

(No Model.)

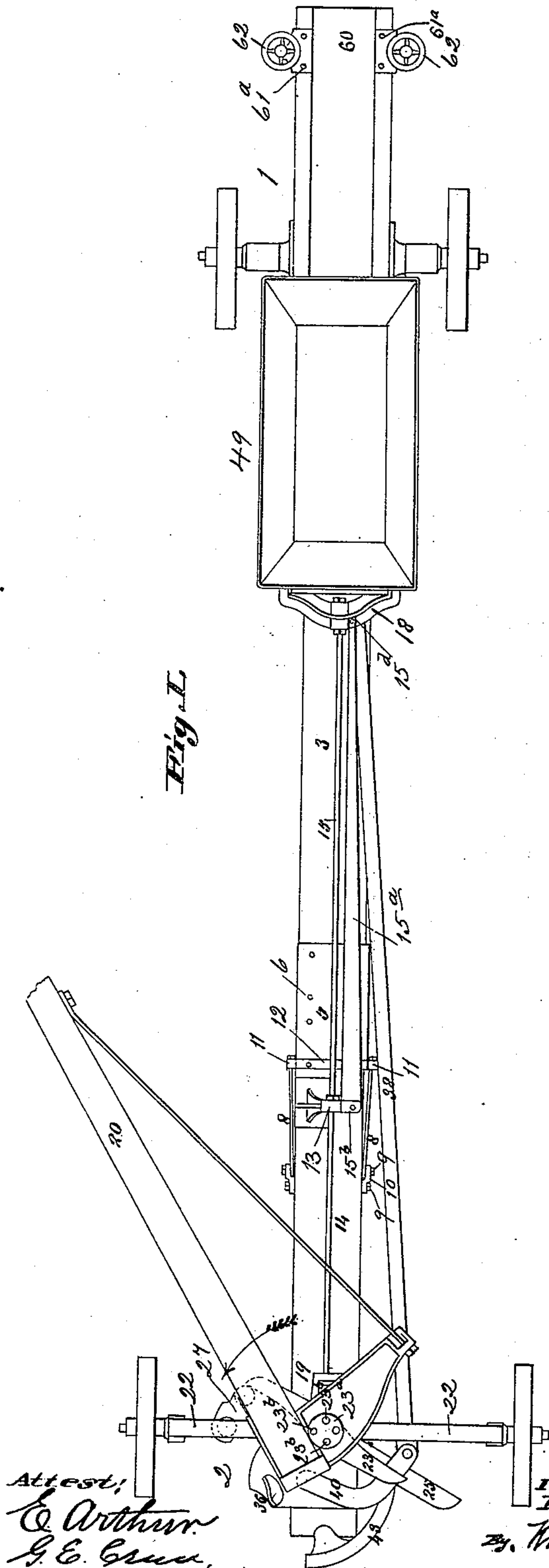
4 Sheets—Sheet 1.

H. L. WHITMAN.
BALING PRESS.

No. 446,311.

Patented Feb. 10, 1891.

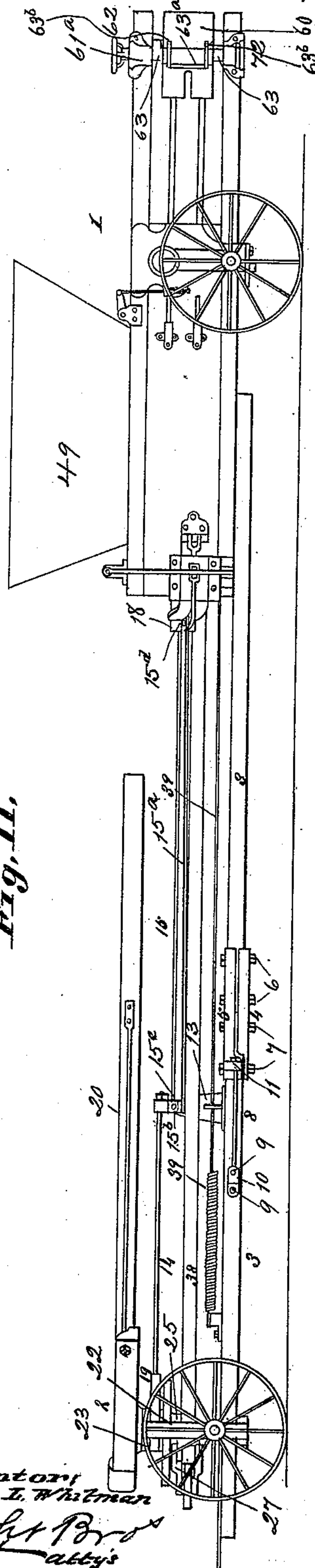
Fig. I.



Attest:
C. Arthur
S. E. Green.

Inventor:
Henry L. Whitman
By Knight Bros
attys

Fig. II.



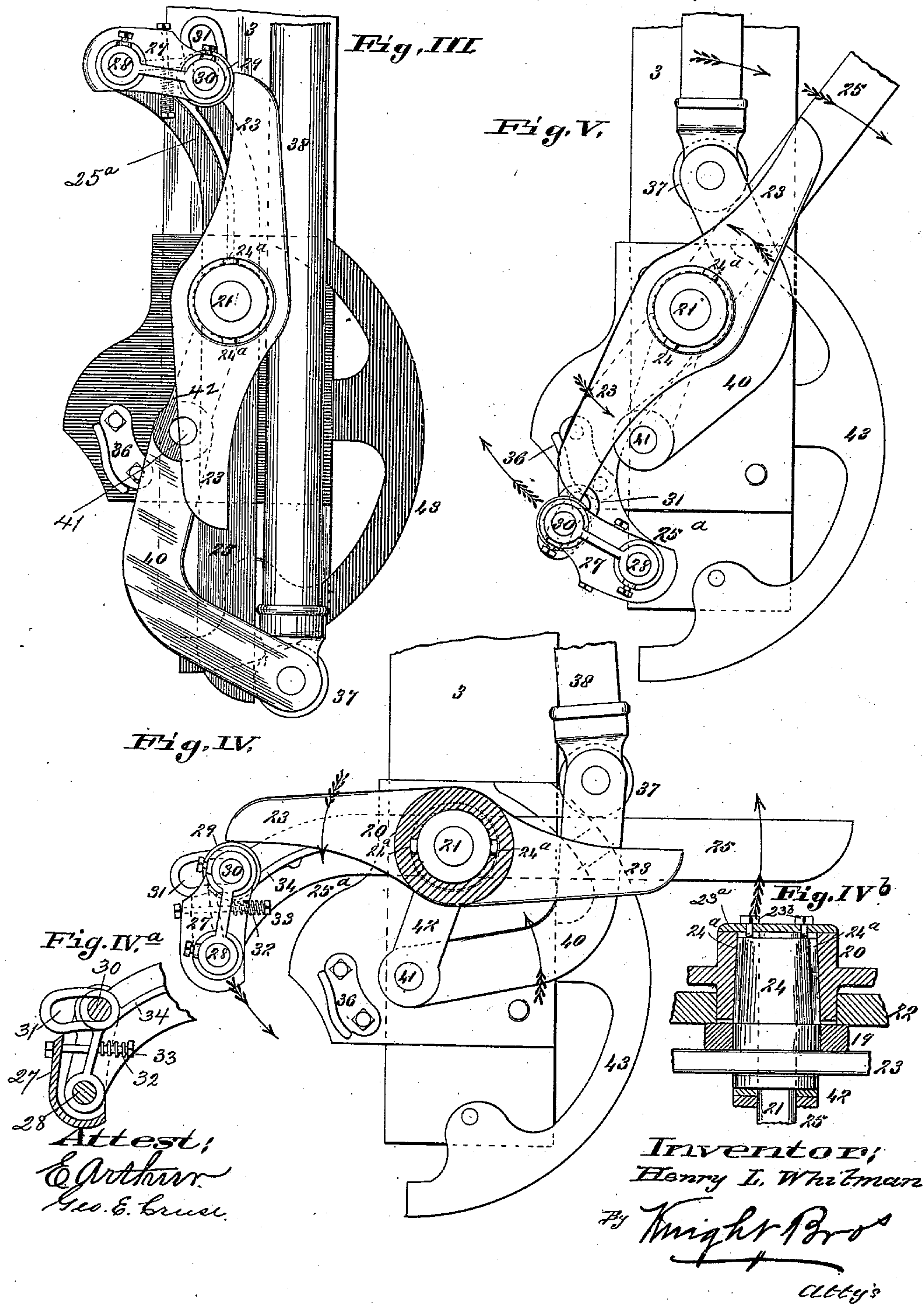
(No Model.)

4 Sheets—Sheet 2.

H. L. WHITMAN.
BALING PRESS.

No. 446,311.

Patented Feb. 10, 1891.



(No Model.)

4 Sheets—Sheet 3.

H. L. WHITMAN.
BALING PRESS.

No. 446,311.

Patented Feb. 10, 1891.

Fig. VI.

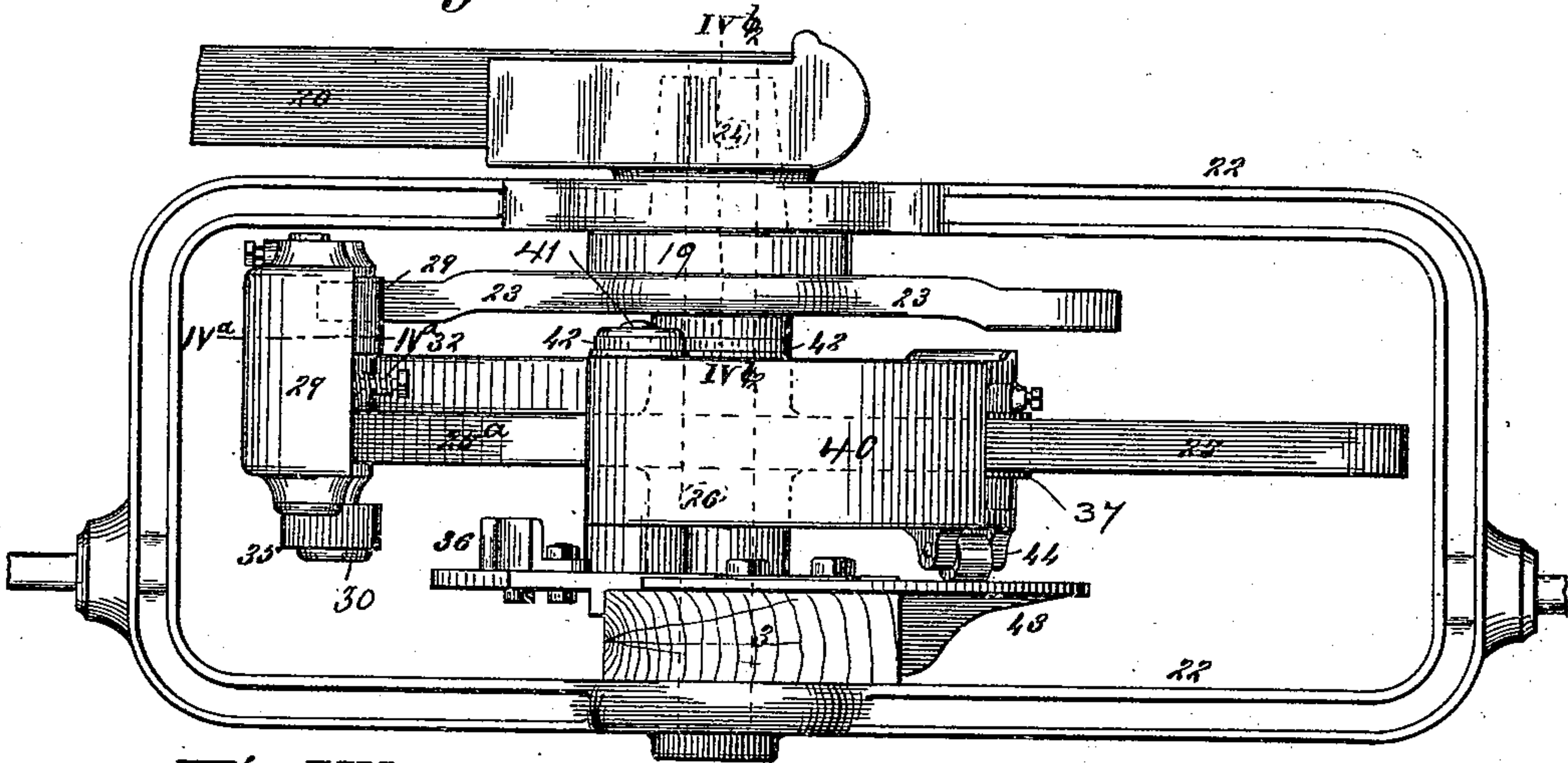


Fig. VII.

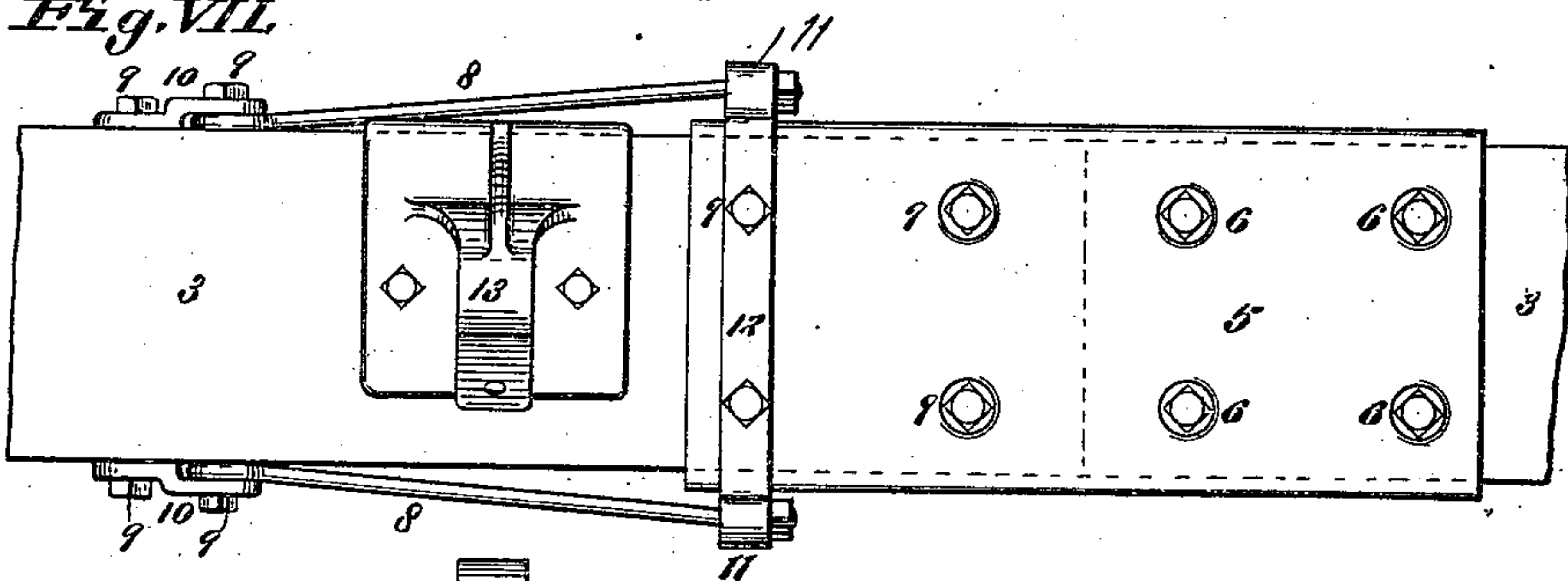


Fig. VIII.

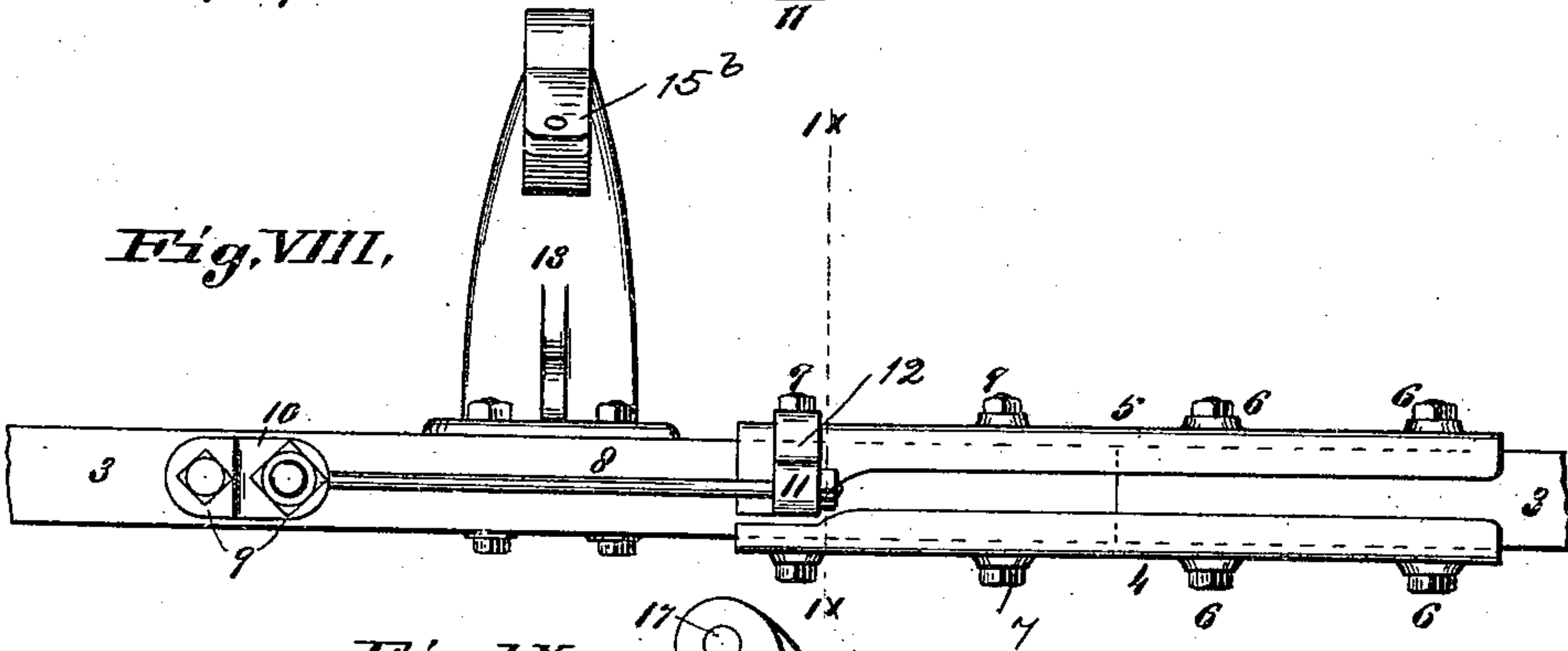
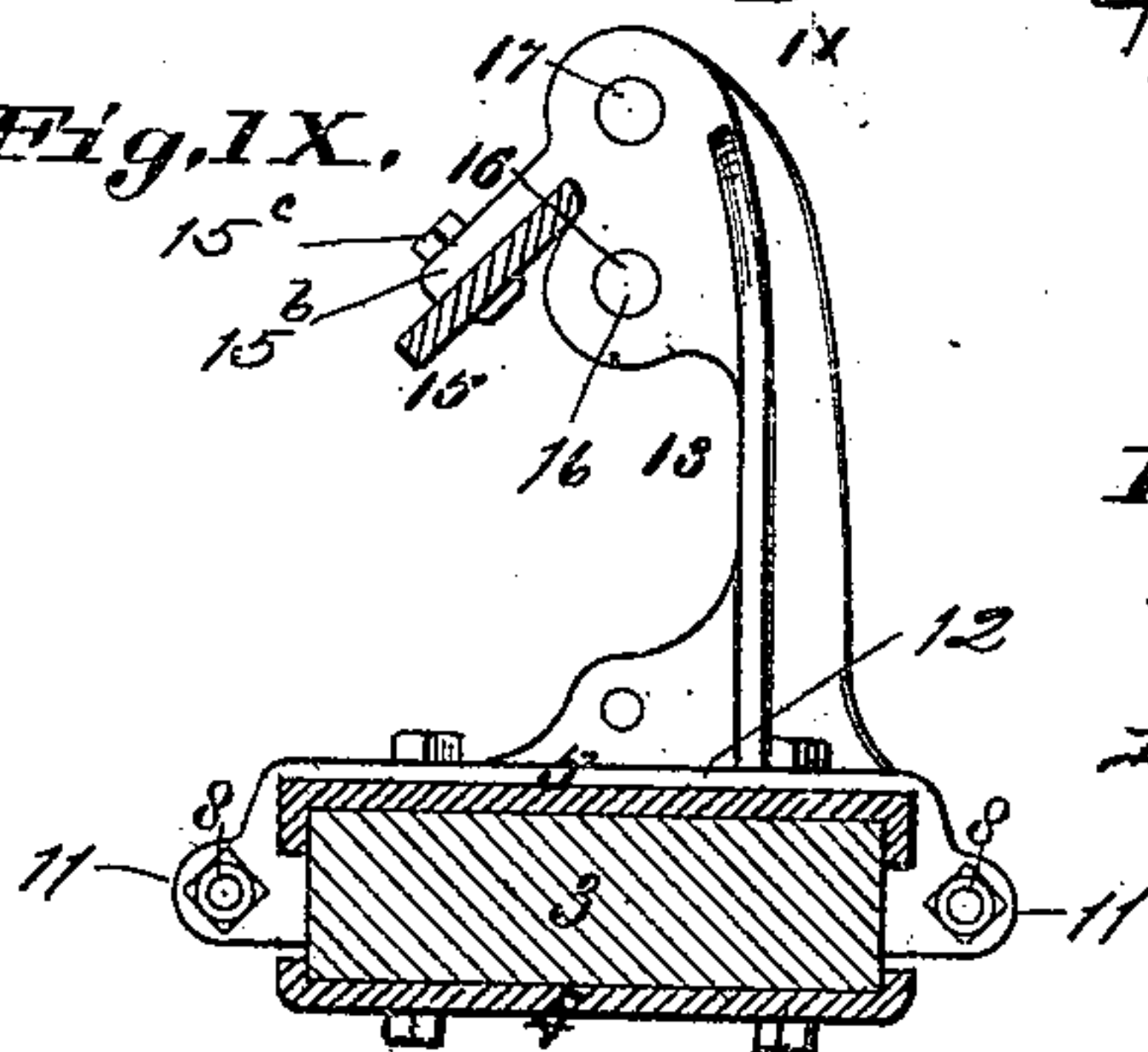


Fig. IX.



Attest:
E. Arthur.
Geo. E. Carr.

Inventor:
Henry L. Whitman
By Knight Bros
attys

(No Model.)

4 Sheets—Sheet 4.

H. L. WHITMAN.
BALING PRESS.

No. 446,311.

Patented Feb. 10, 1891.

Fig. X.

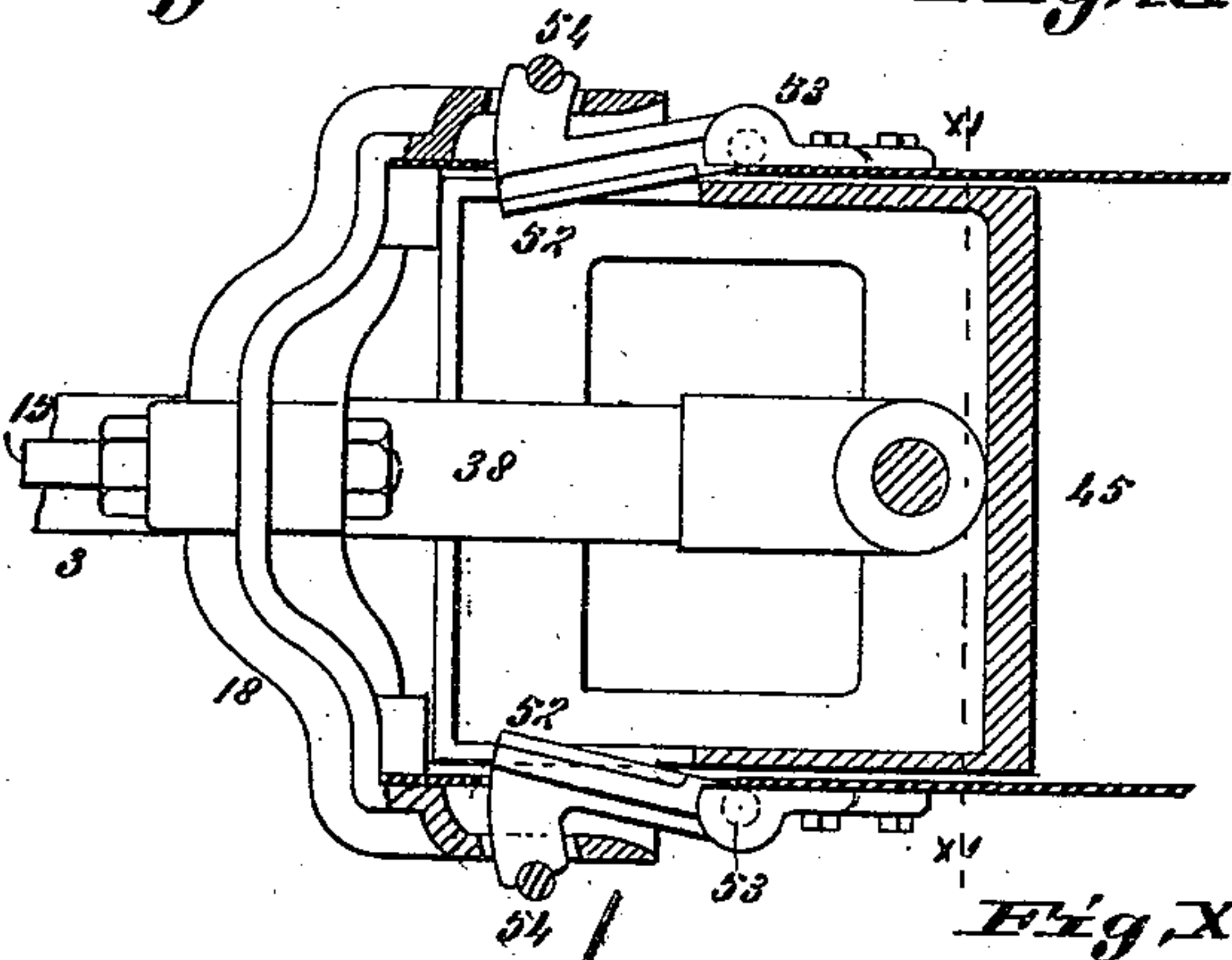


Fig. XI.

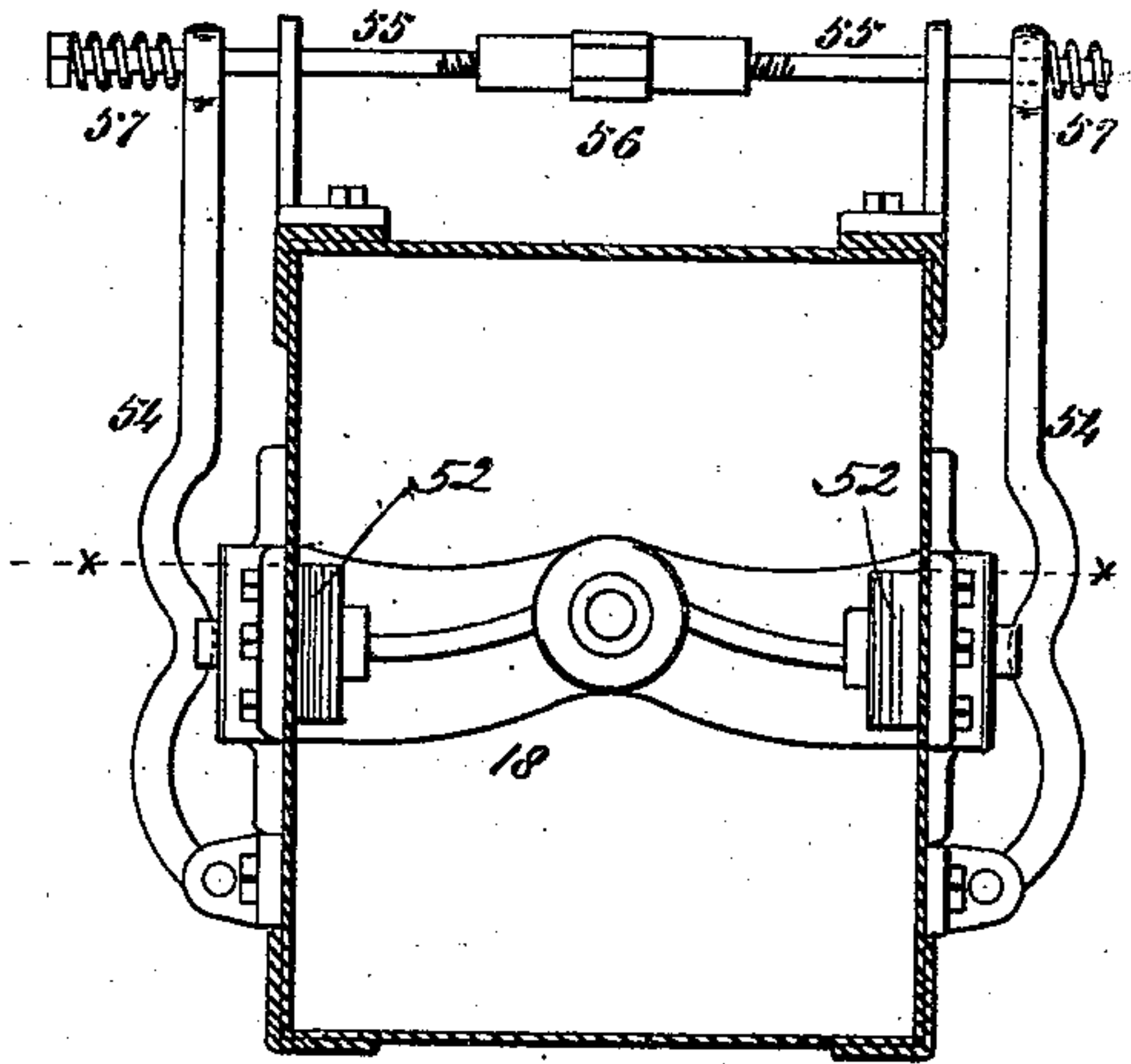


Fig. XII.

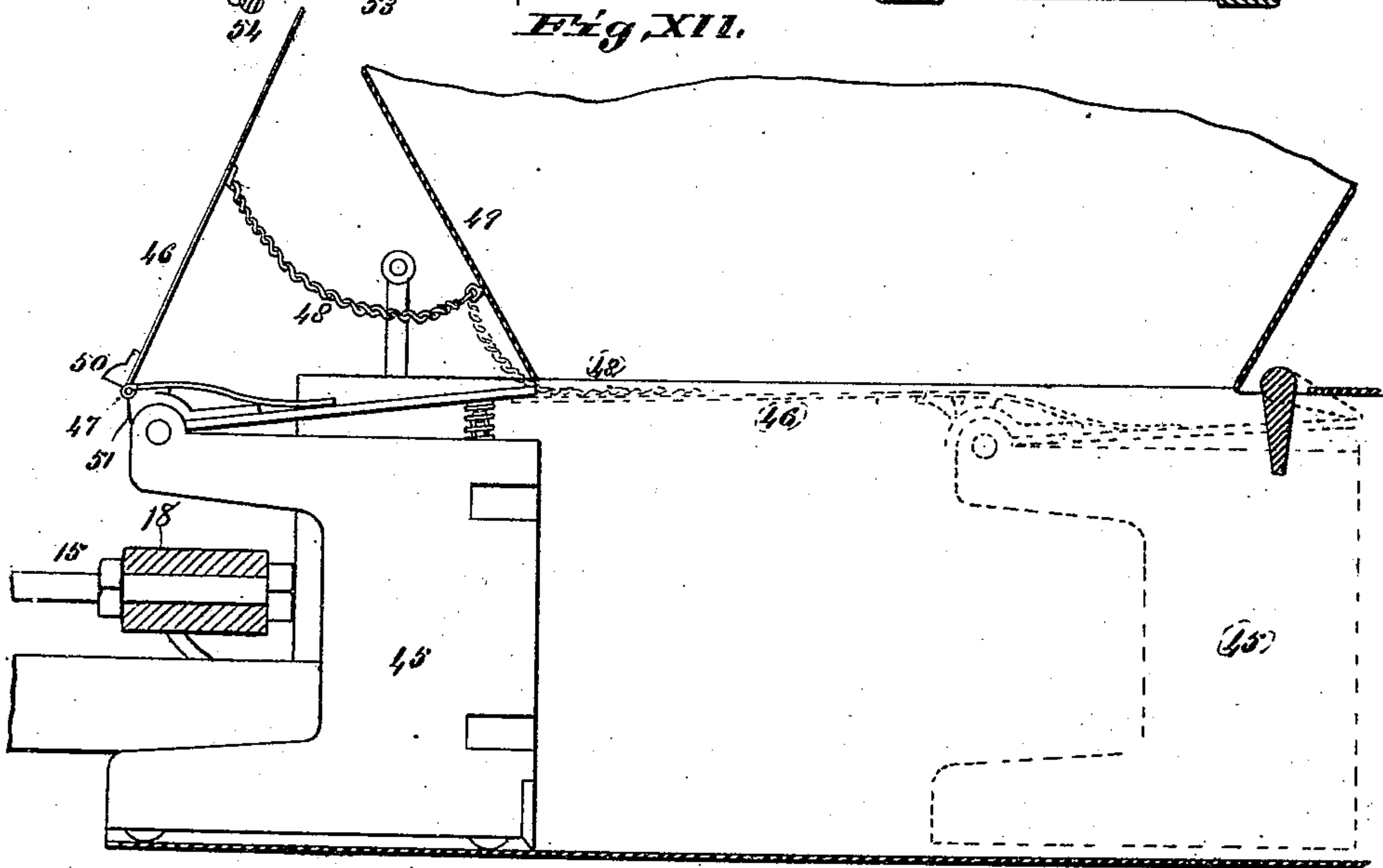


Fig. XIII.

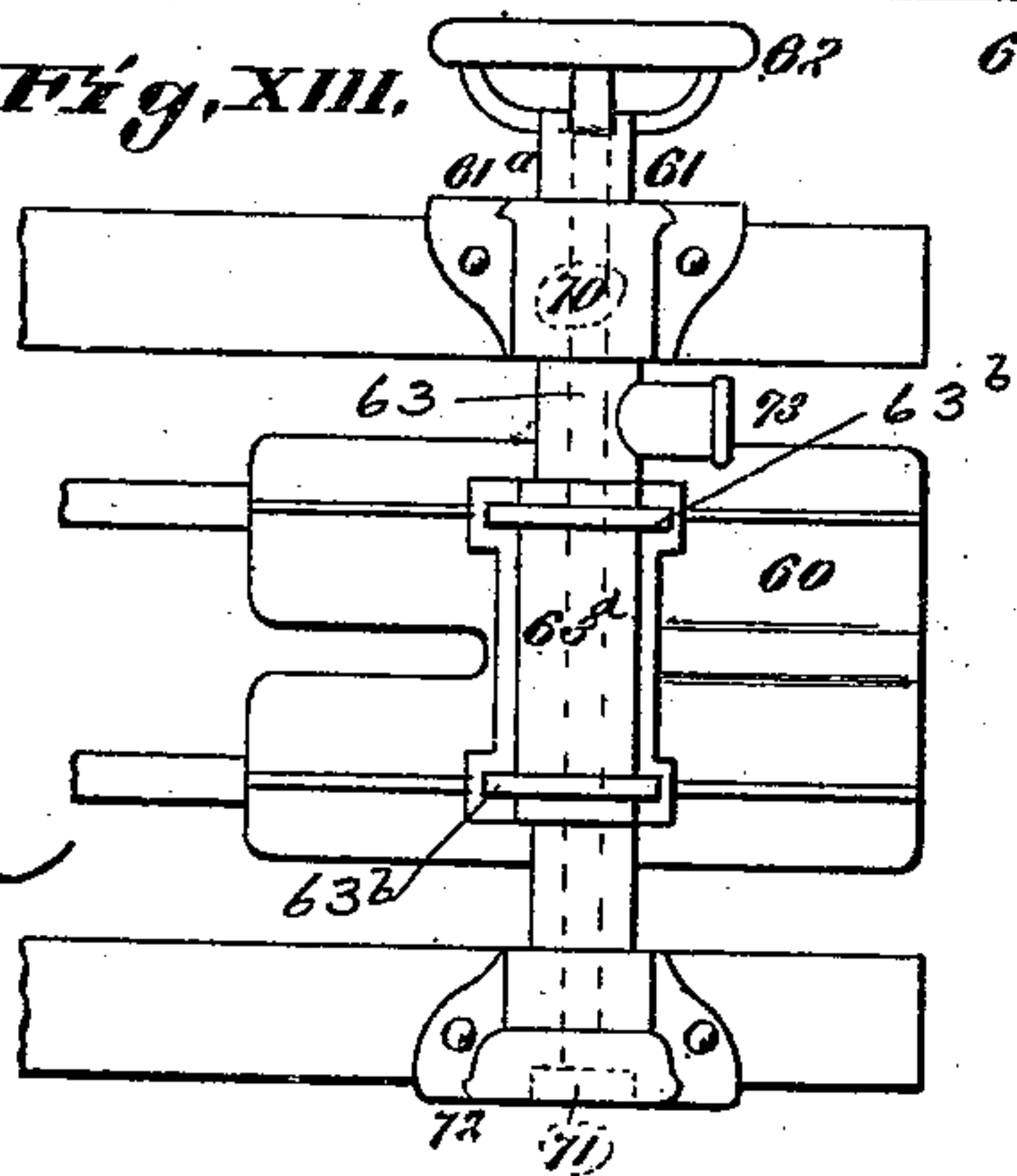
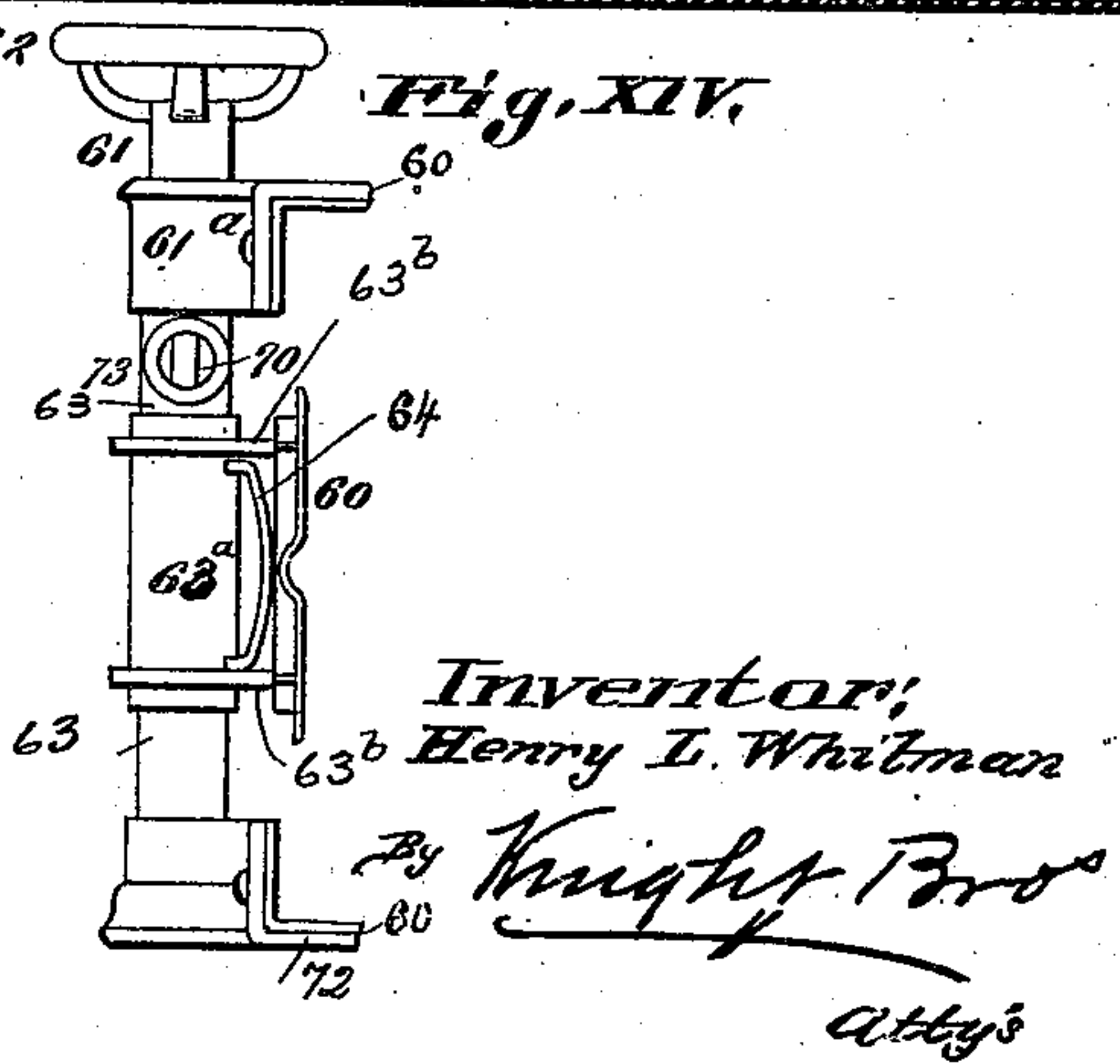


Fig. XIV.



Attest,
E. Arthur,
Geo. E. Gunn.

Inventor,
Henry L. Whitman

By Knight Bros
Attys

UNITED STATES PATENT OFFICE.

HENRY L. WHITMAN, OF ST. LOUIS, MISSOURI.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 446,311, dated February 10, 1891.

Application filed December 24, 1889. Serial No. 334,903. (No model.)

To all whom it may concern:

Be it known that I, HENRY L. WHITMAN, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Baling-Presses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to certain improvements in presses for baling hay, straw, excelsior, and the like; and my invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a top or plan view of my improved press. Fig. II is a side elevation of the same. Fig. III is an enlarged detail top view of the power end of the press. Fig. IV is a similar view showing the parts in a different position. Fig. IV^a is a horizontal section taken on the line IV^a IV^a, Fig. VI. Fig. IV^b is a detail vertical section taken on line IV^b IV^b, Fig. VI. Fig. V is a similar view to Figs. III and IV, showing the parts in still another position. Fig. VI is an end view of the power end of the press. Fig. VII is a detail view showing the manner of securing the jointed beam that forms a connection between the baling end and power end of the press. Fig. VIII is a side elevation of the same. Fig. IX is a vertical transverse section taken on line IX IX, Fig. VIII, and looking toward the power end of the press. Fig. X is a detail horizontal section of the baling end of the press, taken on line X X, Fig. XI. Fig. XI is a vertical transverse section taken on line XI XI, Fig. X, and looking toward the power end of the press, the traverser being omitted. Fig. XII is a detail vertical longitudinal section showing the portion of the press at the feed-opening and showing also the traverser. Fig. XIII is a detail side elevation showing the friction device at the delivery end of the press, and Fig. XIV is an end view of same.

Referring to the drawings, 1 represents the baling end, and 2 the power end of the press. These parts are connected by a beam or sill 3, over which the animals pass as the press is operated. This beam is made in two parts,

so that the press can be divided in transportation, and it is connected at the joint by means of a lower plate 4 and an upper plate 5. (See Figs. VII, VIII, and IX.) The plates are secured to the inner portion of the beam by bolts 6 and to the outer portion of the beam by bolts 7. The plates are also preferably flanged, as shown in Fig. IX. By removing the bolts 6 it will be seen that the beam may be disjointed to disconnect the ends of the press, as stated. For the purpose of giving additional strength to the joint I secure rods 8 to the outer portion of the beam, these rods being preferably connected to the outer portion of the beam by means of bolts 9 and clips 10. The inner ends of the bolts pass through eyes 11 of a strap 12, secured to the upper plate 5 by one pair of the bolts 7. The eyes 11 project beyond the sides of the beam, and by tightening on the nuts of these rods it will be seen that additional strength to the joint will be afforded. The central portion of the beam is provided with a standard 13, from which extends a rod 14 to the power end of the press and a rod 15 to the baling end of the press. These rods are shown in Figs. I and II. The rod 15 is connected to the standard at 16, (see Fig. IX,) and the rod 14 is connected to the standard at 17. (See Fig. IX.) By the use of these connecting-rods the power end and baling end of the press are more firmly secured or attached together. The end of the rod 15 is secured to the baling-chamber of the press by means of a cross-head 18, (see Figs. I, X, XI, and XII,) and the outer end of the rod 14 is connected to the power end of the press by means of a yoke 19. (See Figs. I, II, and VI.)

15^a is a flat strap, (see Figs. I and IX,) secured at one end by means of a bolt 15^c to the inclined projection or arm 15^b of the standard 13, and at the other end is secured by means of a bolt 15^d to the cross-head 18. This strap is merely to protect the rod 15 from being struck by the animals' feet as the animals pass around in operating the press.

20 represents the lever or sweep of the press located on a vertical shaft 21, which passes through a frame 22. (See Fig. VI.) The sweep and frame are removed in Figs. III, IV, 100

and V. Within the frame 22 on the shaft 21 is a cross-head 23. This cross-head 23 is provided with an upwardly-extending neck 24, (see Fig. IV^b), which passes through the yoke 19, through the upper part of the frame 22, and through the sweep-head. The sweep-head is provided with grooves to receive lugs 24^a on the neck 24, as shown in Figs. IV and IV^b, and thus the sweep and cross-head 23 are connected together permanently and made to revolve with each other.

23^a represents a cap on the sweep, through which set-screws 23^b pass into the neck 24, and by tightening on these set-screws the bearing between the neck (which is conical) and the sweep may be tightened.

25 25^a represent arms provided with a hub 26, (see dotted lines, Fig. VI,) through which the central shaft or rod 21 passes. This hub is loosely mounted on the shaft, and one of the arms 25^a has automatic engagement with the cross-head 23 by means of a block 27, pivoted to the end of one of the arms by means of a pin 28. The block is provided at its free end with a friction-roller 29, (see Figs. III and IV,) which is engaged alternately by the ends of the cross-head 23. This end of the block is also provided with a pin 30, fitting in a slot 31, formed in the end of the arm carrying the block. This pin and slot limit the swinging movement of the block. The free end of the block is held to its inner position (shown in Fig. IV) by means of a spring 32, surrounding a bolt or rod 33, which passes through a rib or flange 34 on the arm. (See Figs. III, IV, and IV^a.) When the block is in the position shown in Fig. IV, which is its inner position, the friction-roller 29 is in the path of the cross-head 23, and it will be seen that as the sweep and cross-head are turned the engagement of the cross-head with the friction-roller 29 causes a connection between the cross-head and the arm 25^a which causes the arm to be turned on the central pin 21. The pin 30, beneath the arm 25^a, is provided with a friction-roller 35, (see Fig. VI,) which comes against a fixed cam 36 (see Figs. IV and VI) at the proper time, and forces the free end of the block, with the friction-roller 29, outwardly, and causes the disengagement of the cross-head with the arm 25^a. The arm 25, as the traverser moves forward, bears against a friction-roller 37 on the outer end of the pitman 38 of the press, as shown in Figs. III and IV, and thus it will be seen that as the arms 25 25^a are turned by the sweep and cross-head, as described, the pitman, which of course carries the traverser of the press at its inner end, will be forced forward until the roller 35 comes against the cam 36 and disconnects the arms from the cross-head, and this disconnection takes place just as the traverser reaches the limit of its forward movement. As soon as the disconnection takes place the traverser, pitman, and arms all rebound to their normal positions, or the positions shown in Fig. III. These parts may be caused to

rebound by the expansion of the compressed material, which may be assisted, if desired, by means of a spring-rod 39. (See Fig. II.) The outer end of the pitman is pivoted by means of a link 40 to the timber or sill-piece 3 at 41, and as the traverser advances and recedes this link 40 turns on the pivot 41, and it will be seen that as the traverser reaches the limit of its forward movement that the point of bearing between the arm 25 and the pitman will approach the center 21 of the power, thus transferring speed into power. The pivot 41 may be connected with the central shaft 21 by means of a plate 42.

43 represents a track secured to the timber 3, and upon which bears a friction-roller 44, secured to the end of the link 40. (See Fig. VI.)

45 represents the traverser, secured to the inner end of the pitman 38.

To the upper rear end of the traverser is hinged a flap or plate 46 at 47. This flap is connected by means of a chain or cord 48 to the hopper 49 of the press. At the joint 47 the flap is provided with a shoulder 50, which, when the flap is in its lower or horizontal position, bears against a shoulder 51 on the traverser. These shoulders hold the flap in its horizontal position, as shown by dotted lines, Fig. XII. The function of the flap is to close the bottom of the hopper 49 when the plunger or traverser is in its inner position, and thus prevent the hay or stuff from falling into the baling-chamber behind the traverser.

It will be understood that in operating these baling-presses the hay or stuff being baled is thrown into the hopper regardless of whether the plunger is in its rear or its inner position, and were it not for the traverser being long enough to close the bottom of the hopper when in its inner position the stuff would fall into the baling-chamber behind the traverser, which, of course, would not be desirable. The object of hinging the flap to the traverser and connecting it by a chain to the hopper is to cause it to be folded up, as shown by full lines, Fig. XII, when in its outer position, so as not to be in the way of the draft-animals in their circuitous route in operating the press. If the flap were not hinged and compelled to fold up as the plunger reached the limit of its outer movement, it will be understood that the connection between the baling end of the press and the power end would have to be as much longer than it is where the flap is hinged than the flap is long, so that by hinging the flap and folding it the length of the press is considerably lessened. As the traverser moves inward the flap 46 folds down for the purpose stated, and then as the traverser recedes it is turned up again in the position shown in full lines, Fig. XII. As the plunger recedes it comes against friction-blocks 52, pivoted at 53 to the sides of the press, these blocks being made adjustable in or out by means of hinged rods 54, (see Figs. X and XI,) which are connected at their tops by a rod 55, made in two parts having right

and left threads on their adjacent ends, where they are connected by a sleeve 56. Between the heads on the outer end of the connecting-rod and the upper ends of the rods 54 are springs 57. By turning the sleeve 56 in the proper direction it will be seen that the friction-blocks will be shoved in or out, and by the use of the springs 57 a yielding friction between the traverser and the blocks is obtained.

The sides of the delivery end of the press are provided with adjustable plates 60. (See Figs. XIII and XIV.) By adjusting these plates in or out the friction between them and the material being pressed is controlled for the purpose of regulating the density of the bales. The top and bottom plates are adjusted by vertical screw-threaded rods 70, provided with wheels 62 working therein and having hubs 61 bearing on boxes 61^a, secured to the upper timbers of the baling-chamber. The lower ends of the rods 70 have heads 71 bearing against boxes 72, secured to the lower timbers of the baling-chamber, and it will be seen that by tightening on the wheels 62 the top and bottom plates of the baling-chamber will be contracted vertically. Surrounding the shafts between the boxes 61^a and 72 are sleeves 63, having eccentrics 63^a working in yokes 63^b, secured to the plates 60. Springs 64 are placed between the eccentrics and the plates 60. It will thus be seen that by turning the sleeves with the eccentrics the plates 60 will be moved in or out, and by the use of the springs 64 a yielding elastic friction is produced between the stuff being baled and the plates. The sleeves are provided with sockets 73 to receive a rod or lever by which the sleeves are turned.

I claim as my invention—

1. In a baling-press, the combination of a traverser, a pitman, a power-shaft, a sweep mounted on the shaft, a cross-head united to the sweep, arms mounted loosely on the shaft, one of said arms being adapted to bear against the outer end of the pitman, a trip secured to the other of said arms and adapted to be engaged by the cross-head, a pivoted link secured to the pitman and to the frame, and means for operating the trip, whereby the arms are disengaged from the cross-head when the traverser has reached the limit of its inward movement, substantially as specified.

2. In a baling-press, the combination of a traverser, a pitman, a power-shaft, a sweep mounted on the shaft, a cross-head united to the sweep, arms mounted loosely on the shaft, one of said arms being adapted to bear against the outer end of the pitman, a pivoted link secured to the pitman and to the frame, a pivoted and spring-actuated trip mounted on the other of said arms, and a cam for forcing the trip out of engagement with the cross-head, substantially as and for the purpose set forth.

3. In a baling-press, the combination of a

traverser, a pitman, a power-shaft, a sweep mounted on the power-shaft, a cross-head united to the sweep, arms mounted on the shaft, one of which is adapted to bear against the outer end of the pitman, a block pivoted to one of the arms and provided with a friction-roller to receive the cross-head, a cam for moving the trip out of engagement with the cross-head, and a link connecting the outer end of the pitman to a pivot located outside of the power-shaft, substantially as and for the purpose set forth.

4. In a baling-press, the combination of a traverser, a pitman, a power-shaft, a sweep located on the power-shaft, a cross-head united to the sweep, arms located on the power-shaft, one of which is adapted to bear against the outer end of the pitman, a trip located on one of the arms, a cam for throwing the trip out of engagement with the cross-head, a pivoted link connected to the outer end of the pitman and to the frame, a track 43, and a roller secured to the link and bearing on the track, substantially as and for the purpose set forth.

5. In a baling-press, the combination of the baling-chamber provided with a traverser, a pitman, a power mechanism for operating the traverser and pitman, and a connection between the baling-chamber and power end of the press, consisting of a sectional beam and a connecting device for the beam, consisting of the lower plate 4, the upper plate 5, rods 8, a standard 13, and rods 14 and 15, secured to and extending from the standard, substantially as and for the purpose set forth.

6. In a baling-press, the combination of a chamber provided with a feed-hopper, a traverser having a shoulder 51, means for operating the traverser, a hinged flap 46, having a shoulder 50, and a chain 48 between the flap and the outside of the feed-hopper of the press, substantially as and for the purpose set forth.

7. In a baling-press, the combination of a baling-chamber, a traverser, friction-blocks 52, pivoted to the press, pivoted rods 54, hinged to the press, and sectional connecting-rod 55, supported on the rods and provided with sleeve 56 and springs 57, substantially as and for the purpose set forth.

8. In a baling-press, the combination of the friction-plates 60, having yokes 63^b, shafts 70, having wheels 62, sleeves on the shafts provided with eccentrics 63, and springs 64, placed between the eccentrics and the plates 60, substantially as and for the purpose set forth.

9. In a baling-press, the combination of the baling-chamber, a power device, a sectional beam for uniting the baling-chamber to the power device, and means for joining the sectional beam, consisting of the lower plate 4, upper plate 5, strap 12, brace-rods 8, and clips 10, substantially as and for the purpose set forth.

10. In a baling-press, the combination of a traverser, a pitman, a pivoted link 40, connect-

ed to the pitman and to the frame, and a power
device consisting of an arm 25 and a cross-head
and trip for moving the arm, said parts being
so arranged that the outer end of the arm will
5 bear against the end of the pitman when the
traverser is in its outer position and the point
of bearing will approach the center of the arm
as the traverser advances, substantially as and
for the purpose set forth.

HENRY L. WHITMAN.

In presence of--

E. S. KNIGHT,

A. M. EBERSOLE.