

944,281.

3 SHEETS—SHEET 1.

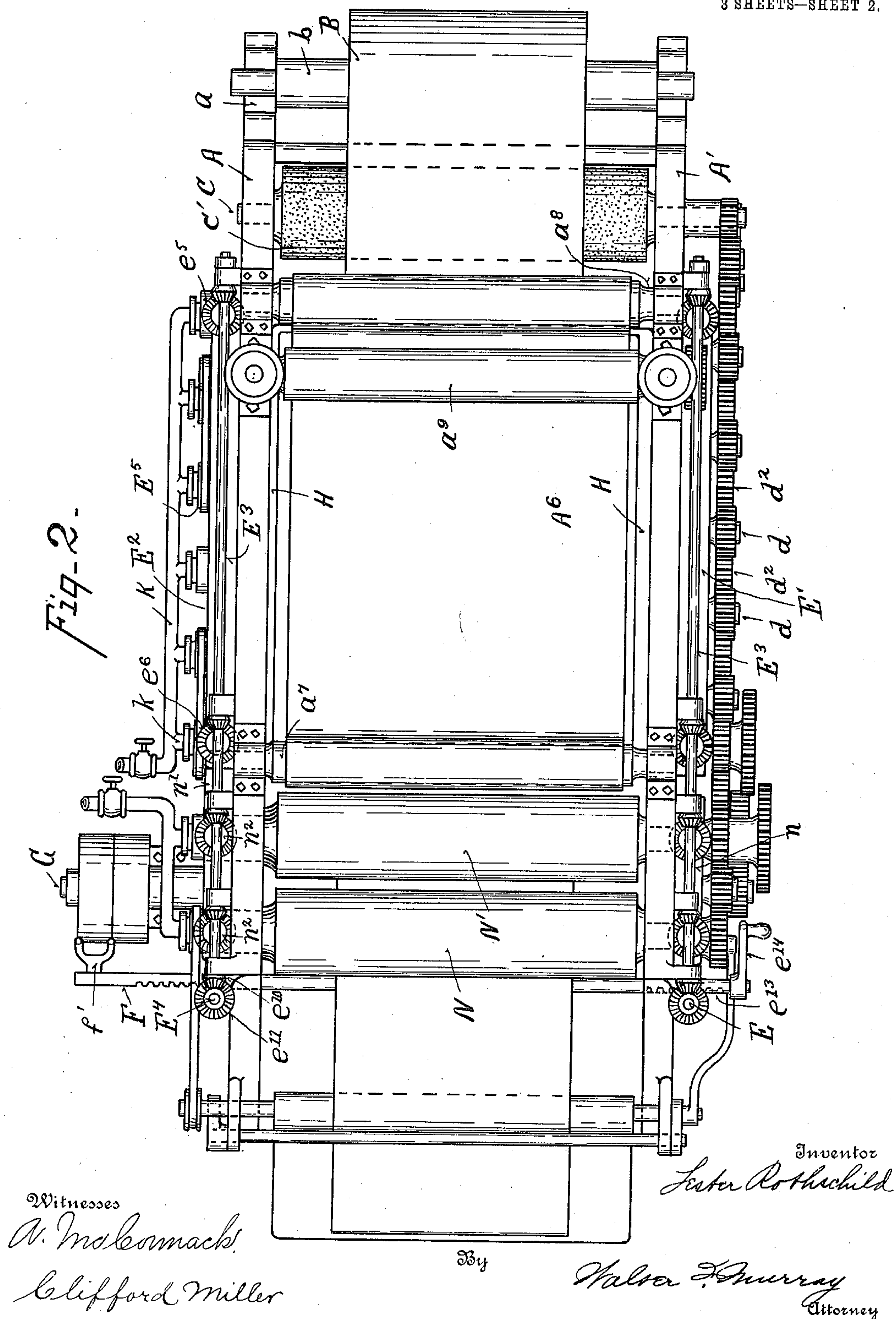


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3 SHEETS—SHEET 2.

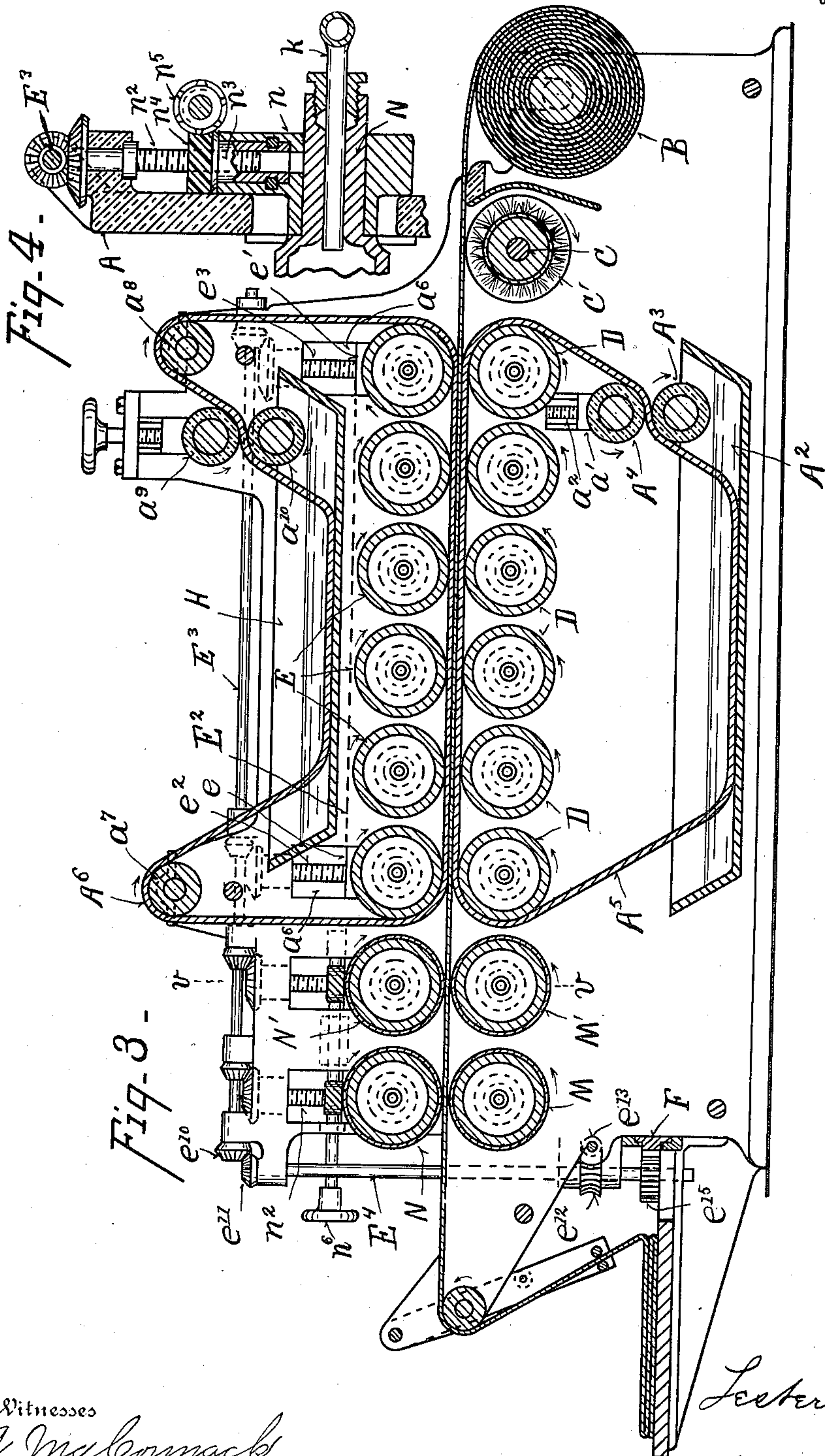


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CLOTH SHRINKING AND PRESSING MACHINE.
APPLICATION FILED JUNE 29, 1908.

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Patented Dec. 28, 1909.

3 SHEETS—SHEET 3.



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LESTER ROTHSCCHILD, OF CINCINNATI, OHIO.

CLOTH SHRINKING AND PRESSING MACHINE.

944,281.

Specification of Letters Patent. Patented Dec. 28, 1909.

Application filed June 29, 1908. Serial No. 441,007.

To all whom it may concern:

Be it known that I, LESTER ROTHSCCHILD, a citizen of the United States of America, and resident of Cincinnati, county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Cloth Shrinking and Pressing Machines, of which the following is a specification.

The object of my invention is a machine in which cloth from mills may be shrunk and pressed to an extent such that it will undergo no further shrinkage under the tailor's iron, nor become spotted in case the tailor, in ironing, should use too damp a cloth, and in which means are provided for preventing the cloth's being marred when the operation of the machine is stopped. This object is attained by the means described in the specification and illustrated in the accompanying drawings, in which,

Figure 1 is a side elevation of a cloth pressing and shrinking machine embodying my invention. Fig. 2 is a plan view thereof. Fig. 3 is a central vertical sectional view of the same. Fig. 4 is a detail sectional view taken upon line *v-v* of Fig. 3.

Referring to the parts: the frame of the machine consists of sides, A, A', which may be braced apart in any suitable manner. The rod, *b*, upon which the roll of cloth, B, to be treated is wound, is journaled in notches, *a*, in the sides, A, A'. Adjacent to the roll, B, a shaft, C, bearing a brush, C', is mounted. Between the sides, A and A', a series of steam cylinders, D, are journaled. The shafts, *d*, of the cylinders, D, receive pinions, *d'*, upon the exterior of the side, A', the said pinions, *d'*, being placed in gear with each other by a series of intermeshing pinions, *d''*. Beneath the cylinders, D, a water pan, A², is mounted between the sides, A and A'. Adjacent to one end of pan, A², a wringer composed of two rollers, A³ and A⁴ is mounted, the roller, A⁴, being made adjustable in vertical ways, *a'*, in the walls, A', by means of a screw, *a''*. An endless cloth apron, A⁵, is placed around the cylinders, D, and projects into the pan, A², and passes between the rollers, A³ and A⁴. The roller, A³, is connected by means of a belt, *a''*, to one of the stud shafts which receives rotation from the shaft, *d*, of the cylinders, D. Roller, A³, carries a pinion, *a''*, which meshes with a pinion, *a''*, upon the roller, A⁴, to communicate rotation thereto.

Vertically above the cylinders, D, are a

series of steam rollers, E, which are provided with means of moving them toward and from the cylinders, D, simultaneously. This means consists of the following elements: The ends of the cylinders, E, are journaled in frames E', E², which contact with the external faces of the sides, A and A', and have lugs *e* and *e'*, projecting into vertical ways, *a''*, in the sides, A and A'. The frames, E', E², are engaged by vertical screws, *e''*, *e'''*, which are journaled in brackets, *e''*, *e'''*, upon the sides, A, A', of the frame and have secured to their upper ends bevel pinions, *e''*, *e'''*, which mesh with pinions, *e''*, *e'''*, secured upon a horizontal shaft, E³. The frames, E', and E², with their elevating screws, and the horizontal shafts for communicating motion to the elevating screws are similar for each side, A, A', of the machine and need, therefore be described for only one side. Shaft, E³, terminates at the discharge end of the machine in a bevel pinion, *e''*, which meshes with a bevel pinion, *e''*, upon a vertical shaft, E⁴, which is journaled in brackets secured to the frame and near its lower end carries a pinion, *e''*, which intermeshes with a horizontal worm wheel, *e''*, which may be turned by means of a crank, *e''*. Below the worm wheel, *e''*, shaft, E⁴, carries a pinion, *e''*, whose teeth engage a rack, F, which is mounted in ways, *f*, upon the end of the frame-work, and whose opposite end carries a fork, *f''*, as shown in Fig. 2, for engaging the belt, for shifting it from the loose to the fixed pulley, or vice versa, upon the main driving shaft, G. So that when the crank, *e''*, is turned, in order to shift the rack, F, and to throw the belt either to start or stop the machine simultaneously therewith, the vertical shaft, E⁴, is rotated and communicates its rotation to the elevating screws, *e''*, *e'''*, for either lowering or raising the frames, E', E², to carry the cylinders, E, toward or away from the cylinders, D.

Above the cylinders, E, a pan, H, is mounted between the sides, A, A', between which are mounted rollers, *a''*, and *a''*, and also rollers, *a''*, *a''*, the latter two of which form a wringer, the roller, *a''*, of which is made adjustable toward and away from the roller, *a''*, in a manner similar to the rollers, A³, A⁴. Motion is conveyed to the rollers, *a''*, *a''*, from the cylinders, E, by belts, *a''*, *a''*, indicated in dotted line upon Fig. 1. An endless apron, A⁵, passes around the

cylinders, E; the rollers, a^7 , a^8 , between the wringer, a^9 , a^{10} and through the water pan, H. The ends, E^5 , of the cylinders, E, have axial bores into which project branch pipes, k , from a steam pipe, K.

Adjacent to the cylinders, D, I have mounted auxiliary cylinders, M, M', between the frames, A, A', and above the cylinders, M, M', I have mounted auxiliary adjustable steam cylinders, N, N'. The cylinders, N, N', are carried by adjustable frames, n , n' , which are mounted upon the sides, A, A', in a manner similar to the frames, E, E', and are provided with elevating screws, n^2 , which have pinions meshing with bevel pinions upon the shafts, E^3 , in a manner similar likewise to elevating screws of the frames, E', E². The cylinders, N, N', however, are provided with an additional means for obtaining an extra pressure between the cylinders, N, N', M, M'. To attain this object, I have provided frame, n , with bushings, n^3 . Each bushing, n^3 , is swiveled in frame, n , and its upper end is provided with teeth, n^4 , which engage a worm, n^5 , whose end is provided with a hand wheel, n^6 . So that by rotating the worm, n^5 , a rotation may be imparted to the bushing, n^3 , to cause it to feed itself upward or downward on the elevating screw, n^2 , without imparting a rotation thereto. By this means I am enabled to obtain an extra pressure between the cylinders, N, and M, and N' and M', without affecting the pressure between the cylinders, E, and D. Upon the side of the frame, A', I have mounted a yoke, R, which carries pinions, r , r' , for communicating motion to the chain of gears, which rotate the shafts of the cylinders, D, E, N, N', and M, M'. The pinion, r , may be changed when it is desired to change the speed of the machine. I may use cylinders, E, D, for shrinking and pressing, with or without the cylinders, N, N', M, M'.

I will describe the operation first without the last mentioned cylinders. Water having been placed in the pans, A², H, steam having been admitted to the cylinders, E, crank, e^{14} , is turned, thereby moving rack, F, to throw the belt upon the fixed pulley of the shaft, G, and rotating the shafts, E^4 , E^3 , and the screws, e^4 , so as to move the frames, E', E², toward the cylinders, D, so that the proper pressure is obtained between the cylinders, D and E. The rotation of the shaft, G, is imparted by the gear wheels to the cylinders, D, E, and the wringers, rotating them in the direction indicated by the arrows in Fig. 3. The cloth from the roll, B, is then fed in between the aprons, A⁵, A⁶, which feed it forward between the pressing rollers. The brush, c , contacts the nap of the goods in order to lay it in one direction, before entering between the pressing rollers.

The aprons, A⁵ and A⁶, are kept by means of the water in the pans and the wringers, at a uniform moisture throughout the parts which contact the cloth. These aprons, being pressed upon both sides of the cloth, moisten it uniformly, so that in passing between the rollers it receives both a thorough and uniform shrinkage, and is pressed without spots or gloss. Should it be desired to stop the machine for any purpose, the movement of the crank, e^{14} , which throws off the power, simultaneously raises the steam cylinders, E, out of contact with the cloth being treated, so that there are no marks made upon the cloth, as would be the case were the steam cylinders held in contact with one part of the cloth for any appreciable length of time.

Should it be desired to give an extra finish to the cloth, as is the case with certain kinds of goods, the auxiliary cylinders, N, N', may be brought to bear against the cloth by moving the hand wheel, n^6 . The pressure between the cylinders, M, N', N and M', may be adjusted to the degree desired independently of the adjustments to the cylinders, D, E, but when the crank, e^{14} , is moved to throw off the power, the elevating screws, n^2 , simultaneously will raise cylinders, N, N', together with the cylinders, E.

What I claim is:

1. In a cloth pressing and shrinking machine the combination of two series of rotatable cylinders, one of said series being located above and contacting with the other series, the cylinders of one series being hollow, a water pan mounted adjacent to each series, an endless apron for each series mounted to pass over the cylinders of the series and to pass through the correspondingly located pan, means for conveying steam into the interior of the hollow cylinders, means for rotating the cylinders of each series and means for actuating the aprons to pass through the pans and between the cylinders and to feed the cloth to be treated through the machine.

2. In a cloth shrinking and pressing machine the combination of a main frame, a row of cylinders mounted to rotate in the main frame, secondary frames mounted upon the sides of the main frame, hollow steam cylinders mounted to rotate in the secondary frame, means for moving the secondary frame toward and from the first row of cylinders to carry the second row of cylinders adjacent to the first row, pans mounted in the main frame adjacent to the second row of cylinders and an apron passing over each row of cylinders and through each pan.

3. In a cloth shrinking and pressing machine the combination of a main frame, a row of cylinders mounted rotatably in the frame, a row of steam cylinders, means for mounting the row of steam cylinders in the

main frame so as to be capable of movement toward and from the first row of cylinders, a series of gear wheels for imparting rotation to the two sets of cylinders, means for
 5 conveying the power simultaneously to the gear wheels for rotating the cylinders, and to the means of moving the steam cylinders, whereby the steam cylinders are moved toward the first row of cylinders when the
 10 cylinders have rotation imparted to them, and the steam cylinders are moved away from said cylinders when the rotation of the cylinders is stopped.

4. In a cloth shrinking and pressing machine the combination of a main frame, a set of cylinders mounted rotatably in the frame, an auxiliary frame adapted to be moved upon the main frame toward and from the said cylinders, steam cylinders mounted in
 20 the secondary frame, a shaft, means for moving the shaft, means for coupling the secondary frame to the shaft so that by the movement of the shaft the secondary frame is moved toward and from the first set of
 25 cylinders, an auxiliary set of cylinders mounted in the frame adjacent to the first set of rollers, auxiliary steam cylinders, means for coupling them to the shaft so that the movement thereof carries the auxiliary
 30 steam cylinders toward and from their corresponding cylinders simultaneously with the movement of the first steam cylinders,

and means for adjusting the auxiliary steam cylinders toward their adjacent cylinders independently of the movement of the first
 35 set of steam cylinders.

5. In a cloth pressing and shrinking machine the combination of a series of pressing cylinders, a series of heating cylinders adapted to move into and out of cooperative en-
 40 gagement with said pressing cylinders, means for rotating said cylinders, a device for rendering said means effective in driving said cylinders, and means actuated by said
 45 device for moving said heating cylinders into and out of cooperative engagement with said pressing cylinders.

6. In a cloth pressing and shrinking machine the combination of a series of pressing cylinders, a series of heating cylinders,
 50 means for transmitting power to said cylinders, a device for rendering said means effective, or ineffective in driving said cylinders, means actuated by said device for
 55 moving said heating cylinders into and out of operative engagement with said pressing cylinders, and independent means for raising and lowering said heating cylinders to vary the operating pressure between said cylinders.

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