

(No Model.)

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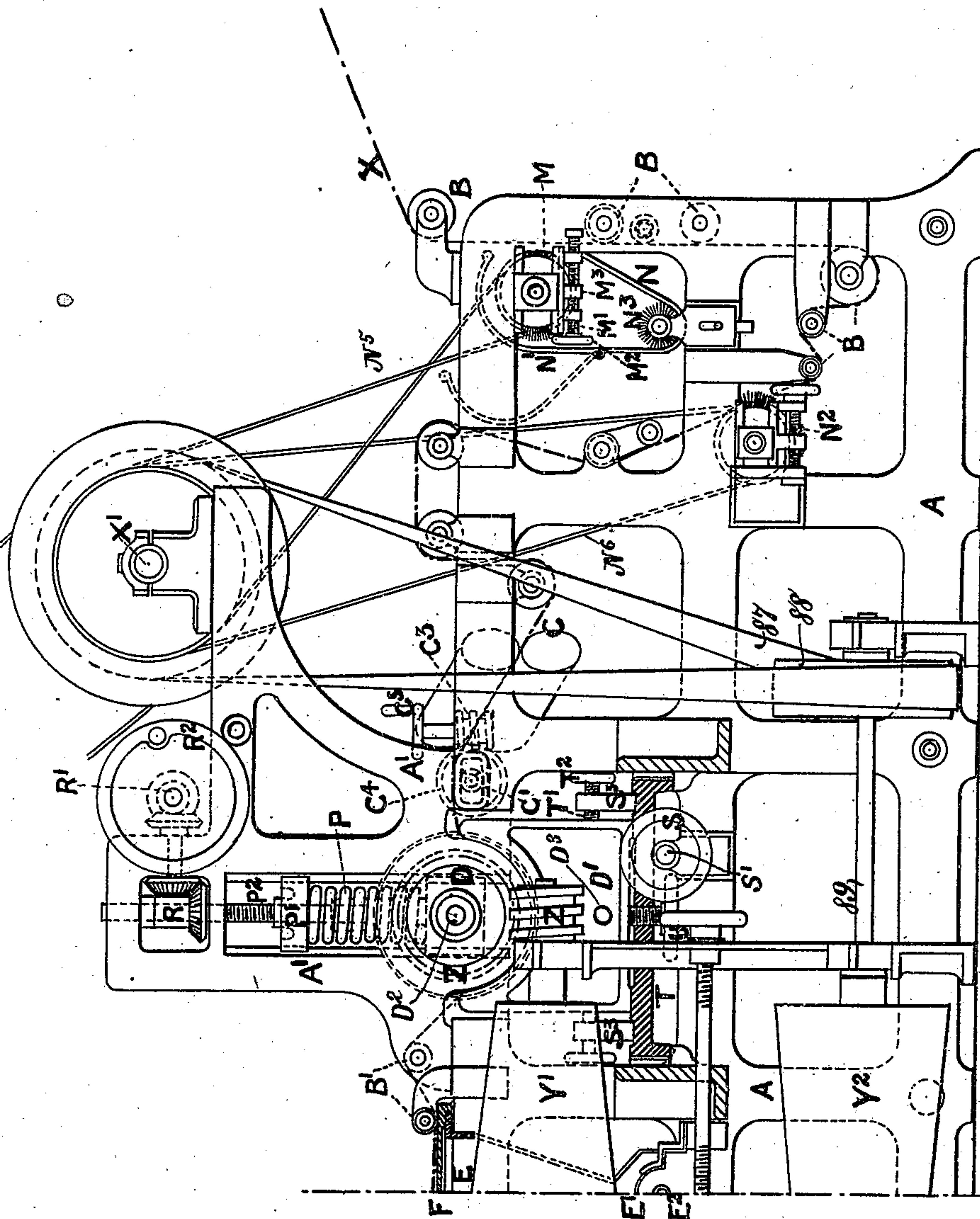
J. MILLER.

MACHINE FOR PRESSING AND FINISHING TEXTILE FABRICS.

No. 504,228.

Patented Aug. 29, 1893.

FIG. 1.



Witnesses
John E. Wulsh
Chas. Reed

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(No Model.)

6 Sheets—Sheet 2.

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FIG. 1A.

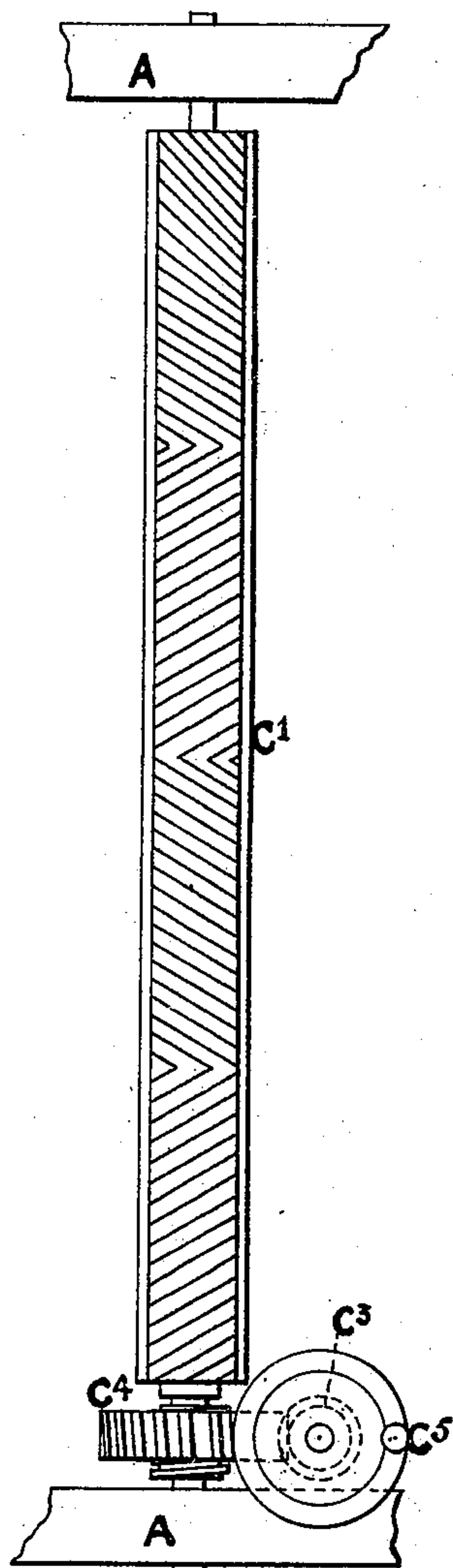
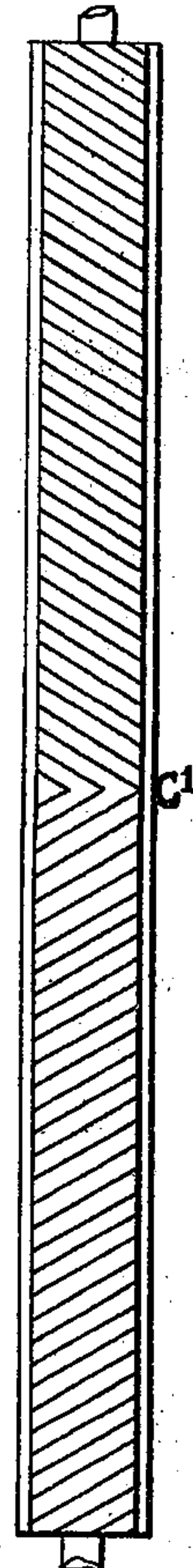


FIG. 1B.



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(No Model.)

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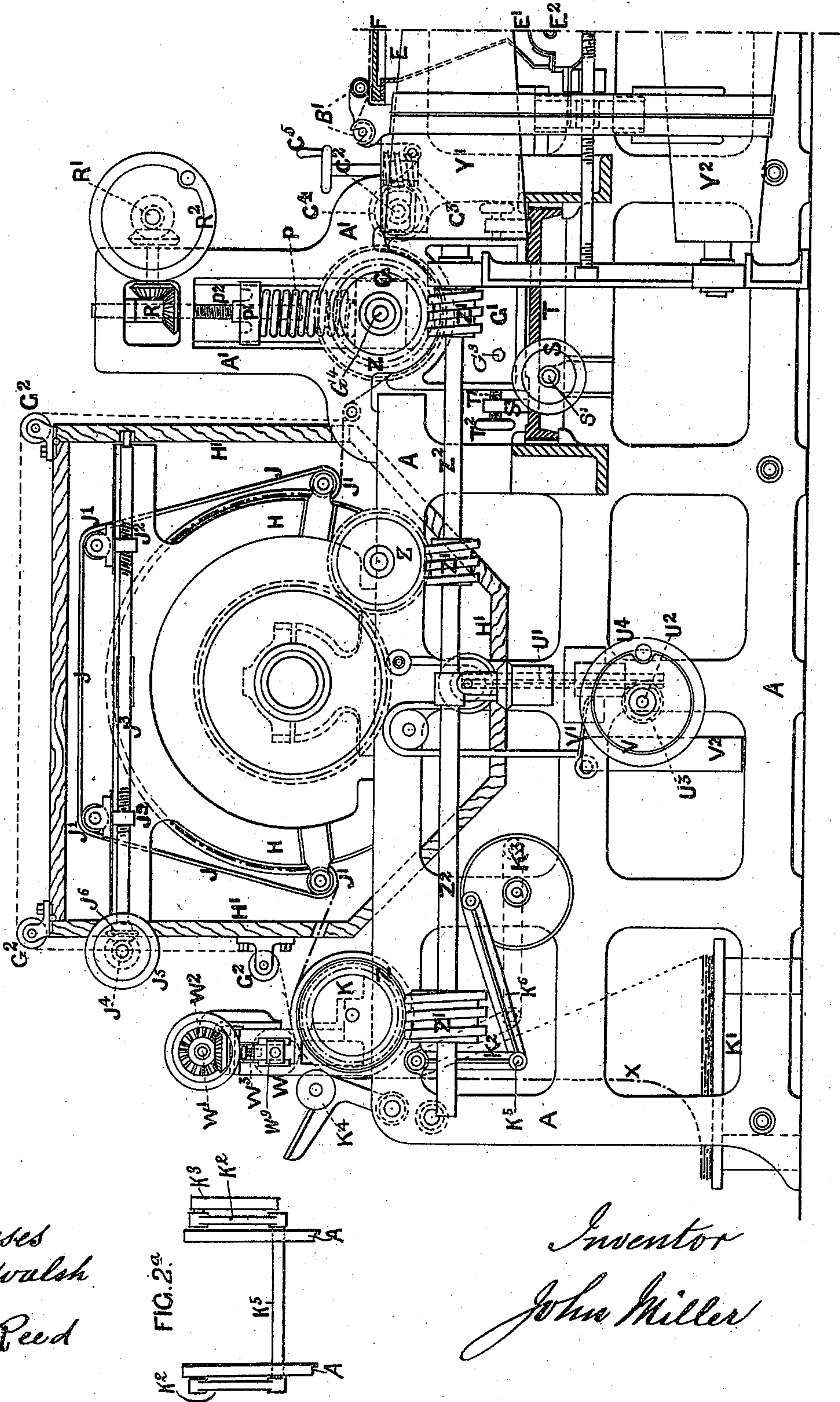
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FIG. 2.



Witnesses
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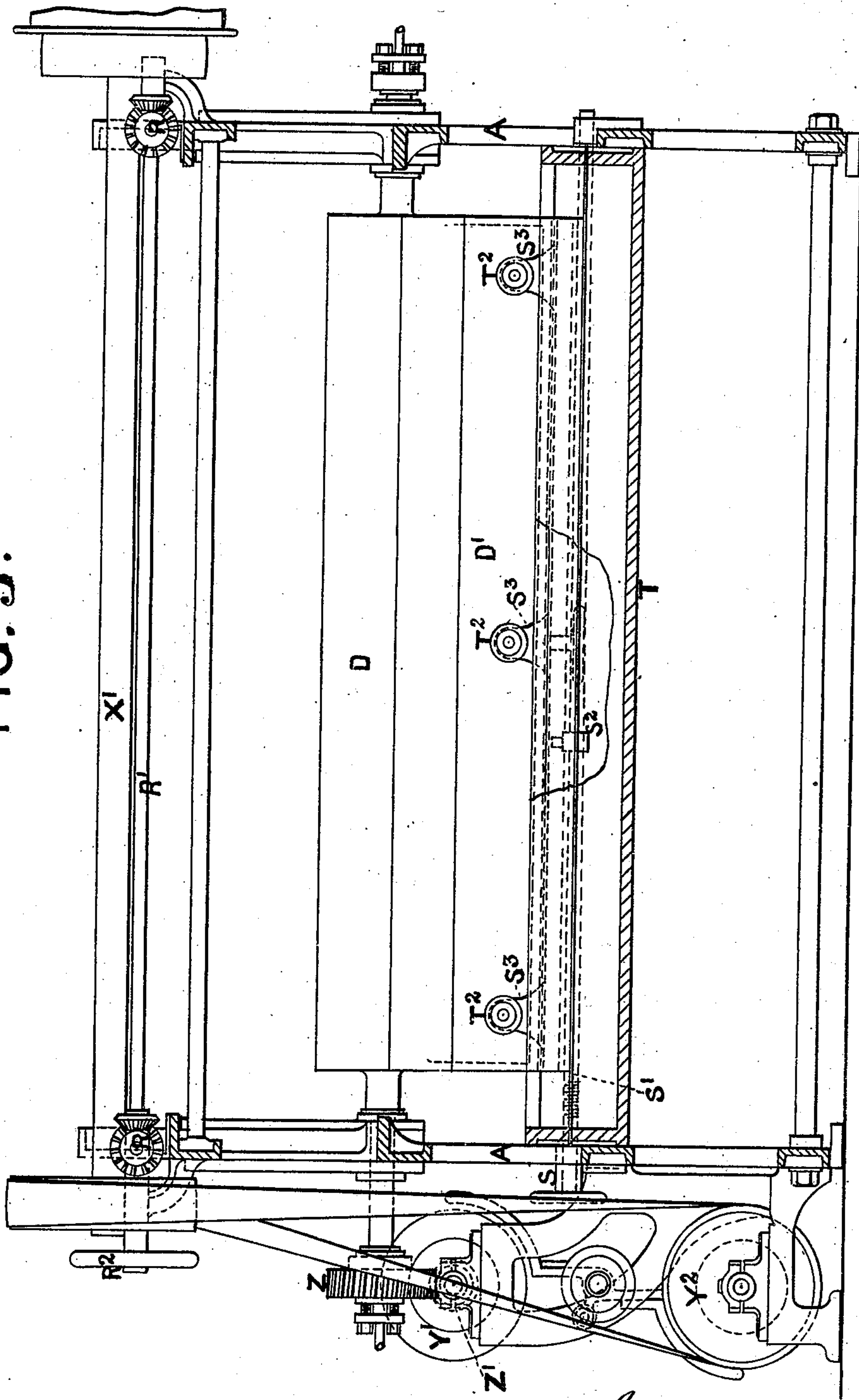
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Witnesses
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(No Model.)

6 Sheets—Sheet 5.

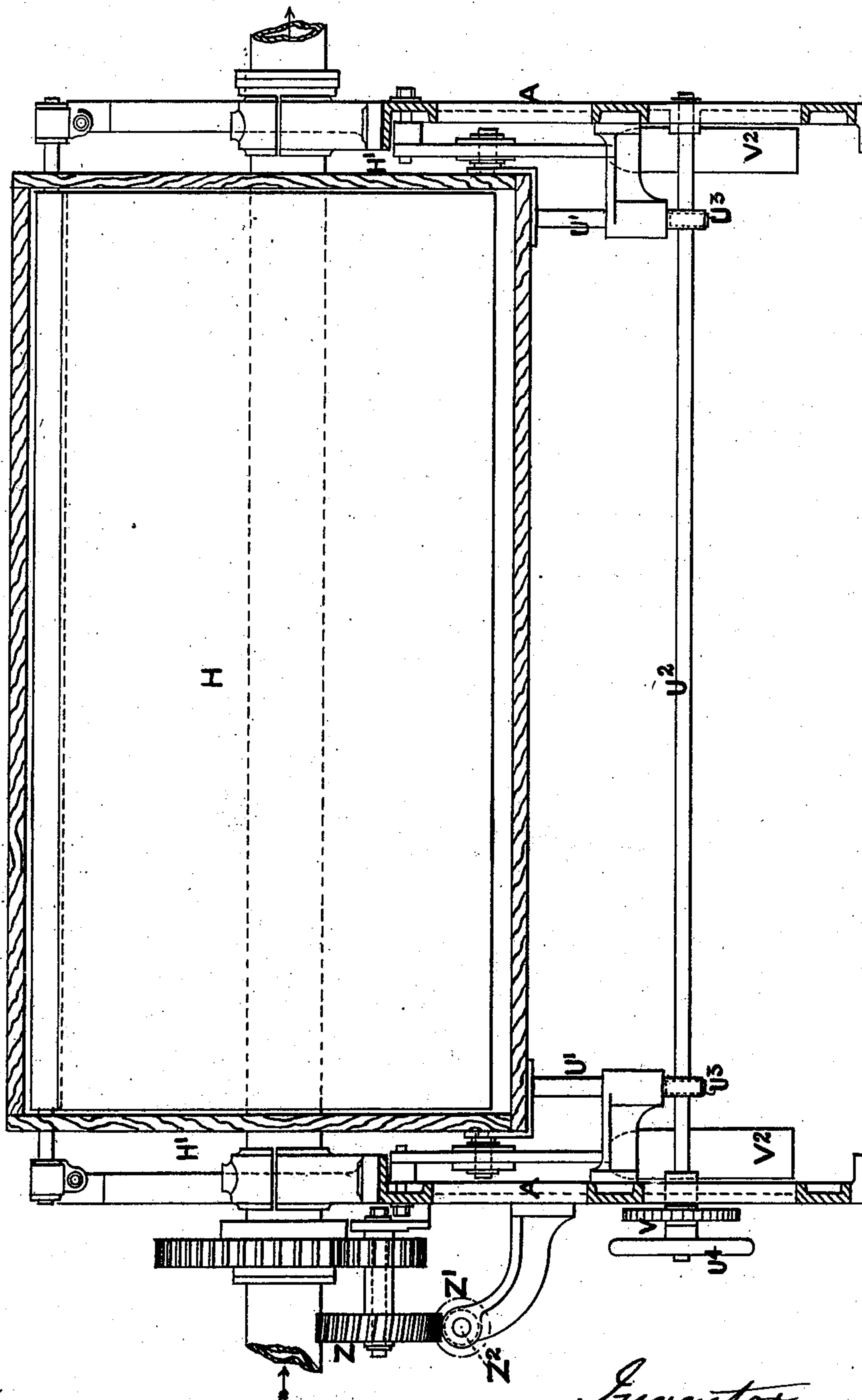
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MACHINE FOR PRESSING AND FINISHING TEXTILE FABRICS.

No. 504,228.

Patented Aug. 29, 1893.

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Witnesses
John E Walsh
Afum Reed

Inventor
John Miller

(No Model.)

6 Sheets—Sheet 6.

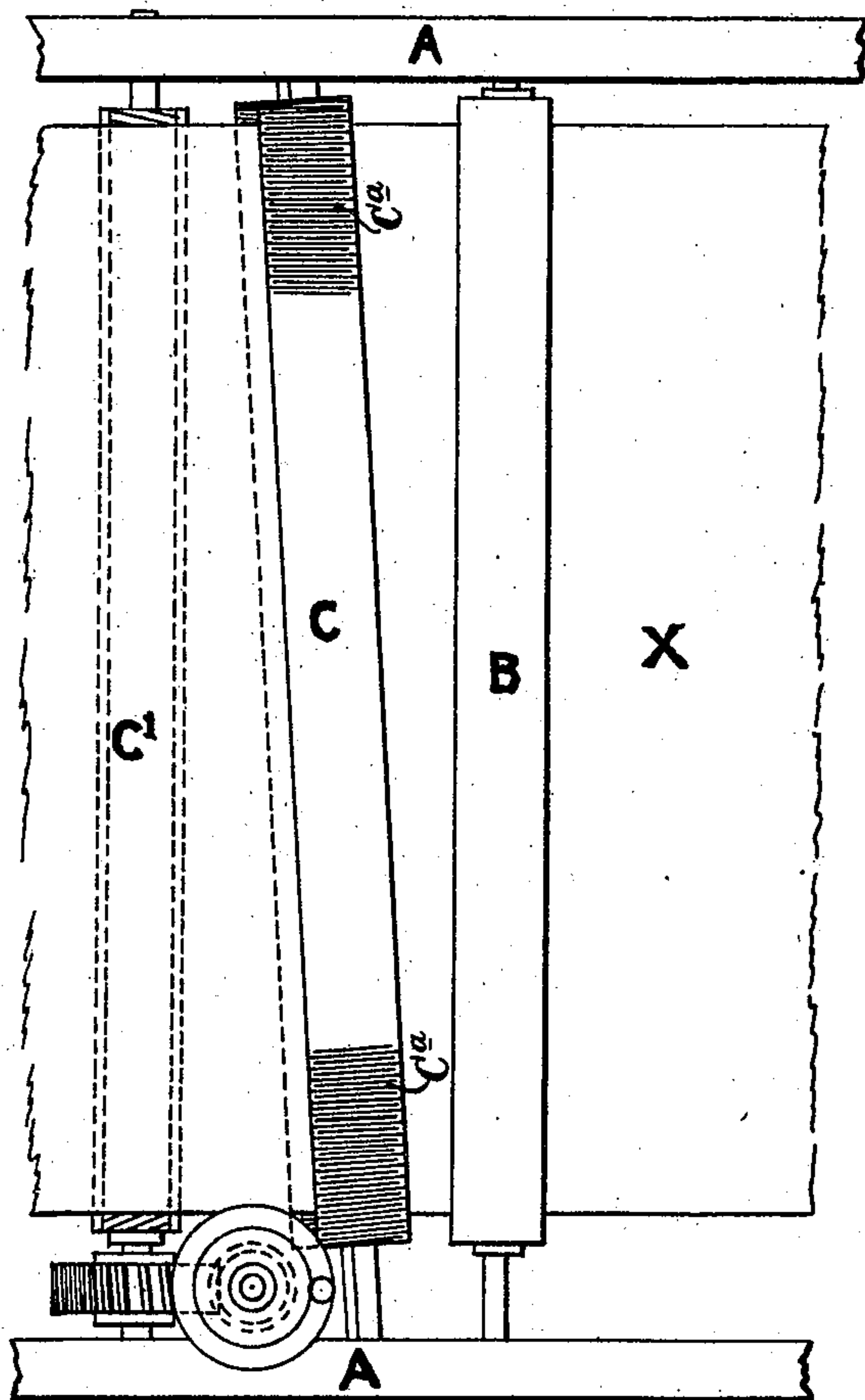
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MACHINE FOR PRESSING AND FINISHING TEXTILE FABRICS.

No. 504,228.

Patented Aug. 29, 1893.

FIG. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN MILLER, OF MANNINGHAM, ENGLAND.

MACHINE FOR PRESSING AND FINISHING TEXTILE FABRICS.

SPECIFICATION forming part of Letters Patent No. 504,228, dated August 29, 1893.

Application filed November 26, 1890. Serial No. 372,717. (No model.) Patented in England November 23, 1889, No. 18,790.

To all whom it may concern:

Be it known that I, JOHN MILLER, a subject of the Queen of Great Britain, residing at Manningham, near Bradford, in the county of York, England, have invented new and useful Improvements in Machines for Pressing and Finishing Textile Fabrics, (for which I have obtained patent in Great Britain, No. 18,790, dated November 23, 1889,) of which the following is a specification.

The object of this invention is to further improve cylindrical pressing machines for finishing and pressing textile fabrics, and to give a fixed and permanent finish or luster to the fabrics, both in the undyed, and in the dyed, printed, or other condition.

In the drawings—Figure 1 shows in front elevation the front part of a machine embodying my invention. Fig. 2 shows in front elevation the back part of said machine. Fig. 2^a is a detail plan of the folding mechanism. Fig. 3 is an end view of the part of the machine represented in Fig. 1. Fig. 4 is an end view of that part of the machine shown in Fig. 2. Fig. 1^A is a plan view of the reversible expander-roller, showing the side of the same in that form which is adapted for two pieces in breadth. Fig. 1^B is a plan view of the reversible expander-roller showing the form adapted to one piece. Fig. 5 is a detail view of the list-roller and the guide rollers.

I employ on a suitable framework A, a suitable number of guide or tension rollers B, over which the cloth X passes, the lists of which then enter between breadthening or list-rollers C of which there are two arranged one above the other and both rotating nearly in surface contact, in the frame A. These rollers C, are milled or corrugated as at C^a, at each end so as to firmly grasp the cloth at each side as it passes between them, preventing any wrinkling which might occur by reason of the tendency of the cloth to buckle under the tension to which it is subject, and guiding and presenting the cloth evenly to the expander roll C'. This expander roll is upon one side fluted diagonally in opposite directions from its center, as in Fig. 1^B to adapt it to expand cloth of one piece in breadth, and upon the other side as shown in Fig. 1^A is fluted in alternately opposite direc-

tions from end to end to adapt it for expanding cloth two pieces in breadth as will be readily understood. The roller is reversible or adjustable to present either of its operative sides by means of a worm C³ mounted upon its shaft which engages a worm gear C⁴, operated by a hand wheel C⁵, as clearly illustrated in Fig. 1^A. The cloth then passes between a cylinder D and concave D' one or both of which are heated by steam which passes into the cylinder D through the hollow shaft or stud D² upon which it revolves and which passes into the concave D' through the inlet port D³, all as shown in Fig. 1 of the drawings. The steam may be supplied from any known source through a suitable pipe or conduit (not shown) which will convey the steam to the hollow shaft or stud D² and to the inlet port D³. The cloth then passes over and under other tension rollers B to a steamer E, which is preferably semi-circular and provided with a diaphragm E' arranged above the steam inlet E², and perforated to permit the passage of steam, said diaphragm serving to prevent any excess of moisture or drops of water from being thrown upon the cloth. On the top of this steamer are loose sliding plates F, so as to regulate the steaming space, according to the width of the fabric being operated upon. Similar steamers may be placed before each cylinder and refrigerator. The cloth then passes under and over suitable tension rollers B', over a second reversible expander C², in all respects like the expander C' to and between a second cylinder G, and concave G', which are in all respects similar to the cylinder and concave D, D' hereinbefore described and heated also in a manner like said cylinder and concave D, D' by steam whose entrance is through the hollow shaft or stud G⁴ and inlet port G³, after which it passes to a refrigerator H, by preference of a cylindrical form, within a suitable frame or covering H', which cylinder is refrigerated on the "Arktos" principle. This name denotes a method of refrigeration, without the employment of special mechanical means, by the evaporation of liquid, anhydrous ammonia, said method, together with one form of apparatus suitable for the practice thereof, being explained in a report published in England upon the 14th

day of June, 1889, by Sir Frederick Bramwell, D. C. L., F. R. S., M. I. C. E., and Professor James Dewar, F. R. S., No. 5 Great George Street, Westminster, S. W. Upon the upper
 5 part of said cylinder is an endless creeper or sheet J of felt or other suitable material, between which and the cylinder the cloth passes. This creeper has preferably four tension rollers J', over which it travels, the two top ones
 10 being connected to nuts J², upon a right and left hand screwed spindle J³, having at one end a pinion J⁶ meshing with a pinion J⁴ upon the stem of a hand wheel J⁵ (as shown in dotted lines, Fig. 2). By turning the hand-
 15 wheel J⁵ the shaft J³ and the tension rollers J' connected thereto are adjusted so as to regulate the tension as required. The cloth then passes over a suitable drawing or lap-roller K and falls upon a table K', upon
 20 which it is folded. The mechanism for folding the cloth upon this table is shown in Fig. 2, and in detail in Fig. 2^a, and consists of links K² pivoted at one end to the frame A, and having their other ends connected by
 25 a rod K⁵ to which is secured one end of a pitman K⁶ the other end of which is attached to a pulley K³. The operation of this folding mechanism is illustrated in dotted lines Fig. 2, and will be readily understood, or it may
 30 be rolled upon a beaming roller K⁴, rotated by contact with lap roller K. As the cloth passes over the guide or tension rollers B at the entrance to the machine it is preferably
 35 brushed upon its face by means of a brush M mounted in bearings which are adjustable by means of a screwed spindle M', and hand wheel M², within a suitable bracket M³, attached to the frame of the machine. This brush M is
 40 fixed within a suitable fluff box N, with hinged cover or lid N'. Within this fluff box is placed an exhaust or spiral brush N³ for drawing out the fluff. This brush has essentially the function of a fan, as it produces
 45 a current by which the "fluff" caused by brushing the goods, is driven into any suitable receiver. Placed below or in any other desirable position is a second brush N² similar to the one before described, this brush
 50 acting upon the back of the cloth. To give the requisite pressure suitable for any class of fabric, I employ within each of the brackets or frames A' carrying the cylinders D and G a strong spiral spring P, to give
 55 an equal pressure upon the cylinders at both ends. Above this spring is a sliding block P', upon a screwed spindle P², this spindle being operated (thereby depressing or expanding the spring) by means of bevel wheels R cross shaft R', and hand wheel R².
 60 For the purpose of pressing goods with thick lists, the concaves D' and G' as shown in Fig. 3 I preferably make adjustable, and to slide out at the right side of the machine by means of hand wheel S and screw S', working
 65 within a nut S² attached to the sliding box plate T. Lugs S³ cast on the box plate and

each fitted with screw T' and hand wheel T², allow of further adjustment of the concaves. Also at the center of the box plate T is a hole tapped for an adjusting hand screw U
 70 which bears against the bottom of the concave, so regulating any spring which may take place between the cylinder and the concaves. The bottom half of the refrigerator covering frame H' as seen in Figs. 2 and 4
 75 has at each end a rack U', actuated by a cross shaft U², and pinion wheel U³, the cross shaft U² having a hand wheel U⁴ at one end, with ratchet wheel V and catch V', whereby it may be lowered easily with balance weights V².
 80 The ratchet wheel or catch is to keep the cover or frame H' from rising when in its depressed position. Bearing upon the cloth as it passes over the lap or drawing roller is a press roller W actuated by a cross shaft W'
 85 bevel wheels W² and screws W³ in engagement with the bearings W⁹ thereof, to raise and lower the same in and out of contact. The cylinders, refrigerator, and lap-roller, all of which must be driven at a uniform surface
 90 speed, are driven by worm wheels Z engaged by worms Z' upon a horizontal shaft Z² on which shaft is an elongated cone Y' which is driven by means of a belt passing over the
 95 same and over a second cone Y² immediately below, to allow of varying speeds to suit different fabrics, the latter receiving its motion from the main or other driving shaft X', through the medium of belt 87 and pulley 88
 100 on shaft 89. The brushes M and N² are driven by straps N⁵, N⁶, from the main shaft X'.

If desired I may dispense with the refrigerator H for some classes of fabrics, and use the second cylinder G as a cooling means, in which
 105 case the refrigeration is carried on by the evaporation of liquid anhydrous ammonia, in the same manner as the refrigeration is produced in the refrigerator H, and the cloth passes from the refrigerator G, over suitable
 110 guide pulleys G², on to the lap roller as before described, or when a separate machine is made without refrigerator H, the cloth passes direct from the cylinder G to the lap roller.

By the above arrangement a more solid yet
 115 kind and pliable handle is obtained, with a more smooth surface, the fabric being thus given a fixed, permanent, and uniform luster or finish throughout the length of the piece, and without cuttle or rigg marks, so objectionable with hydraulic pressed goods.
 120

What I do claim as the invention, and desire to secure by Letters Patent, is—

1. The combination of the reversible expander C', brushes M and N², corrugated
 125 broadthening rollers C, cylinder D, means for heating the same, concave D', means for adjusting the same with relation to the cylinder D, steamer E, second reversible expander C², second cylinder G, concave G', means for adjusting the same with relation to the cylinder
 130 G, refrigerator H, and drawing roller K, substantially as described.

2. The combination of the reversible ex-
pander C', brushes M and N², breadthening
rollers C, heated cylinder D, concave D',
means for adjusting the same with relation
5 to the cylinder D, steamer E, second reversi-
ble expander C², a cooling device, substan-
tially as described, and drawing roller K all
arranged and operating in the manner set
forth.

In testimony whereof I affix my signature in ro
the presence of two witnesses.

JOHN MILLER.

Witnesses:

JOHN E. WALSH,
Patent Agent, Halifax.

ABM. REED,
Halifax.