

No. 623,020.

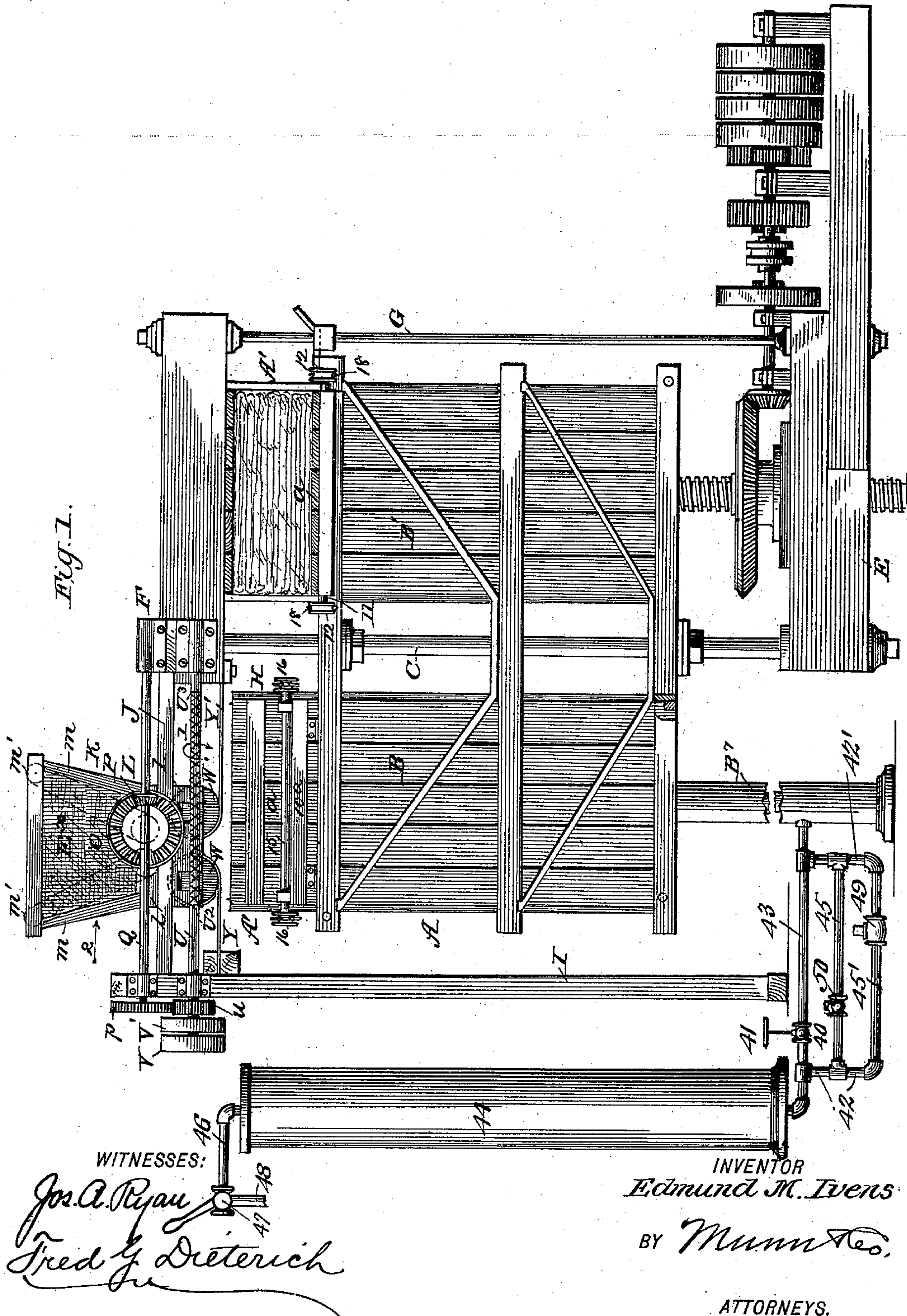
Patented Apr. 11, 1899.

E. M. IVENS.  
COTTON PRESS.

(Application filed Mar. 21, 1895.)

(No Model.)

5 Sheets—Sheet 1.



WITNESSES:

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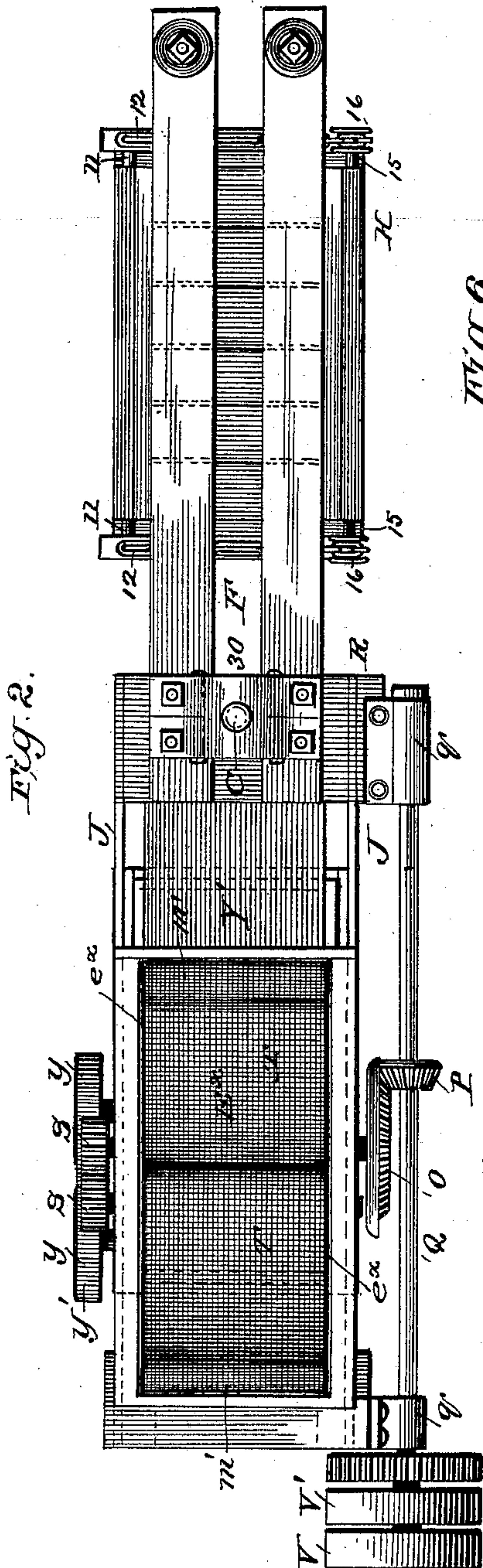


Fig. 6.

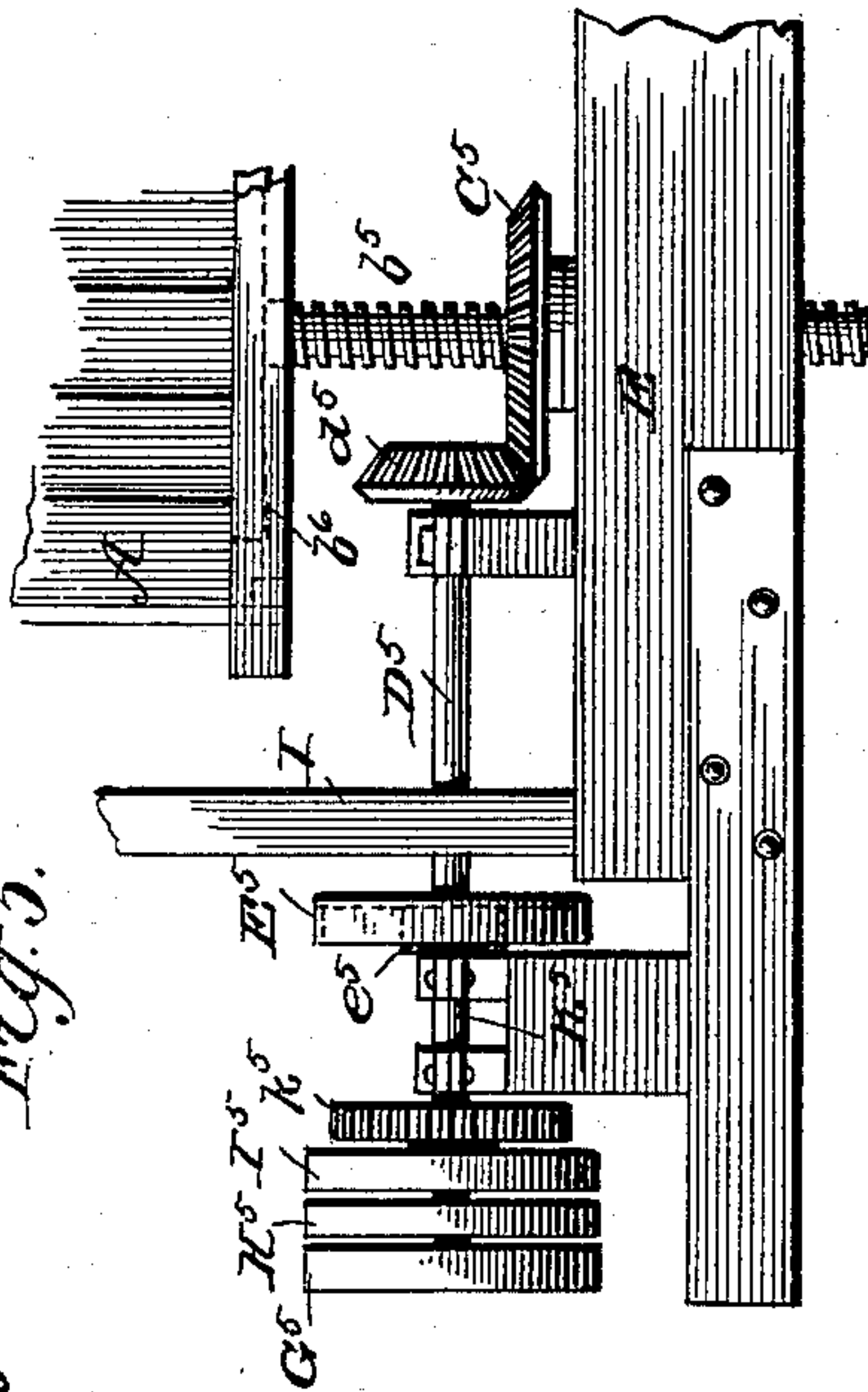
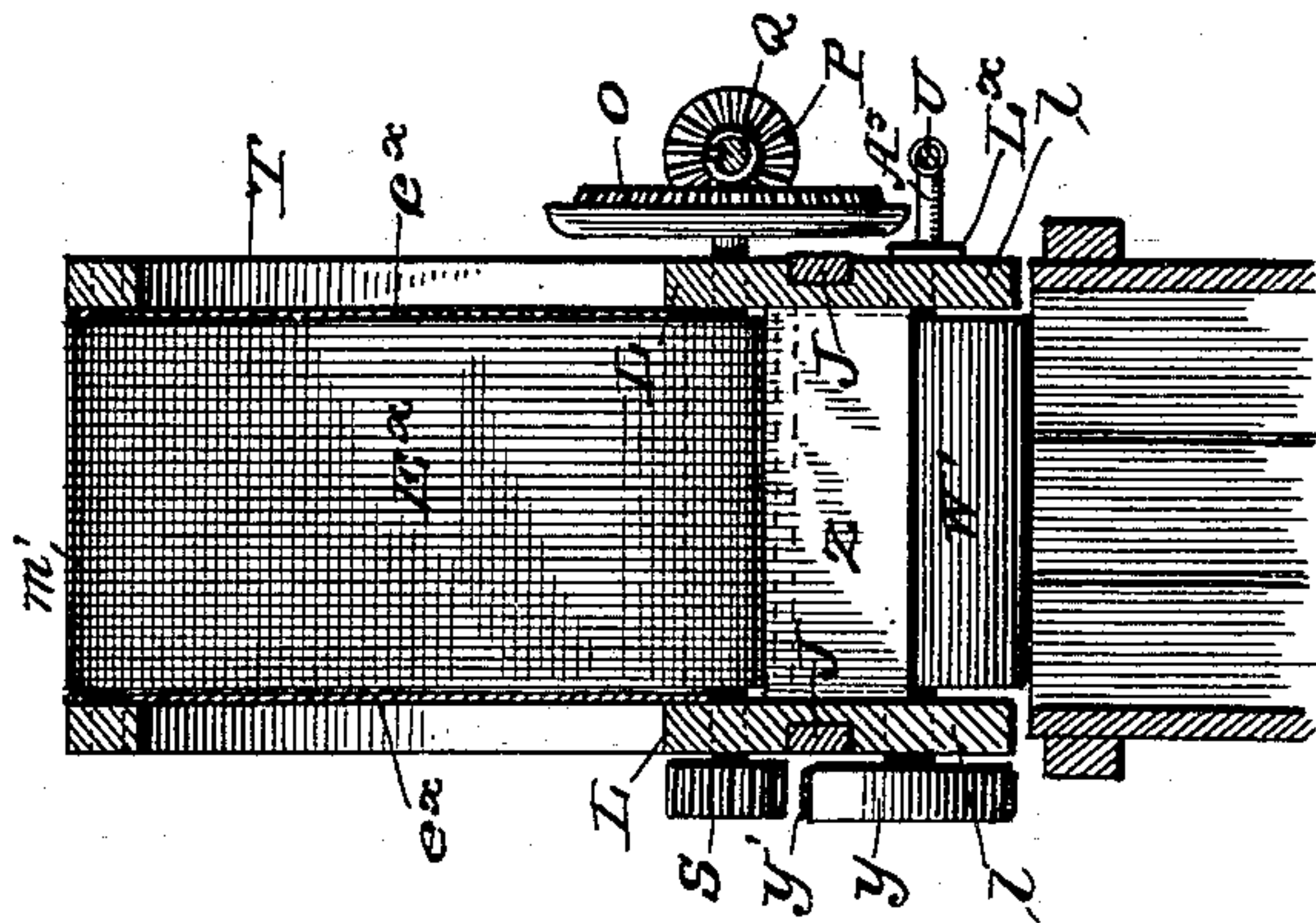


Fig. 5.

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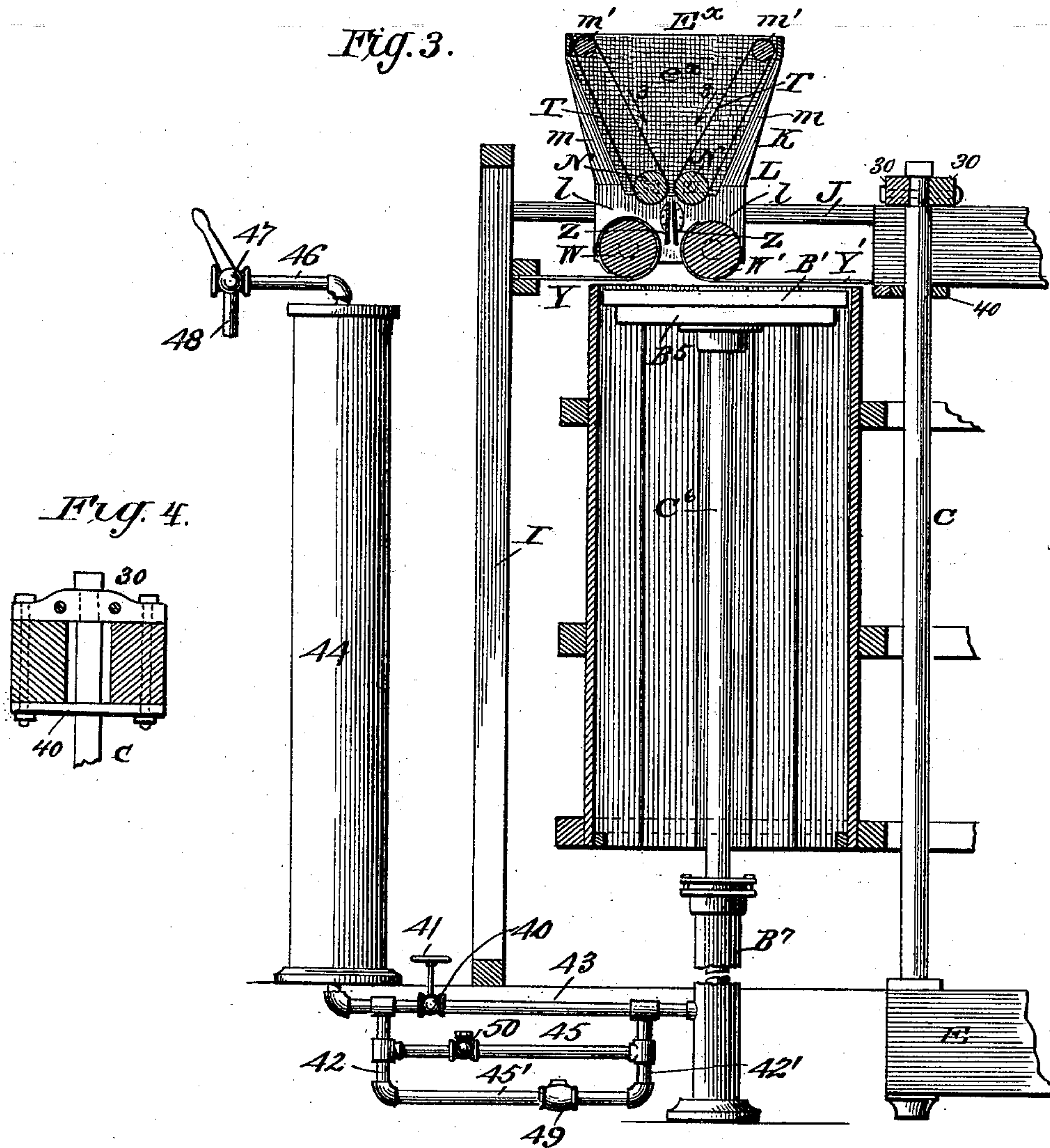
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5 Sheets—Sheet 3.



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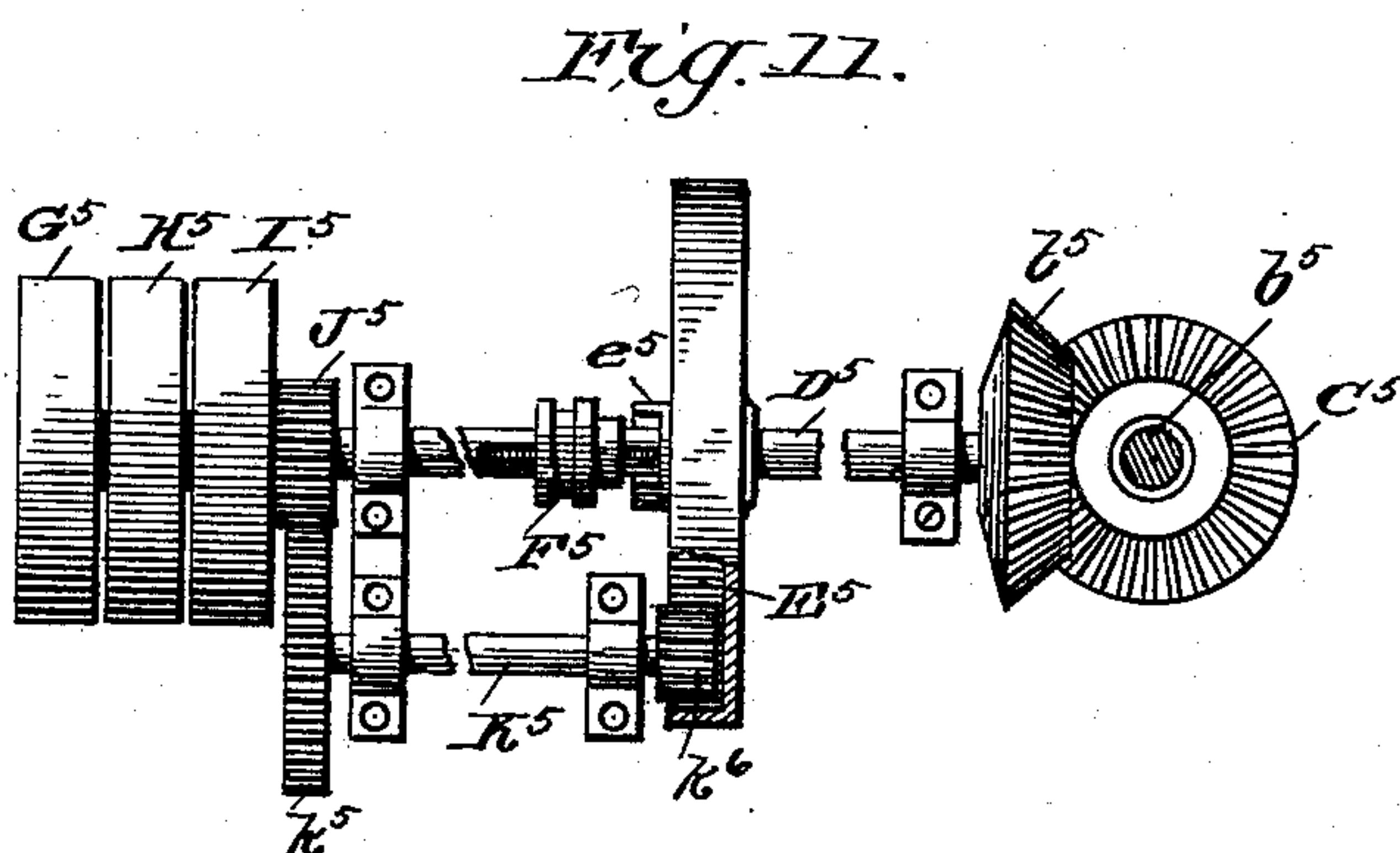
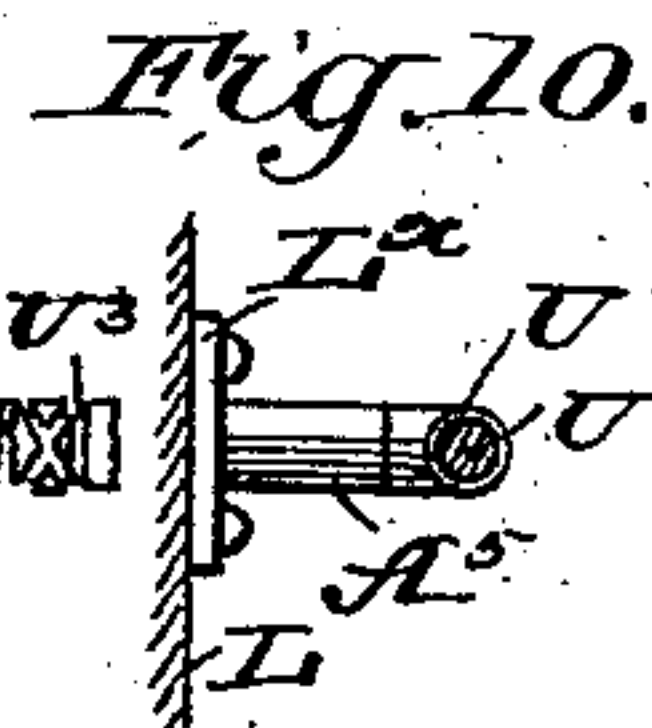
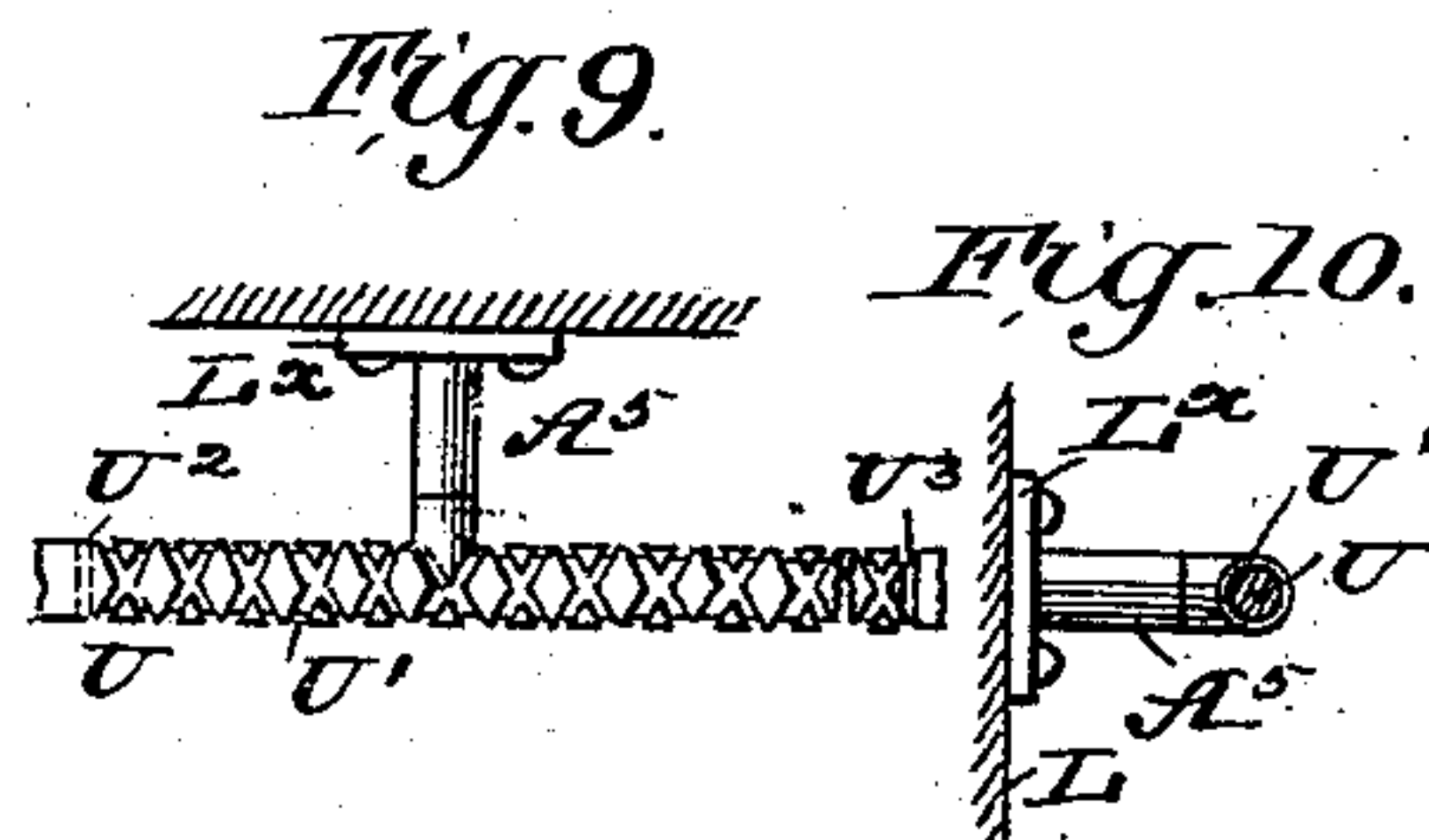
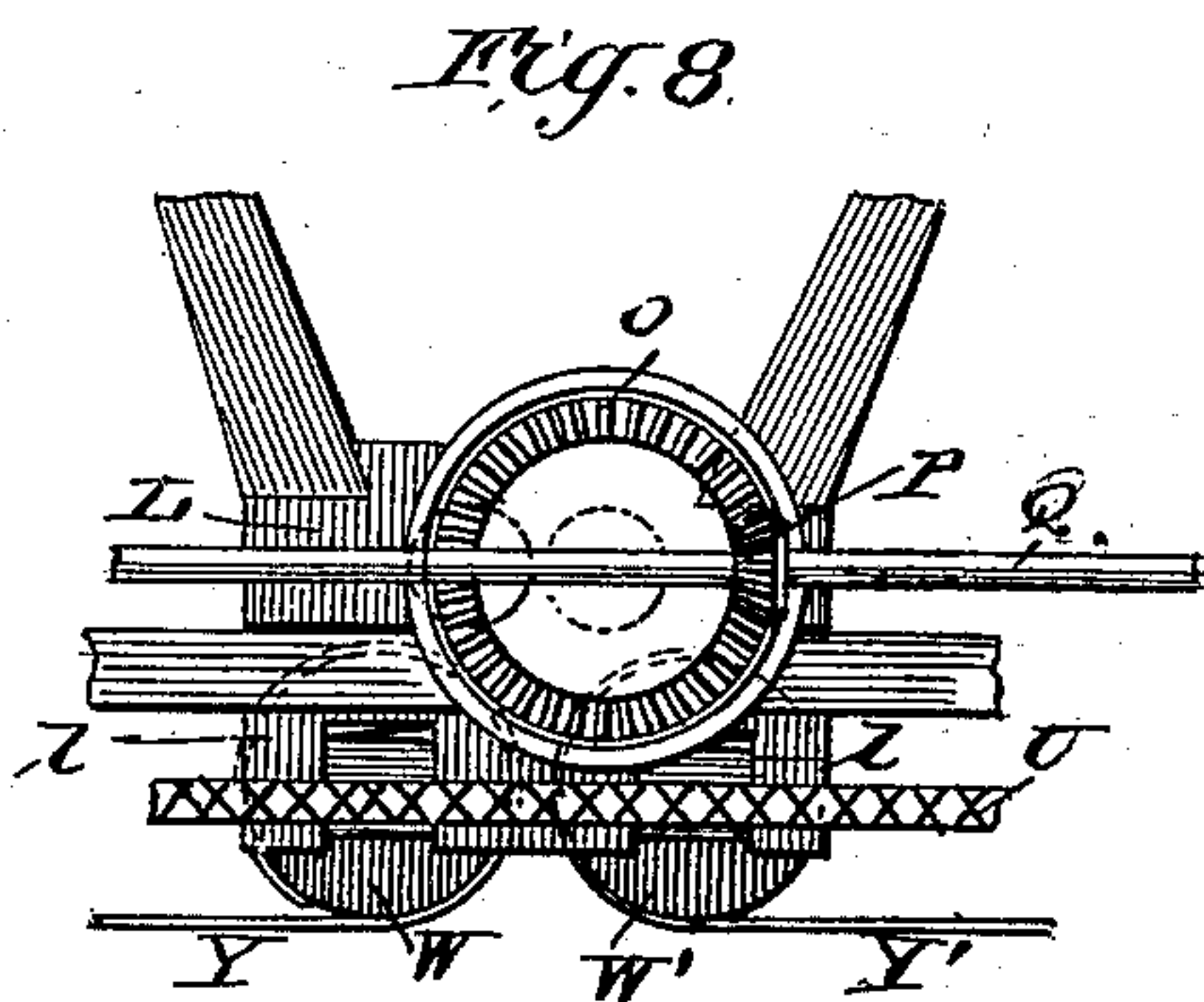
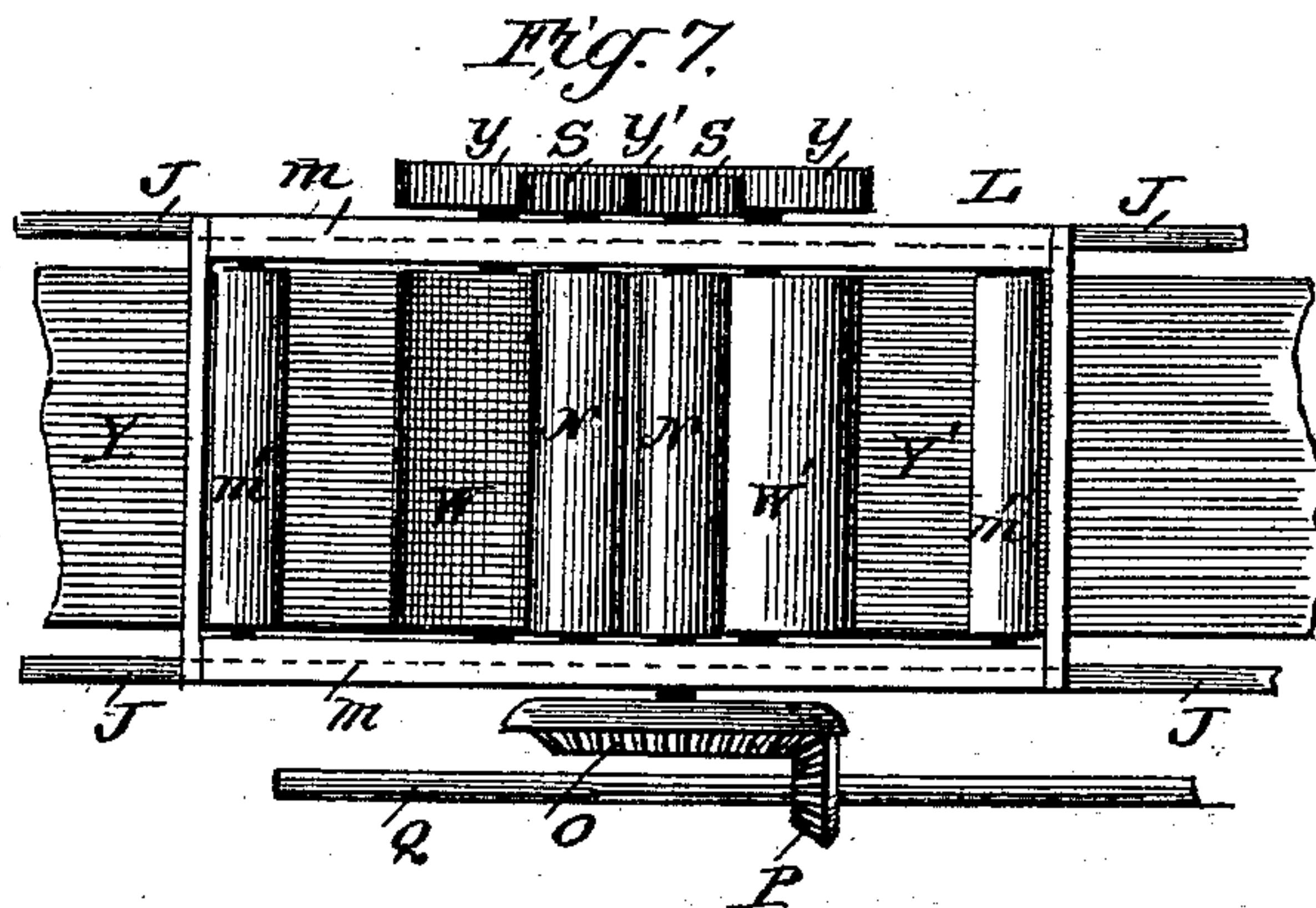
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5 Sheets—Sheet 5.

Fig. 12.

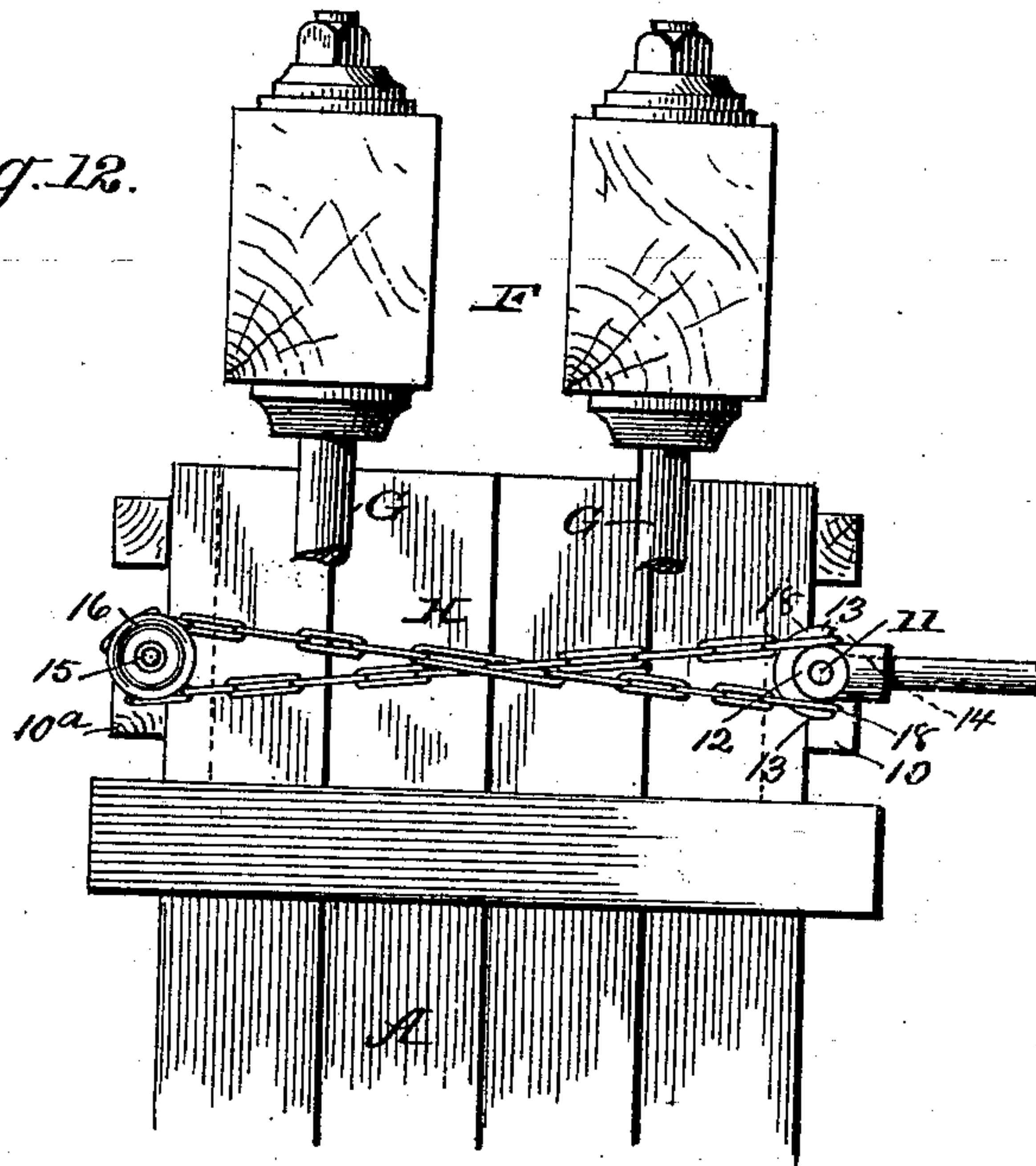
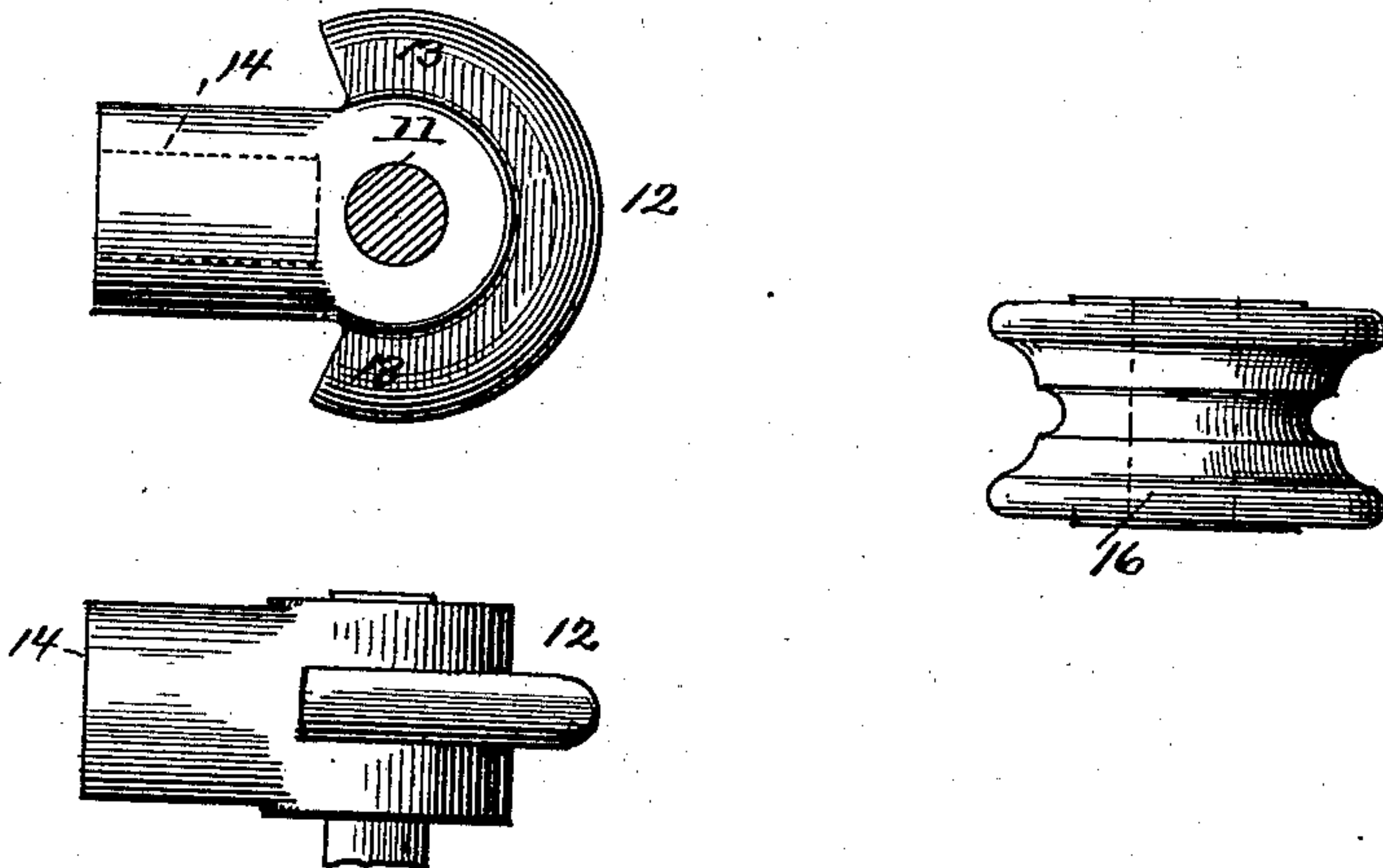


Fig. 13.



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# UNITED STATES PATENT OFFICE.

EDMUND M. IVENS, OF NEW ORLEANS, LOUISIANA.

## COTTON-PRESS.

SPECIFICATION forming part of Letters Patent No. 623,020, dated April 11, 1899.

Application filed March 21, 1895. Serial No. 542,648. (No model.)

*To all whom it may concern:*

Be it known that I, EDMUND M. IVENS, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and Improved Cotton-Baling Press, of which the following is a specification.

My invention relates to an improved cotton-baling mechanism for compressing cotton by what is known as the "roller process;" and it primarily has for its object to provide a mechanism of this character of a simplified arrangement of parts so disposed and correlated as to render the operation of the press the more effective, rapid, and practical.

A further and essential object of this invention is to provide a bat forming and laying means held to reciprocate horizontally over the press-box or bat-receiving chamber whereby the cotton is the more evenly and uniformly distributed into such box and such means so connected with the main framing of the machine as to effectually prevent the folds or laps of the bat or sheet from expanding during the folding or box-filling operation, whereby a great weight and high degree of density are obtained in a bale of a comparatively small size.

Furthermore, my invention has for its objects to provide a simplified feeding, compressing, and lap-laying device and a lap-receiving press-box or receiving-chamber so arranged whereby it is possible to rapidly transfer the folded or lapped portions of the sheet to the baling-press for a final pressure to expel the air and impart the finishing compression and to admit of the tying of the bale without interfering with the continuous action of the ginning machinery and the bat forming and laying devices; to provide means for preventing the cotton adhering to the bat-forming rolls and to the sides of the feed or chute, and to provide a compact arrangement of the bat forming or compressing rolls and bat-laying means whereby the swinging lapping devices usually employed in this class of machinery may be dispensed with and whereby the bat or sheet is formed practically directly over the said bat-laying devices and in consequence kept thereby practically in a rigid or uniform sheet from the rolls to the said laying devices.

A still further and important object of this

invention is to provide, in connection with the lapping or fold-laying devices and the press-box or chamber held to receive the folded cotton, a plunger or platen adapted to operate in the said receiving-chamber which can be adjusted to and is capable of automatically receding as the pressure of the folded sheets reaches a predetermined point, whereby the pressure in the batting or folded sheets will remain uniform during the entire folding operation or as the box is entirely filled and whereby the uniform pressure of the platen on the folds will be maintained at all times and such platen automatically, gradually, and uniformly lower as the cotton is folded under the pressure exerted thereon by the folding or laying devices.

With other objects in view, which hereinafter will be referred to, my invention consists in the peculiar combination and arrangement of parts first described in detail and then specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a baling-press constructed in accordance with my invention. Fig. 2 is a top plan view thereof. Fig. 3 is a vertical longitudinal section of one end of the duplex press-box, the gig or reciprocating carriage carrying the feed, the compressing and folding devices, and the receding-follower mechanism. Fig. 4 is a detail section of a part of the frame, hereinafter referred to. Fig. 5 is a side view of a modified form of apparatus for operating the receding follower. Fig. 6 is a vertical central section, enlarged, of the gig or reciprocating carriage. Fig. 7 is a detail plan view of the reciprocating carriage. Figs. 8, 9, and 10 are detail views illustrating the feed-screw shaft. Fig. 11 is an enlarged horizontal plan of the apparatus shown in Fig. 5. Figs. 12 and 13 are detail views of the press-door-locking devices.

In the ordinary roller-compresses the cotton as it passes from the condenser passes to the compressing-rolls, from which it passes down between what are known as "lapping" devices, which fold the bat into the press-box held in line to receive it. In such arrangement of parts the cotton as it passes to and through the rolls and the lapping devices is liable to stick to the rolls and the lapper, which



tends to clog the same and interfere with the continuous and uniform operation required to expeditiously and economically bale cotton by the roller process. This objection-  
 5 able feature I entirely overcome by arranging the compressing and the lapping or folding mechanism in the manner presently described in detail. Furthermore, it should be stated that where the rollers are arranged at  
 10 a fixed point above the press-box and to receive the cotton direct from the condenser and discharge it in a bat between the lapper or folder it is very difficult to obtain an even feed of the batting from the rolls to the press-  
 15 box—i. e., the layers are not laid uniformly upon or flat against each other, because in such arrangement the condensers fail to feed the lint-cotton to the press-rolls in a continuous and uniform manner, making it, as it  
 20 were, almost impossible for the rolls to press the cotton into a continuous bat of even thickness.

Referring now to the accompanying drawings, A indicates the press-box, which is preferably in the nature of a duplex or swinging  
 25 box, and B and B' the dual compartments thereof.

C indicates the king-post, secured at the lower end in the base-beams E and at its upper  
 30 end in one end of the cross-head F, which extends over one of the press-boxes and is further braced by the queen-posts G G.

This box is formed with the usual bale extensions A' at its upper end, having doors a and a suitable latch mechanism H, whereby  
 35 it is held locked when swung around in reverse directions, the construction of which will hereinafter be specifically referred to.

At the feed end of the press are posts I, secured to the base-timbers E. To the upper  
 40 ends of such posts I and to the king-post are secured iron beams J, which form guideways for the gig or carriage K, upon which the press-rolls, the receiving-hopper, and the bat-lay-  
 45 ing devices are mounted. These devices, which form an essential feature of my invention, are best illustrated in Fig. 7, by reference to which it will be seen the same includes a rectangular frame L, formed with  
 50 side beams l, which are held to slide on the guides J J. Supports m m are projected up from the side beams l, in the upper ends of which are journaled rollers m' m', which are spaced apart, as shown, to form the ends of  
 55 the hopper-mouth.

N N indicate the compressing-rolls, which are journaled in the side beams l and in the practical construction have their journals  
 60 mounted in adjustable bearings, whereby their contact-faces can be spaced as desired.

One of the press-roll shafts has a bevel-gear O, which meshes with a pinion P, held to slide upon a drive-shaft Q, journaled in  
 65 bearings q q, projected from the king-post block R and one of the posts I, such pinion being geared with the wheel O in substantially the manner shown, whereby it will be

reciprocated on its shaft as the said wheel O is reciprocated in a manner presently described.

S S indicate the gears which connect the rolls N N.

T T indicate endless belts, formed of canvas or gum like material, which pass over the rollers m' m' and the press-rolls N N, which  
 75 belts form the inclined ends of the hopper E<sup>x</sup>, which has its side walls e<sup>x</sup> also preferably formed of gum or canvas like material.

It will be readily observed that by providing a hopper arranged to receive the cotton  
 80 from the condenser having movable ends in the nature of endless belts for feeding the cotton to the press-rolls N, I produce what I term a "live hopper," in which it will be im-  
 85 possible for the cotton to bunch and clog, as the belts will at all times keep it in movement and properly and evenly feed it to the rolls N.

U indicates a drive-shaft journaled on the post I and press-head F and disposed beneath  
 90 the shaft P, one end of which projects beyond the post I and has a gear u, which meshes with a gear p on the shaft P and which is provided with fast and loose pulleys V V, as  
 95 shown.

The lower end of the carrier or framing L projects below the members J and has jour-  
 100 naled in such end a pair of bat-laying rolls W W, which are disposed below but are of a much larger diameter than the press-rolls N, they being so disposed that when the carrier or frame L is reciprocated in the manner  
 105 presently described they will travel directly over the press-box receiving-chamber. These rollers W, which are spaced apart to allow for a free feed of the batting or sheet-cotton from the rolls N N, are journaled in the beams l, their bearings being supported for a slight  
 110 vertical movement when a too great pressure is against their under face.

Y Y' indicate canvas or rubber bands which have one end secured to the rolls W W', while the free ends thereof are secured one, Y, to  
 115 the post I and the other, Y', to the block R.

Upon the shafts of the rolls W W' are band-  
 120 wheels y y, over which passes an endless band y', which causes a uniform rotation of such rolls when operated in a manner hereinafter described.

Z indicates transverse guides disposed be-  
 125 tween the rolls N N, which serve to guide the cotton-bat between the rolls W W'.

By referring now more particularly to Figs. 8 and 9 it will be seen the drive-shaft U is in the nature of a screw-shaft provided with continuous right-and-left threadways U', such  
 130 threadways bisecting each other and being joined at the ends by straight portions U<sup>2</sup> U<sup>3</sup>, extended half-way around the shaft and in opposite directions.

A<sup>5</sup> indicates a driver pin or stud which is mounted in an extension L<sup>x</sup> of the frame L and which embraces the threadway of the screw-shaft, as most clearly shown in Fig. 9.



So far as described the operation of the several parts and the advantages of their construction are best explained as follows: The reciprocating hopper in the practical construction is of a size sufficient to take the condensed cotton of a number of gins, it being also held under the discharge-mouth of one or more condensers or conveyers. Assuming now the parts to be in the position shown in Fig. 1 and power is applied to the main drive-shaft U in the direction indicated by arrow 1, the gig or frame L will, owing to the thread-way and driver-pin, be moved in the direction indicated by arrow 2. It should be here stated that should the press-box receiving-chamber B at this time be empty its follower B<sup>5</sup> will be flush with the top edge of such chamber and directly under the rolls W W'. Now as power is applied and the frame L in consequence moves in the direction indicated the hopper E<sup>x</sup> will be carried along in the same direction and the endless bands T caused to travel in the direction indicated by arrows 3, and thereby carry the condensed cotton or lint to the presser-rolls N N, by which it is compressed into a thin sheet or bat, which moves down between the guides Z Z onto the follower B<sup>5</sup>. During this operation the roll W will, with its band Y, engage the face of the bat and force it down against the follower B<sup>5</sup>, unwinding, as it were, the band Y and holding it over the bat-section thus laid, it being manifest that during this operation the other roll W' is winding up the band Y'. When the roll W reaches the inner end of the receiving-chamber of the press-box, the drive-pin on the screw-shaft U will have reached the straight portion of the threadway, which causes a momentary stoppage of the gig or frame L. This stoppage effects a double advantage in that it allows a quantity of lint-cotton to accumulate in the hopper and also holds the roll W temporarily down against the end of the lap end of the bat and presses such end firmly down against follower (or preceding lap) before the other roll W' begins the reverse lap movement on the batting. After the driver engages the inner end of the said straight portion of the threadway of the shaft U it engages the opposing threadway, and thereby carries the frame L in a reverse direction to operate the parts as before.

By forming the body of the receiving-hopper of canvas or gum cloth and using the same material for the bands Y Y' the cotton from the time it reaches the hopper until it is laid in the press-box will be in contact with a flexible or yielding body, which not alone serves to form a good bearing or gripping face for carrying it through the several steps of operation, but also materially aids in protecting its fiber.

It should be here stated that the guides Z Z, heretofore referred to, are so arranged in relation to the rolls W W' as to form a knife or scraper to prevent the upturning roller from carrying the cotton-bat upward.

It will be clear that by providing the rolls W W' with bands arranged to alternately wind and unwind and connected with the framing, as shown, such bands will always assume a taut condition and wind and unwind uniformly and without danger of sagging, and thereby, in connection with the rolls W W' and the frame L, which acts as an upper resistance, serve to maintain an even and uniform downward pressure on the batting as it is being lapped in the press-box at all times.

I have found from practical experimenting in this class of inventions that to obtain the best results it is necessary that a certain resistance from below be encountered by the rolls W W' as they travel over the follower on the press-box to produce a compact and uniform packing of the cotton in the latter. Heretofore counterbalanced followers have been used to hold the follower and cotton up against the folding or lapping devices; but these do not give all the results desired. To attain the desired objects, I therefore employ, in connection with the bat forming and laying devices, a receding platen capable of automatically and gradually or intermittently receding by the accumulated weight or pressure of the cotton and which is capable of being rapidly moved upward into the chamber when so desired.

Inasmuch as in the preferred construction of my improved baling apparatus the bat forming and laying mechanism and the reciprocating carriage on which they are mounted are independently supported from the rotating press-box, I prefer to employ a vertically-reciprocating platen or plunger adapted to be operated by hydrostatic power and so arranged as to automatically recede when the pressure on the folded batting exceeds a predetermined degree, and thereby gradually and uniformly lower and at the same time during such receding operation maintain a uniform pressure on the cotton being folded on top of the follower, yet I desire it understood that the platen-operating devices can be so adjusted as to be set to permit of the platen receding intermittently, if desired.

In the preferred form the receding platen B<sup>5</sup> is mounted upon the upper end of the plunger or piston-rod C<sup>6</sup>, which has its piston-head held in a hydraulic cylinder B<sup>7</sup>, which is suitably supported on the main frame in such a manner as to meet the conditions required. This cylinder B<sup>7</sup> is connected with a suitable source of supply, preferably a reservoir containing water or other liquid under pressure and has its connecting-pipes provided with suitably-arranged pressure-regulating valve and exhaust means, which can be so adjusted and set to automatically allow for the bleeding off or exhausting of the fluid in the cylinder B<sup>7</sup> when the pressure on the follower B<sup>5</sup> and the platen reaches a predetermined point, such connections also having hand-operated valve devices arranged to be



conveniently operated by the attendant to permit of a more rapid or intermittent receding of the platen and a quick upward movement thereof, as conditions may require. For better comprehension of this part of my invention I will describe it in detail. The receiver 44 is provided at its upper end with a steam or other fluid pressure pipe 46, having a two-way cock 47 and an exhaust or waste pipe 48. It is manifest the adjustment of the lever-handle of cock 47 in one position will allow steam to enter the receiver 44 and press upon the body of water therein and when in the opposite position such admission of steam will be cut off and escape or exhaust of steam allowed. The pipe 43, connecting the receiver 44 with cylinder B, has a stop-cock 40, which is operated by a hand-operated rod or stem 41. From the pipe 43 on opposite sides of cock 40 depend parallel pipes 42 and 42', which are connected by parallel horizontal pipes 45 and 45'. Pipe 45' has a pressure-regulator 49 and pipe 45 has a check-valve 50. The said pressure-regulator 49 may be of any suitable construction whereby it is adapted to open at a predetermined pressure. Thus the same may be set at, say, one hundred pounds, and in such case the plunger and head of the hydrostatic press will not recede until the pressure of the cotton folds therein equals or exceeds that amount, and thus the platen will be automatically and gradually lowered as the cotton is folded and pressed to such degree in the press-box.

In the modified form of apparatus for operating the receding platen (shown in Fig. 5) the same is in the nature of a screw-operated mechanism and comprises a screw  $b^5$ , the platen  $b^6$ , master-gear  $C^5$ , and a drive-shaft  $D^5$ , which has a bevel-gear  $d^5$ , that meshes with the gear  $C^5$ . Loosely journaled on the shaft  $D^5$  is an internally-threaded wheel  $E^5$ , formed with a clutch-hub  $e^5$ , with which is adapted to engage a clutch  $F^5$ , held to slide on the shaft  $D^5$ .  $G^5$  indicates a fast pulley on the end of shaft  $D^5$ ,  $H^5$  a loose pulley, and  $I^5$  a second loose pulley having an integral gear  $J^5$ , that meshes with a gear  $k^5$  on a counter-shaft  $K^5$ , which has a gear  $k^6$  meshing with the internal gear  $E^5$ , as shown.

In the practical construction of the screw-operated platen devices the pulley  $G^5$  runs one hundred and fifty revolutions per minute when the belt is on, and in consequence the direct gear connection with shaft  $b^5$  will run the follower up in twenty seconds. When the belt is transferred to pulley  $H^5$ , the operation of the screw  $b^5$  is suspended. When, however, the bale is commenced in the press-box, the clutch on the shaft is thrown in gear with the internally-threaded wheel. The belt is then transferred to the pulley  $I^5$ , when the descent of the follower will begin and take twenty minutes, more or less, to run down, according to the proportion of the gears and time to make the bale. In case the descent is too rapid the belt is transferred again to  $I^5$

to cause the follower to recede, as before. When the baling side of press is full, the receding platen is below the bottom of the press-box, the latch is released, and the box is swung around over the compressing-platen, which may be of an accumulative kind, as shown, and while such bale is being compressed a new bale is being formed, it being understood that as the flooring around the press-boxes or chambers in this class of presses rotates with the box the cotton which accumulates under the folder during the box-swinging operation is gathered and laid on the follower as it rises again in the receiving-chamber.

To provide a simple, inexpensive, and effective means for holding the press-box doors closed and for opening them simultaneously, I employ the fastening devices shown in Figs. 12 and 13, by reference to which it will be observed that on the strain-beam 10 of one of the doors is mounted a rock-shaft 11, which projects at the ends and has fixedly mounted thereon disks 12, formed with oppositely-projecting hook members 13 13 and socket portions 14 14, while on the strain-beam 10<sup>a</sup> of the opposite door is mounted a shaft 15, the end of which has chain-sheaves 16. At each end a crossed chain passes over the sheaves 16, and such chains have link members 18, which when the doors are held closed over the bale-chamber fit over the hooks 13 13 on the disks 12.

To open the box, a lever or handle member is inserted in the socket of either one of the disks 12, and by raising or lowering such handle until one of the hook members reverses its angle at one side the chain will slip off of that side, and as both sides are connected by shafts both ends will open at once, thereby leaving the doors free at all four corners to drop down.

To provide an effective fastening and strain portion for the king-post, I form the strain-washers 30 in halves, bolt the same together, and score into the king-post, as shown in Figs. 1 and 4, cast plates 40 being also secured to the under side of the cross-timbers for the washers to fasten to and to hold the beams in position.

From the foregoing it will be seen that I provide a method whereby the cotton can be fed into the cotton-box continuously and the bale as it is formed gradually or intermittently lowered by setting the platen to move continuously or intermittently, as required.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of a pressure-folder, with a vertically-movable platen, a hydrostatic press for raising the platen in juxtaposition to the pressure-folder, and means for automatically releasing the fluid-pressure to gradually lower the plunger of the press when the pressure on the platen reaches a predetermined limit, substantially as described.



2. The combination of the pressure-folder, with a platen supported in operative connection with the pressure-folder by a hydrostatic column, and means for partially releasing the fluid-pressure and permitting the platen to recede from the pressure-folder when the pressure on the cotton reaches a certain point, substantially as described.

3. The combination of a pressure-folder, with a platen movable vertically in juxtaposition to the pressure-folder, a hydrostatic press for supporting the platen, and an automatic pressure-regulator for partially releasing the fluid-pressure and permitting the plunger of the press to automatically recede during the operation of the pressure-folder, substantially as described.

4. The combination of a pressure-folder, with a series of press-boxes or chambers, one of which is movable from beneath the pressure-folder while another moves into operative connection therewith, a platen movable vertically through each press-box or chamber in juxtaposition to the pressure-folder when its press-box is brought into operative connection with the latter, and mechanism operating to permit the platen to automatically recede and to hold the cotton under a uniform predetermined pressure from the upper to the lower portion of the press-box during the operation of the pressure-folder, substantially as described.

5. The combination of a pressure-folder, with a series of press-boxes or chambers, one of which moves from beneath the pressure-folder while another moves into operative connection therewith, a platen movable vertically through each press-box or chamber in juxtaposition to the pressure-folder when its press-box is brought into operative connection with the latter, a hydrostatic press for supporting the platen and means connected therewith for causing the press-plunger to automatically recede during the action of the pressure-folder substantially as described.

6. The combination of a pressure-folder, with a series of press-boxes or chambers, one of which is movable from beneath the pressure-folder while another moves into operative connection therewith, a platen movable vertically through each press-box or chamber in juxtaposition to the pressure-folder when its press-box is brought into operative connection with the latter, a hydrostatic press for supporting the platen, and a pressure-regulator for partially releasing the fluid-pressure and permitting the press-plunger to automatically recede during the operation of the pressure-folder, substantially as described.

7. The combination of a folder, with a platen, steam and hydraulic apparatus for supporting the platen and an automatically-operated valve for partially releasing the fluid-pressure, whereby the platen automatically recedes during the folding and pressing operation substantially as described.

8. The combination of a pressure-folder, with a platen, a steam and hydraulic apparatus for supporting the platen, and an automatic pressure-regulator, whereby the platen automatically recedes during the folding and pressing operation, substantially as described.

9. The combination of a pressure-folder, with rotatable press-boxes or chambers, a platen movable through each press-box or chamber, steam and hydraulic apparatus for raising and supporting the platen, and an automatically-operated valve for partially releasing the fluid-pressure whereby the platen automatically recedes during the operation of the pressure-folder, substantially as described.

10. The combination of the folding mechanism with a two-box-revolving press, a platen movable through each press-box in juxtaposition to the pressure-folder, steam and hydraulic apparatus for supporting the platen in operative connection with the pressure-folder when its press-box is brought into operative connection with the latter, and an automatically-operated valve for partially releasing the fluid-pressure, whereby the platen automatically recedes during the operation of the pressure-folder, substantially as described.

11. The combination of a pressure-folder, with a folding-chamber arranged below the same, a press-box beneath the folding-chamber, a platen movable vertically through the folding-chamber into operative connection with the pressure-folder, a hydrostatic press for raising and supporting the platen and means whereby the platen automatically recedes during the operation of the pressure-folder, substantially as described.

12. The combination of a pressure-folder with a platen movable into operative connection therewith to receive the folds therefrom, a plunger and fluid-cylinder to raise and support the platen, and means for partially releasing the fluid-pressure in the cylinder and permitting the plunger and platen to recede during the operation of the pressure-folder, substantially as described.

13. The combination of the baling-press devices, a hydrostatic press in relation thereto, a series of movable press-boxes one of which is movable over the hydrostatic press while another is movable into connection with the baling-press devices, a pressure-folder, a platen which is raised and supported by the hydrostatic press and a pressure-regulator for permitting the hydrostatic-press plunger and platen supported thereby to automatically recede during the operation of the pressure-folder when the pressure on the platen reaches a predetermined limit, substantially as described.

14. The combination of baling-press devices, a hydrostatic press, a series or rotary press-boxes, one of which is movable over the hydrostatic press while another is movable into connection with the baling-press devices,



a pressure-folder above the hydrostatic press, platens which are each raised and supported by the hydrostatic press in turn, and a pressure-regulator for permitting the hydrostatic plunger and platen supported thereby to automatically recede during the operation of the pressure-folder when the pressure on the platen reaches a predetermined limit substantially as described.

15. The combination with compressing devices for compacting cotton into a bat or sheet, of a pressure-folder, and press-boxes movable successively into operative connection with the pressure-folder for receiving the folded bat or sheet and transferring it to another point for final pressure, substantially as described.

16. The combination with compressing-rolls for compacting cotton into a bat or sheet, of a pressure-folder under the said rolls and press-boxes arranged below the folder and movable successively into operative connection with the chamber for receiving the folded bat or sheet and transferring it to another point for final pressure, substantially as described.

17. In a roller baling-press, the combination with the press-box and a follower held therein, of a carriage or frame held to reciprocate over the press-box, press-rolls journaled at the lower end of the carriage, said frame having a hopper portion projected above the rolls formed of a flexible material and having its end wall inclined from the top toward the press-rolls substantially as shown and for the purposes described.

18. A cotton-baling apparatus comprising a press-box, a carriage or frame held to be reciprocated over the press-box, the press-rolls, and the lap-rolls, the rollers  $m' m'$ , the endless belts  $T T$  passed over the rollers  $m' m'$  and the press-rolls, said parts being arranged in the carriage, and the bands  $Y Y'$  connected to the lap-rolls and the frame of the machine as specified.

19. In a cotton-baling apparatus of the class described, the combination with the press-

box, the reciprocating carriage, and the bat-forming press-rolls, arranged in the latter, of the rolls  $W, W'$ , arranged in the lower portion of said carriage, between the press-box and press-rolls, the bands  $Y Y'$  secured at their outer ends at the opposite end of the press-box, and at their inner ends to the rolls  $W W'$ , and adapted to alternately wind and unwind from such rolls as they are reciprocated, substantially as and for the purposes described.

20. In a baling-press of the class described, the combination with the main frame, the press-box, the guides  $J$  and the drive-shaft  $Q$ , of the reciprocating frame or carriage  $L$ , the press-rolls  $N$ , geared together and having a drive-gear  $O$ , the slide-pin  $P$  engaging the shaft  $Q$ , the shaft  $U$  having an endless right-and-left screwway, and a driver or stud pin, on the carriage-frame arranged to engage the said screwway, all substantially as shown and for the purposes described.

21. The combination with hinged doors of the press-box, of a rock-shaft mounted on one of such doors, having oppositely-projecting hook members on its outer ends said members having socket portions, guide-sheaves at the ends of the opposite door and fastening-chains passed over such sheaves, having their free ends adapted to slip over the aforesaid hook members all substantially as shown and described.

22. The combination with the hinged doors of the bale end of the press-box, of the rock-shaft  $11$  mounted across one door having disks  $12$  at the opposite ends formed with oppositely-projecting hook members  $13$  and socket portions  $14$ , the guide-sheaves  $16$  on the opposite door, and chains  $17$  having link members  $18$  adapted to engage the hooks  $13$  all arranged substantially as shown and described.

EDMUND M. IVENS.

Witnesses:

EDWIN MCMORRIS,  
C. W. ROBINSON.