

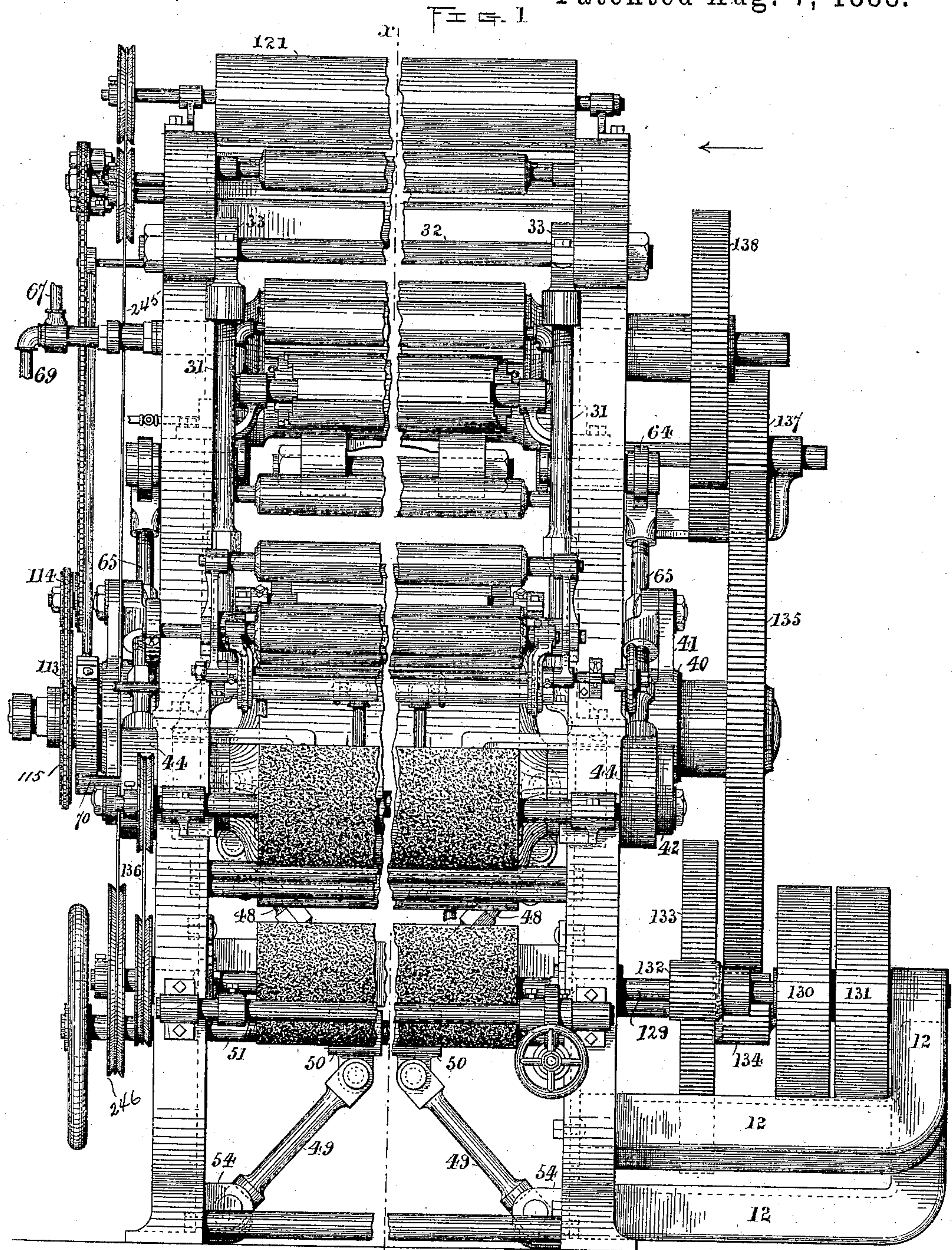
(No Model.)

8 Sheets—Sheet 1.

D. GESSNER.
CLOTH PRESSING MACHINE.

No. 387,290.

Patented Aug. 7, 1888.



Witnesses;
Geo Wadman
Fred Kempfer.

Inventor;
David Gessner.

By Lufford & Brown, Attys.

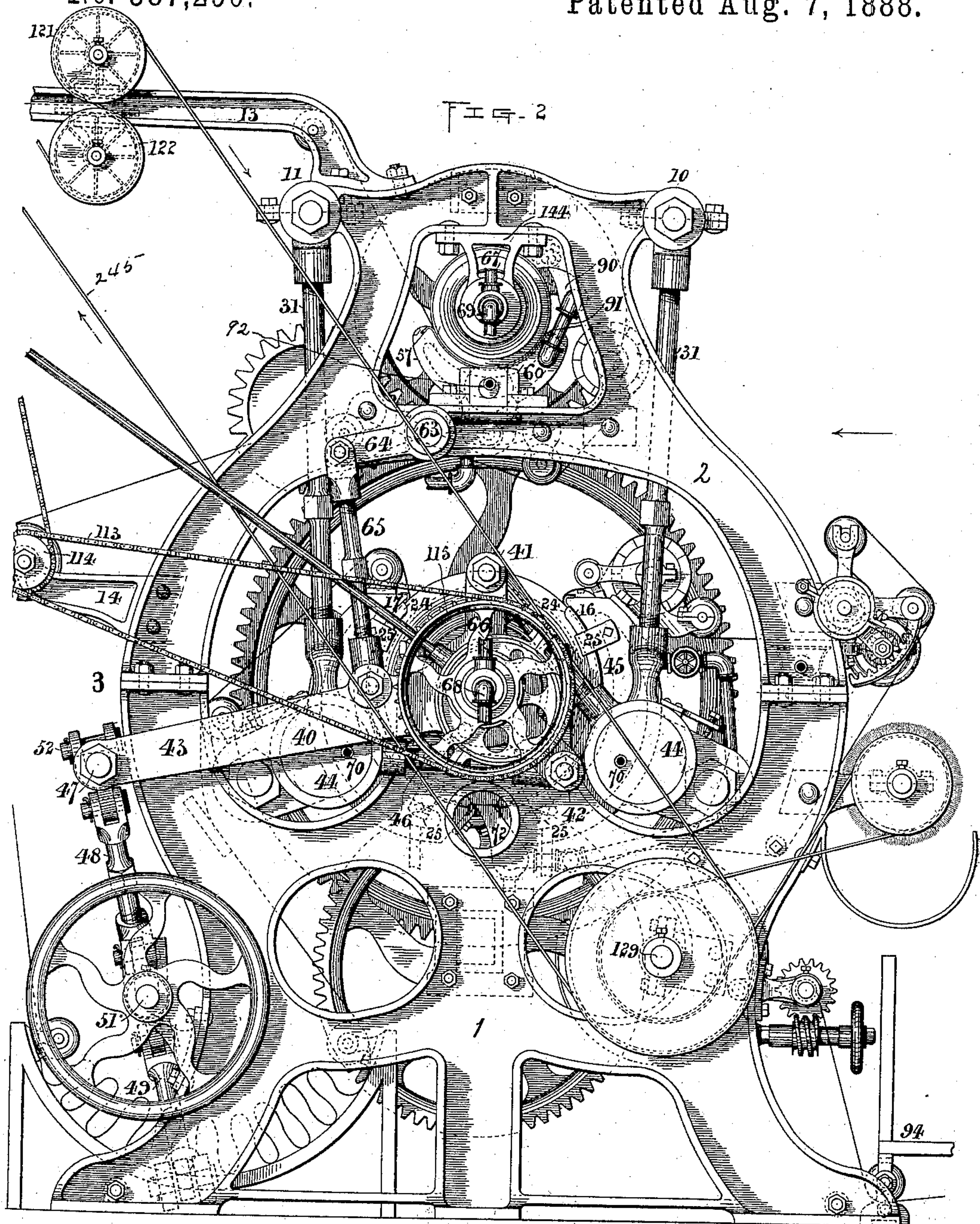
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8 Sheets—Sheet 2.

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Witnesses;
Geo. Wadman.
Fred Hemphel.

Inventor;
David Lerner.

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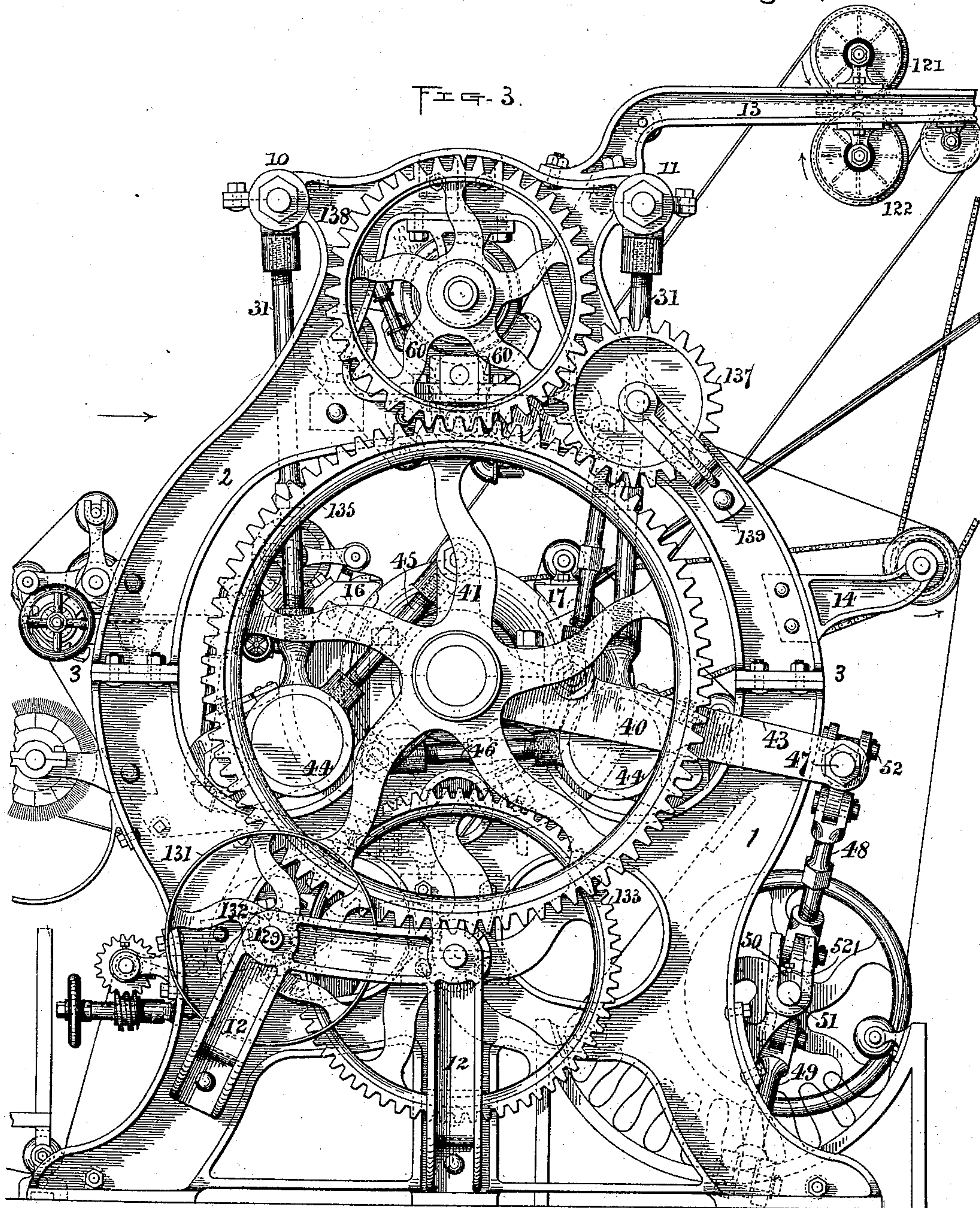
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Fred Kemper.

Inventor;
David Gessner.

By *Lefford & Brown*, attys.

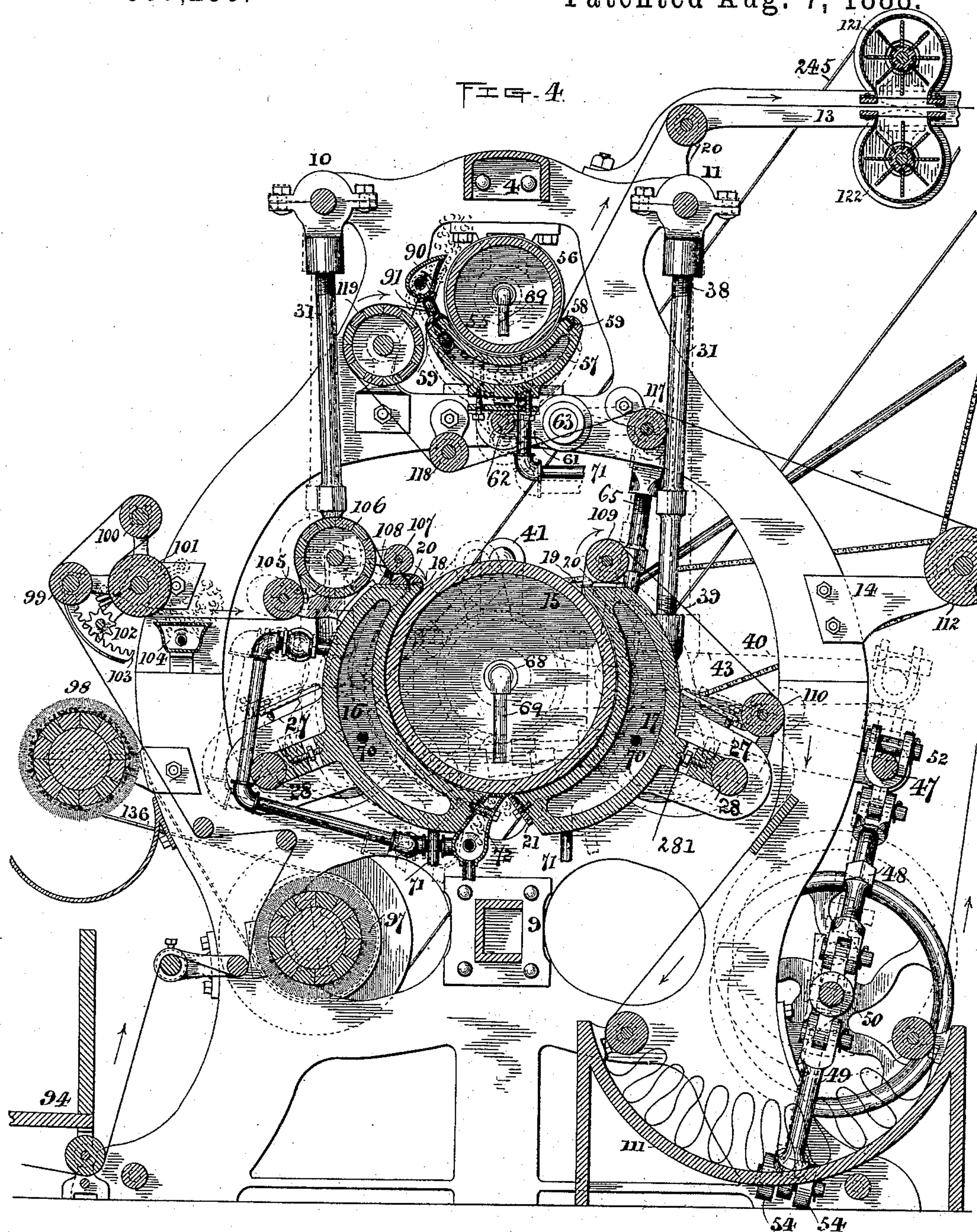
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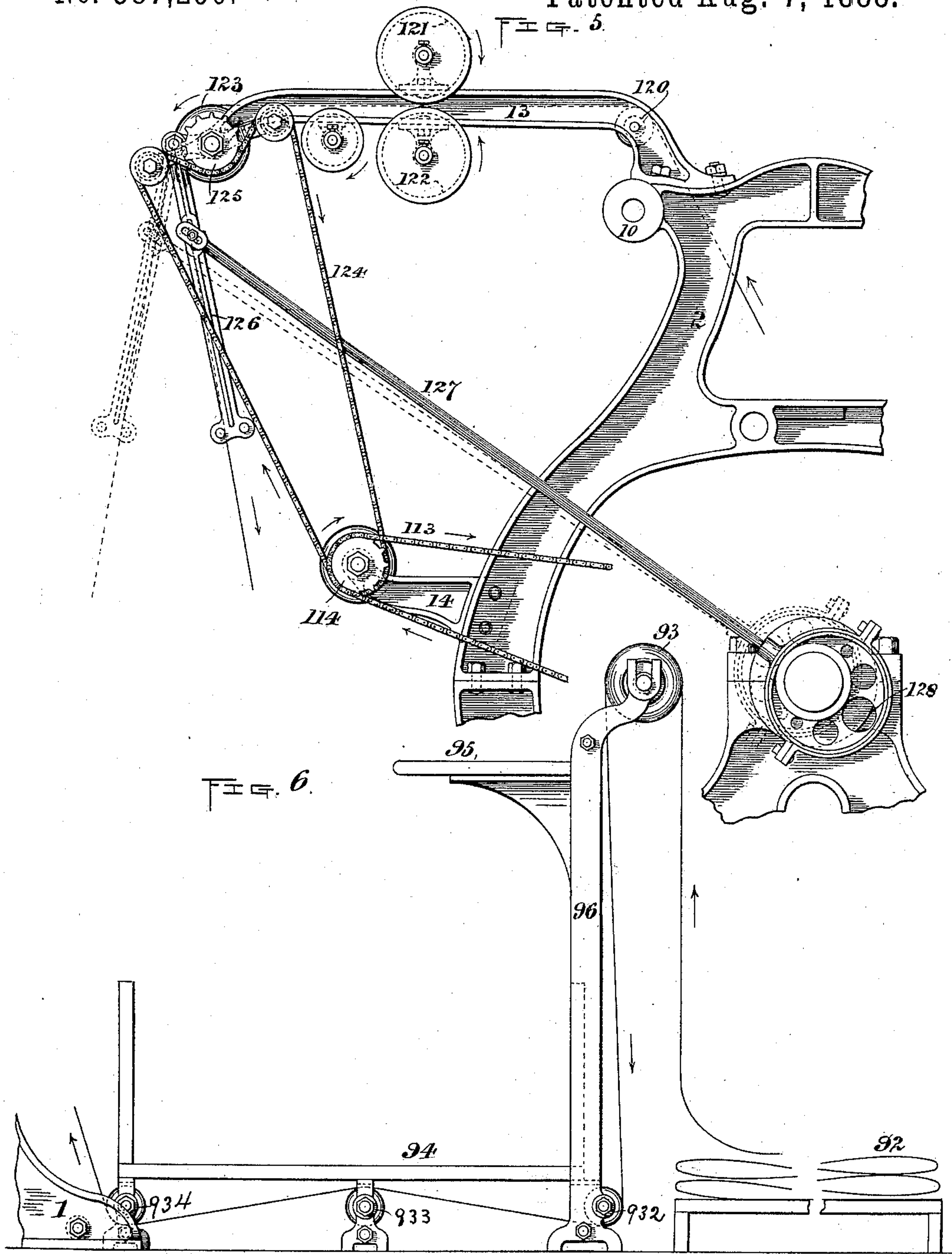
Witnesses;
Geo Wadman
Fred Kemper

Inventor;
David Gessner
By Lifford & Brown Attys.

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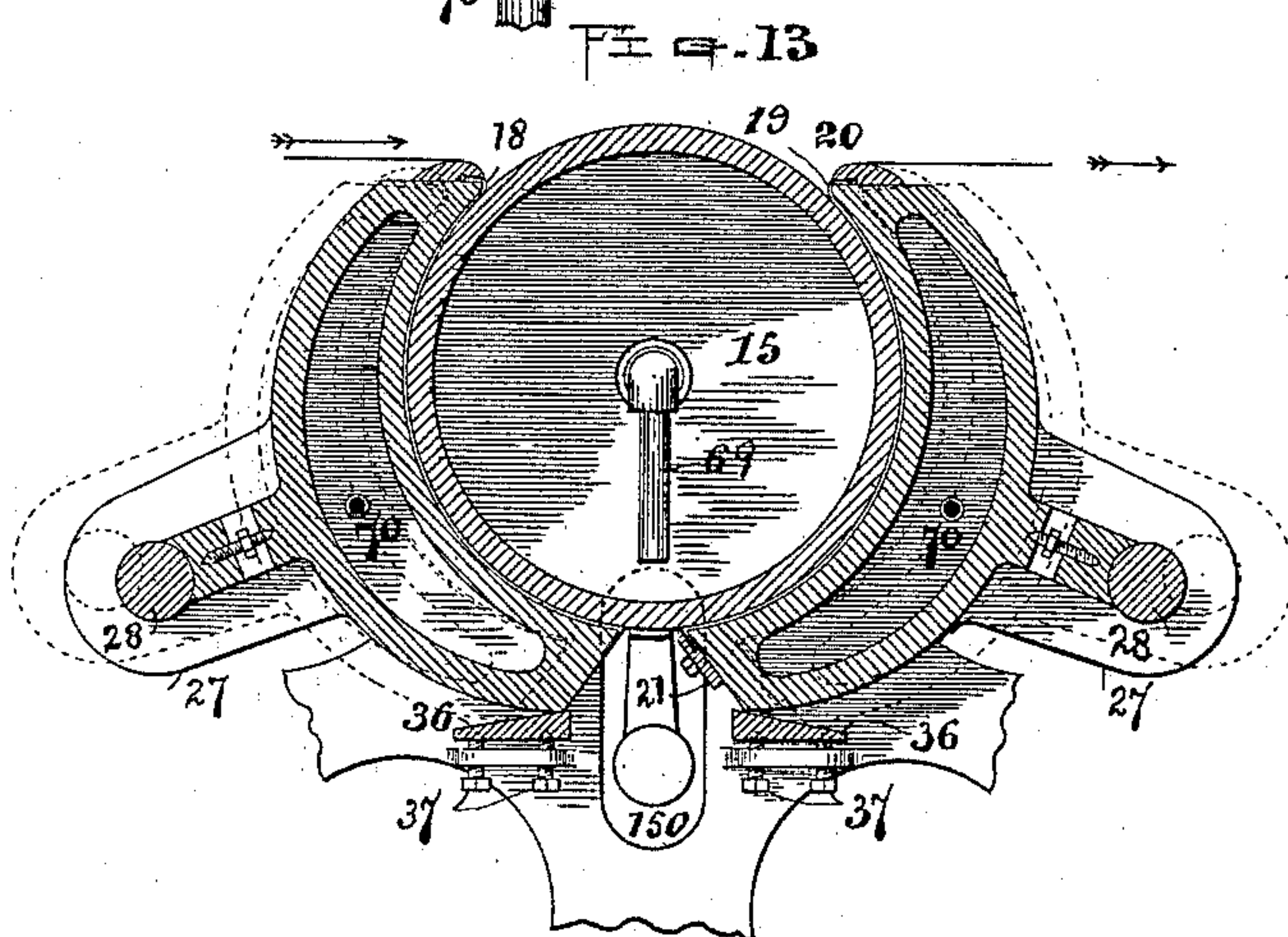
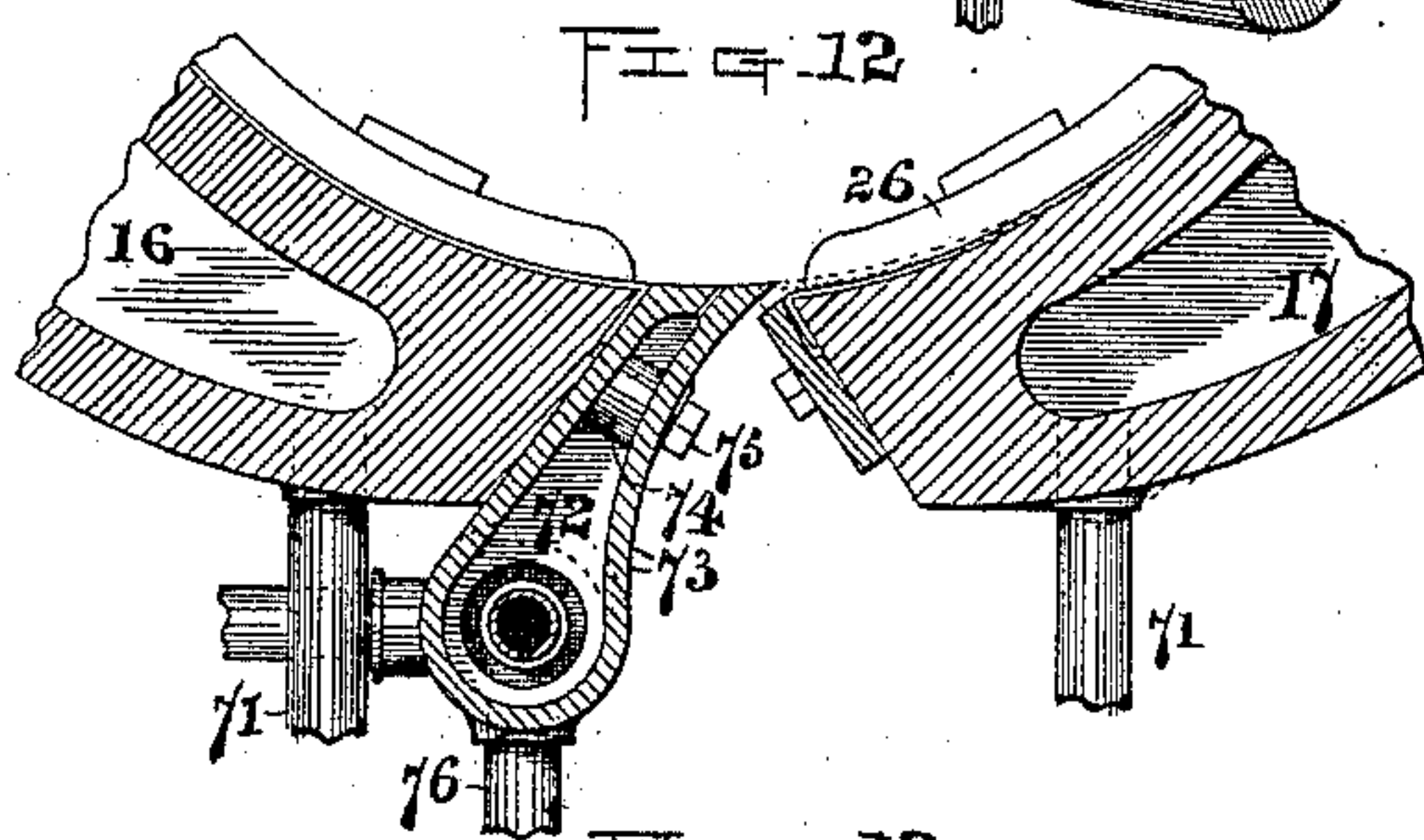
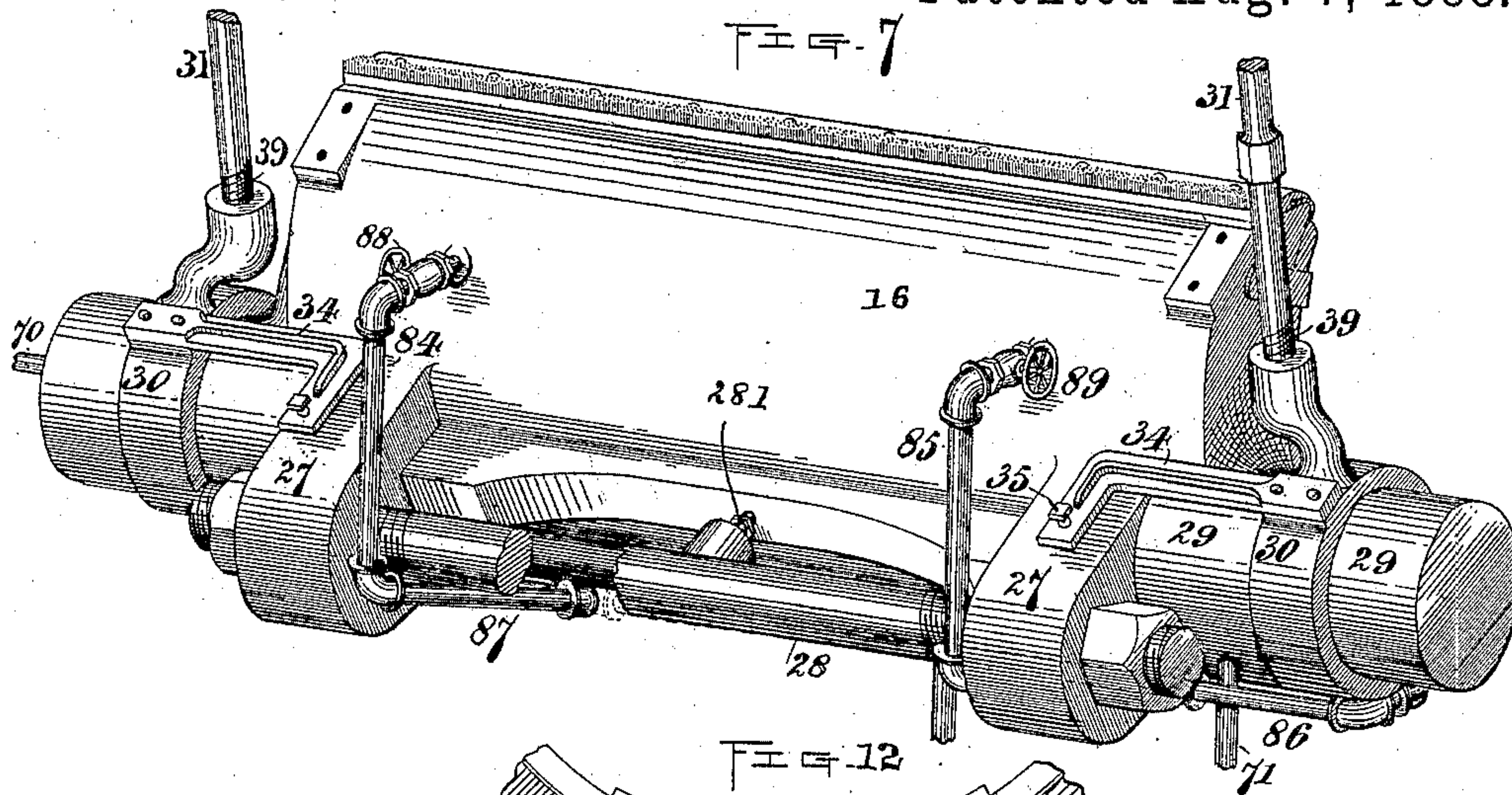
Inventor;
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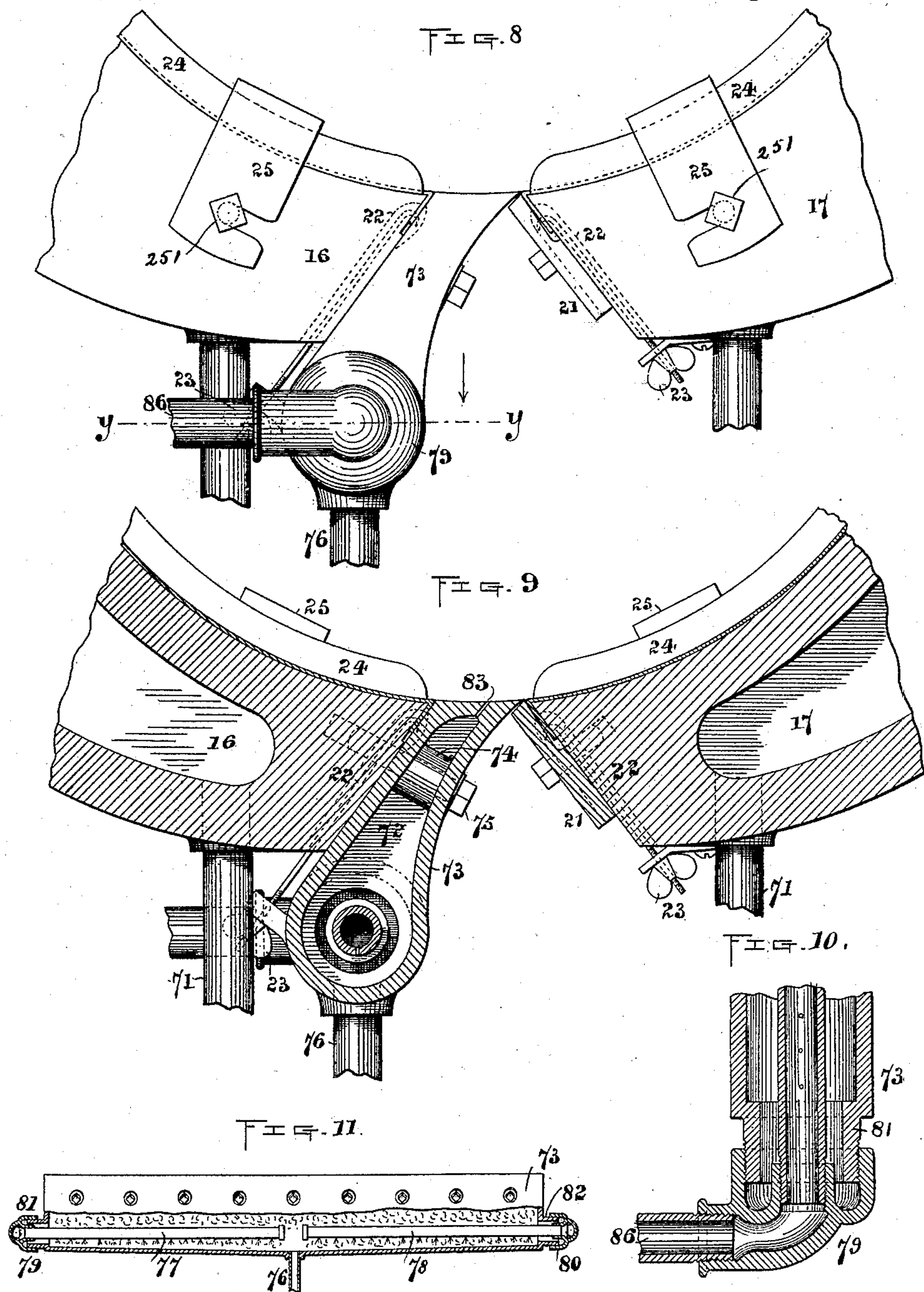
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Daniel Gessner.

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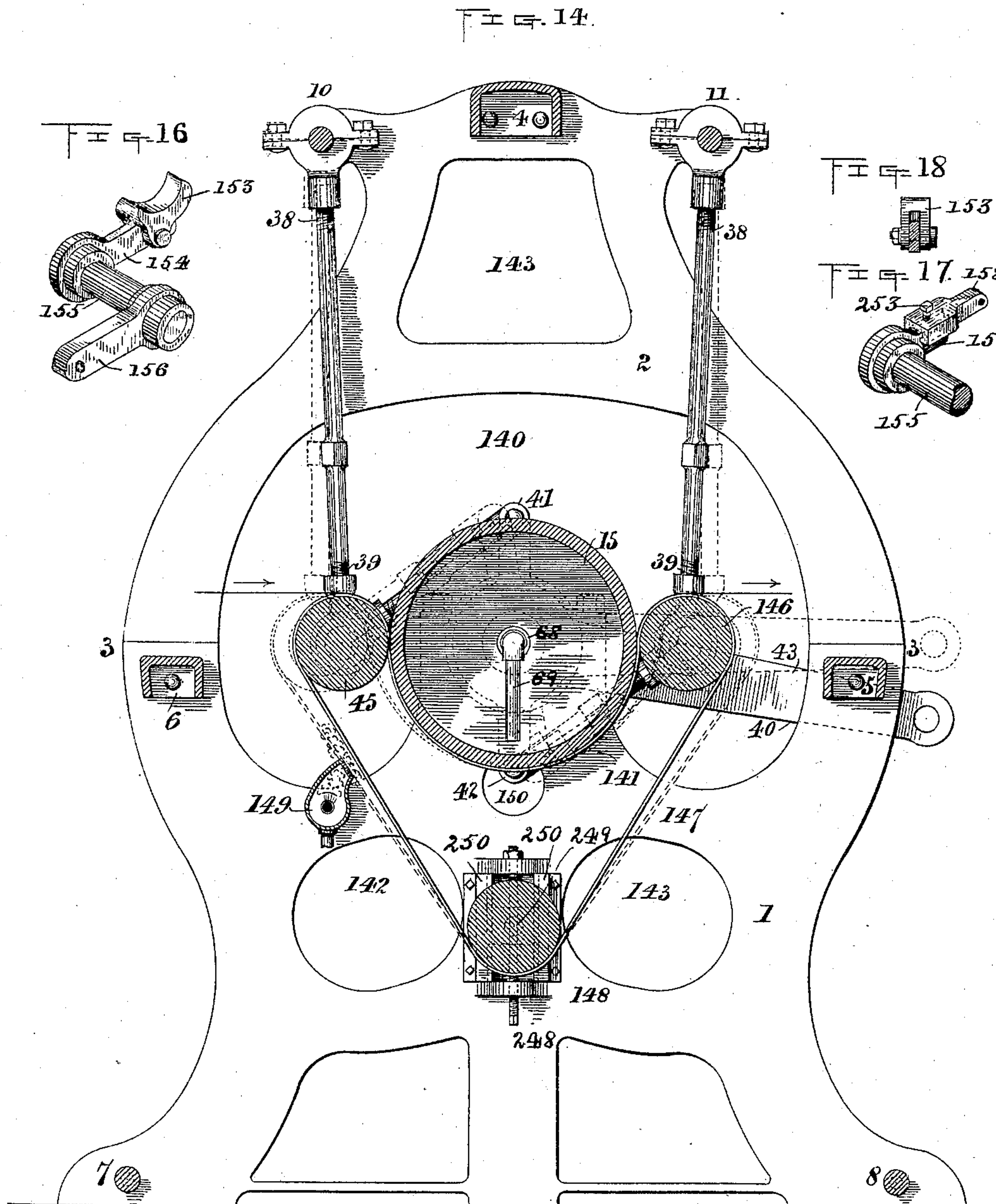
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8 Sheets—Sheet 8.

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No. 387,290.

Patented Aug. 7, 1888.



Witnesses;
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Fred Kempter.

Inventor;
David Gessner.

By Gifford & Brown Attys.

UNITED STATES PATENT OFFICE.

DAVID GESSNER, OF WORCESTER, MASSACHUSETTS.

CLOTH-PRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 387,290, dated August 7, 1888.

Application filed April 16, 1888. Serial No. 270,825. (No model.)

To all whom it may concern:

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

Referring to the drawings, Figure 1 is a front elevation of the machine. Fig. 2 is an end elevation viewed from the left-hand end of the machine in Fig. 1. Fig. 3 is an end elevation viewed from the right-hand end of the machine in Fig. 1. Fig. 4 is a vertical cross-section through the line *x x*, Fig. 1. Fig. 5 is an elevation of certain parts which are detached from Fig. 2 because of lack of space on that sheet of drawings. Fig. 6 is another part shown detached from Fig. 2 for the same reason. Fig. 7 shows one of the bed-plates detached with the parts immediately connected therewith. Fig. 8 shows the adjacent ends of the two bed-plates with the steamer and some other parts. Fig. 9 is a section of the same. Fig. 10 is a section through the line *y y* of Fig. 8. Fig. 11 is a detail to show the arrangement of pipes in the steamer. Fig. 12 shows the adjacent ends of the bed-plates and the steamer in section to illustrate more particularly the relationship of the pressing-surfaces. Fig. 13 shows the cylinder and bed-plates with a special arrangement for maintaining the position of the bed-plates when thrown back from the cylinder, and a steamer intermediate the bed-plates and detached therefrom, and an opening in the frame for its insertion in and removal from the machine. Fig. 14 is a cross-section showing certain modifications with a large portion of the machine omitted for the sake of clearness of illustration. Fig. 15 shows a brush. Figs. 16, 17, and 18 are details.

The frame of the machine may be described as follows: Each end of the frame is made of two main castings, 1 and 2, (see Fig. 14,) which are bolted together at 3. The opposite ends of the frame are secured together by the rods or bars 4, 5, 6, 7, and 8, Fig. 14; or in lieu of the bars 5 and 6 a single bar, as 9, Fig. 4, may be employed. At the top each end of the frame is provided with two ears, 10 and 11, from which ears the bed-plates will be suspended. To the outside of the right-hand end of the frame is bolted a yoke, 12, (shown in

Figs. 1 and 3,) to form the end bearing for the main and another shaft of the machine.

13 is an overhanging arm, of which there are two, one bolted at the top of each end frame of the machine for the support of certain devices hereinafter described.

14 is an arm, of which there are two, each bolted to the side of one of the end frames of the machine.

The parts immediately concerned in exerting pressure upon the cloth may be described as follows:

15 is the main cylinder, which is hollow, so as to be heated by steam from within, and the surface of which is suitably roughened by draw-filing, as is now well understood by those skilled in the art. This cylinder is journaled in the ends of frame, as is clearly shown in the drawings. It will be observed that the bearings of this cylinder are fixed, so that in the operation of the machine the pressure is regulated by the movement of the pressing-surfaces opposed to the surface of the cylinder.

16 and 17 are bed-plates of the form shown in cross-section in Fig. 4 and in exterior view in Fig. 7. Each of these bed-plates is provided with a separate facing of polished sheet metal, 18 and 19, respectively. These jackets are respectively held in place by being bent over the edges of the bed-plate, so as to form a flange, which is held in place as follows: At the edge of the bed-plate where the cloth leaves it the hook 22 (shown in dotted lines, Figs. 8 and 9,) is employed, which is provided with a thumb-nut, 23. This hook slides longitudinally in a suitable recess formed in the bed-plate and engages with the flange of the sheet-metal facing, which overlaps the edge of the bed-plate. By screwing up the thumb-nut 23 the function of the hook will be to hold the sheet-metal facing down onto the pressing-surface of the bed-plate. A similar hook is shown on the bed-plate 17, Figs. 8 and 9, though it would generally not be found desirable to use it excepting in connection with the bed-plate 16, and even in connection with bed-plate 16 it may be dispensed with in cases where the machine is very narrow, so that there is not the tendency of the sheet-metal facing to spring up at the center. It will be understood that this hook, when used, will be arranged,

preferably, at about the middle of the sheet-metal facing, since the edges of the sheet-metal facing at the ends of the bed-plates will be held down without the assistance of any hook by the end clamps, hereinafter referred to. There may be more than one hook employed along the middle of the jacket, particularly on a machine of extra width. The flange at the top edge of the bed-plate may be held in place by a clamp, 20, and the flange at the lower edge of the bed-plate may be held in place by a clamp, 21, in lieu of the hook already described. (See Fig. 13.) No claim is intended to be made herein upon this clamp; but a description of the same is embodied, since it may be useful to the constructor of the machine. The character of these clamps at the lower edge of the bed-plate is a feature illustrated in Figs. 8 and 9, from which it will be seen that the portion of the clamp overlapping the flange of the sheet-metal facing is slightly inclined on the side next the flange, so as to bind upon the flange as nearly as possible at the extreme edge of the bed-plate, the portion of the flange projecting beyond that line being comparatively free, though under the clamp. This construction is true of all of the clamps which are used for securing the sheet-metal facings in place on the edges of the bed-plates next where the cloth enters.

It will be observed that the facing on bed-plate 16, at the lower edge thereof, is held in place by the steamer, which will be more fully described hereinafter, and which also performs the function of a clamp, though it will be obvious that, since the steamer is at the edge of the bed-plate where the cloth leaves the bed-plate, the natural tendency of the facing there would be to maintain its position without requiring to be clamped with any such degree of firmness as is necessary on the edge of the bed-plate where the cloth enters, because in the latter case the strain is in a direction from the clamp.

24 on each bed-plate is a clamp, one of which is located at each end of the bed-plate, slightly overlapping the face thereof. The sheet-metal facing of the bed-plate extends under these clamps at each end, and is held by these clamps, which are of the same curvature as the face of the bed-plate, in contact with the face of the bed-plate, so as to prevent the ends of the sheet-metal facing from springing up into contact with the surface of the cylinder. The cylinder, of course, is sufficiently shorter than the bed-plates, so that it presses upon the bed-plates between the positions of the clamps.

25 are the ears connected with the clamps 24, which extend down, overlapping the ends of the bed-plates, to which the ears are bolted, as shown in Fig. 8, by bolts 251, or secured by other convenient means, so as to hold the clamps 24 in place.

In Fig. 12 I have shown the preferable curve in which the pressing-surfaces should be constructed in the vicinity of the adjacent edges of the two bed-plates.

It will be observed (and this is true whether an intermediate steamer be used or not) that the curve of the bed-plate 16, which is the one that the cloth first passes over, is a regular curve corresponding at its end with the curvature of the cylinder. On the other hand, however, it will be observed that the regular curvature of the face of the bed-plate 17, which corresponds substantially with the curvature of the cylinder, does not commence until about the point 26, which is made somewhat back from the forward edge of the bed-plate. The pressing-face of the bed-plate 17 from the point 26 to the preceding edge is of a curvature struck from a different center from the center of the cylinder, so that when the bed-plates are in operation there will be a very slight throat, commencing at the first edge of the bed-plate 17 and gradually diminishing until it vanishes at about the point 26. The function of this throat on the second bed is to make the pressure of the second bed-plate less at its first edge and increasing gradually to about the point 26, so that if anything should occur on the face of the cloth which would retard its passage under the second bed-plate and tend to clog the machine, if the pressure at the first edge of the bed-plate were intense, this obstruction would be allowed to pass well under the bed-plate before sufficient pressure would be exerted upon it to cause a clogging. Thus will be prevented any fraying or catching of the cloth or the threads thereof at the edge of the bed-plate.

The bed-plates are chambered, as shown in the drawings, so as to be steam-heated from within.

Upon the rear of each of the bed-plates are cast the shoulders 27, which, being connected by the rod 28, and the said rod 28 having a bearing, 28¹, between it and the center of the bed-plate at its back, the whole forms a substantial truss arrangement for regulating the spring of the bed-plate.

At each end of the bed-plate, as shown in Fig. 7, is provided a journal, 29, with which journals are connected the mechanisms by which the bed-plates are supported and operated. For supporting the bed-plates 16 and 17, a steel ring, 30, is fitted upon each journal of each bed-plate, within which rings each bed-plate is capable of rotation. Connected with each of these rings 30 are suspension-rods 31, which suspension-rods are each pivoted at their upper ends to one of the ears 10 or 11 of the frame of the machine. These rods 31 are suspended just inside the end frames of the machine, a rod, 32, at the front and another one at the rear of the machine connecting the ear on one side with the corresponding ear on the other, serving as the means of suspension in connecting with the split hangers 33 at the top of the suspension-rods. The rods 31 may be lengthened or shortened by means of the right and left hand screws at the ends.

It will be observed that when the bed-plates are in a position for pressing the suspension-rods 31 converge slightly toward their lower

ends, the points of suspension being wider apart than the centers of gravity of the suspended parts, so that when the bed-plates are released from pressure the tendency will be for their weight to swing them back from the cylinder.

In order to prevent the bed-plates from toppling over when swung back from the cylinder, I provide, preferably, the angle-pieces 34, one of which is bolted to each of the rings 30, and which extend out over the shoulders 27, as shown in Fig. 7. A set-screw, 35, is placed in the extremity of each, so that the position of the bed-plate can be set at any desired angle. In lieu of the arrangement just described, I may employ the device shown in Fig. 13, there being two inclined planes, 36, one arranged below each end of each bed-plate. These inclined planes have their upper surfaces set at such an angle as to correspond with the circumference of the circle in which the bottom of the lower edge of the bed plate will swing when released from pressure. Set-screws 37 are provided to regulate this angle of inclination.

Each of the suspension-rods 31 is provided with a right and left hand screw, 38 and 39, whereby the available length of the rod may be varied at will, thus regulating the height of the bed-plates.

In order to actuate the suspended bed-plates for the purpose of producing or releasing the pressure, the following means are provided:

At each end of the cylinder and on the outside of the frame is journaled a lever, 40, and I prefer to journal these levers upon the journal of the cylinder itself. Each of these levers is provided with three arms, 41, 42, and 43, arranged as shown in Fig. 2. Upon each journal of each bed-plate outside of the ring 30 is placed another and independent steel ring, 44, which in the case of bed-plate 16 is connected by the rod 45 with the extremity of the arm 41 of lever 40. The corresponding steel ring 44 in the case of the bed-plate 17 is connected by the rod 46 with the extremity of the arm 42 of the lever 40. The arms 43 of each of the two levers 40 is longer than the others, and the extremities of the two arms 43 are connected by the steel rod 47, which extends from one end of the machine to the other, compelling them to move in unison.

Beneath each extremity of the rod 47 is located a toggle-joint composed, respectively, of the links 48 and 49, coupled together by a screw-threaded nut, 50. Through both of these nuts 50 passes a screw-threaded shaft, 51, extending from one end of the machine to the other, and the thread upon one end of which is right-handed and on the other end of which is left handed. By turning this screw the nuts 50 may be drawn together, in which case the extremities of arms 43 of levers 40 will be depressed and a powerful pressure be brought to bear by each bed-plate upon the cylinder. When the screw-threaded shaft 51 is turned in the opposite direction, the nuts 50

will be drawn apart and the arms 43 elevated, so as to allow each of the bed-plates to fall back from the cylinder and release the pressure.

If it is desired to have access between the bed-plates and the cylinder for any purpose, the pins 52, by which the extremities of the toggle-joint are coupled to the steel rods 47, may be removed, and then the arms 43 of levers 40 may be thrown up to any extent desired, so as to give all the space between the cylinder and the bed-plates that may be useful for any purpose. The toggle-joints 48 and 49 could also be coupled directly to the ends of the arms 43 of levers 40, although the connecting-rod 47 is the better arrangement.

The extremities of the rods 45 and 46 are provided with right and left hand screws, so that the available length of those rods may be varied at pleasure. The rods 48 of the toggle-joint are likewise provided at their extremities with right and left hand screws, so that their available lengths may be varied at pleasure.

It will be observed from what has been already stated that the available lengths of rods 31, 45, 46, and 48 are each adjustable as to their lengths. By adjusting the lengths of rods 31 the beds are leveled to the cylinder. By the adjustment of the lengths of rods 45 and 46 the pressing-faces of the bed-plates are brought parallel with the surface of the roll. By the adjustment of the rods 48 the available pressure from the toggle-joints is regulated, so that the same pressure is exerted at one end of the bed-plate as at the other.

The vertical position of the nuts 50 will be dependent upon the relative lengths of the rods 48 and 49, and it is desirable that the shaft 51 shall be capable of adjusting itself to the position of the nuts 50 vertically. For this purpose I provide the forked bearings 52 for the shaft 51. The branches of the forked bearings, extending upward, furnish a guide for the journals of the rod 51, which permit the shaft 51 to follow in a vertical direction the changes in position of the nuts 50.

The lower extremities of the toggle-joints are pivoted to lugs 54, secured to the frame, as shown in Fig. 1.

For certain classes of goods it will be found desirable to have an additional cylinder to produce a supplemental pressing and reduce the luster produced by the first pressing. In such cases I employ the cylinder 55, which is journaled in fixed bearings in the frame above the cylinder 15. This cylinder 55 is also chambered, so as to be steam-heated from within; but, unlike cylinder 15, it is preferably covered with a jacket, 56, of felt or similar absorbent material.

57 is a bed plate arranged below the cylinder 55, chambered so as to be steam-heated from the interior, and provided with a facing of sheet metal, 58, which is secured at each edge of the bed-plate by the clamps 59. At each end of the position that the bed-plate 57

is to occupy, vertical guideways 60 are connected with the frame of the machine, and between these guideways are placed the journals of the bed-plate, which are planed square at that point, so as to be capable of a vertical movement, but not of a rotating movement. Thus the position of the bed-plate is insured. In order to produce the pressure upon the bed-plate beneath each journal thereof inside of the guideways of the frame is placed a stirrup. (Shown in dotted lines in Figs. 3 and 4, and at 153, Figs. 16 and 18.)

61 is an arm, of which there are two, having their extremities respectively pivoted to the stirrups already referred to at 62. (See Fig. 4.) Each of the arms 61 is secured upon a short arbor, 63, which projects outward through the frame of the machine, and upon its outer end takes a lever, 64, which lever is fixed upon the arbor. 65 is a rod which connects the extremity of the arm 64 with the arm 43 of a lever, 40. The rod 65 is provided at its opposite extremities with right and left hand screw-threads, so that its length may be varied.

The arm 61 may be made up of two parts, 158 and 159, Fig. 17, forming an extensible dovetailed joint with each other, so that the arm may be lengthened or shortened to adjust the position of the stirrup 153, being held in position by the set-screw 253.

Now, it is obvious that when in the operation of the lever 40 the arm 43 is lowered the extremity of the arm 64 will likewise be lowered, which will raise the extremity of arm 61 on the inside of the frame and force the bed-plate 57 upward in the vertical guideways of the frame against the cylinder 55.

I will now proceed to describe the arrangements for supplying steam to the heating of the cylinders and bed-plates and the moistening of the cloth.

Steam-pipes 66 and 67 (see Fig. 2) enter each cylinder through the journals thereof for the supply of steam.

68 and 69 are respectively the outlet-pipes for the water of condensation from the cylinders. The pipes for supplying steam to the bed-plates are numbered 70 in the drawings.

71 is the escape-pipe for the water of condensation from the bed-plates.

72 is a steamer which is secured to one edge of the bed-plate 16, and the face of which constitutes substantially a continuation of the pressing-face of the sheet-metal facing upon the bed-plate 16. This steamer is more particularly shown in Figs. 8, 9, 10, 11, and 12. It consists of a cast shell, 73, which is chambered interiorly, as shown in Fig. 9, the said chamber being interrupted by stays 74, which stays are cast in one piece with the shell 73 and occur at intervals from one end to the other of that shell, as is required for the bolts 75, by which the steamer is secured to the bed-plate 16, and which bolts pass through bolt-holes in the middle of said stays.

76 is a pipe connected with the shell 73 at

the bottom, by which the water of condensation escapes from the steamer.

77 and 78, Fig. 11, are pipes screwed into the caps 79 and 80, respectively. These caps are screwed onto the short projections on the ends of the steamer 81 and 82, as shown in Figs. 10 and 11. The pipes 77 and 78 thus extend when in position longitudinally from either end of the steamer toward its middle, and, being perforated along their under sides, they distribute steam throughout the chamber of the steamer in a downward direction. The steam which is thus distributed into the steamer escapes through a series of openings or a slit, 83, upon the cloth which is passing over said openings. The steam for supplying the pipes 77 and 78 is taken from the bed-plate 16 into the pipes 84 and 85, whence it is conducted by connecting-pipes 86 and 87 to the pipes 77 and 78 of the steamer. The pipes 84 and 85 connect with the chamber of the bed-plate 16, near the upper portion thereof, and the pipe is so inclined near the bed-plate that the steam in passing through the same has to pass at an upward inclination. In these upwardly-inclined portions of the pipes near the bed are located the valves 88 and 89.

It will be observed that the pipes 84 and 85, by which the steamer is supplied with steam from the bed-plate, connect with the chamber of the bed-plate at a point above the pipe 71, which is the exhaust-pipe for the escape of water of condensation from the bed-plate. Thus the steamer receives only dry steam from the bed-plate and the moisture deposited in the chamber of the bed-plate escapes without entering the steamer.

90 is a steamer for moistening the jacket upon the cylinder 55. This steamer is of substantially the same construction as the one just described, excepting that the form of its shell is modified, as shown in Fig. 4, to adapt it to the position in which it is placed. The face of this steamer 90 is, furthermore, not arranged as a continuation of the pressing-surface of the bed plate and is not in contact with the surface of the jacket which it steams. This steamer 90 is supplied with steam through the pipe 91, which is supplied with a valve, although not shown in the drawings, to prevent complication of lines. This pipe takes the steam from the upper portion of the chamber of the bed-plate 57. The steam is supplied to this bed-plate through the pipe 92, leading into the end thereof, and the water of condensation escapes through the pipe 71.

Now, it will be observed that both of the steamers I have described receive their steam from the interior of the bed-plate, so that the same steam which has traversed the bed-plate will be used for supplying the steamer. This steamer 90 may, however, be supplied with steam from outside and be disconnected with the bed-plate, as has been shown in a former application of mine, serially numbered 212,702, filed September 4, 1886.

In the case of the steamer 72 and the bed-plate 16, when the machine is started up, the valves 88 and 89 will be closed, so that no steam will enter the steamer until after the bed-plate has been heated. The heating of the bed-plate, however, likewise heats the steamer itself, which is connected to the bed-plate. Therefore when the valves are open and the steam allowed to enter the steamer, it will have first passed through the heated bed-plate and will then pass through the heated steamer before coming upon the cloth. The effect will be that when the steam arrives at the cloth it will be very much dried or deprived of its moisture. The same will be true to a somewhat less extent with respect to the steamer 90. Another advantage results from taking the steam from the bed-plate to the steamer, in that the bed-plate and the steamer may be connected and moved together so that the only flexible or packing connection for the supply of steam will be where the steam enters the bed-plates.

The cloth starts from the folds at 92, Fig. 6. It passes up over the roller 93 and down again under and over the rollers 932, 933, and 934. (Shown beneath the platform 94.) Then it enters the machine, as shown in Fig. 2.

95 is a seat which may be used by the attendant, and which is secured upon the upright 96. The attendant stands upon the platform 94, and may move about thereon freely without danger of stepping upon the cloth which passes beneath the platform. By the arrangement shown in Fig. 6, moreover, the cloth is caused to travel over a number of rollers before entering the machine proper; and thus when it enters the machine it will be running truer than would otherwise be the case. After passing from beneath the platform 94, the next operation which the cloth encounters is that of brushing by the brush 97, which is of ordinary construction. The next operation is a brushing by brush 98, and thence the cloth passes over the idler-rollers 99 100 101. The idler-roller 99 is mounted upon an arm pivoted concentric with the roller 101 and held in position by the engagement of the pinion 102 with the rack 103, by turning which pinion the roller 99 may be swung up or down. The cloth next passes onward over the steamer 104, of ordinary construction, and then it reaches the parts which are mounted upon the bed-plate 16—namely, the idler-roller 105, the stretcher 106, of ordinary construction, and the idler-roller 107. As the cloth passes under this idler-roller 107 its face will be subjected to a brushing by the brush 108. The object of this brushing is to remove any disturbance of the fibers which have occurred from the operation of stretching on the roll 106. This brush 108 may be of the construction shown in Fig. 10, the bristles not being continuous, but being arranged in rows, as shown, each row forming an angle with the direction of travel of the cloth, the rows diverging at both ends from the middle, the ob-

ject being that as the cloth is brushed the arrangement of the bristles in this position will have a tendency to stretch it crosswise, or at least to preserve its width in that direction. The cloth next passes between the cylinder 15 and the bed-plate 16, thence successively between the cylinder 15 and the steamer 72 and the bed-plate 17.

It will be observed here that the edge of the steamer 72, which really is a continuation of the bed-plate 16, projects somewhat under the edge of the clamp 21, which really is a continuation of the bed-plate 17. The object of this construction is to carry the cloth smoothly from one bed-plate to the other. The cloth next passes over the roller 109, which is mounted upon the bed-plate 17, thence over the idler 110, mounted upon the bed-plate 17, and thence onto a concave table, 111, where it will be allowed to accumulate in folds, as shown in Figs. 3 and 4. The accumulation of the cloth upon this table will prevent any disastrous consequences arising from any difference in tension produced as between the cylinders 15 and 55. Next the cloth passes over the roller 112, which is driven by a chain and sprocket, 113 and 114, from a sprocket, 115, connected with the journal of the cylinder 15. The cloth next passes over the idler-rollers 117 and 118, thence over the stretcher 119, of ordinary construction, by which it is stretched just before the final pressure. Thence the cloth passes between the jacketed cylinder 55 and the bed-plate 57. The pressure exerted between this bed-plate and this cylinder will preferably be light in comparison to that exerted by the bed-plates 16 and 17; and since this cylinder 55 is covered with the jacket which is moistened by the steamer 90, the effect of this last pressure will be to remove the luster from one side of the cloth, while maintaining the other effects of the pressure. Next the cloth passes over the idler-roller 120 and between the fanners 121 and 122, one of which blows air upon each side of the cloth, which comes out of the machine hot, and which it is desirable to cool before folding.

From the fanners the cloth next passes over the roll 123, which is driven from the sprocket 114 by the chain 124 and the sprocket 125. Thence the cloth passes down through the folder 126, which may be operated by the rod 127 from an eccentric, 128, mounted upon the cylinder-shaft, or it may be rolled up by a rolling attachment.

The various parts are driven as follows: 129 is the main shaft, upon which are mounted the fast and loose pulleys 130 and 131. This main shaft has its end bearing in the yoke 12 and its other bearing in the frame of the machine. The pinion 132 upon this main shaft drives the spur-wheel 133, which spur-wheel is fast with the pinion 134. The latter pinion drives the spur-wheel 135, which is fast to the main cylinder shaft. The brush 97 is mounted upon the main shaft and the brush 98 is driven from the main shaft by the crossed belt 136. The

spur-wheel 135 gears with the double-faced gear-wheel 137, which in turn drives the spur-wheel 138. This latter spur-wheel is fast upon the shaft of the cylinder 55, so that the cylinder 55 will be driven in the same direction as the cylinder 15. In case it were desired to drive the cylinder 55 in the opposite direction to the cylinder 15, the spur-wheel 138 could be slid out on its shaft, so as to gear directly with the spur-wheel 135, and then the double-faced gear-wheel 137 would be slid on its arbor in toward the frame of the machine, so as to be out of gear either with gear 135 or gear 138. In that case the stretcher, which is located at the front side of the upper cylinder, would have to be placed at the rear side to accommodate the reversed travel of the cloth. The fanners 121 and 122 are driven by the belt 245 and pulley 246, mounted on the brush-shaft.

The form of frame which I have adopted and shown presents many advantages. The end pieces, being duplicates of each other, are interchangeable. The lower half, 1, of the end frames may be set up before the upper half is applied, so as to permit the putting in of the heavy cylinder 15 and the bed-plates 16 and 17. The frame when complete presents on either end the inverted-heart-shaped opening 140, Fig. 14. At the top of the spur of the opening 140 of the frame is mounted the cylinder, with the bed-plates arranged on either side thereof. Thus the end of the cylinder and the ends of the bed-plates are readily accessible from the end of the machine, so that the operator can see clearly just how the operation of pressing is proceeding and can have ready access between the bed-plates and the cylinder when the bed-plates are thrown back from the cylinder. The openings 142 and 143 permit of the insertion of the brush and brush-shaft after the machine is set up. Thus, in putting in a new brush the brush may be inserted complete without being taken apart in any way. Furthermore, by having these two openings the brush may be arranged on either side of the frame, so that the lower half of the frame may be used interchangeably on one end of the machine or on the other. The opening 143 is such that the machine may be used without the upper cylinder and bed-plate, and the upper cylinder and bed-plate may be placed in position without disorganizing the machine in any way by simply placing in position the hangers 144, which support the upper cylinder, the opening 143 being large enough to slide the bed and cylinder into position endwise. Furthermore, when the upper bed and cylinder are in position the ends of the same are fully exposed for viewing the jacket, viewing the operation of the parts, or obtaining access between the cylinder and the bed-plate when the two are separated. The brass jacket for the upper bed-plate may thus be either taken out endwise by sliding it out at the opening of the frame, or may be taken out from the front.

In Fig. 13 I have shown a convenient means provided for the insertion or removal of the steamer when not connected with the bed-plate. Thus, the hole 150 is cut in the end frame of suitable size to permit the steamer 159 to be inserted into place or withdrawn endwise without disturbing the other parts.

In Fig. 14, in lieu of the bed-plates 15 and 16, are substituted the rollers 145 and 146, which bear against opposite sides of the cylinder. These rollers are supported and operated by similar mechanism to that already described for the bed-plates. In connection with them, however, an endless apron, 147, is employed, which passes around the rollers 145 and 146 and a third roller, 148, which third roller may be provided with any suitable means of adjustment to keep the apron taught, such as the set-screw 248, which draws the bearing 249 up or down in the guideways 250. This apron will, as shown in the drawings, envelop about the lower half of the cylinder 15, so as to confine the cloth being pressed between itself and the cylinder. A steamer, 149, may also be employed to moisten the jacket before coming in contact with the cloth.

I have in my application for Letters Patent for improvement in cloth-pressing machines, filed September 4, 1886, Serial No. 212,702, shown and described a machine upon which my present invention is intended mainly as an improvement, and have therein claimed many of the features which are shown in the machine herein described, comprising, broadly, two cylinders, two bed-plates co-operating with the first of these cylinders, a bed-plate co-operating with the second cylinder, a steamer applied to one of the bed-plates of the first cylinder and having a perforated pressing-surface that bears against the cylinder intermediate the two bed-plates, a second steamer delivering steam to the moisture-absorbing jacket of the second cylinder, pendent arms supporting the two bed-plates of the first cylinder, vertical guideways supporting the bearings for the bed-plate of the second cylinder, a three armed lever at each end of the cylinders and bed-plates, rods connecting the arms of said levers to the ends of the bed-plates, and devices for operating said levers to move the bed-plates toward and from the cylinders. I have described in my application for Letters Patent filed May 16, 1886, Serial No. 203,279, the combination, with the bed-plate and cylinder and sheet-metal facing, of means whereby the ends of the sheet-metal facing are secured to the bed-plate and the margins thereof are prevented from springing up. Referring to the claims of said two applications for greater certainty, I do not in the present case claim, as therein claimed, any of said features separately or broadly; but, nevertheless, my claims at the end of this specification are not to be understood as limited by general reference to devices to the particular devices herein described, since I am aware that in many instances other forms of devices may be employed

for accomplishing the same result without departing from the scope of my invention.

I claim—

1. In combination, the cylinder and its co-
5 operating pressing devices, pendants upon which the bearings of the pressing devices are located, and an end frame containing an opening, opposite which the bearing of the cylinder and pressing devices are located, and hav-
10 ing upward extensions, upon which are hung or pivoted the said pendants.

2. In combination, the cylinder and its co-
operating pressing devices, an end frame con-
15 taining a fixed bearing for the cylinder and having an opening extending on both sides of said bearing, projections from the ends of the pressing devices extending through said opening, and mechanism for supporting and oper-
20 ating said pressing devices, connected, respectively, with said pressing devices and said projections therefrom inside and outside of said end frame.

3. The combination, with the bed-plate and its sheet-metal facing, of a hook arranged to
25 engage the edge of the sheet metal at or near the middle thereof, whereby the sheet metal is held down in contact with the bed-plate, substantially as described.

4. In combination with the bed-plate and
30 its sheet-metal facing, a clamp, 24, secured by the ears 25 and bolts to the end of the bed-plate, substantially as described.

5. In combination, a cylinder, a bed-plate, pendants whereby the bed-plate is supported,
35 the journals whereby the bed-plate is connected with the pendants, and a stop whereby the rotation of the bed-plate upon the pendants is limited and the proper position of the bed-plate maintained, substantially as de-
40 scribed.

6. In combination, a cylinder, two pressing devices coacting therewith, and suspending means for said pressing devices having screw-
45 threaded rods, whereby the length thereof may be adjusted, substantially as described.

7. In combination, a cylinder, two bed-plates, each having end journals, the rings 30, the rods 31, the hangers 38, the rings 44, the rods 45 and 46, and the levers 40, all combined
50 and arranged substantially as described.

8. In combination, a cylinder, and two pressing devices coacting therewith, a three-armed lever at each end of the cylinder, rods connect-
55 ing the journals of each pressing device with an arm of each lever, and the rod 47, whereby said levers are coupled together, substantially as described.

9. In combination with the end frames of the machine, the cylinder, and its two co-op-
60 erating pressing devices located between the frames, the said pressing devices having journals projecting outside of the frames, and a lever located outside of each frame and connected with one journal of each pressing device,
65 whereby the pressing devices are moved to and from the cylinder, substantially as described.

10. In combination, the cylinder, pressing devices co-operating therewith, a lever at each end of the cylinder for operating the pressing
70 devices, toggle-joints adjacent to said levers and connected therewith, one of the links of each of said toggle-joints being provided with a screw-threaded rod, substantially as described, whereby the pressure exerted by the
75 toggle joints may be equalized, and means for operating said toggle-joints.

11. In combination, the cylinder, the pressing devices co operating therewith, a lever at each end of the cylinder for operating the
80 pressing devices, and rods connecting each of said levers with the ends of the respective pressing devices, said rods being provided with screw-threads, whereby the pressing-sur-
85 faces of the pressing devices may be adjusted parallel with the cylinder, substantially as described.

12. In combination, the cylinder, the bed-plates co-operating therewith, the rods by which said bed-plates are suspended at each
90 end, means for adjusting the length of each of said rods, the levers whereby said bed-plates are actuated, rods connecting said levers with the ends of said bed-plates, and means for ad-
95 justing the lengths of said last-mentioned rods, all arranged substantially as described, whereby the beds are leveled and brought parallel to the cylinder, as set forth.

13. In combination, the cylinder, the pressing devices co-operating therewith, a lever ar-
100 ranged at each end of said pressing devices for operating the same, rods connecting the arms of said levers with the pressing devices, toggle-joints adjacent to and connected with said levers, the screw-threaded rod 51, by which
105 both of said toggle-joints are operated, and the forked bearings 52 for said rods, substantially as described.

14. In combination, two cylinders arranged one above the other, two bed-plates co-operat-
110 ing with the lower cylinder on opposite sides thereof, and a bed-plate co-operating with the upper cylinder below the same, and two levers and devices whereby the said levers are connected, respectively, with the opposite ends
115 of all said bed-plates, substantially as described.

15. In combination, the two cylinders, two bed-plates co-operating with one of said cylinders, another bed-plate co-operating with the
120 second cylinder, two levers arranged one at each end of the machine, devices embracing connecting-rods, whereby each of said levers is connected with the adjacent end of each bed-plate, and means whereby said rods are made
125 adjustable lengthwise, substantially as described.

16. In a cloth-pressing machine, in combination, the bed-plate, an exhaust-pipe for the escape of water of condensation, the steamer,
130 and a pipe leading from the bed-plate to the steamer and taking dry steam from the bed-plate at a point above the exhaust.

17. In a cloth-pressing machine, in combi-

nation with the bed-plate and the steamer, a pipe whereby the steamer is supplied with steam from the bed-plate, and a valve in said pipe, whereby the steam may be cut off from the steamer until the bed-plate has become heated, substantially as described.

18. In a cloth-pressing machine, in combination with the bed-plate, a steamer mounted upon the same in such manner as to receive heat from it, a pipe supplying steam to the steamer from the bed-plate, and a valve in said pipe, whereby the steam may be cut off from the steamer until the latter has become heated by the bed-plate, substantially as described.

19. In combination with the bed-plate, the steamer, and the pipes connecting the steamer and bed-plate, all mounted upon the bed-plate, substantially as described.

20. In combination with the pressing devices, a stretcher and a brush located successively along the path of the cloth, in which brush the bristles are arranged in rows diverging from the middle, substantially as described.

21. In combination, pressing devices and a stretcher, and a brush in the path of the cloth, the brush acting on the cloth after the latter has been stretched by the stretcher and before the cloth is pressed, substantially as described.

22. In a cloth-pressing machine, in combination, the two cylinders, the gear-wheel 135, the double-faced gear-wheel 137, and the gear-wheel 138, two of said gear-wheels being movable longitudinally of their shaft, substantially as described.

23. In a cloth-pressing machine, in combination with a cylinder and its co-operating pressing devices and a steamer arranged below the cylinder, an end frame having an opening opposite to the end of the steamer and adapted to permit the steamer to be inserted or removed endwise, substantially as described.

24. In combination with a cylinder, a bed-plate having its bearings arranged in guide-ways upon the frame, stirrups arranged upon vibrating arms, whereby said bed-plate is reciprocated, means of adjustment, whereby the length of said vibrating arms may be made adjustable, the levers 40, to which power is applied for moving the bed-plates, and rods connecting the said levers with the said vibrating arms, substantially as described.

DAVID GESSNER.

Witnesses:

H. W. DENNY,
F. W. BLACKUM.