

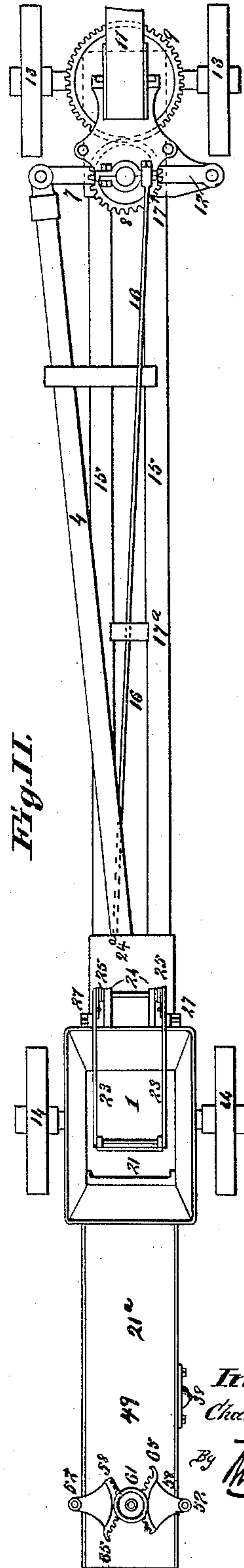
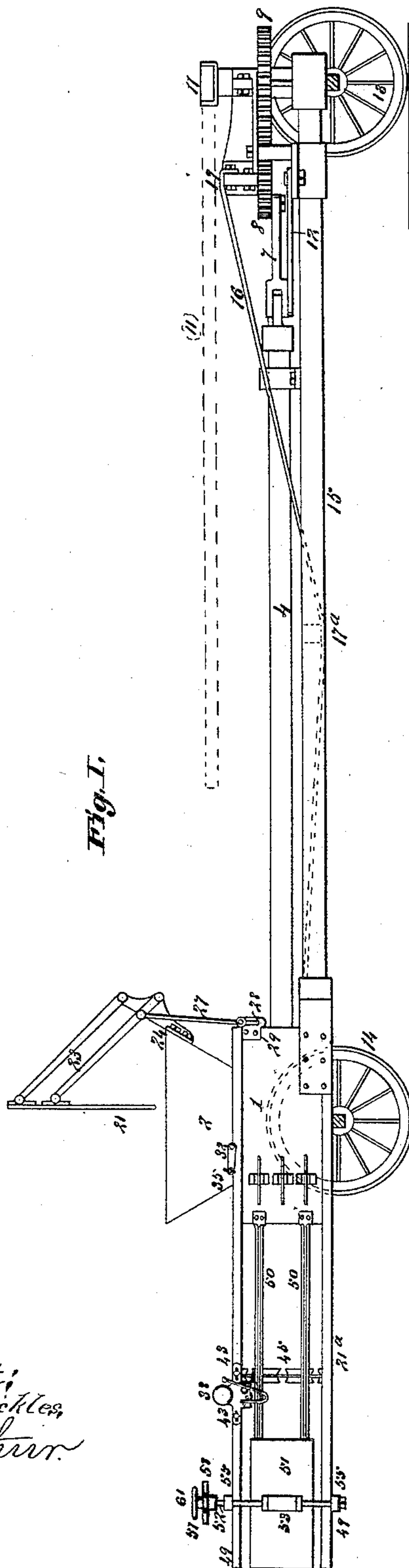
(No Model.)

4 Sheets—Sheet 1.

C. E. WHITMAN.
BALING PRESS.

No. 453,098.

Patented May 26, 1891.



Attest;
Charles Pickles,
E. Arthur.

Inventor;
Charles E. Whitman
Knight Bros
attys

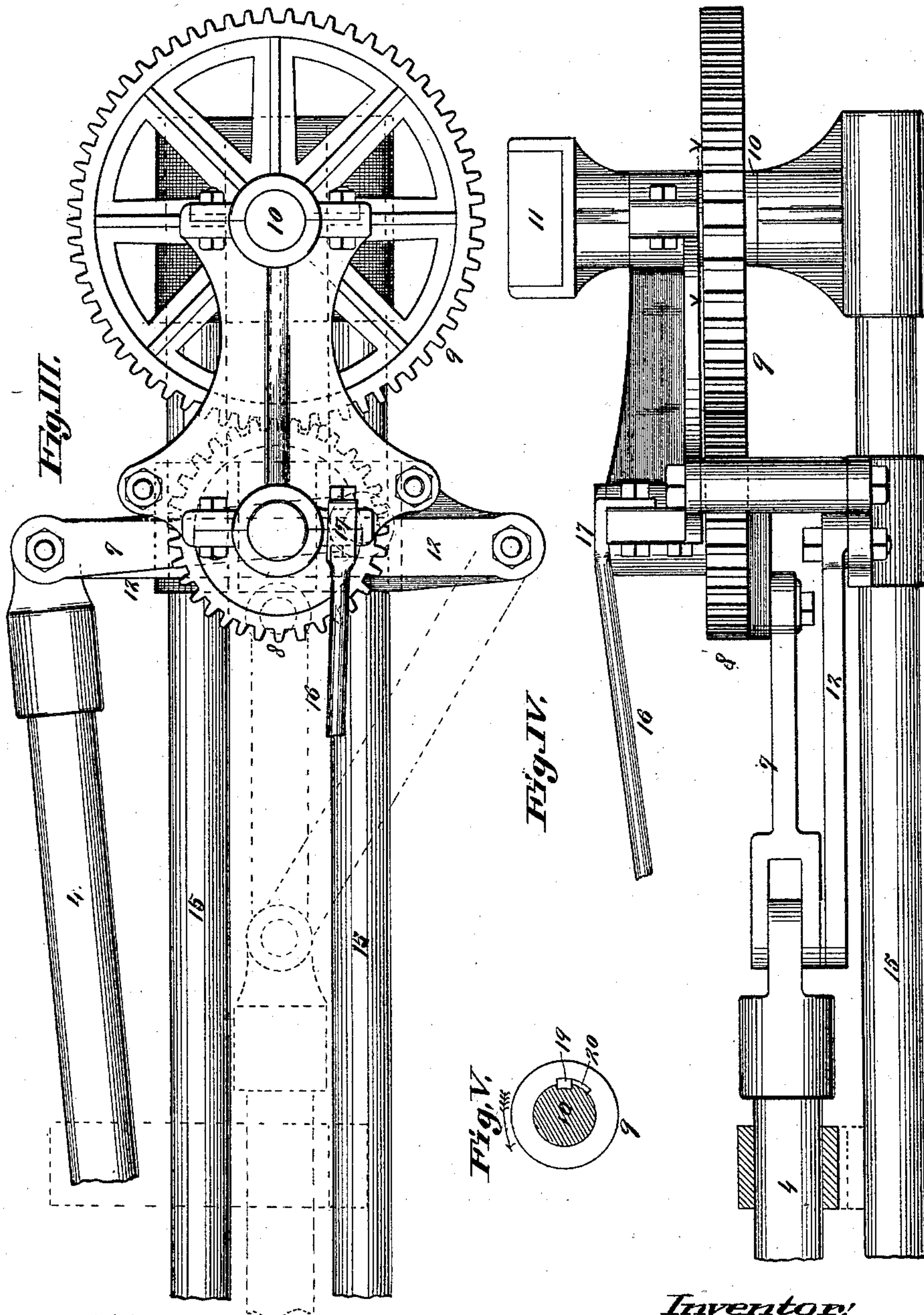
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Attest,
E. Arthur
Edward D. Knight.

Inventor,
Charles E. Whitman
By *Wright Bros*
Atty

(No Model.)

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Fig. VI.

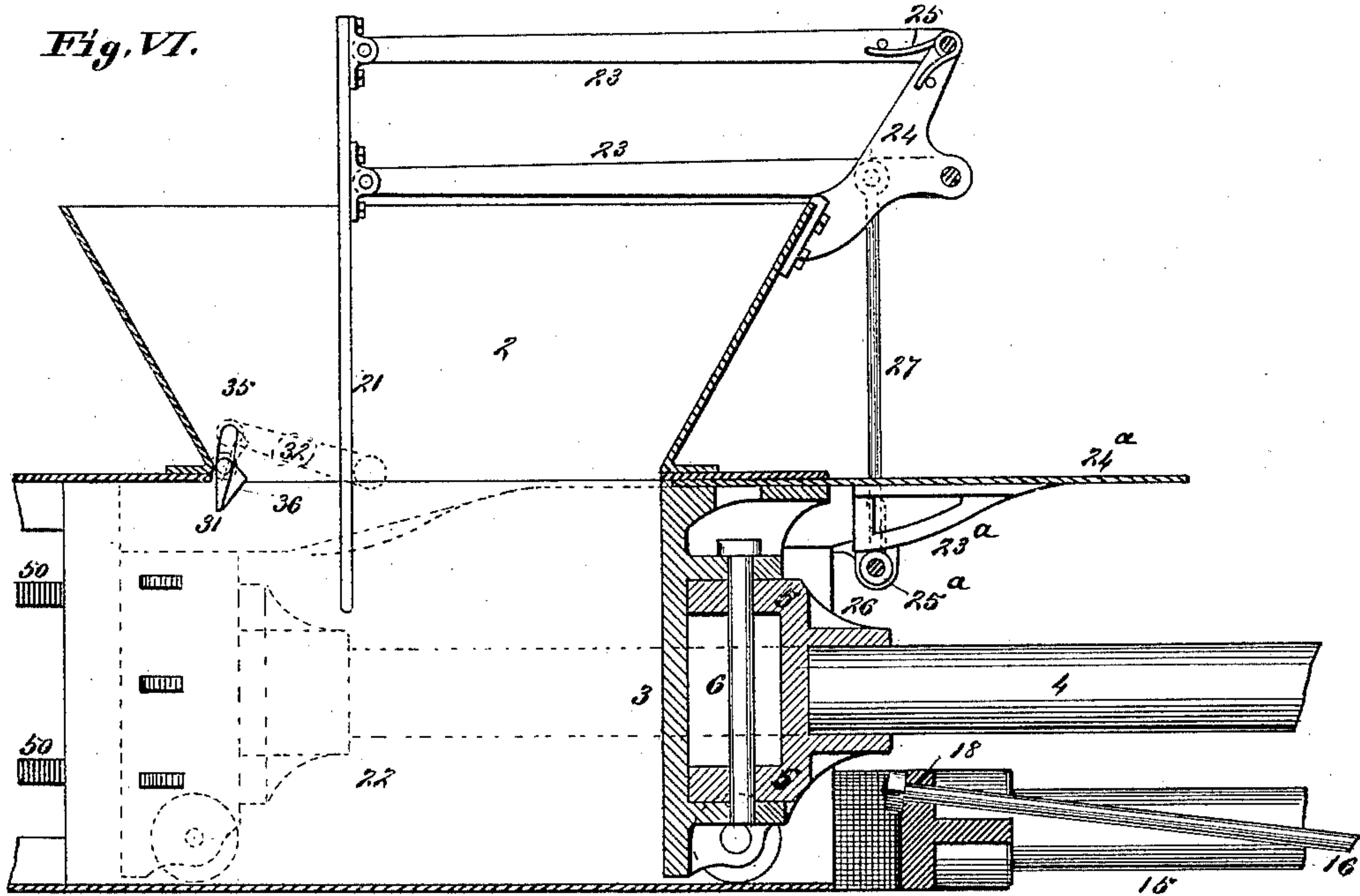
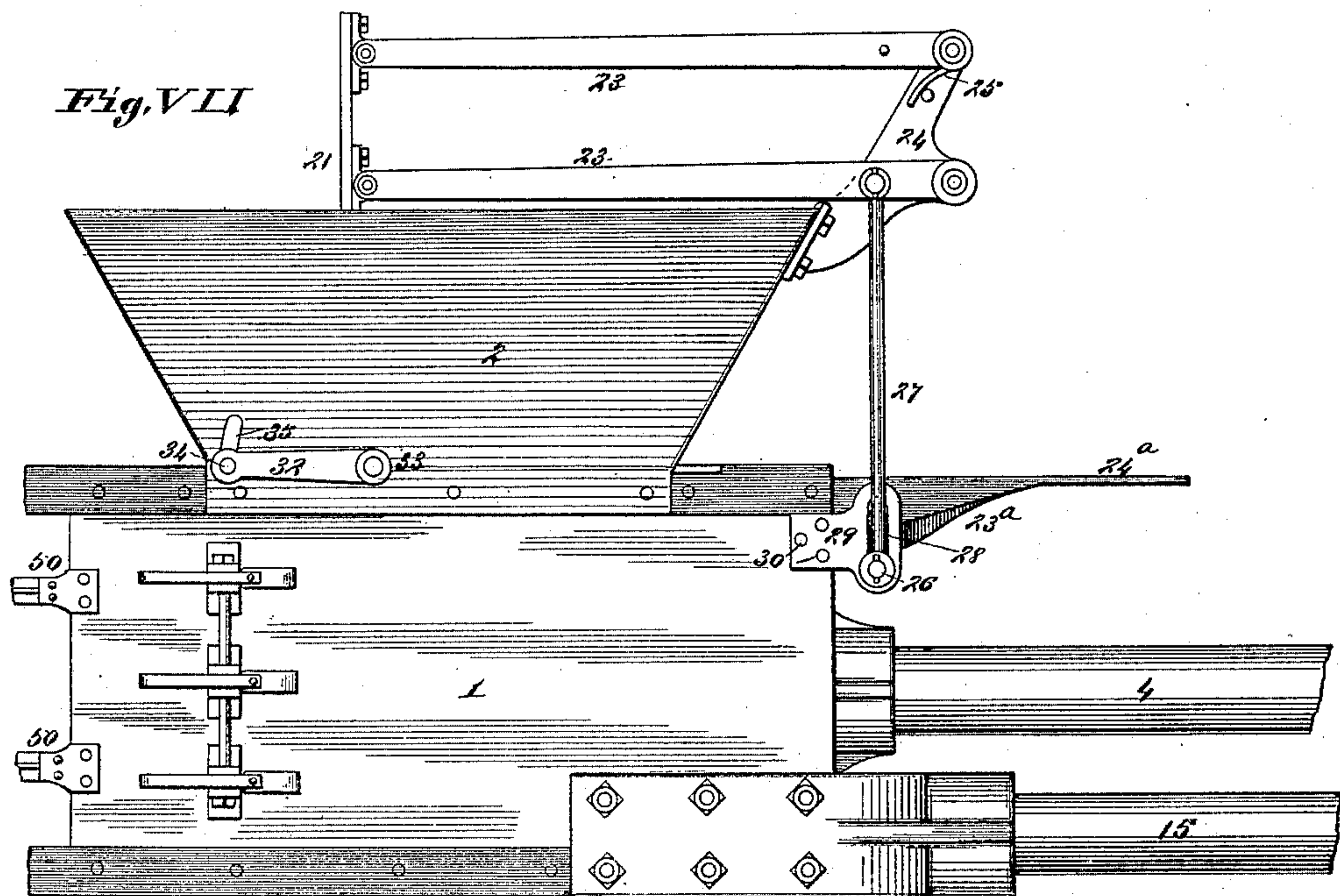


Fig. VII.



Attest:
E. Arthur.
Edward D. Knight.

Inventor:
Charles E. Whitman
By *Knight Bros*

attys

(No Model.)

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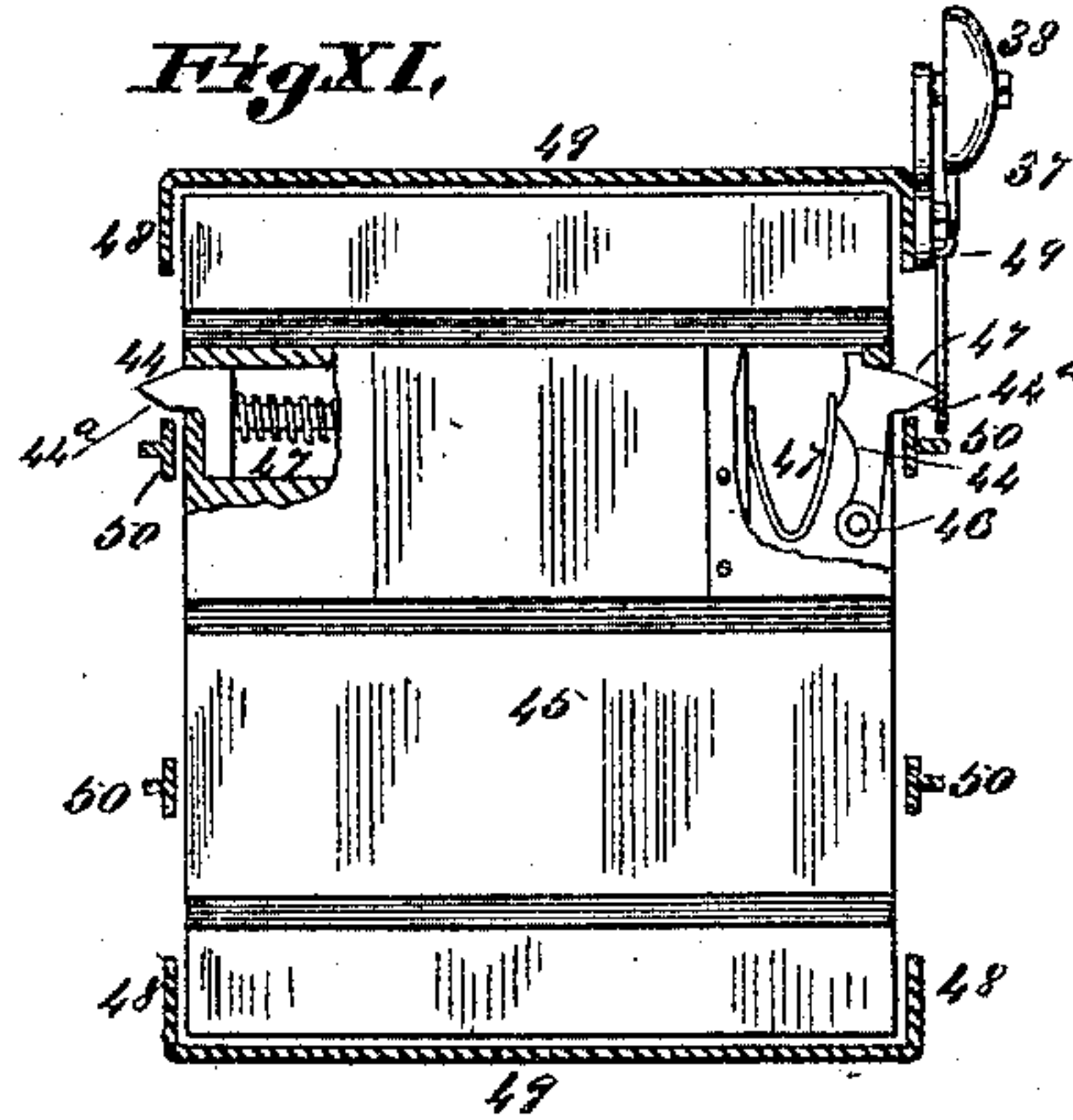
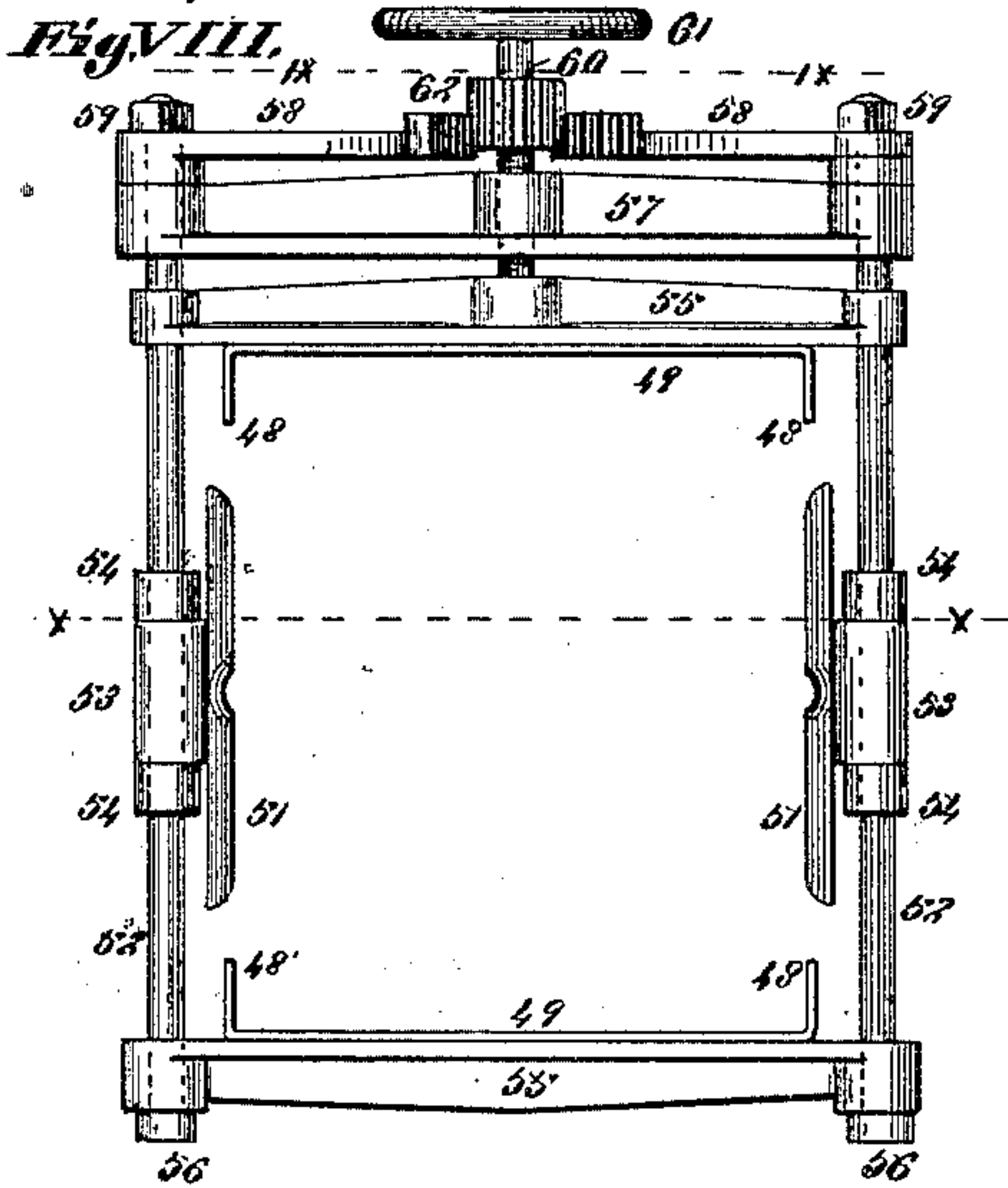


Fig IX.

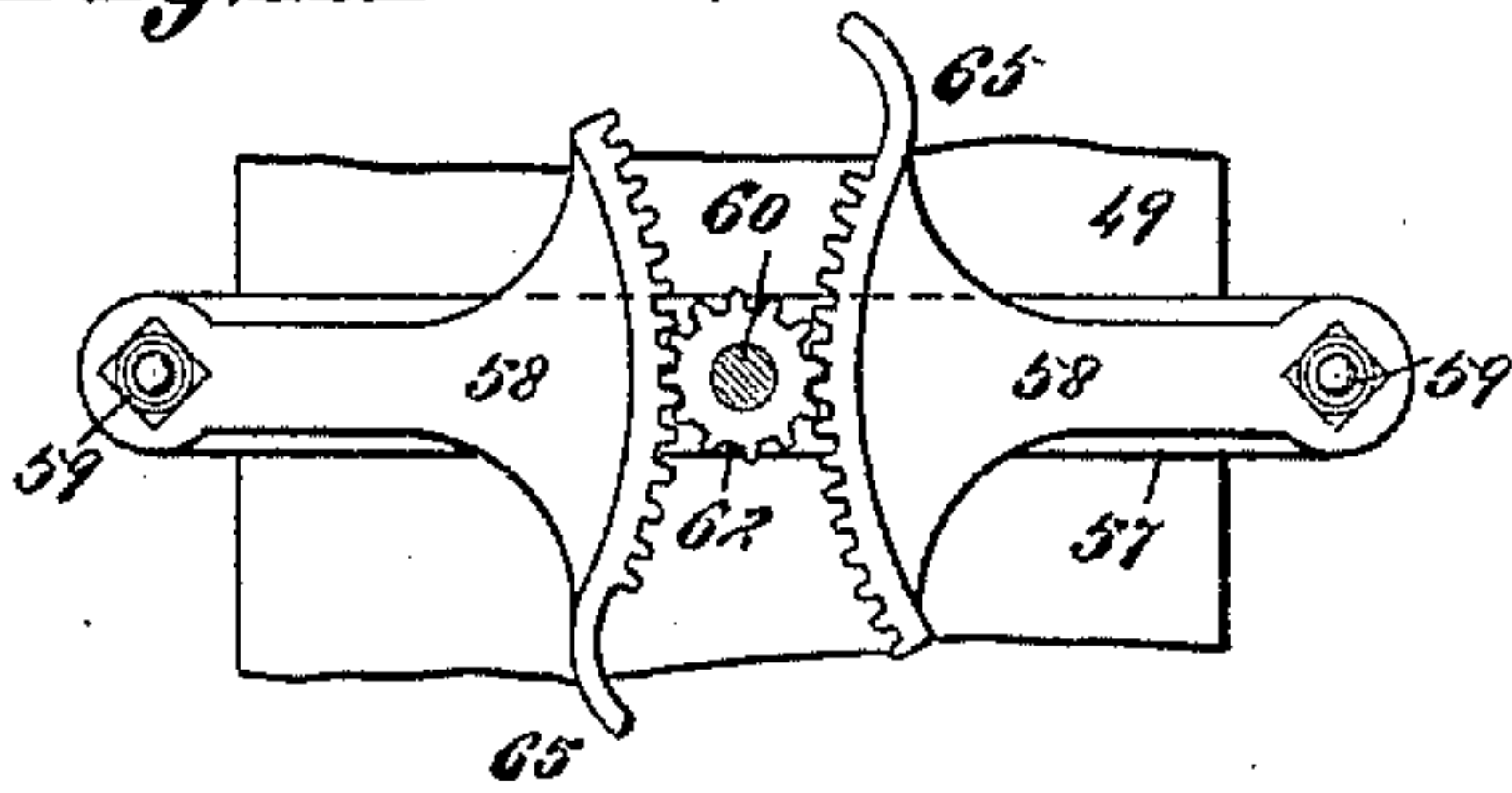


Fig X.

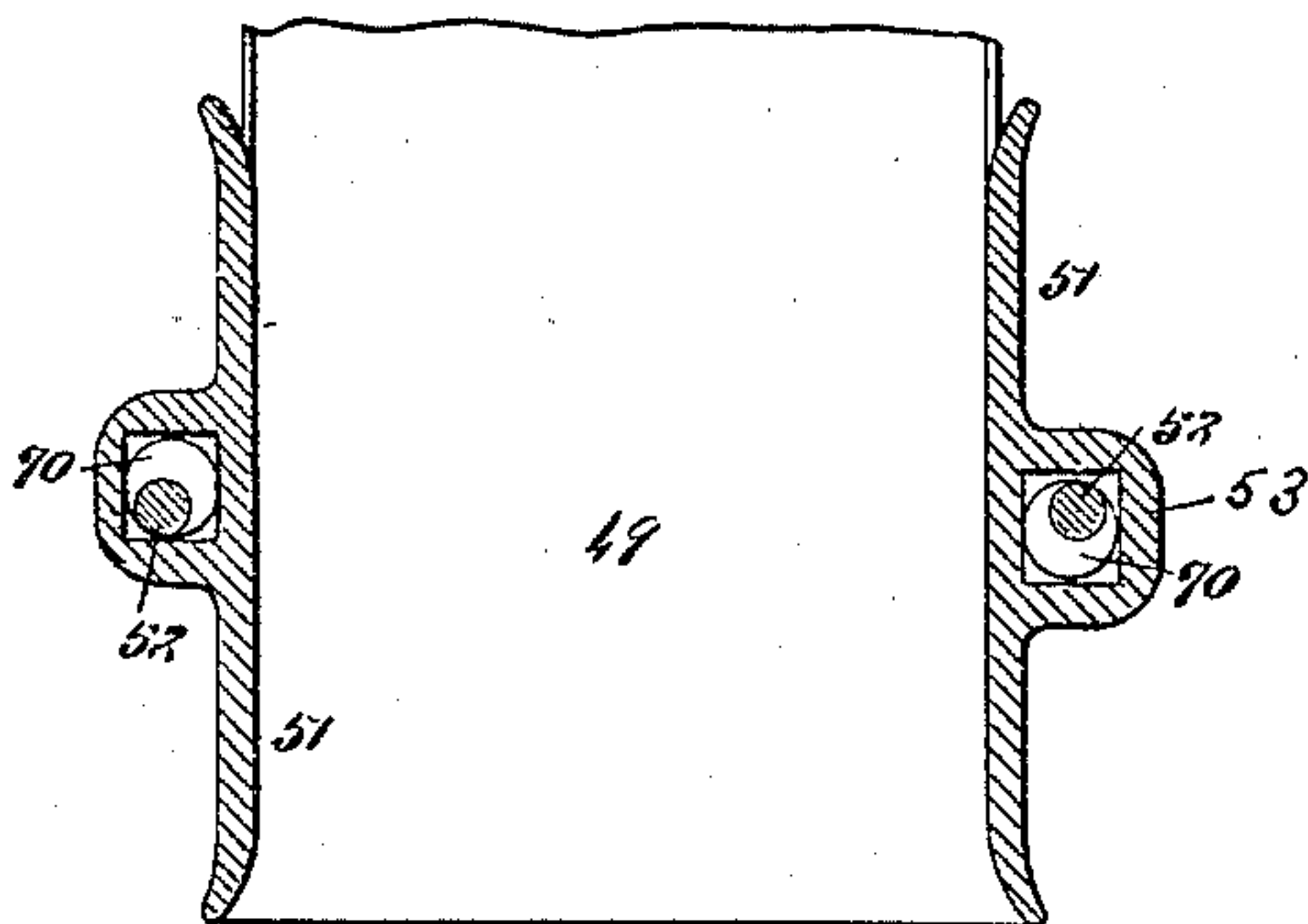


Fig XII.

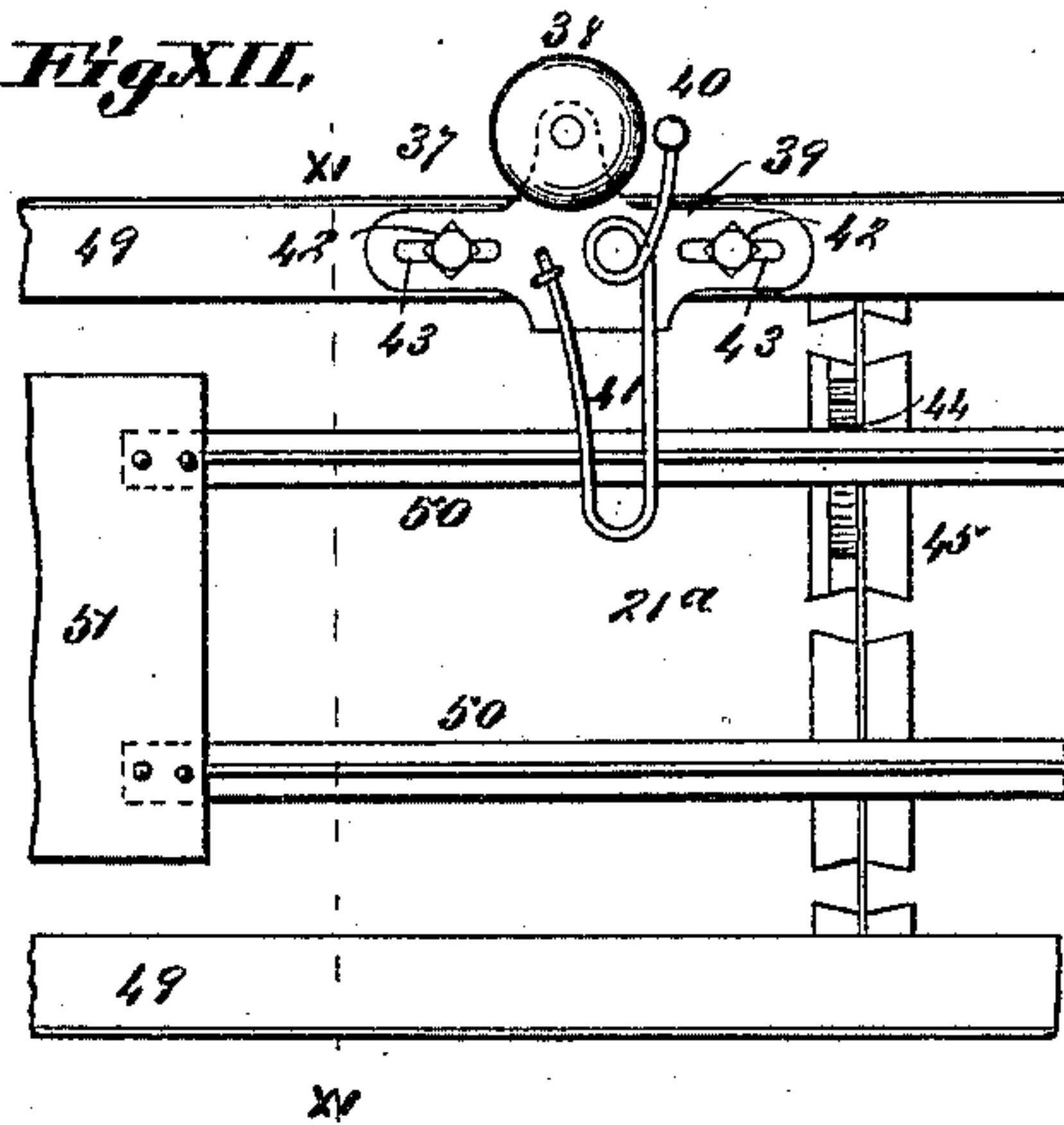


Fig XIII.



Attest:
E. Arthur
Edward D. Knight

Inventor:
Charles E. Whitman
E. J. Knight Bros
Atty's

UNITED STATES PATENT OFFICE.

CHARLES E. WHITMAN, OF ST. LOUIS, MISSOURI.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 453,098, dated May 26, 1891.

Application filed April 19, 1889. Serial No. 307,914. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. 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, and in which—

Figure I is a side elevation of my improved press. Fig. II is a top view of the same. Fig. III is an enlarged detail top view of the operating devices. Fig. IV is an enlarged detail elevation of the same. Fig. V is a transverse section taken on line V V, Fig. IV. Fig. VI is an enlarged detail vertical section through the receiving-box, hopper, and traverser. Fig. VII is an enlarged detail elevation showing the central or middle part of the press. Fig. VIII is a rear end view of the press. Fig. IX is a detail view, being a section taken on line IX IX, Fig. VIII. Fig. X is a detail horizontal section taken on line X X, Fig. VIII. Fig. XI is a vertical transverse section taken on line XI XI, Fig. XII. Fig. XII is a detail side view or elevation; and Fig. XIII is a detail view showing part of one of the side bars of the baling-chamber.

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

Referring to the drawings, 1 represents the receiving-box of the press; 2, the feed-hopper; 3, the traverser, and 4 the pitman, secured at its inner end to the traverser by means of a head 5 and bolt 6. The outer end of the pitman is made fast by a link 7 to the under side of a pinion 8. The pinion 8 is engaged by a cog-wheel 9 on a vertical shaft 10, to which the sweep 11 is secured, and by which the shaft is turned to transmit the power. The pitman 4 and link 7 may be made fast to a fixed object by means of an arm 12; but to this, and in fact to the entire power mechanism, my present invention in no manner relates and a full description thereof will not be given. The power end of the press may be mounted on wheels 13 and the baling end of the press on wheels 14. The power end is connected to the baling end by means of rods

15, (hollow or solid,) which are preferably two in number, as shown in Fig. II. For the purpose of adding support and strength to these connecting-rods, I use a truss-rod 16, which is connected at 17 to the power end of the press and passes in a downward direction beneath a bar 17^a, extending across between the two rods 15. From this point the truss-rod passes in an upward direction and is secured at 18 (see Fig. VI) to the inner end of the receiving-box. The object of this truss-rod is to provide and it does afford much additional strength to the parts and avoids liability of the rods 15 bending or springing during the operation of the press. When the traverser rebounds under the expansion of the compressed material, it is desirable to have as little as possible of this motion imparted to the sweep, (and thus to the draft-animals,) and for this reason I secure the main cog-wheel 9 to the driving-shaft 10 by means of a key 19, (see Fig. V,) which is held in a notch or groove in the shaft 10 and which fits in an elongated groove 20 in the hub of the wheel. It will thus be seen that as the traverser rebounds the wheel will have capacity for moving in the direction indicated by the arrow in Fig. V without the motion being transferred to the shaft, and thus the shock (or the main portion of the shock) due to the rebound of the traverser is prevented from being transmitted to the sweep.

21 represents a packer for forcing the material from the hopper 2 into the receiving-chamber 22 of the box 1. It is connected by one or more pairs of bars 23 to a bracket 24 on the rear end of the hopper, and a spring 25 is employed for raising it as the traverser moves forward to push the charge into the baling-chamber 21^a. As the traverser recedes this packer is pulled downward to force the next charge into the receiving-chamber by means of one or more cams 23^a, secured to the under side of an extension 24^a on the upper side of the traverser. (See Figs. VI and VII.) The shape of the cam is fully illustrated in Fig. VI. It bears on a roller 25^a, located on a rod 26, which passes through from one side of the press to the other, and is connected by vertical rods 27 to one pair of the bars 23. The rod 26 is held and works in slots 28,

formed in brackets 29, secured to the press at 30. It will thus be seen that each time the traverser recedes the packer will be operated to force the material into the receiving-chamber, and then as the traverser is forced forward the packer will be lifted by the springs 25.

31 represents what is termed a "tucker," in the form of a wedge-shaped bar or plate falling by gravity, and its office is to fold the material down at each return of the traverser. It is located at the inner end of the hopper. In practice a portion of the material at the upper end of the receiving-chamber projects farther back than the body of the material, and it is desirable that this should be folded down each time, so as to be pressed in advance of the next charge. The tucker consists of a bar or plate extending across the receiving-chamber at the inner end of the hopper, falling by gravity and supported on arms 32, pivoted at 33 to the sides of the hopper or receiving-box. The journals 34 of the plate (by which the plate is secured to the arms 32) fit in segmental slots 35, made in the hopper, and the tucker is thus allowed to rise at each forward movement of the traverser and is permitted to fall as soon as the traverser recedes. The forward side of the tucker is made inclined at 36, so that the traverser coming against it will lift it, and this avoids danger of breakage.

37 represents an alarm secured to the side of the baling-chamber and which serves to indicate when a bale has been completed. It consists of a bell 38, secured to a plate 39, and a hammer 40, secured to the end of a bent stem 41, made fast to the plate. The plate is secured to the press by means of bolts 42, and is made adjustable by means of the bolts passing through slots 43 in the plate, so that the alarm may be shifted in either direction in order that it will be sounded sooner or later, according to the size of the bales. The hammer of the alarm is operated by a dog or block 44, secured to the division-board 45. It is preferably pivoted to the board at 46, and held in its outer position by a spring 47, (see right-hand side of Fig. XI;) but the form of the dog may be that shown on the left-hand side of Fig. XI, where it is shown as sliding instead of being pivoted. The follower-board is mortised to receive the dog and spring. The outer end of the dog projects beyond the baling-press, and when it reaches the hammer of the alarm trips it and gives the signal. It is preferably inclined at 44°, so that as the follower-boards are dropped into the press it will recede and will remain in its inner position until the follower-board gets beyond the receiving part of the chamber and to the baling part, when it will protrude, as at this part the sides of the chamber consist only of upper and lower flanges 48 on the top and bottom 49 of the press, (see Figs. VIII and XI,) and of longitudinal bars 50.

For the purpose of regulating the discharge

of the material from the mouth of the baling-chamber, and thus to regulate the density of the bales, I provide an adjustable top and bottom and adjustable sides. The top and bottom consist of the parts 49, and the sides consist at this point of plates 51, secured, as shown in Fig. XII, to the bars 50, and which are mounted on vertical rods 52, which pass through perforated lugs or projections 53 on the plates. The rods 52 are provided with eccentric portions 70, located within the sockets or perforations of the extensions 53, so that as the rods 52 are turned the disks 51 will be forced inward or outward.

54 represents collars on the rods above and below the projections 53 of the plates. The rods pass through the outer ends of cross-bars 55, secured to the top and bottom members of the baling-chamber, as shown in Fig. VIII, and have upon their lower ends collars 56, which prevent their upward movement without carrying the bottom 49 of the press with them. The rods pass loosely through the sockets of the top bar 55, and loosely through a cross-head 57 over the bar 55, and fitting on their upper ends are segments 58, located between the cross-head 57 and nuts 59 on the rods.

60 represents a screw provided with a hand-wheel 61 and which passes down through the cross-head 57, which is threaded to receive it, and is stepped in the bar 55. This screw carries a pinion 62, which meshes with the segments 58, the pinion being sufficiently elongated to allow the screw to rise and fall without being disengaged from the segments. It will thus be seen that each time the screw is turned the top and bottom of the baling-chamber and the disks 51 will be moved simultaneously in or out, according to the direction in which the screw is turned, and thus I provide a means for contracting or enlarging the exit of the baling-chamber in all directions and provide a uniform pressure upon all portions of the bales. I have shown the segments provided with extended wings 65, preferably curved. (See Fig. IX.) The object of this is to enable the screw to be turned until the pinion reaches these wings, and then, by turning it still farther, the top and bottom of the baling-chamber may be contracted, if desired, without further contracting the disks or plates 51. The inner faces of the bars 50 are notched or serrated, as shown in Fig. XIII, the serrations pointing toward the rear of the press. The function of these serrations is to engage the bale or the material and prevent in a measure its tendency to expand. These serrations may be provided on the inner face or a part of all the bars 50.

I claim as my invention—

1. In a baling-press, the combination, with a feed-hopper and a receiving-box, of brackets secured to the feed-hopper, a pair of bars pivoted to the brackets, a packer pivoted to the inner end of the bars, a spring for raising the bars to elevate the packer, a vertical rod

depending from the bars, a horizontal rod supported on the vertical rod, a traverser, and a cam on the traverser adapted to bear on the horizontal rod for lowering the bars to depress the packer, substantially as and for the purpose set forth.

2. In a baling-press, the combination, with a feed-hopper and receiving-box, of brackets secured to the feed-hopper, two pairs of bars pivoted to the brackets, one pair above the other pair, a packer pivoted to the inner ends of the bars, a device for raising the bars when the latter are released, vertical rods depending from the lower pair of bars, a horizontal rod supported on the vertical rods, a traverser, and cams on the traverser adapted to bear on the horizontal rod for lowering the bars, substantially as and for the purpose set forth.

3. In a baling-press, the combination, with a feed-hopper and a receiving-box, of brackets, a pair of bars pivoted to the brackets, a packer supported on the bars, a device for raising the bars when the latter are released, a vertical rod depending from the bars, a traverser, brackets having slots secured to the press, a horizontal rod supported on the vertical rod and fitting in the bracket-slots, and a cam on the traverser adapted to bear on the horizontal rod for lowering the bars, substantially as and for the purpose set forth.

4. In a baling-press, the combination of the traverser provided with an extension having a cam, a packer, a vertical rod secured to the packer, slotted brackets, a horizontal rod fitting in the slots of the brackets and secured to the lower end of the vertical rod, and a roller on the horizontal rod against which said cam bears, substantially as set forth.

5. In a baling-press, the combination, with a baling-chamber, of the top and bottom plates having flanges, the side plates having sockets, vertical rods provided with eccentric por-

tions within the sockets, and collars beneath and above the sockets, the top and bottom cross-bars on which the top and bottom plates are supported, the cross-head and screw, substantially as described.

6. In a baling-press, the combination of the top and bottom of the baling-chamber, side plates, rods to which the side plates are secured, segments secured to the rods, a screw provided with a pinion meshing with the segments, and a cross-head through which the screw passes, substantially as and for the purpose set forth.

7. In a baling-press, the combination of the top and bottom of the baling-chamber, rods connected to the top and bottom by means of cross-pieces, segments secured to the upper ends of the rods, a screw provided with a pinion engaging said segments and passing through said cross-head, side plates provided with perforated lugs, and eccentrics on said rods fitting in said perforated lugs, substantially as and for the purpose set forth.

8. The combination, with a baling-chamber, of the top and bottom plates, the side friction-plates having sockets, vertical rods, eccentrics on said rods within said sockets, bearings on the rods for supporting the friction-plates, and supports for the top and bottom plates through which the rods pass, substantially as described.

9. The combination, with a baling-chamber, of the top and bottom plates, the side friction-plates having sockets, vertical rods, eccentrics on said rods within said sockets, means for turning the rods, bearings on the rods for supporting the frictional plates, and supports for the top and bottom plates through which the rods pass, substantially as described.

CHARLES E. WHITMAN.

In presence of—

GEO. H. KNIGHT,
EDW. S. KNIGHT.