

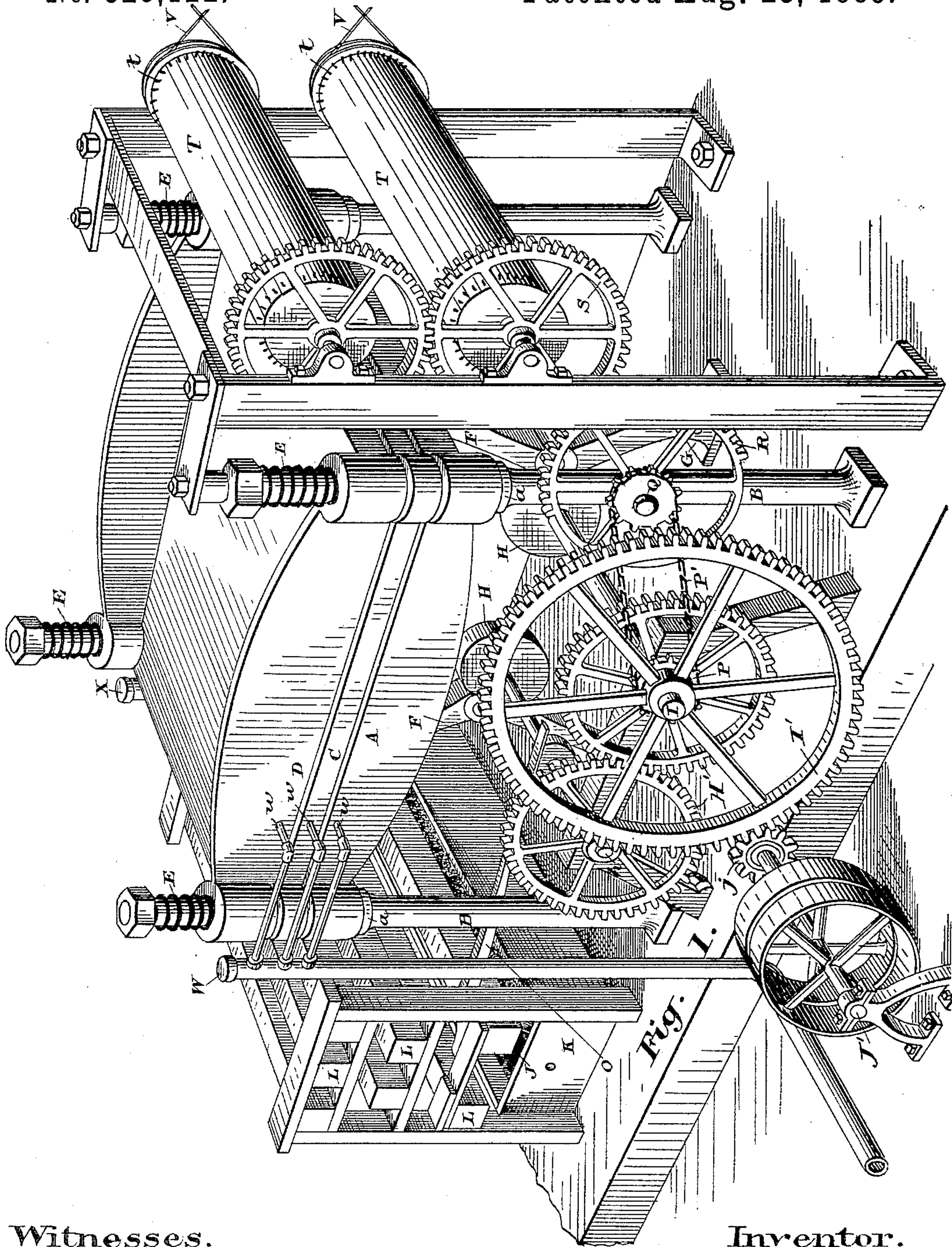
(No Model.)

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J. SHEARER.
MACHINE FOR PRESSING CLOTH.

No. 325,122.

Patented Aug. 25, 1885.



Witnesses.

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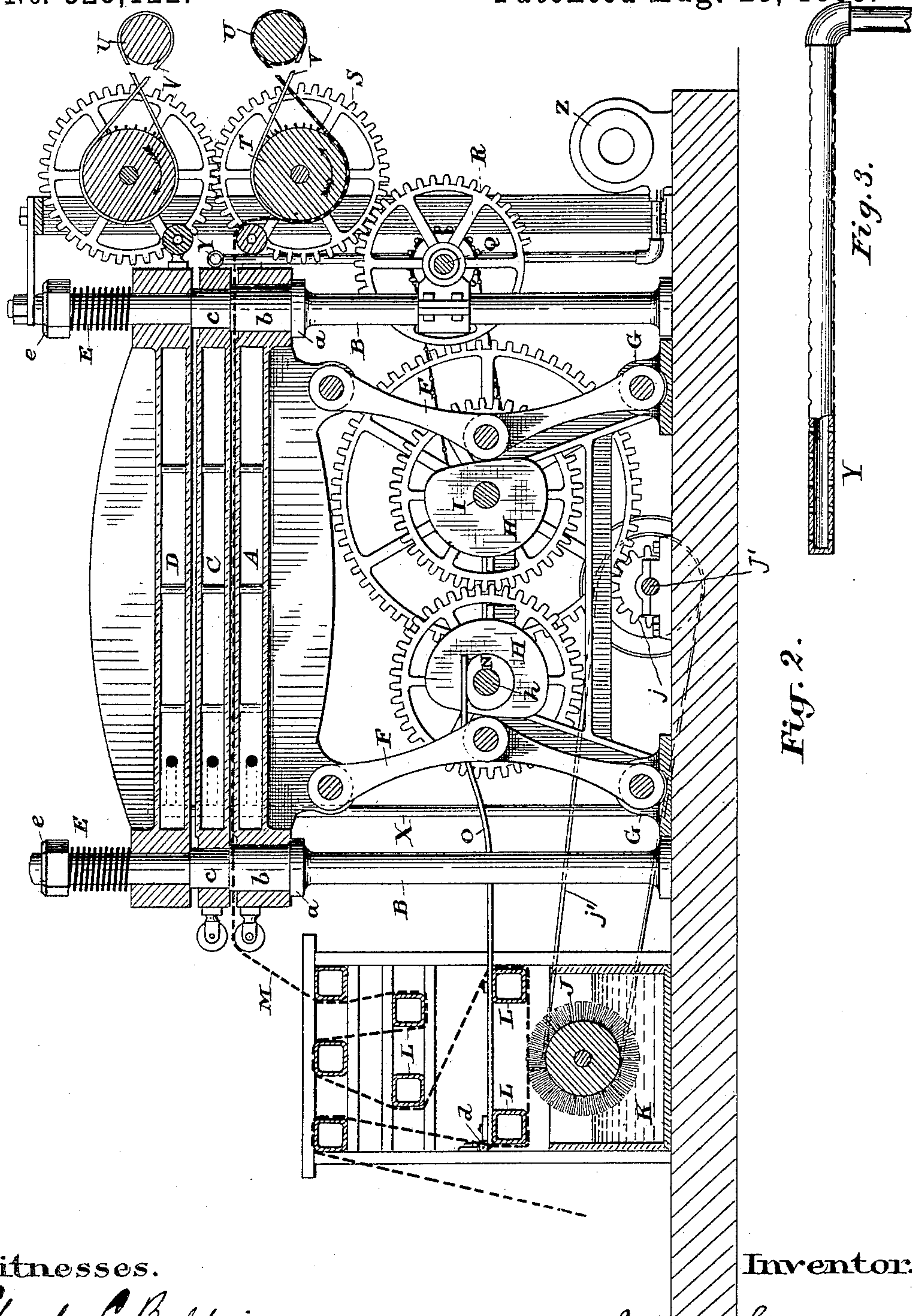
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UNITED STATES PATENT OFFICE.

JOHN SHEARER, OF PRESTON, ONTARIO, CANADA.

MACHINE FOR PRESSING CLOTH.

SPECIFICATION forming part of Letters Patent No. 325,122, dated August 25, 1885.

Application filed December 6, 1883. (No model.) Patented in Canada January 16, 1884, No. 18,463.

To all whom it may concern:

Be it known that I, JOHN SHEARER, of the village of Preston, in the county of Waterloo, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Machines for Pressing Cloth; and I do hereby declare that the following is a full, clear, and exact description of the same.

The object of the invention is to produce a powerful machine arranged to operate automatically and hot-press both sides of the cloth; and it consists, essentially, of two or more hollow plates carried in a suitable frame and so operated by powerful cam mechanism that cloth placed between their surfaces shall be subjected to great pressure, the said hollow plates being kept hot by the injection of steam into their hollow bodies, suitable mechanism for damping the cloth being provided, also mechanism for intermittently conveying the cloth through the press, the whole mechanism being operated from a motor common to all, so that the motion of one part shall operate and agree with the motions of the other parts.

Figure 1 is a perspective view of the machine. Fig. 2 is a sectional elevation of a modified form of the same, the gearing being arranged on the side opposite to that in which it is shown in Fig. 1. Fig. 3 is an enlarged detail view of a perforated pipe.

In the drawings I have shown a machine constructed to press two pieces of cloth simultaneously; but I have shown only one damping and sizing attachment, it being presumed for the purpose of the specification that one piece of cloth is being pressed without damping, although it will be understood that the device exhibited for damping the cloth might easily be duplicated and arranged to operate in connection with the other parts of the machine.

In the drawings, A is the hollow bed-plate, arranged to rest upon and be supported by the collars *a*, formed upon the posts B.

C is a hollow center plate, also carried by the posts B, but arranged to rest upon the shoulders *b*, formed on these posts, so as to keep the surface of the plates C from coming in contact with the surface of the plate A when the latter plate is resting upon its supporting-collars *a*.

D is the top hollow plate, similarly fitted to the posts B, and arranged to rest upon the shoulders *c*, formed upon the posts B, so as to keep the surface of the plate D from coming in contact with the surface of the plate C when the latter plate is resting upon the shoulders *b*. All these plates are so held on the posts B that they may be raised and lowered vertically upon the said posts; but they cannot descend below the shoulders and collars specified. It will be noticed that the diameters of these collars *a b c* are arranged in a progressive series—that is, the diameter of the collar *a* is greater than that of the collar *b*, and that of the collar *c* less than that of the collar *b*—and the said collars support and normally hold at a regulated distance apart in one direction the plates A C D, while said plates may have an upward movement on the posts B, which movement is regulated by the tension of the springs now to be described.

E are powerful springs placed, as indicated, on the posts B, and are designed to represent any strength according to the pressure it is desired to impart to the cloth, which pressure is regulated by adjusting the tension of the springs E through the medium of the set-nuts *e*, which form one point of resistance for the springs, the other point being represented by the plate B.

F are jointed arms, the top ends of which are pivoted upon the bottom of the bed-plate A, their lower ends being similarly pivoted in suitable bearing-boxes, G, while their center joint rests against the cams H, which are keyed or otherwise securely fastened to their respective shafts *h I*, as indicated. These cams are driven by the intermeshing gears H', located on the shafts *h I*, motion being imparted to one of the shafts, as I, by the gear I', keyed thereto and meshing with the pinion *j* on the counter-shaft J', which is connected in any suitable manner to an engine or other motor. When the center joints of the arms F are in contact with the flat side of the cams H, as shown in Fig. 2, there is a clear space between each two of the hollow plates. As the cams revolve and their round surface comes opposite to the center joints of the arms F the said joints are straightened, imparting a powerful upward movement to the plates A, C, and D,

and directing a pressure on their surfaces equal to the strength of the springs E. The cams exhibited in the drawings are designed to maintain that pressure for a space of about
 5 half a minute; but of course I do not confine myself to any exact period, and it will be understood that the strength of the springs E may be altered to suit circumstances.

The surfaces of the plates A, C, and D
 10 should be covered with what is known as "press-paper," in order to impart to the cloth being pressed a glossy and soft surface.

In order to damp or size the cloth to be pressed and to hold it in proper tension while
 15 passing through the machine, I employ a brush, J, caused to revolve from the shaft J' by a belt, j', passing over a pulley, j, secured to the driving-shaft J', and over a pulley secured to the end of the brush-cylinder shaft, as
 20 shown in Fig. 2, said brush being carried within a suitable tank, K, which is filled with water or suitable sizing-liquid. The cloth to be damped or sized is carried around the tension-bars L substantially as represented
 25 by the line M, which is intended to indicate the cloth.

It will be noticed that the cloth M, before being carried up to pass between the plates, is passed below the lower tension-bars L,
 30 which latter bars are hinged, as indicated at d, so that while holding the cloth against the brush when in a horizontal position, when tilted up on their hinges they keep the cloth clear of the brush. This hinging is necessary,
 35 as it would not be advisable to permit the surface of the cloth to be in contact with the revolving brush J during the half-minute period that the cloth is being pressed. In order to thus lift the cloth clear of the brush
 40 during the period that its surface between the plates is being pressed, I fix to one of the shafts carrying the cams H one or more cams, N, upon which the lever or levers O, attached to the tension-bars L, rests.

As shown in Fig. 2, the plates A, C, and D
 45 are separated, so as to permit the cloth to pass between them. As the cloth M is at that period supposed to be moving through the press, the lever O rests on the flat side of the cam N.
 50 Consequently the cloth passing below the lower tension-bars L is held in contact with the revolving brush J.

When the cam-shafts have revolved so as to bring the round surfaces of the cams H against
 55 the center joints of the arms F, the round portion of the cam N raises the lever O, lifting the cloth M clear of the revolving brush J and holding it clear during the period that the cloth M is being pressed between the plates.

In order to draw the cloth through the machine when the plates are opened and to allow it to remain stationary while being pressed, I provide a sprocket-wheel, P, fixed to one of the cam-shafts, as I, and a similar sprocket-
 65 wheel on the counter-shaft Q, connecting the two sprocket-wheels by a suitable chain, P';

or, instead of sprocket-wheels and chain, other gearing might be introduced; but I think that sprocket-wheels and chain will be most suitable for my purpose.

On the counter-shaft Q, I fasten a mutilated gear-wheel, R, arranged to mesh with one of the two gear-wheels S, which are fixed to the shafts of the rollers T. The gear-wheel R is mutilated, as stated, by a removal of a certain
 70 number of its teeth, sufficient to represent in its revolution the period during which the pressing is being effected. Owing to its connection, as described, with the cam-shaft, the mutilated gear R will be constantly revolving;
 75 but whenever the portion of its periphery off which the teeth have been removed comes opposite to the gear-wheel S this latter gear-wheel will of course remain stationary. Consequently during that period the cloth M
 80 will not be drawn through the plates, remaining stationary between them while the pressure is being imparted. By the time that the teeth in the gear-wheel R again come into contact with the teeth on the gear-wheel S the plates
 85 have once more separated and the cloth is free to be drawn through a given distance.

In order to insure that the cloth shall be pulled through the same distance each time, it is necessary to provide spikes t or their
 90 equivalent on the rollers T to stick into the selvage of the cloth M, and in order to roll the cloth thus pulled through I provide, if necessary, rollers U, which are operated from the rollers T by straps or cords V, which are made
 100 sufficiently slack that they will slip a little when extra strain is imparted to the winding cloth. This extra strain will, as will be understood, be caused by the increase in the size of the roll of cloth; but by providing the means
 105 specified this increase is compensated for by the slipping of the cord.

W is a steam-pipe for conveying the steam into the hollow plates A, C, and D, while X represents the pipe for carrying off the condensed steam. These pipes W and X are connected on opposite sides of the machine to the hollow plates A, C, and D by short elbow-pipes w. The short pipes connecting the steam-pipe W to the hollow plates A, C, and D are
 110 the only ones shown in the drawings; but it will be understood that the pipe X, which is the drain-pipe, is connected to the hollow plates A, C, and D by short elbow-pipes, similar to those seen in the drawings marked w.
 115 These pipes w are of such a length that there will be sufficient flexibility in them to permit the vertical movements of the hollow plates A, C, and D without straining or breaking the joints.

With the view of cooling the cloth as it leaves the press, I place a perforated pipe, Y, in front of the plates, extending across the machine at such a point that the cloth will either pass
 120 above or below it as it leaves the machine after being pressed. This perforated pipe is connected to a pressure-fan, Z, which is driven
 125

so as to force a current of air through the perforated pipe, from which it escapes and acts against the cloth at the point mentioned.

I have shown the perforated pipe and the fan only in Figs. 2 and 3, which with the explanation given will be sufficient for the purpose of this description.

What I claim as my invention is—

1. The combination, with the pressing-plates A C D and means for intermittently operating the same, of the spiked rollers T, gear-wheels S, mutilated gear R, meshing with one of said gear-wheels, and means, substantially as described, for rotating said mutilated gear R to draw the cloth intermittently through the space between said pressing-plates, substantially as and for the purpose specified.

2. The posts B, hollow plates A C D, supported, as described, on said posts B, jointed arms F, cams H, for actuating the same, and means for operating said cams, in combination with the steam-pipe W, drain-pipe X, and pipes w, each extending parallel with and connected to one of the plates and to the pipes W and X on a level with its plate, so that the plates may be moved vertically, as set forth.

3. In combination with the rotary damping-brush, the pressing-plates A C and means, substantially as set forth, for intermittently operating said plates, a frame arranged to hold the cloth over said damping-brush, and mechanism, substantially as shown, for intermittently lifting the said frame and carrying the cloth clear of the damping-brush during the period that pressure is being exerted on the cloth between the plates, substantially as and for the purpose specified.

4. The combination of the pressing-plates A C, means, substantially as described, for intermittently operating the same, the gear-wheels S, rollers T and U, and mutilated gear R, constructed and arranged to impart an intermittent motion to said rollers T and U, with mechanism, substantially as described, for giving a rotary motion to said mutilated gear and to the rollers U from the rollers T, as set forth.

Signed at the city of Toronto this 8th day of November, A. D. 1883.

JOHN SHEARER.

In presence of—

CHARLES C. BALDWIN,
DONALD C. RIDOUT.