

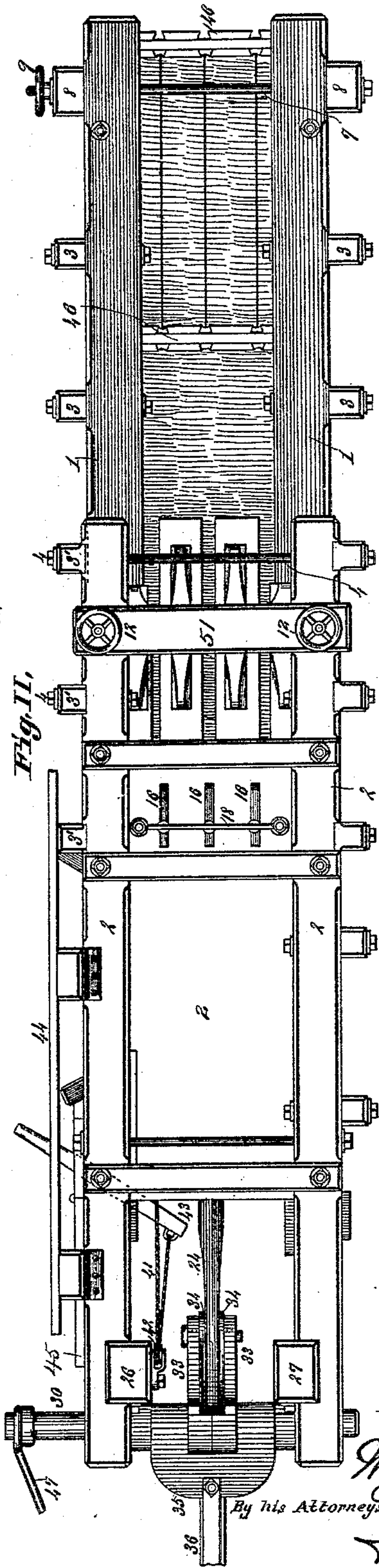
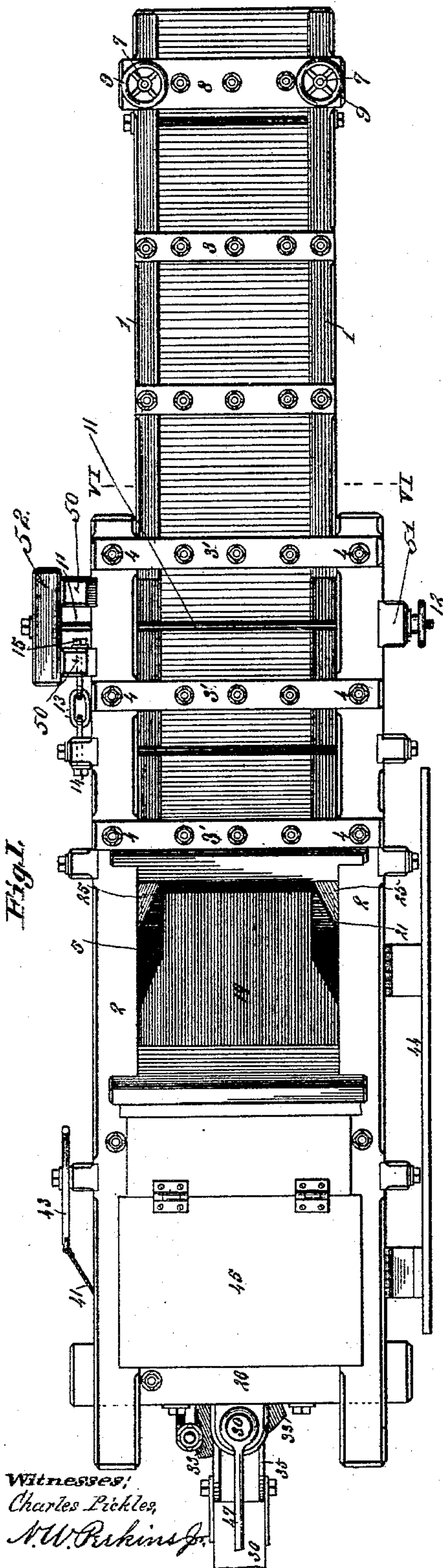
(No Model.)

4 Sheets—Sheet 1.

W. J. H. KAPPE.  
BALING PRESS.

No. 401,171.

Patented Apr. 9, 1889.





(No Model.)

4 Sheets—Sheet 2.

W. J. H. KAPPE.  
BALING PRESS.

No. 401,171.

Patented Apr. 9, 1889.

Fig. VII.

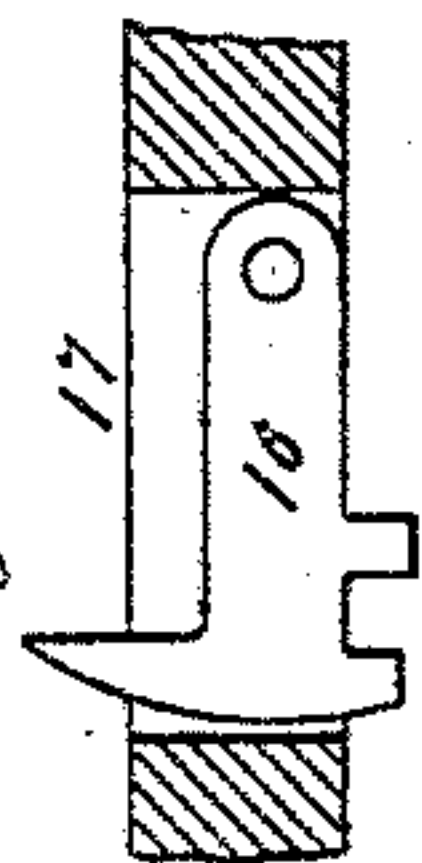


Fig. III.

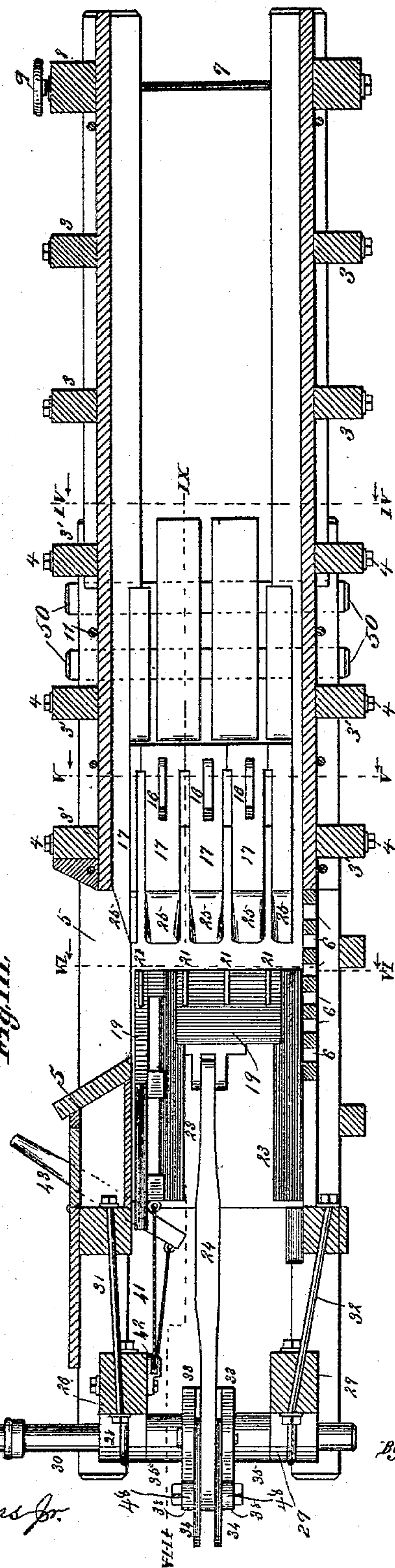


Fig. VI.

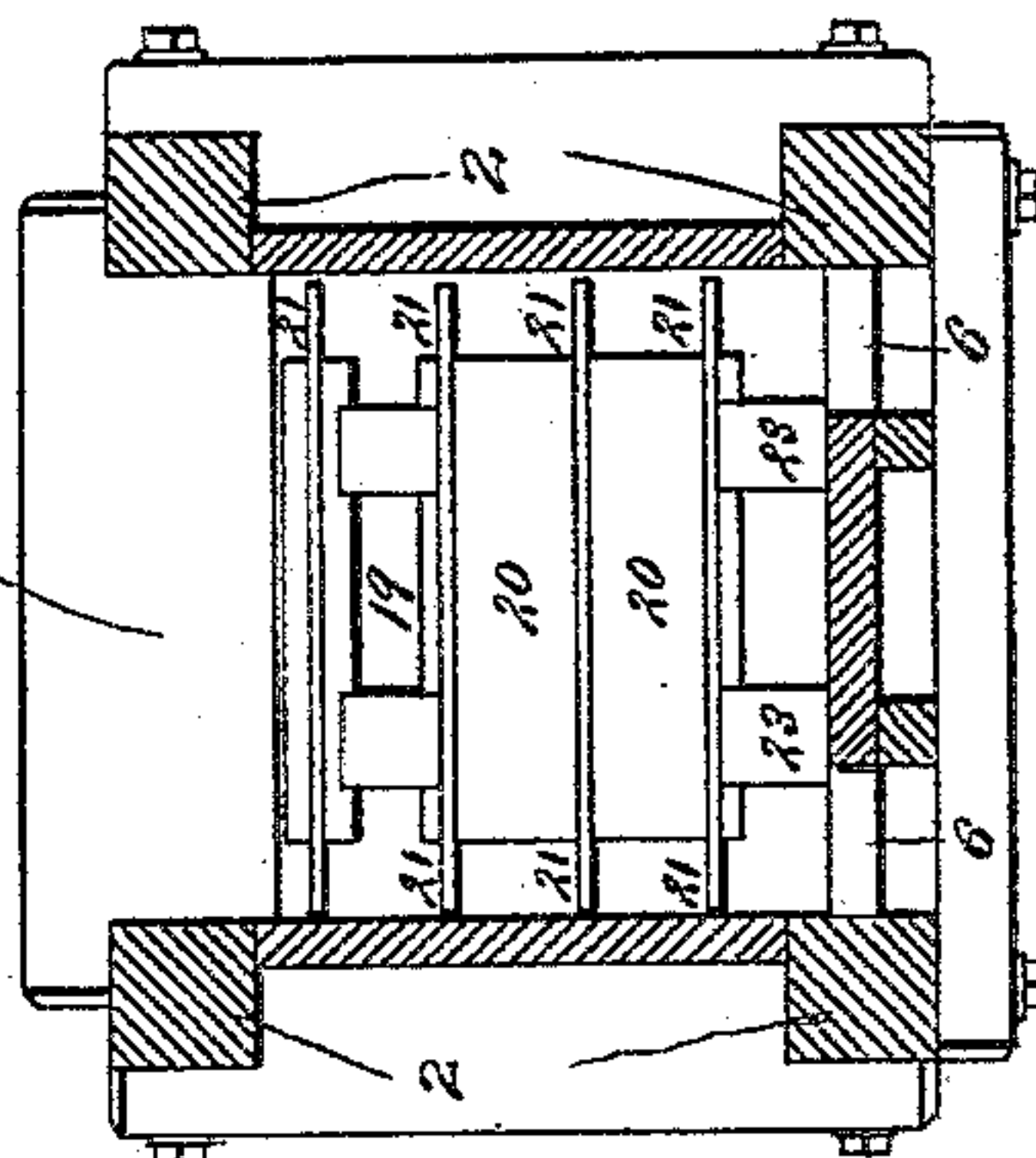


Fig. V.

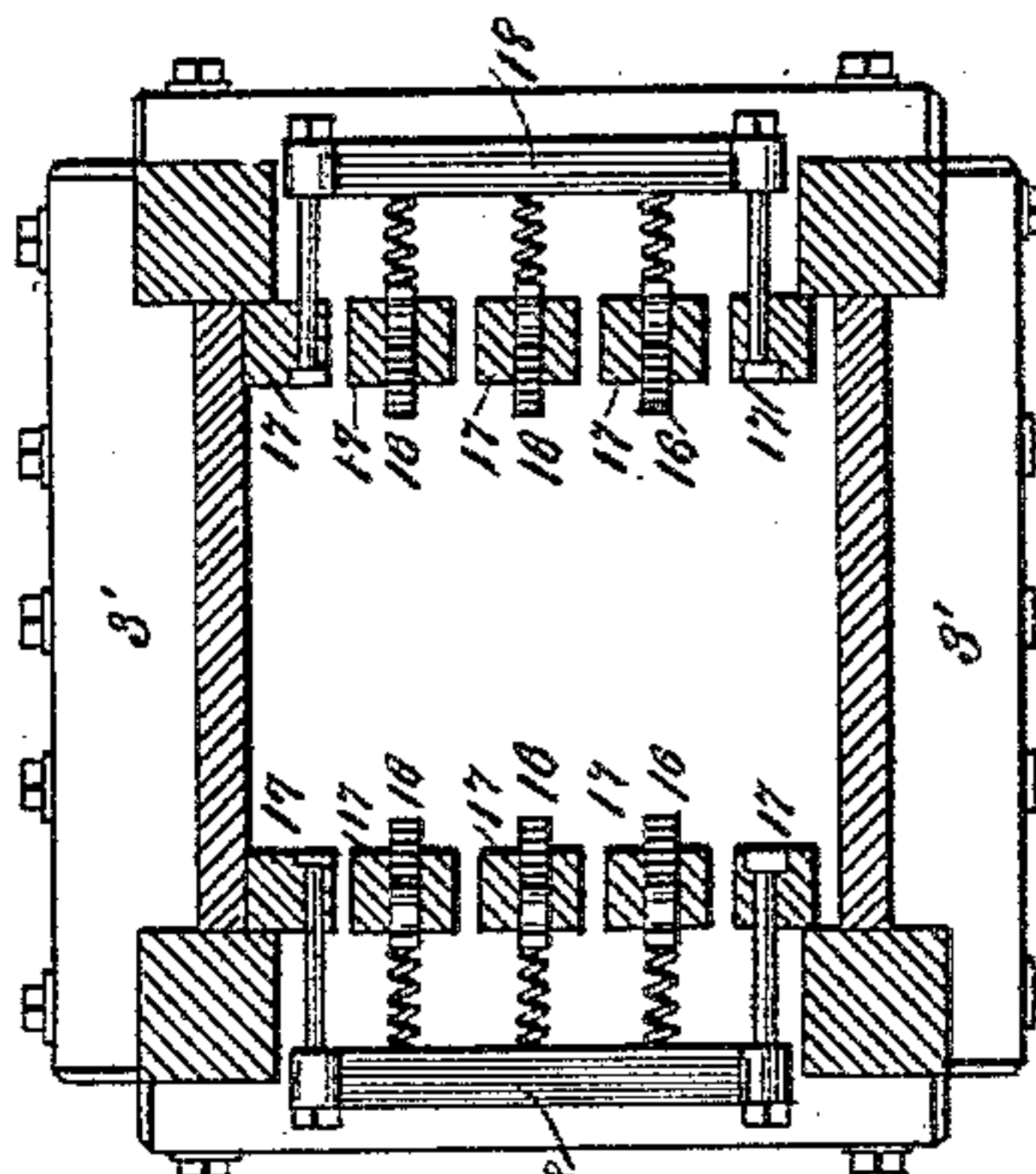
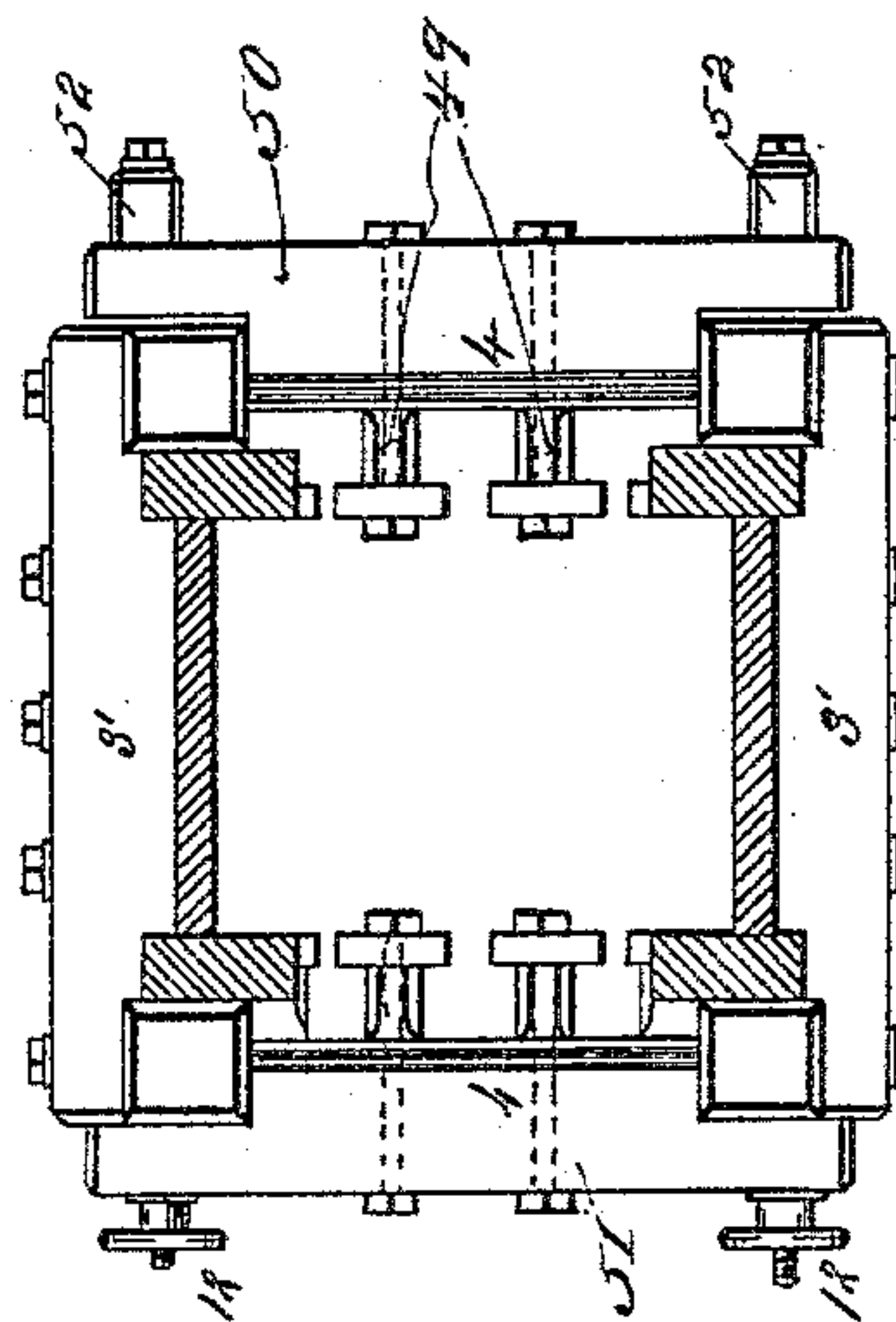


Fig. IV.



Witnesses:  
Charles Pickles,  
N. W. Perkins, Jr.

By his Attorneys

Inventor:

W. J. H. Kappe  
Fowler & Fowler

(No Model.)

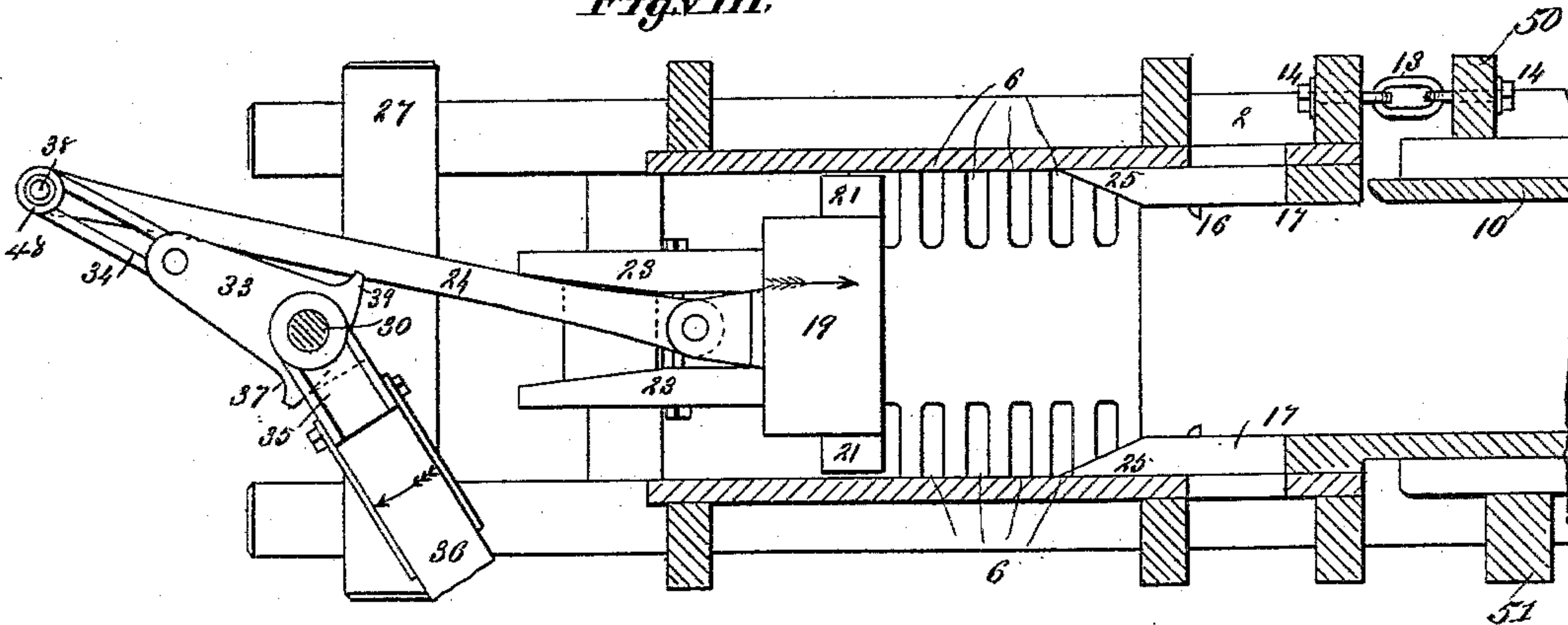
4 Sheets—Sheet 3.

W. J. H. KAPPE.  
BALING PRESS.

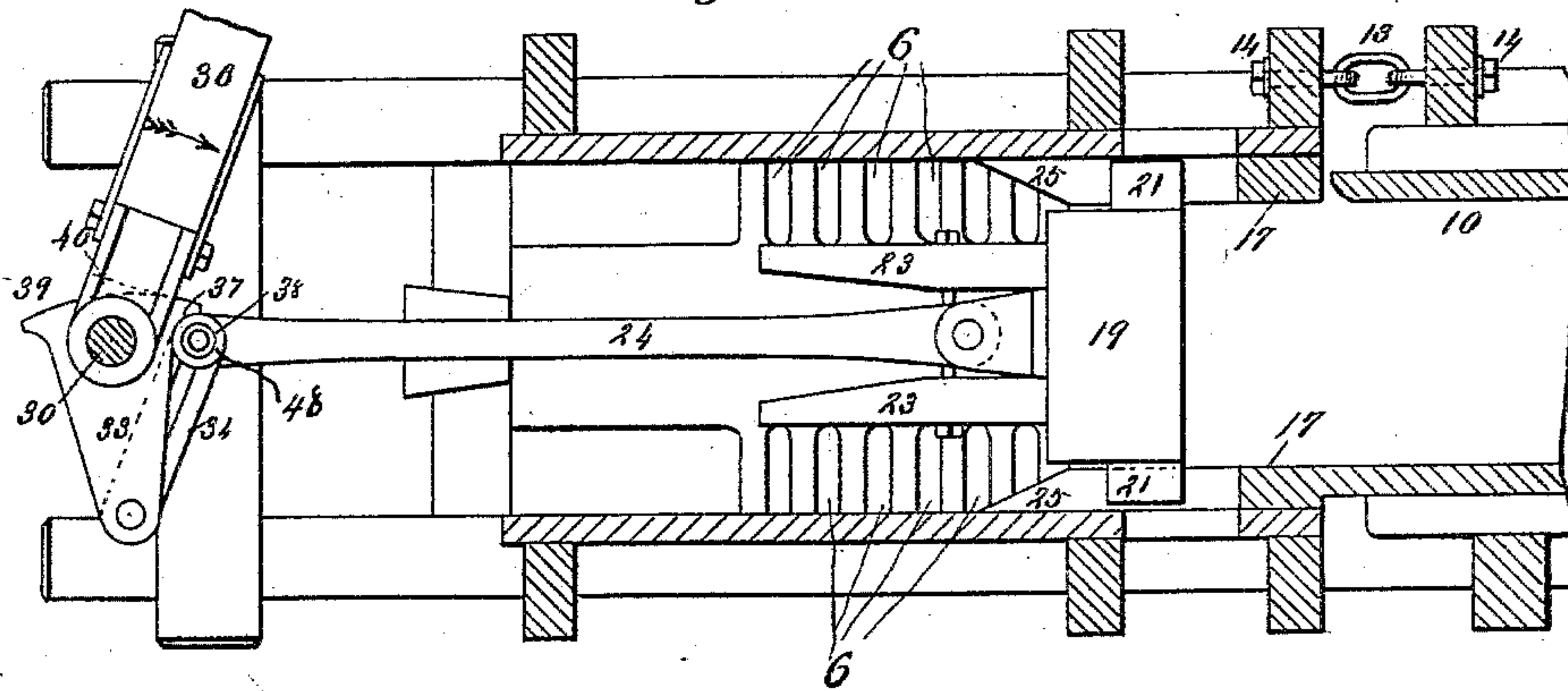
No. 401,171.

Patented Apr. 9, 1889.

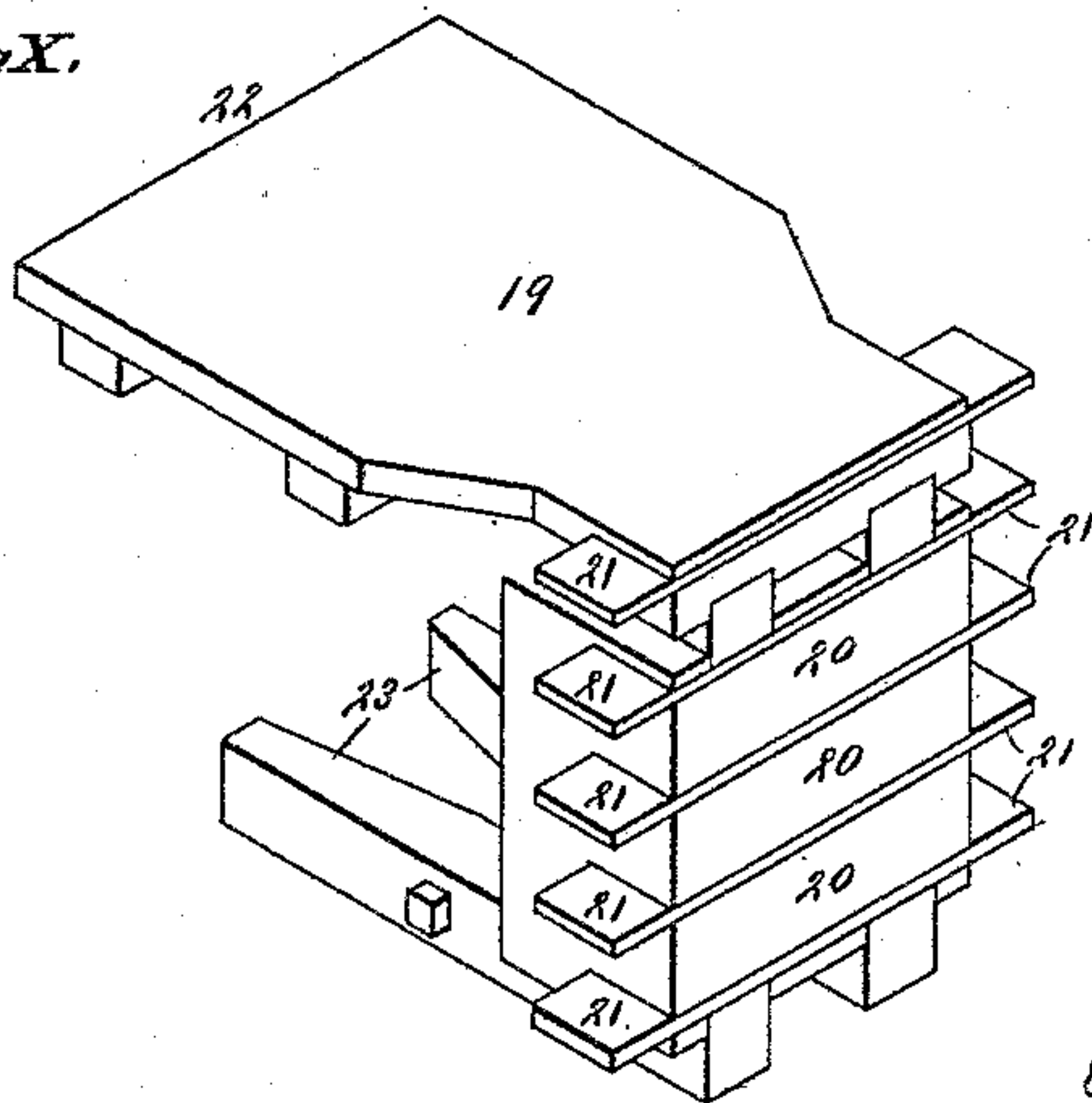
*Fig. VIII.*



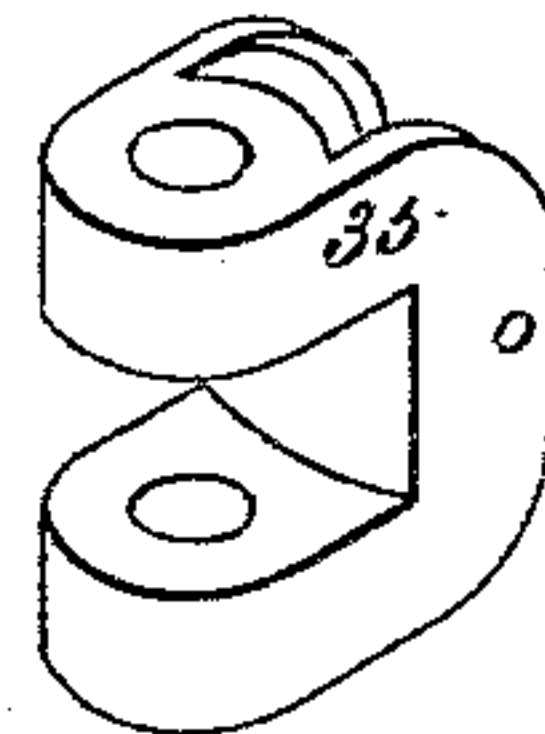
*Fig. IX.*



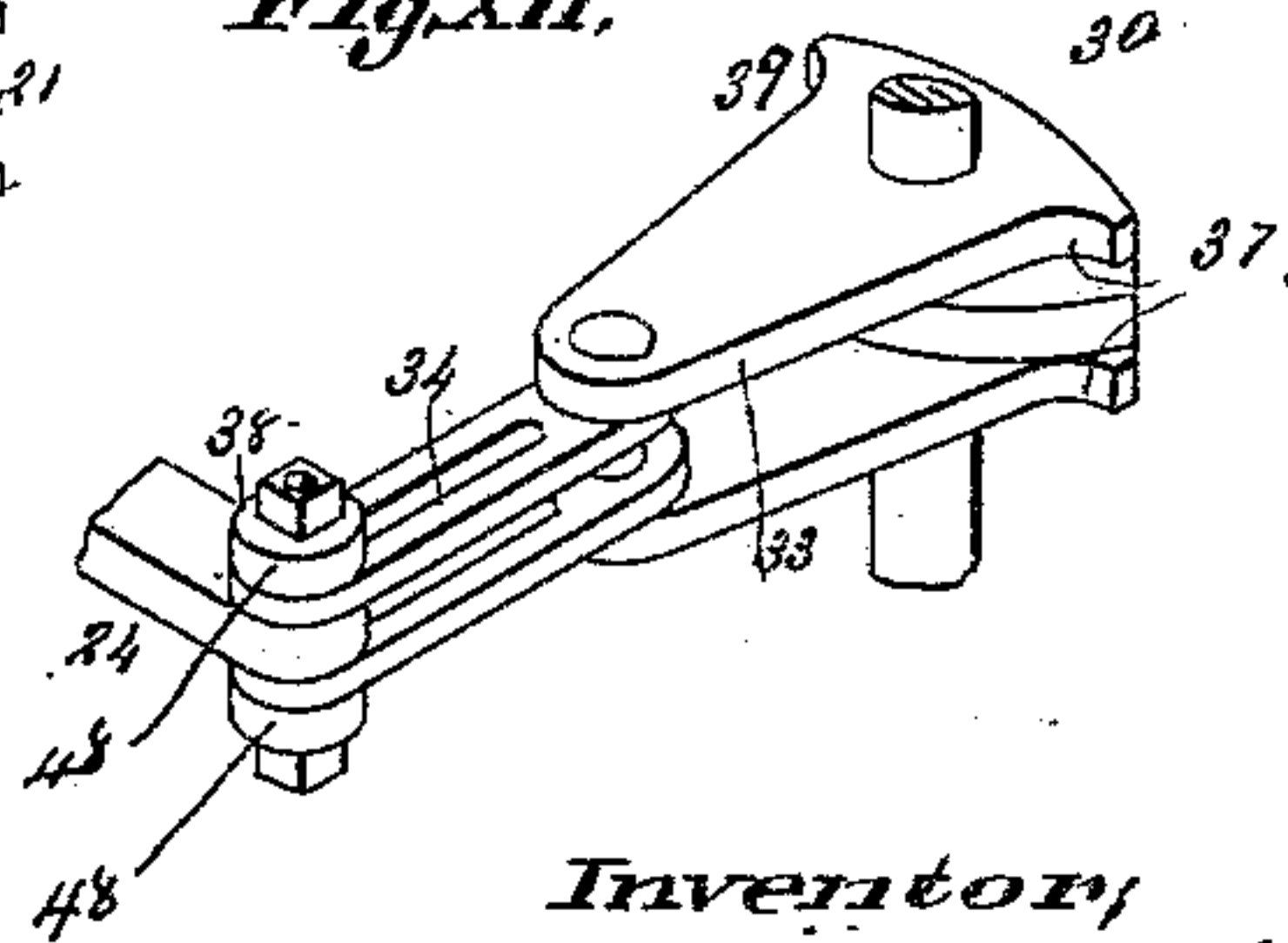
*Fig. X.*



*Fig. XI.*



*Fig. XII.*



Witnesses,  
Charles Pickles,  
N. W. Perkins Jr.

Inventor,  
W. J. H. Kappe  
By his Attorneys  
Fowler & Fowler



(No Model.)

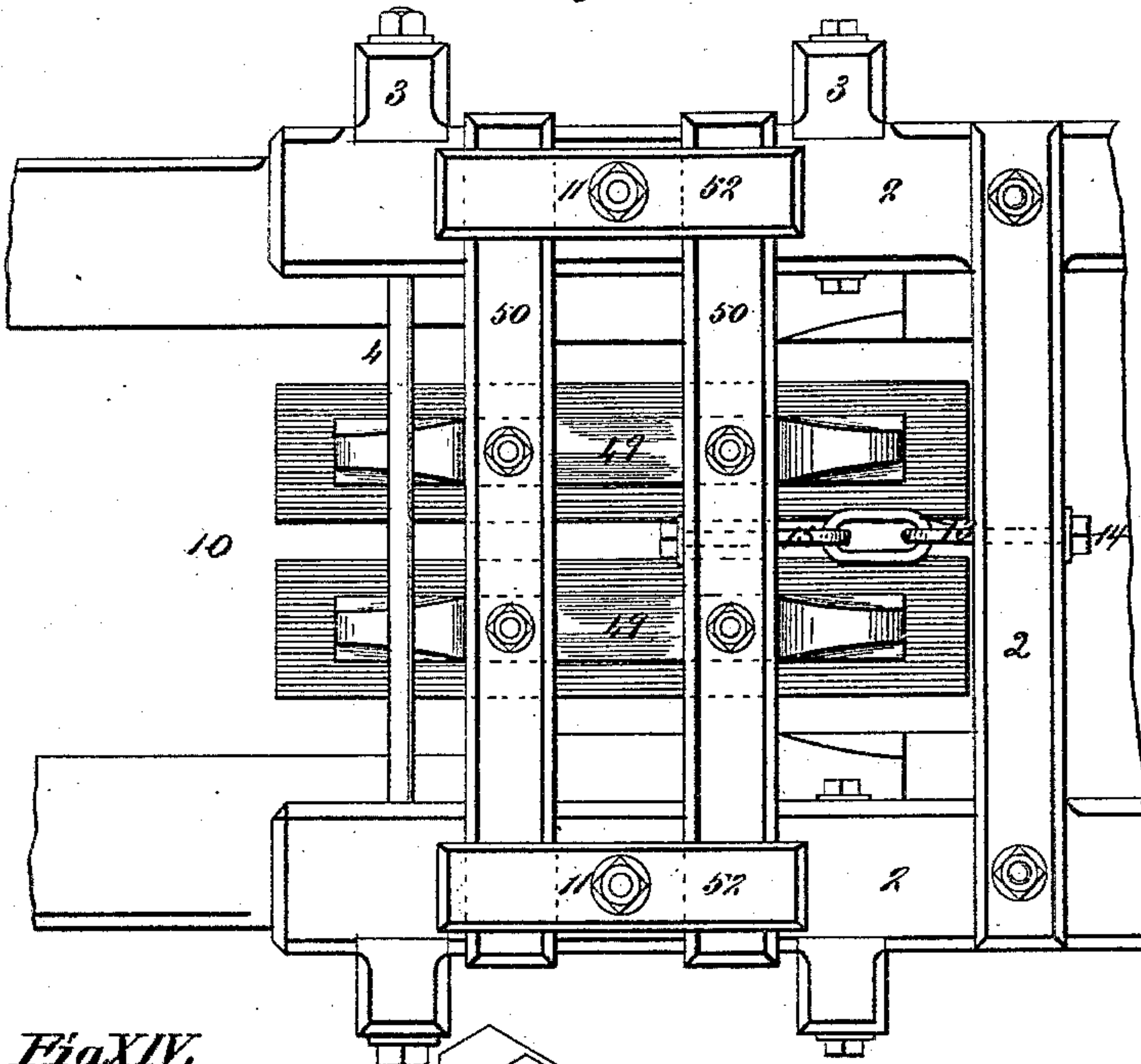
4 Sheets—Sheet 4.

W. J. H. KAPPE.  
BALING PRESS.

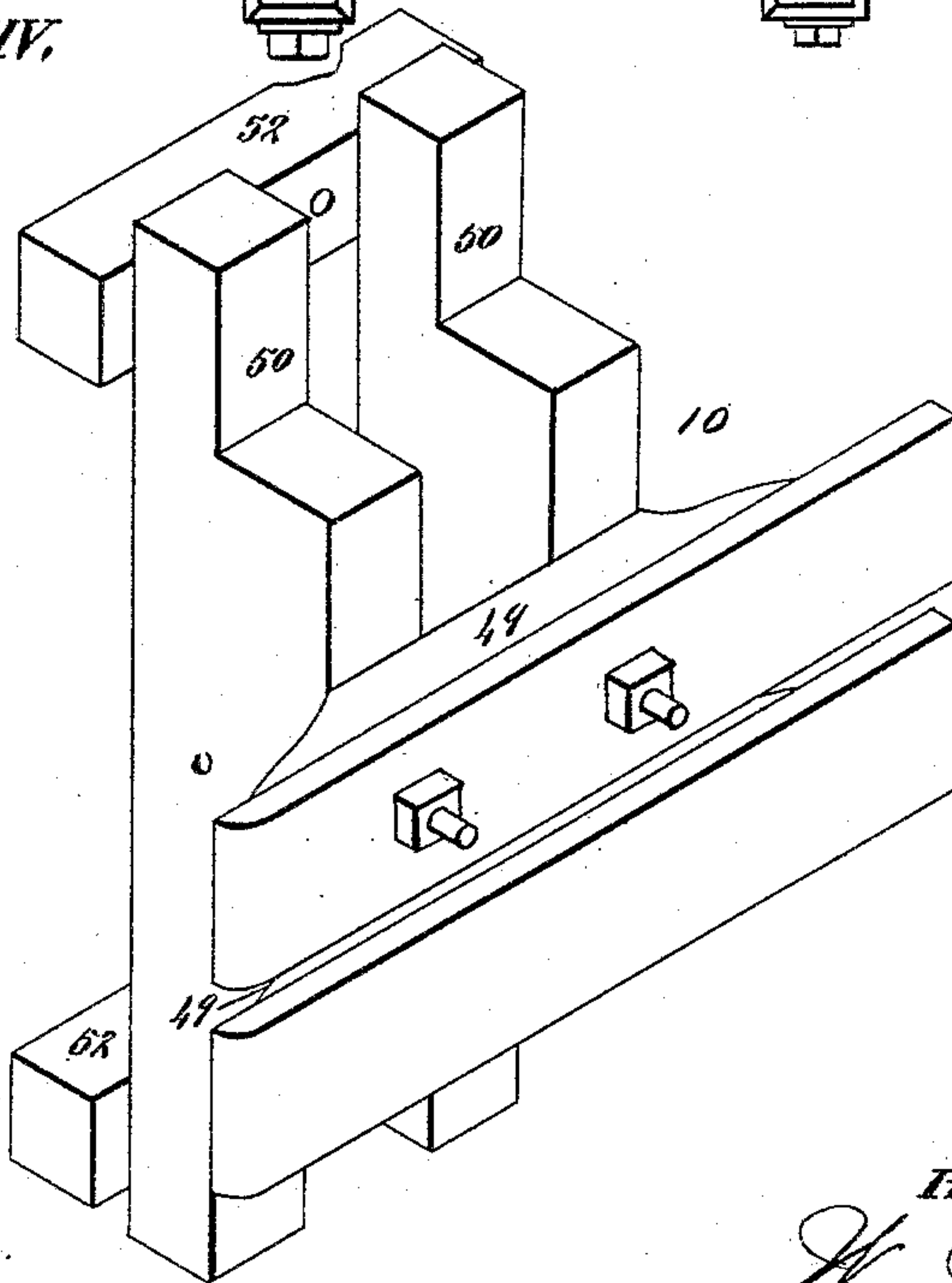
No. 401,171.

Patented Apr. 9, 1889.

*Fig. XIII.*



*Fig. XIV.*



Witnesses:  
Charles Pickles,  
G. H. Hinchman, Jr.

Inventor:

W. J. H. Kappe  
By Yowler & Fowler  
Attys



# UNITED STATES PATENT OFFICE.

WILLIAM J. H. KAPPE, OF QUINCY, ILLINOIS.

## BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 401,171, dated April 9, 1889.

Application filed May 14, 1888. Serial No. 273,778. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM J. H. KAPPE, a citizen of the United States, residing at Quincy, in the county of Adams and State of Illinois, have invented a certain new and useful Improvement in Baling-Presses, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates more particularly to baling-presses actuated by horse-power. It has for its object the improvement of the details of such baling-presses.

The invention consists in improvements in the receiving-chamber into which the hay is placed before compression, so that a larger receiving-chamber is provided.

The invention further consists in a novel mechanism for actuating the platen, whereby a quick movement is imparted to it at first and a slow motion at the last part of the stroke, a corresponding small power being applied at the first part of the stroke and a much greater pressure being applied at the latter part of the stroke, and whereby also the platen or traverser will automatically rebound to its original position after the limit of its stroke is reached and the charge is compressed, and whereby the platen may be driven forward by actuating the horse-power arm in either direction.

I will refer now to the accompanying drawings, forming part of this specification, for a detail description of a baling-press embodying my invention.

Figure I is a plan of a baling-press provided with my improvements. Fig. II is a side elevation thereof. Fig. III is a vertical longitudinal sectional view of the same. Figs. IV, V, and VI are sections on the lines IV IV, V V, and VI VI, respectively, of Fig. III, looking in the direction of the arrows. Fig. VII is a detail view of one of the dogs for holding the hay when compressed. Figs. VIII and IX are sectional plans on the lines VIII IX of Fig. III, showing the mechanism for actuating the traverser or platen in two different positions. Fig. X is an isometric projection

of my traverser or platen. Figs. XI and XII are detail views of the mechanism for applying power to said traverser. Fig. XIII is a side elevation of a part of the press, showing the movable side; and Fig. XIV is an isometric projection of the movable side.

The same figures of reference indicate the same parts throughout the several views of the drawings.

The body of the press is made up of two stout frame-works, 1 2. The frame-work 1, I have shaded in the drawings, so as to prevent confusion and to render the two frame-works plainly distinguishable from each other.

The frame-work 1 is made up of two opposite parts—a top and a bottom—across which horizontal timbers 3 3 pass and are bolted to said top and bottom parts. The sides of the frame-work 1 are left open. Across the frame-work 1, where it joins the frame-work 2, timbers 3' 3' pass, and are extended over the timbers of the frame-work 2, and are bolted to said timbers of the frame-work 2 by rods 4, which run through said timbers and bolt them together. Certain other bolts are shown, the purposes of which are to bolt the timbers to the sides of the press. The frame-work 2 is open on two sides where the frame-work 1 joins it, which two sides are closed by the sides of the frame-work 1, so that the frame-work 1 and the frame-work 2, where they come together, form a chamber that is closed all around. It will be noted when the frame-work 1, which is subjected to the greatest wear, is worn out that the bolts 4 can be withdrawn and the frame-work 1 detached from the frame-work 2. This can be done also in shipping a press, so that convenience in handling is secured.

The frame-work 2 is closed on all sides, except as noted above and excepting also at the point 5, at which the hay is introduced. The bottom, which forms the receiving-chamber for the hay before compression, is provided with a series of slots, 6, through which the hay-seed may pass. This is no part of my invention. At the outer end of the frame-work 1, constituting the finishing-chamber, are rods 7, which pass through horizontal beams 8 and are provided with some means—such as a screw-threaded hand-wheel, 9—by which the



outer ends of the frame-work 1 may be drawn together to regulate the compression of the bale.

The frame-work 1 is made of stout timber and is firmly secured to the frame-work 2, so that its top is supported by the top of the frame-work 2.

The compression-chamber of the press, formed at the junction of the frames 1 and 2, is provided with a movable side, 10, which is controlled by two horizontal rods, 11, one at the top and the other at the bottom of the frame, having adjusting means—such as 12—for drawing the side 10 in, so as to contract the width of the compression-chamber. This contraction is lateral or at right angles to the contraction that is obtained through the instrumentality of the rods 7. The movable side 10 is preferably made up of several horizontal slats secured to side pieces, 49, which are connected by vertical cross-pieces 50, secured together by transverse pieces 52, that are controlled by rods 11 and hand-wheels 12, before referred to. (See Figs. I, IV, XIII, and XIV.) The side opposite the movable side 10 is stationary, but is preferably constructed in every respect like the movable side, except that it has but one cross-piece, 51, (see Figs. I, II, and IV,) which joins the slats together by means of said pieces similar to 49. Said side 10 is movably secured to the frame-work 2 by a link, 13, which is secured by a bolt, 14, to a timber of said frame-work and by a bolt, 15, to the middle of one of the cross-pieces 50, which join the slats of the movable side 10 together. It will be noted that by this means the side 10 is movable at all times parallel with itself, for it is free to move at each end, and the cross-pieces 50, secured thereto, being near the middle of the movable side and arranged at some distance apart, keep said movable side from swinging. These devices regulate the degree of compression to which the bale is to be subjected, and this is done by manipulating the hand-wheels 12 in one or the other direction before compressing the bale to contract or expand the compression-chamber.

It will be seen that by the rods 7 compression of the bale can be secured in one direction, and by the rods 11 compression can be secured in the other direction of the bale, but one of said compressions taking place at a time.

16 are the spring-actuated dogs that hold the hay after it has been compressed. These dogs are arranged on two sides of the press and are pivoted in pieces 17, which have spaces between them that act as guides for the traverser. Said dogs 16 are actuated by springs which bear against bars 18, bolted to the sides of the press, as clearly shown in Fig. V. These dogs hold the successive charges of the bale from expanding backward into the receiving-chamber when the traverser has receded. This feature makes no part of my invention. The traverser represented by 19

is made up of blocks 20, having metal strips 21 between them, and has a top piece, 22, and bottom pieces, 23, which the traverser runs on. To the traverser is pivoted a connecting-rod, 24, which will be hereinafter described. The blocks 20 of the traverser do not extend to the full width of the traverser, and thus leave the strips 21 projecting at each side thereof, which strips 21 pass between the pieces 17, hereinbefore described. These pieces, together with the projecting ends of the strips 21, serve to guide the traverser in the compressing-chamber. The pieces 17 only extend to a short distance in the receiving-chamber, and are there beveled at the point 25, where they extend into the receiving-chamber. By this means I secure a much wider receiving-chamber, as heretofore the guide-pieces 17 ran through the receiving-chamber and took up a considerable space in said chamber.

By beveling the pieces 17 where they extend into the receiving-chamber I practically enlarge said receiving-chamber, so that a greater charge can be compressed, and I also provide guides for the traverser in the receiving-chamber where it emerges into the compressing-chamber, guides at this point being necessary. The guides 17 in the compressing-chamber contract said chamber where contraction is desired.

Fastened to the timbers that project from the front part of the press are two cross-pieces, 26 27. At the center of said pieces are secured journal-boxes 28 29 for a vertical shaft, 30. The said cross-pieces 26 27 are bolted to cross-pieces of the frame by bolts 31 32. To this vertical shaft 30 is swiveled, preferably, a double cam-lever, 33, which is pivoted, preferably, to a double-slotted link, 34, in the slots of which the connecting-rod 24 is pivoted between the two parts of said link.

48 are anti-friction rollers journaled on a bolt passing through the end of the connecting-rod. Said anti-friction rollers are adapted to ride along the sides of the cam-lever 33 and to make the parts work easier. Embracing the double cam-lever and swiveled about the shaft 30 is, preferably, a double crank-piece, 35, to which the horse-power arm 36 is attached. The above forms in fact a capstan-like mechanism for operating the traverser 19. Supposing the parts to be in the position shown in Fig. VIII. If power be applied to the arm 36 in the direction indicated by the arrow, the shoulder of the double piece-crank 35, bearing against one of the projecting ends of the double cam-lever 33, as shown by the dotted line in Fig. VIII, would cause said cam-lever to rotate and draw the slotted link toward the vertical shaft 30. This would drive the traverser at a rapid rate, as the first part of the motion of the cam-lever and link would be almost radial. As the cam-lever continues to revolve and approach the position shown in Fig. IX, the slotted link will



fold against the shoulder 37 of the cam-lever. All this time the motion is getting slower and slower and the leverage is decreasing, the leverage at first being equal to the length of the slotted link plus the length of the cam-lever. As the slotted link folds upon the cam-lever this leverage of course decreases and the motion becomes slower until the outer end, 38, of the slotted link reaches the shoulder 37, at which time the leverage becomes a minimum equal to the distance from the center of the shaft 30 to the shoulder 37. This occurs when the traverser reaches the last part of its stroke, where great power is required. The parts having assumed this position, as shown in Fig. IX, and the power being still exerted in the same direction, (see the arrow in Fig. IX,) the forward motion of the traverser will continue until the center of the end of the link 38 has passed the center of the shaft 30—that is, the dead-center—when the force of the hay will cause the traverser to rebound and force the end of the connecting-rod 24 against the cam-lever 33, the said end of the connecting-rod riding along the slot of the slotted links and rotating the cam-lever 33 until the end 39 comes against the shoulder 40 of the double crank 35. As the cam-lever is drawn outward it draws the slotted link with it and causes said link to be placed in a straight line with the cam-lever (a corresponding position to that shown in Fig. VIII) and the end 38 of the connecting-rod 24 to return to the end of the slot, so that the force imparted to the traverser gives such a momentum to the cam-lever that it withdraws the traverser to its normal position. As this momentum is imparted to the cam-lever the end of the connecting-rod 24 is riding along the slot, and thus increasing the force imparted to the cam-lever, for the leverage increases as the end 38 of the connecting-rod rides along the slot. In the meantime the horse-power arm 36 maintains its position, and the projecting end 39 of the cam-lever being now against the shoulder 40 of the double crank leaves the parts in position for actuating the traverser by rotation of the arm 36 in the opposite direction.

Should the traverser fail to return from any cause, I connect to the same a rope, 41, which passes over pulley 42, and then to a pivoted handle, 43, at the side of the press, by which the traverser may be readily withdrawn by hand to its normal position.

44 is a platform hinged to the side of the press, upon which the operator stands when introducing hay into the receiving-chamber. Fig. I shows the platform 44 turned down, and Fig. II shows it elevated to a horizontal position that is revolved ninety degrees. This is of the ordinary construction.

45 is a door that opens into a small tool-chest arranged above the path of the traverser.

46 are followers, which are placed in the receiving-chamber before the hay is introduced. As one bale is completed, another follower is

introduced into the receiving-chamber. The followers are grooved, as shown, for the purpose of introducing wire to bind the bale together. This is done when the bale reaches the end of the frame 1. The bales force each other along until the end is reached, when the follower 46, after the bale is tied, is removed and the tied bale removed. These latter features are no part of my invention.

47 is a rod having an eye, which engages the end of the shaft 30, and is secured to the horse-power arm 36 and acts as a tie-rod in supporting said horse-power arm.

Having now fully set forth my invention and described its operation, what I desire to claim and secure by Letters Patent of the United States as my invention is—

1. A baling-press having a traverser provided with guide-plates, and guide-strips for said plates in the compression-chamber extended into the receiving-chamber, the part extended into the receiving-chamber being beveled, substantially as and for the purpose described.

2. The combination, in a baling-press, of a traverser, a connecting-rod secured to said traverser and pivoted in slotted links, a cam-lever pivoted to said slotted links, a shaft upon which said cam-lever is pivoted, a crank swiveled to said shaft and embracing the cam-lever, and a horse-power arm connected with said crank.

3. The combination, in a baling-press, as hereinbefore set forth, of the vertical shaft 30, attached to the fore part of the press, a double crank, 35, swiveled to said shaft and having shoulders, as described, a cam-lever, 33, also swiveled to said shaft, having projecting shoulders 37 39 and embraced by said double crank, a horse-power arm, 36, secured to said double crank, a slotted link, 34, pivotally affixed to said cam-lever, a connecting-rod, 24, pivoted in a slot in said link, and a traverser, as 19, connected with said rod.

4. The combination, in a baling-press, of slotted links, a connecting-rod, as 24, pivoted in the slot of said links, a traverser, as 19, secured to said connecting-rod, a power-supply connection pivotally secured to said links, and anti-friction rollers mounted upon the outer end of said connecting-rod.

5. The combination, in a baling-press, of a traverser, a connecting-rod for said traverser pivotally secured in slotted links 34, as described, a double cam-lever pivotally secured to said slotted links, power-connections for actuating said double cam-lever, and anti-friction rollers mounted upon the outer end of said connecting-rod, for the purpose described.

6. The combination, in a baling-press, as hereinbefore set forth, of the vertical shaft 30, attached to the end of the press, a crank swiveled to said shaft and having shoulders, as described, a cam-lever, also swiveled to said shaft, having projecting shoulders 37 39 and embraced by said crank, a link pivotally af-



fixed to said cam-lever, a connecting-rod, 24, pivoted in said link, a traverser, 19, secured to said connecting-rod, and anti-friction rollers 48, mounted upon the outer end of said  
5 connecting-rod, for the purpose described.

In testimony whereof I have hereunto set my hand and affixed my seal, this 30th day of

April, 1888, in the presence of the two subscribing witnesses.

WM. J. H. KAPPE. [L. s.]

Witnesses:

JOHN SOEBBING,  
H. E. GILES.