caused to travel faster than the cylinder, and means whereby the cloth after being pressed is held to travel in contact with said fabric, admitting of a slip between the cloth and the fabric, substantially as described.

7. In combination with a cylinder and its co-operating bed-plate or bed-plates, a moisture-absorbing fabric, means for supporting the same, a moistening device or steamer for moistening said fabric, means whereby the cloth after being pressed is held to travel in contact with said moistened fabric without substantially compressing the cloth, and a yielding holder whereby the cloth is held against the moistened fabric, substantially as described.

8. In a cloth-pressing machine, in combination with a device whereby the cloth is moistened or steamed on one side, a roller presenting an absorbent surface near its ends and a comparatively smooth surface toward its middle, around which the cloth passes after being moistened or steamed, substantially as described.

9. In combination, two cylinders, a bed-plate or bed-plates operating with the first cylinder, a moisture-absorbing fabric upon the second cylinder, a steamer or moistener for supplying moisture to the said fabric, and means whereby the cloth is held in contact with said moistened fabric without substantially compressing the cloth, substantially as described.

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