

(No Model.)

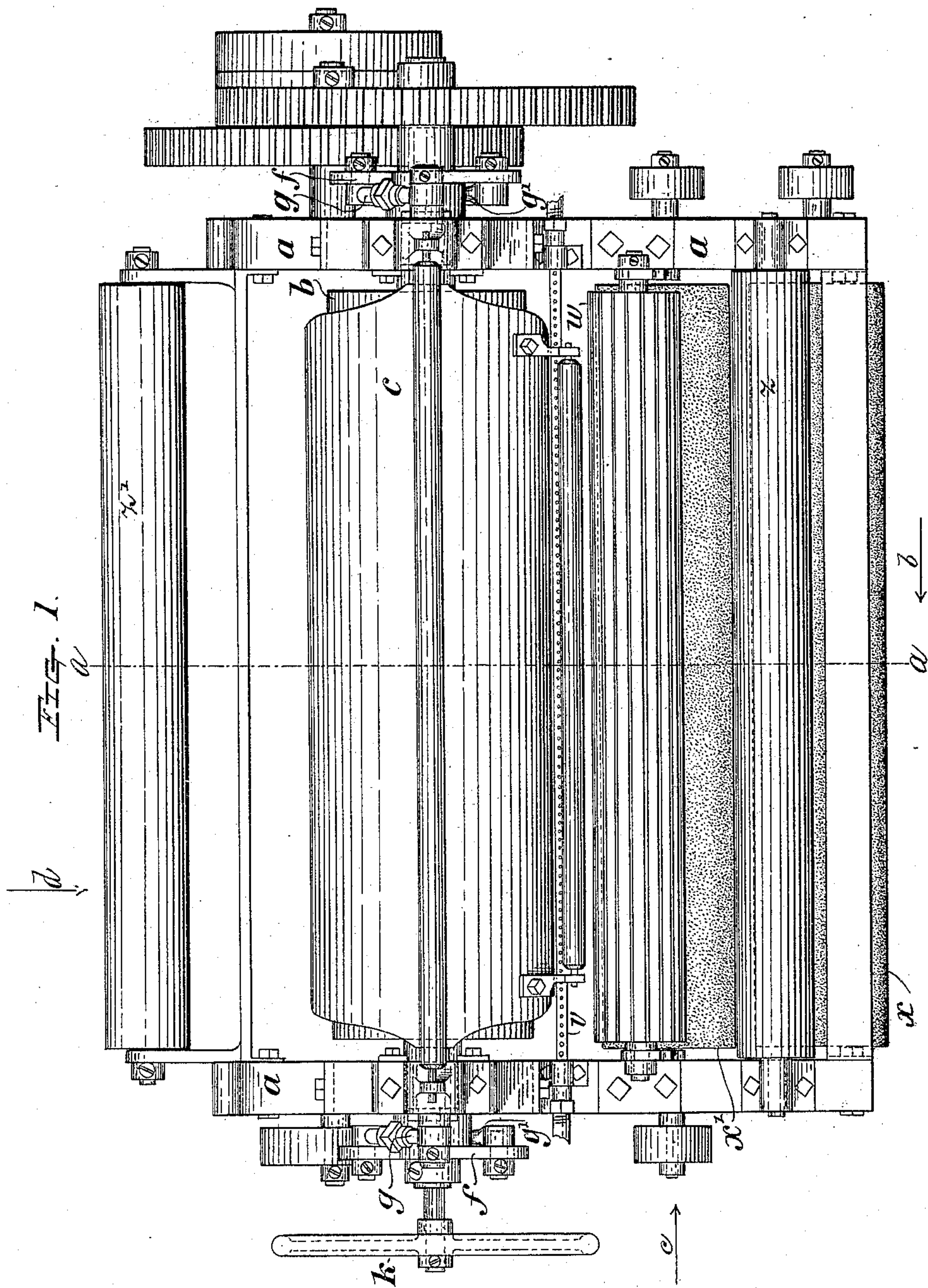
5 Sheets—Sheet 1.

D. GESSNER.

MACHINE FOR PRESSING FABRICS.

No. 387,292.

Patented Aug. 7, 1888.



Witnesses;

Daniel H. Driscoll.  
Richard J. Brady.

Inventor;  
David Gessner.  
by Clifford & Brown,  
Attys.

(No Model.)

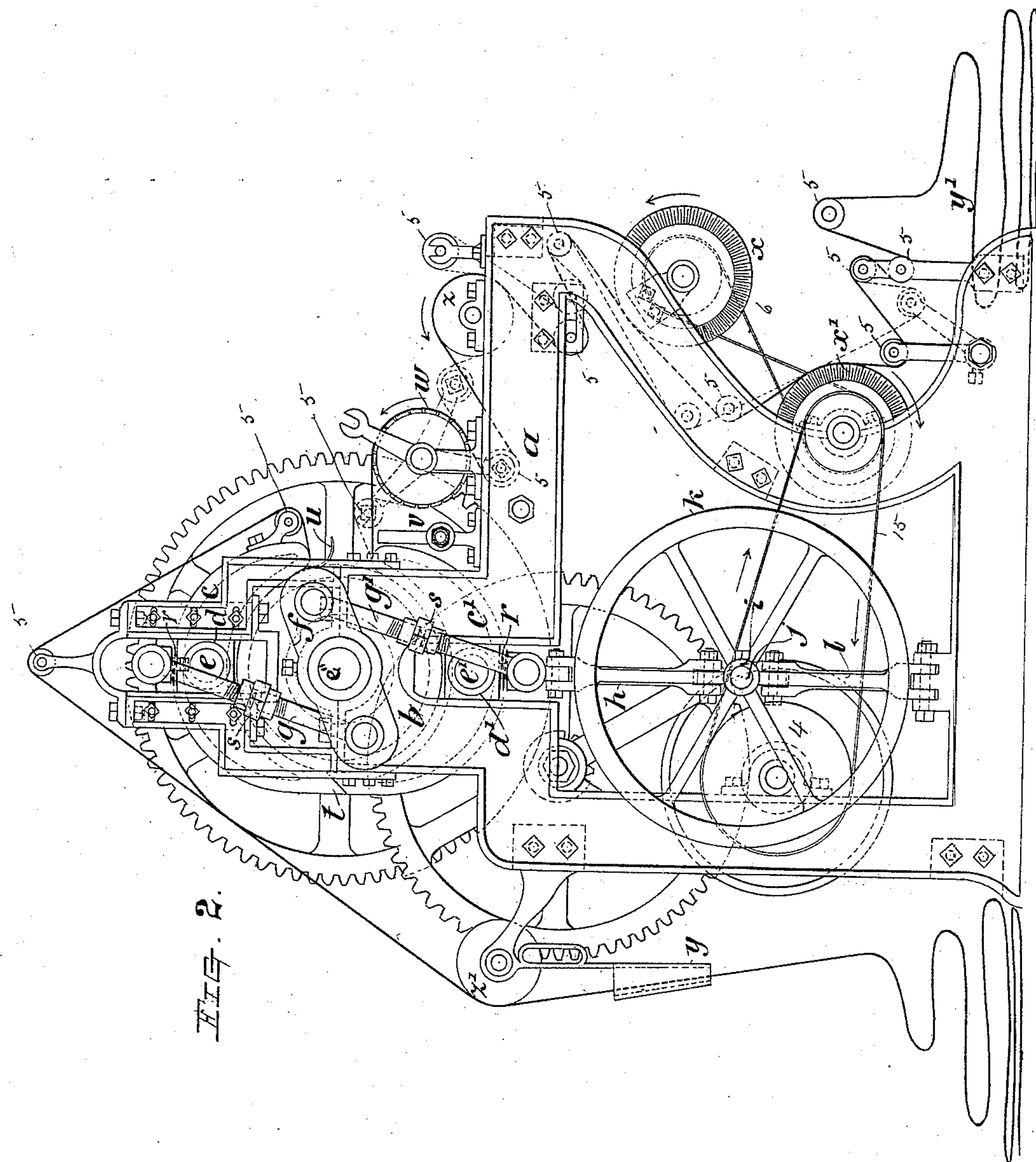
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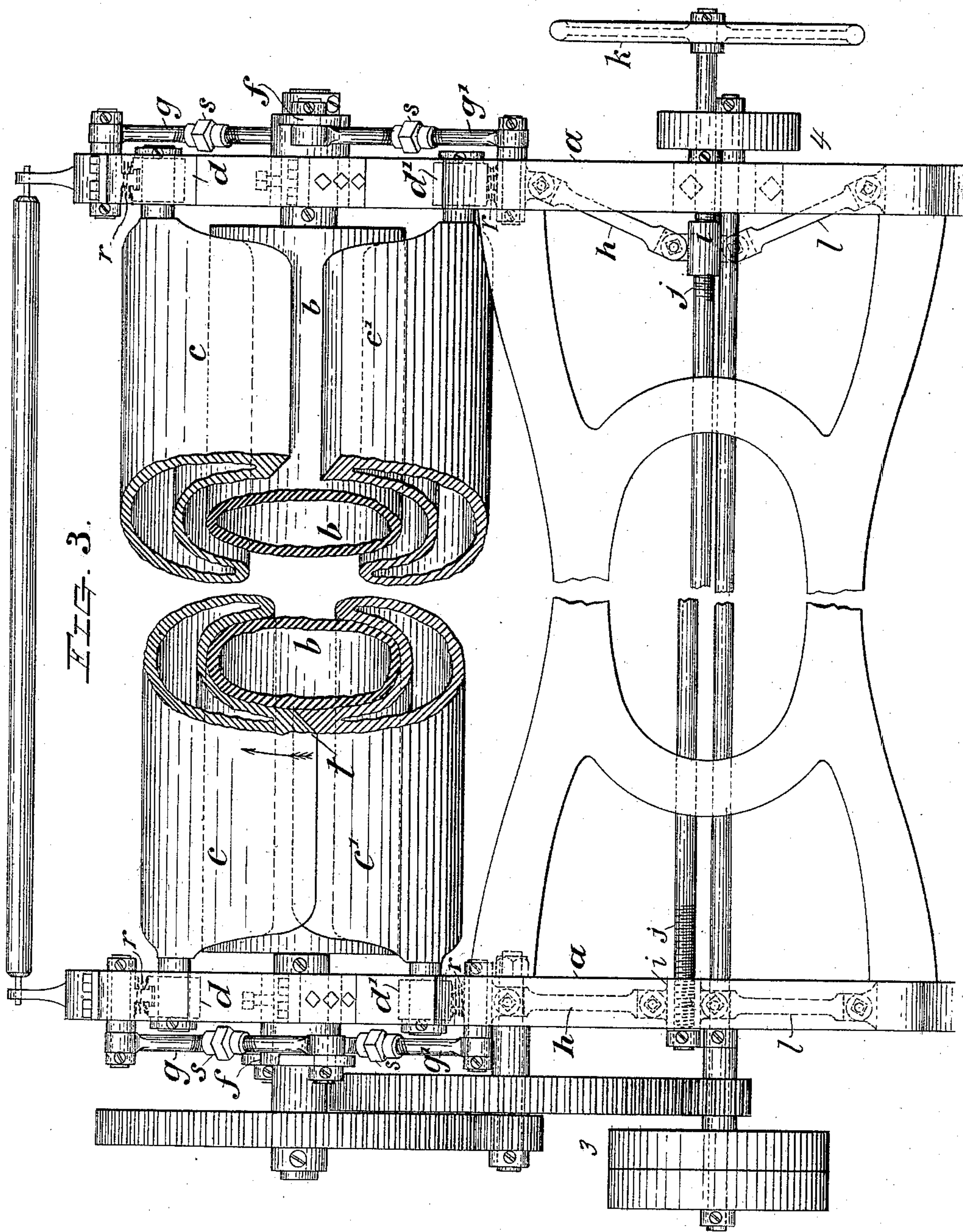
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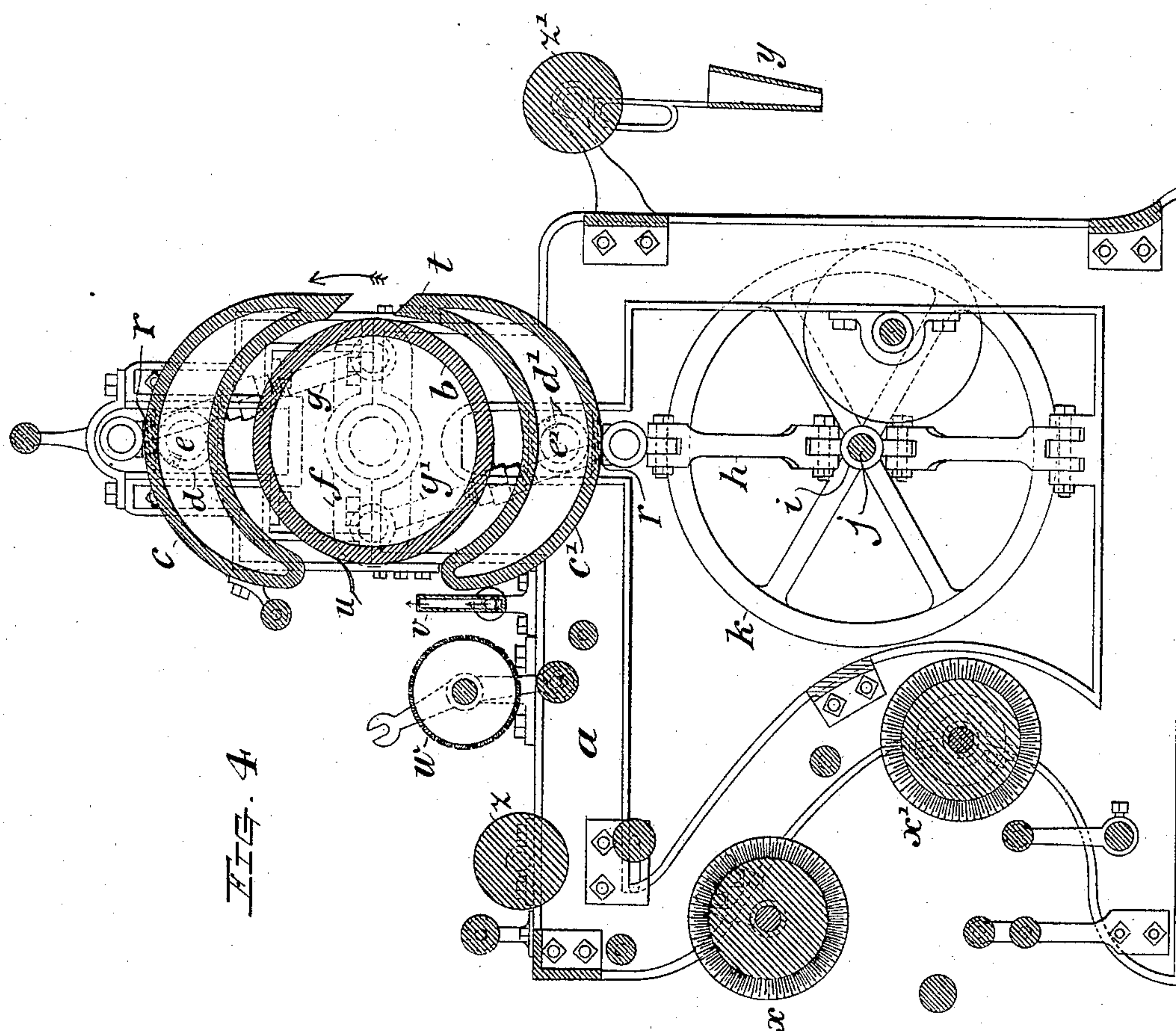
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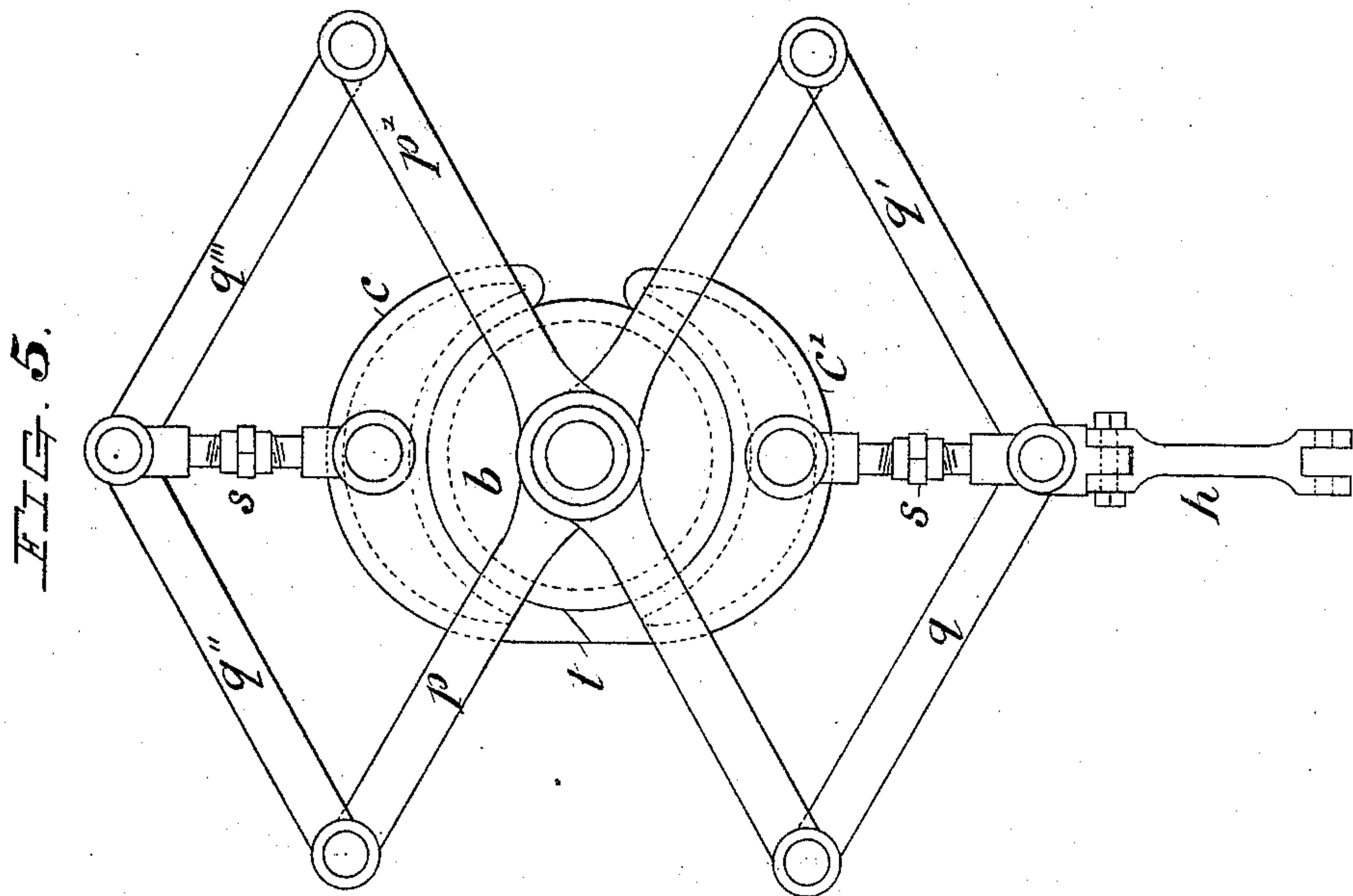
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# UNITED STATES PATENT OFFICE.

DAVID GESSNER, OF WORCESTER, MASSACHUSETTS.

## MACHINE FOR PRESSING FABRICS.

SPECIFICATION forming part of Letters Patent No. 387,292, dated August 7, 1888.

Application filed January 8, 1886. Renewed June 16, 1888. Serial No. 277,350. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID GESSNER, of Worcester, county of Worcester, State of Massachusetts, have invented an Improvement in  
5 Machines for Pressing Fabrics, of which the following is a specification.

In Reissued Letters Patent No. 9,076, dated February 17, 1880, to Ernest Gessner, is described a combination, in a rotary press, of  
10 a cylinder and bed-plates between which and the cylinder the cloth is pressed. These bed-plates were under said patent preferably suspended upon the tops of vertical arms, and the pressure between them and the cylinder  
15 was exerted by means of a spring interposed between the arms above the cylinder. The plates were generally placed on the opposite sides of the cylinder and on about the same horizontal level with each other.  
20 A sheet-metal jacket was also arranged to extend between the cylinder and the bed-plates, and also from one bed-plate to the other, so as to insure that the cloth should pass evenly and truly from its entrance at the first bed-  
25 plate to its exit at the last bed-plate.

My present improvement is designed to provide means whereby the cylinder may be used in connection with two or more bed-plates without the necessity of the sheet metal jacket  
30 before referred to.

A further object of my improvement is to provide new means for sustaining the press-plates and for operating them, whereby the  
35 press-plates can be readily removed from the machine, and whereby, if desired, their respective weights may counterbalance each other, and whereby the operation of the pressure-plates for the purpose of creating or releasing the pressure is performed with less  
40 difficulty than was heretofore required.

A further object of my improvement is to provide means whereby the pressure may be removed from the cloth instantaneously without interfering with the operation of the cylinder or the travel of the cloth through the  
45 machine.

My invention further relates to a device to insure the separation of the cloth from the cylinder at the point where the cloth, after  
50 being pressed, should leave the cylinder. No device has heretofore been employed for this

purpose, and it has been the cause of serious difficulty by reason of the heat of the cylinder making it impossible to remove the cloth by the fingers, and the tendency of the cloth  
55 when not removed by some means in winding quickly to be wound around the cylinder past the point where it should be released.

In the accompanying drawings I have shown an apparatus which embodies my invention in  
60 the form in which I now contemplate using it, although I am aware that this form may be varied to an indefinite extent without departing from the principle of my invention.

Figure 1 is a plan view of the machine. Fig. 65 2 is an end view. Fig. 3 is a detail calculated to show the arrangement of the beds with reference to the cylinder and the main parts employed in applying the pressure to the beds. In this figure the parts of the machine are  
70 broken in the center, the parts to the right of the brake being shown in the position they occupy when the bed-plates are withdrawn from the cylinder and the parts at the left of the brake in the position they occupy when  
75 exerting pressure. Fig. 4 is a transverse section through the line *a a*, Fig. 1. Fig. 5 represents a modification of the arrangement of levers for applying pressure to the press-plates.

*a* is the frame of the machine.

*b* is a cylinder, which is properly journaled in the frame.

*c* and *c'* are respectively the press-plates, which are preferably arranged one above and the other below the cylinder, as shown in the  
85 drawings. I shall first describe the apparatus by which these two press plates are held in position and by which the pressure is applied.

By looking at Fig. 2 it will be seen that the end frames of the machine (the end frames being  
90 duplicates of each other) are constructed above and below the points where the cylinder is journaled with guideways extending vertically up and down, one directly above and the other directly below each of the journals of  
95 the cylinder. Within these guideways are mounted the bearings *d d'*, in which the bed-plates are supported. These bearings are loose in the guideways of the frame, and are thus free to slide up and down to or from the  
100 bearings of the cylinder. Each press-plate is journaled at each end in one of these bearings,



as shown in the drawings, the centers of the journals being preferably directly above and directly below the journals  $e''$  of the cylinder, as at  $e e'$ , Fig. 1.

5  $f$ , Fig. 1, is a lever, of which there are two pivoted upon the journal of the cylinder, preferably outside of the frame of the machine, one at each end. To each arm of each of these levers  $f$ , at equal distances from the center of  
10 its fulcrum, is pivoted a connecting-rod,  $g$  or  $g'$ . The connecting-rod  $g'$  connects the arm of the lever  $f$ , to which it is pivoted, with the sliding bearing  $d'$ , to which it is also pivoted, as shown. The connecting-rod  $g$  connects the  
15 end of the lever  $f$ , to which it is pivoted, with the sliding bearing  $d$ , to which it is also pivoted, as shown. The same arrangement is at both ends of the machine. It will thus be obvious that any motion of either of the two bed-  
20 plates must be in a direct line up and down, to and from the cylinder, and that every motion of each bed plate will be communicated to the opposite bed-plate. It will further be obvious that by reason of the connection of the two  
25 bed-plates, through the intervention of the lever  $f$ , the weight of one bed-plate will tend to counterbalance the weight of the other—that is to say, the weight of the top bed-plate will tend to press one end of the lever  $f$  down-  
30 ward, and this will tend to raise the opposite end of the lever  $f$ , so as to raise the opposite bed-plate. For this reason less power is required to operate the two bed-plates than where the power was opposed by the weight of the  
35 bed-plate without any counterbalancing effect.

It now remains only to provide means for operating one of the bed-plates for the purpose of operating them both, and this means is provided by the following mechanism:

40  $h$  is a connecting-rod, which is duplicated at the two ends of the machine. This connecting-rod is pivoted at one end to the sliding bearing of the lower bed-plate, and at its opposite end it is pivoted to a sleeve,  $i$ , which is provided with an internal screw-thread gearing  
45 with a screw-thread cut upon the spindle  $j$ . The screw-threads upon the opposite ends of this spindle  $j$  are in the opposite direction, so that by turning the spindle  $j$  the sleeves will  
50 move in opposite directions upon it and either advance toward or recede from each other, as the case may be. This spindle is provided with a convenient wheel,  $k$ , for turning it by hand, or it may be so connected as to be turned by  
55 power. A connecting-rod,  $l$ , is pivoted to each sleeve  $i$ , on the opposite side to the connecting-rod  $h$ , and the opposite end of each connecting-rod  $l$  is pivoted to the frame, as shown. The function of the connecting-rods  $l$   
60 is to prevent any springing of the spindle  $j$  by reason of the pressure which it is obliged to sustain from the connecting-rods  $h$ . The connecting-rods  $h$  and  $l$  form, substantially, a toggle-joint, which is operated by means of  
65 the screw-spindle  $j$ , passing through the sleeve  $i$ , so as to exert a great upward press-

ure upon the sliding bearing of the lower bed-plate, and, through the intervention of the levers  $f$ , also a powerful and corresponding downward pressure upon the upper bed-plate,  $c$ . 70

In Fig. 5 the two levers  $p p'$  are pivoted at their centers, so as to turn loose on the bushing of the cylinder. They are, at their ends, connected with the lower bed-plate by connecting-rods  $q q'$ , and with the upper bed-plate by connecting-rods  $q'' q'''$ , as shown. In this modification the lower bed-plate will be  
75 connected with the lever  $h$  of the toggle-joint, as in the first modification. In the modification shown in Fig. 5, as in the first modification, it will be seen that any motion or power received by the lower bed-plate must necessarily be communicated by the system of levers employed to the upper bed-plate. 80

Other modifications of the lever-connections 85 between the upper and lower bed-plates, for the purpose of communicating the power and motions between them, may be employed, and I do not intend to limit myself to either of the modifications herein shown and described. 90 Likewise an indefinite variety of mechanisms might be substituted for the toggle-joint for the purpose of communicating motion and power to the bed-plates, and I do not intend to limit myself to this toggle-joint. I merely  
95 describe the forms shown as the best means which I know at the present time for accomplishing the described result. It is desirable that the pressure which is brought to bear upon the bed-plates should be of a yielding  
100 nature, so that if the cloth shall, for any reason, present a greater thickness than ordinary—as in case some foreign substance intrude itself between the bed-plate and the cylinder—the bed-plate may be capable of yielding suffi-  
105 ciently to allow the passage of the thicker portion of cloth or the foreign substance without injury to the goods on the bed-plates. For this purpose a spiral spring,  $r$ , is preferably  
110 interposed between each of the bushings of the respective bed-plates and the lever or connecting-rod by which the power is applied. Of course it is not essential that these springs should be interposed at the exact point shown, since it will be obvious that springs may be  
115 interposed at other points in the train of mechanism, by which the two bed-plates are communicated with the source of power, whereby the power transmitted may be converted into a yielding pressure. I have also provided  
120 means for adjusting the distance between the bed-plates and the cylinder. In the form of apparatus shown in the drawings, Fig. 1, this is accomplished by dividing the connecting-rods  $g g'$  in the center and uniting their ends  
125 by a double nut,  $s$ . In Fig. 5 this nut is located next the beds themselves; but it is obvious the location of this provision, as well as its form, may be varied to an indefinite extent—as, for instance, by providing oppositely-  
130 pitched screw-threads upon the opposite ends of the connecting-rods.



I will now proceed to describe the contrivance by which I propose to be able to dispense with the sheet-metal jacket which has heretofore been employed for connecting the two bed-plates. It will be seen from the various drawings that on one side of the cylinder the two bed-plates are continued until, when they are in the position to press goods, their extremities on that side at  $t$  are almost in contact. The adjacent ends or edges of the bed-plates are respectively beveled, as shown in the drawings, so that the joint between them inclines in the same direction in which the cylinder revolves. In this manner if the cloth on coming opposite the joint between the two bed-plates should be inclined to sag or pucker, the joint of the bed-plates will have a tendency to (instead of arresting the cloth and increasing the pucker) cause the cloth to move forward uniformly and evenly, thus avoiding the difficulties which might be encountered with a straight widely-open joint, in which the cloth is liable to be arrested until it holds fast and is torn. Of course, it is obvious that the taper which I have shown can be varied to a very great extent, and that its direction would be changed in case the cloth should be fed in the opposite direction to that shown by the arrow, Figs. 3 and 4.

I have described the beveled joint as the preferable arrangement; but certain parts of my invention might be practiced by having a straight joint, providing the rear edges of the bed-plates are brought together to within a short distance of one another, as shown.

I will now describe the device by which I propose to prevent the adhering of the cloth to the cylinder past the point where it is to be separated from the cylinder. This contrivance is shown in Figs. 2 and 4 of the drawings, and consists of a blade,  $u$ , which extends across the machine from end to end, being secured at each of its ends to the frame. Its edge is so adjusted as to rest lightly upon the surface of the cylinder just below the point at which the cloth is to pass from between the pressing-surfaces. This blade is so formed and located as to act properly as a deflector or stripper for the cloth, and it strips the cloth from the cylinder in such a manner that the edge of the cloth may be readily caught by the operator and placed in a position to properly continue its passage through the machine.

$v$  is a steamer, of ordinary construction, which is placed, preferably, as shown, at a point as close as possible to the point at which the cloth enters between the pressing-surfaces, so that the cloth shall be steamed just before it enters between the pressing-surfaces.

$w$  is a stretcher, and is of an ordinary construction, which will be readily understood.

$x$  and  $x'$  are brushes, which are placed so as to respectively brush the face and back of the cloth in its passage to the other operations of the machine.

$y$  is the folder.

$z$  and  $z'$  are respectively draft-rolls to assist in carrying the cloth through the machine,  $z$  being especially adapted to take the friction from the cloth caused by the brushes, and  $z'$  being especially adapted to insure that the cloth is properly taken away after it leaves the pressing-surfaces and is properly delivered to the folder.

The passage of the cloth is indicated in the drawings by a line, which at some points is broken and at other points is not, the direction of the passage of the cloth being indicated by the arrows.

In the operation of the machine the cloth starts from a fold at  $y'$ , passes over various rollers, is subjected to the operation of the brushes  $x$  and  $x'$ , and is next subjected to the action of the stretcher  $w$ . It is next subjected to the action of the steamer  $v$ , and from the steamer it passes directly between the lower press-plate and the cylinder. It then passes all the way around the cylinder and finds its exit from the pressing-surfaces on the same side of the cylinder as that on which it entered, being at the point where it leaves the cylinder stripped from the cylinder by the stripper  $u$ . It then runs over proper rollers to the folder, by which it is delivered in a fold as required.

It will be observed that the junction made between the two press-plates at  $t$ , as well as the stripping-plate  $u$ , are calculated to prevent the cloth from being improperly treated—that is to say, from being puckered up or from being carried around beyond the point where it should leave the cylinder, so as to tear or produce a breakage of the parts. Should it happen, however, that the cloth did become wound around the cylinder, so as to increase the thickness between the pressing-surfaces beyond the point where some part of the machine must give way, it will be found in use that with my present arrangement the parts soonest to give way will be of a character more easily replaced than in the arrangements which have heretofore been in use in double-bed rotary presses. It will also be seen that the bed-plates which I employ may be either each of them lined separately by a proper jacket, or they may be so constructed that a separate lining is unnecessary, the pressure-surface being the surface of the plate itself. It will also be seen that the bed-plates may be readily removed from the machine for the purpose of having a new jacket interposed or for the purpose of repairing the bed-plate, as the case may be. The pressure which is exerted on the two bed-plates will also be exactly the same and the extent of motion of each will be the same.

In some of the rotary presses heretofore in use provision has been made to suddenly release the pressure exerted upon the cloth whenever a foreign substance or some hard matter should intrude itself between the cloth and the pressing-surfaces which would damage



the goods, or whenever a belt should break or some other accident should happen which would leave a mark upon the cloth unless quickly removed from all pressure. In all  
 5 those machines this is accomplished by one method—viz., by elevating the pressing-cylinder from its bed underneath and thus interrupting, either partly or wholly, the movement of the cylinder. In doing this there is  
 10 constant danger of breaking the teeth in the pinion which meshes into the gear of the cylinder, or vice versa, and as a rule the machine must be stopped altogether in order to effectually remove the difficulty, necessitating the  
 15 dispensing of all pressure.

In my machine, as described, both beds may be suddenly removed from the cylinder, thus leaving the cloth free from all pressure without, however, stopping or interfering in the  
 20 least with the running of the cylinder itself, which remains fixed in its position, and the whole machine can keep in operation until the piece of cloth which has been damaged has been run out without the assistance of  
 25 manual labor, which is required in all other rotary presses in such cases. This I provide for by having the bearings of the bed-plates so mounted that the bed-plates may be moved to and from the cylinder, as already de-  
 30 scribed, without interfering with the continuous and even travel of the cylinder and feeding-rollers; and, furthermore, it will be observed that the means provided for the adjustment of each of the bed-plates enables  
 35 either of them to be used for exerting pressure, while the other one is adjusted so far back from the cylinder as to exert substantially no pressure, this being accomplished by the nuts  
 40 s, whereby the connecting-rods for operating the bed-plates may be shortened or lengthened independently of each other.

In the construction of my machine, as described, both pressing-beds are mounted in vertical slides or guideways, which guideways  
 45 would preferably find, also, application in the modification shown in Fig. 5. However, I do not wish to limit myself altogether to the use of guideways in the different constructions shown, as in the modification represented in  
 50 Fig. 5, no slides need necessarily be applied to make the machine operative, as the beds are hung at the junctions of the two connecting-pieces, as  $q''$   $q'''$ , which junctions in their movements describe a strictly vertical line,  
 55 which would be sufficient in this case to secure a straight and correct movement of the beds.

Power is applied to drive the machine through the fast-and-loose pulley 3, (shown in Fig. 3.) The shaft 13 of this pulley runs  
 50 through the machine, and at its opposite end carries a pulley, 4, from which the brushes are driven by a band, 15, as shown in Fig. 2. The guide-rolls 5 5 and  $z'$ , Fig. 2, around which the cloth passes, are shown as friction-  
 65 rolls; but, if desired, they may be driven by any suitable means. It will be understood

that any of the well-known means may be employed for giving motion to the folder.

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

1. In combination, a cylinder, two oppositely-arranged bed-plates, a lever pivoted concentric with the cylinder, and rods connecting the bed-plates with the opposite arms of said lever, substantially as described. 70 75

2. In combination, a cylinder, two bed-plates, one arranged above and the other below the cylinder, a lever or levers pivoted at each end of said cylinder, and rods connecting the bed-plates with the opposite arms of said lever or  
 80 levers, whereby the weights of said bed-plates will counterbalance each other, substantially as described.

3. In a cloth-pressing machine, in combination, a frame having fixed bearings for the cylinder and guideways for the bearings of the bed-plates arranged on opposite sides of said  
 85 cylinder-bearings, the cylinder, and the bed-plates arranged on opposite sides of the cylinder, and each bed-plate being provided with  
 90 bearings arranged to slide in said guideways, whereby the bed-plates may reciprocate to and from the cylinder, substantially as described.

4. In combination, the cylinder, the two bed-plates, each provided at each end with a bearing, a lever or levers arranged between the end  
 95 bearings of the opposite bed-plates, and rods, whereby the end bearings of the bed-plates are connected with the opposite arms of the lever or levers, substantially as described. 100

5. In combination, the cylinder having fixed bearings, the two bed-plates arranged, respectively, above and below the cylinder and provided with bearings at each end, a lever interposed between the opposite bed-plate bearings,  
 105 rods connecting the bed-plate bearings with said lever, and a toggle-joint arranged below the lower bed-plate, whereby the said bed-plate is pressed against said cylinder, substantially as described. 110

6. In combination, a cylinder, two bed-plates arranged on opposite sides thereof, a lever or levers, and connections between the lever or levers and bed-plates, whereby the motions of  
 115 one bed-plate are transmitted to the other, and the spring or springs interposed in the mechanism connecting said bed-plates, whereby the one bed-plate may be permitted to yield without affecting the position of the other, substantially as described. 120

7. In combination, a cylinder and two bed-plates having their adjacent ends or edges beveled, whereby a smooth passage of cloth from one to another is secured, substantially as described. 125

8. In combination, a heated cylinder, a bed-plate, and a stripper arranged at the point where the cloth leaves the heated cylinder, whereby the cloth at that point is stripped  
 130 from the cylinder, substantially as described.

9. In combination, the cylinder, the frame upon which it is journaled, the two bed-plates,



and the bed-plate-actuating mechanism provided with means of adjustment interposed between each bed-plate and the journal of the cylinder, substantially as described, whereby  
5 the bed-plates may be adjusted to and from the cylinder independently and the pressure of one bed-plate may be removed from the cloth without interfering with the operation of the other bed-plate and cylinder, substantially as described.  
10

10. In combination, the feed-rollers, the cylinder having fixed bearings, the two bed-plates, mechanical means for exerting and re-

lieving pressure on the bed plates, and supports for the bearings of the bed-plates movable relatively to and independently of the bearings of the cylinder and feed-rollers, whereby the bed-plates may be moved back from the cylinder without disturbing the position or operation of the cylinder or feed-rollers, 20 substantially as described.

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