

No. 639,797.

Patented Dec. 26, 1899.

J. M. H. & U. G. S. WALTERS.

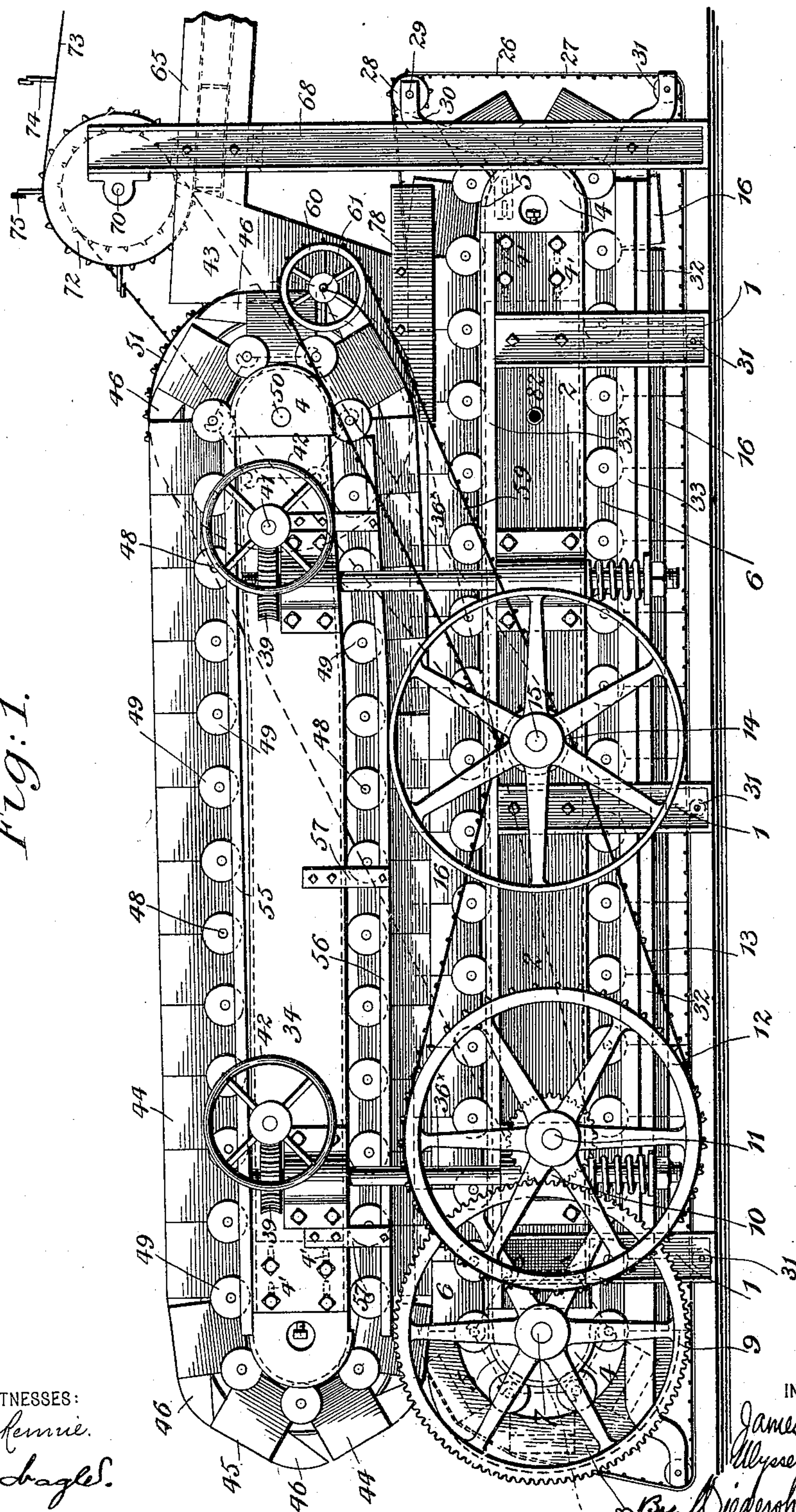
PRESS.

(Application filed May 13, 1898.).

(No Model.)

4 Sheets—Sheet 1.

Fig: 1.



WITNESSES:

John. A. Kennie.
P. F. Bagley.

INVENTORS

James M. L. Walters
 Myrnes G. S. Walters

By Biedersheim & Thibault
ATTORNEYS.

No. 639,797.

Patented Dec. 26, 1899.

J. M. H. & U. G. S. WALTERS.
PRESS.

(Application filed May 13, 1898.)

(No Model.)

4 Sheets—Sheet 2.

Fig. 2.

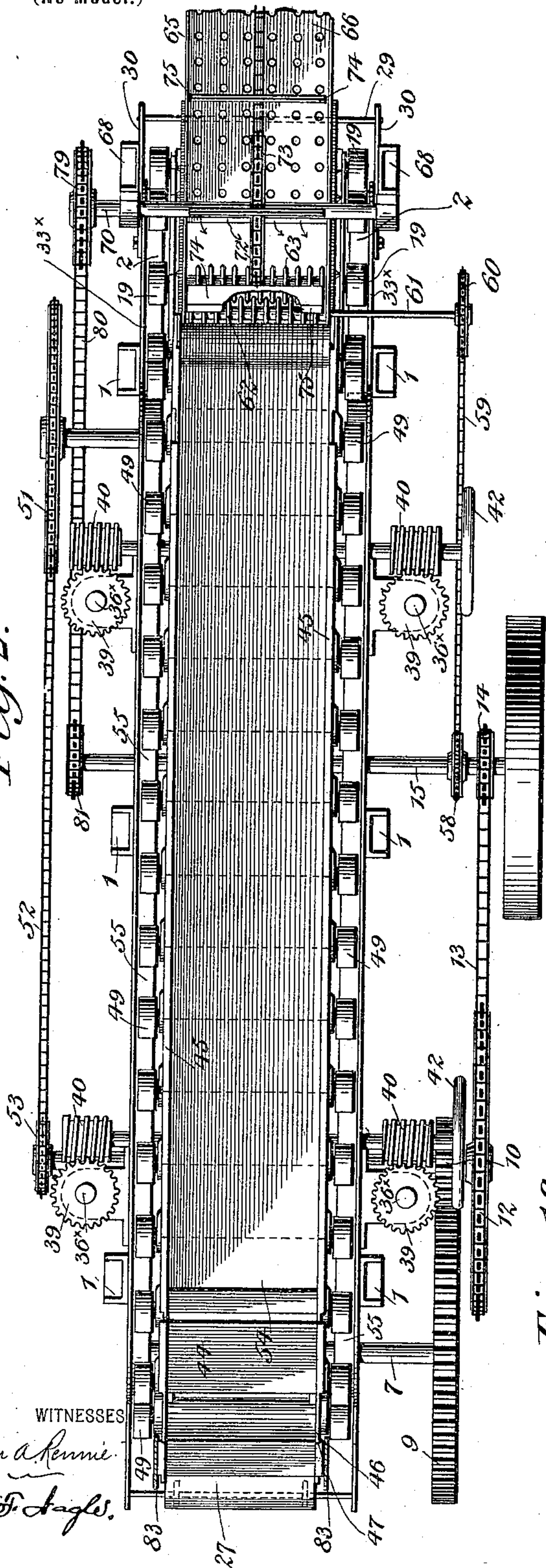


Fig. 2a.

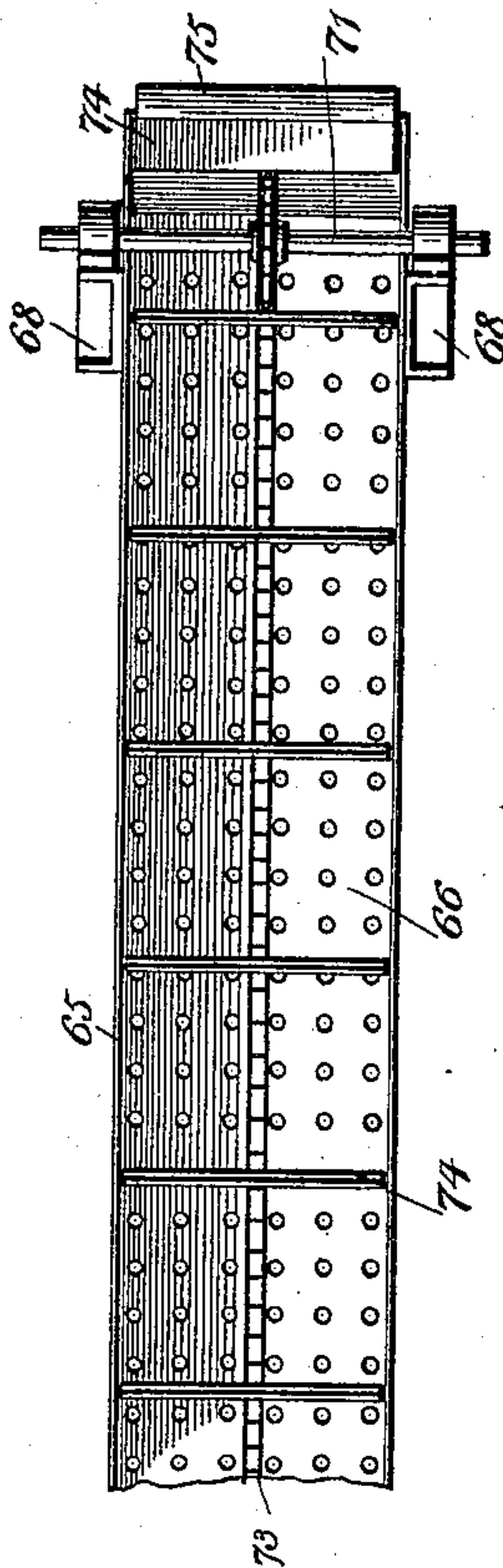
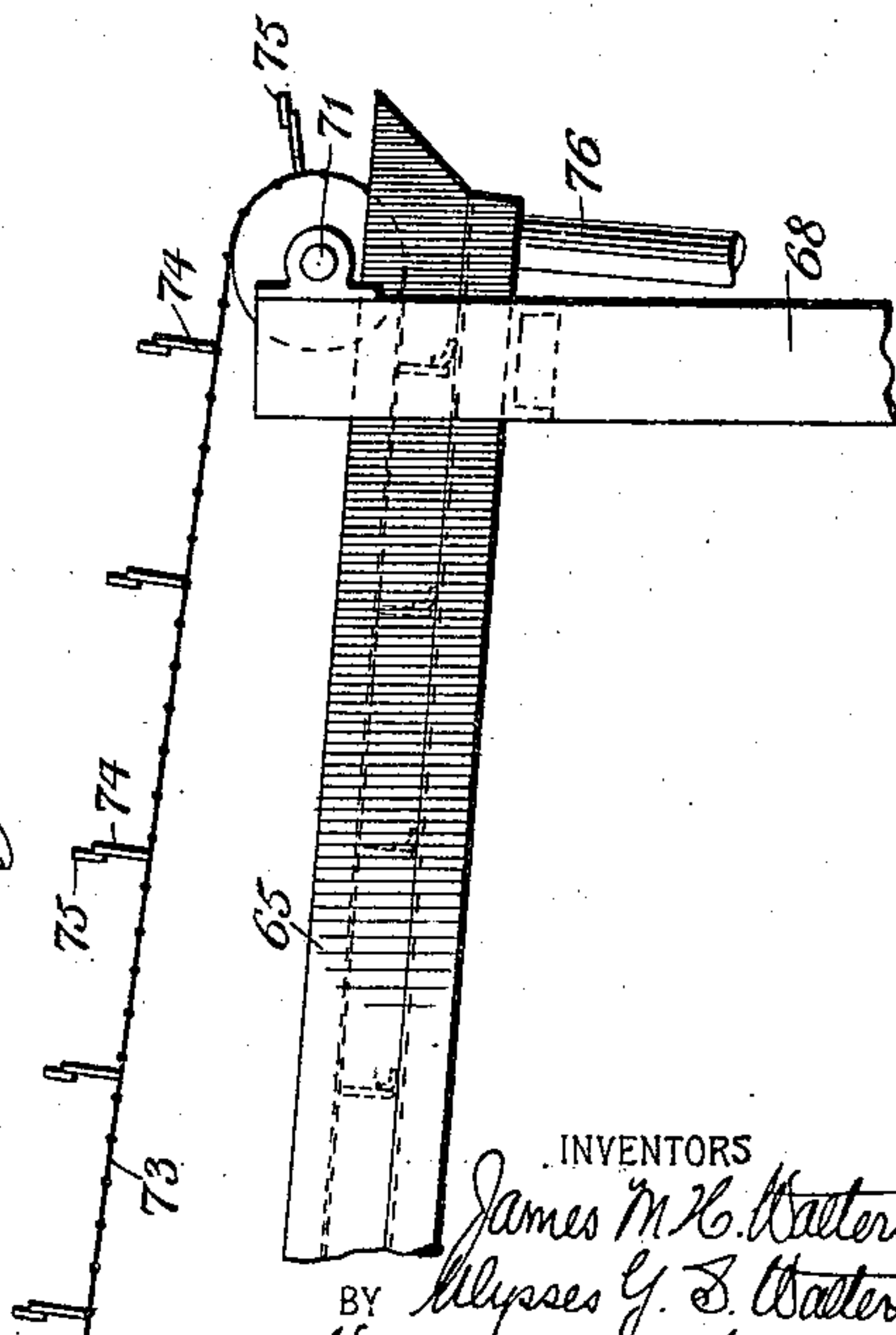


Fig. 1a.



WITNESSES
John A. Rennie.
P. F. Ayler.

INVENTORS
James M. H. Walters
U. G. S. Walters
BY Wiedersheim & Fairbank
ATTORNEYS.

No. 639,797.

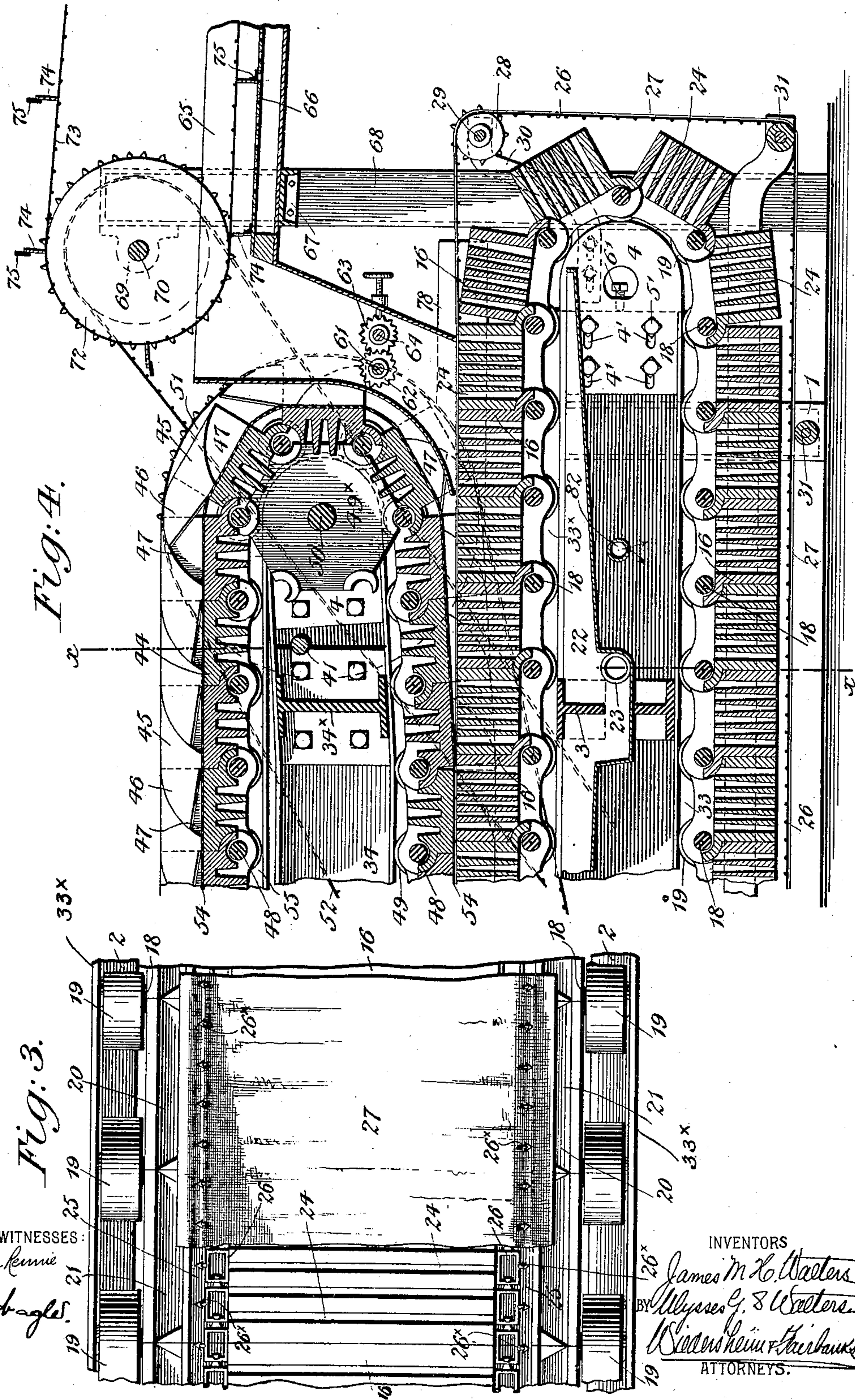
Patented Dec. 26, 1899.

J. M. H. & U. G. S. WALTERS.
PRESS.

(Application filed May 13, 1898.)

(No Model.)

4 Sheets—Sheet 3.



WITNESSES:

John A. Rennie
P. H. Bagley.

INVENTORS

James M. L. Walters
BY *Allyses G. & Walters*
Wiedersheim & Fairbanks
ATTORNEYS.

ATTORNEYS.

No. 639,797.

Patented Dec. 26, 1899.

J. M. H. & U. G. S. WALTERS.
PRESS.

(Application filed May 13, 1898.)

(No Model.)

4 Sheets—Sheet 4.

Fig. 6.

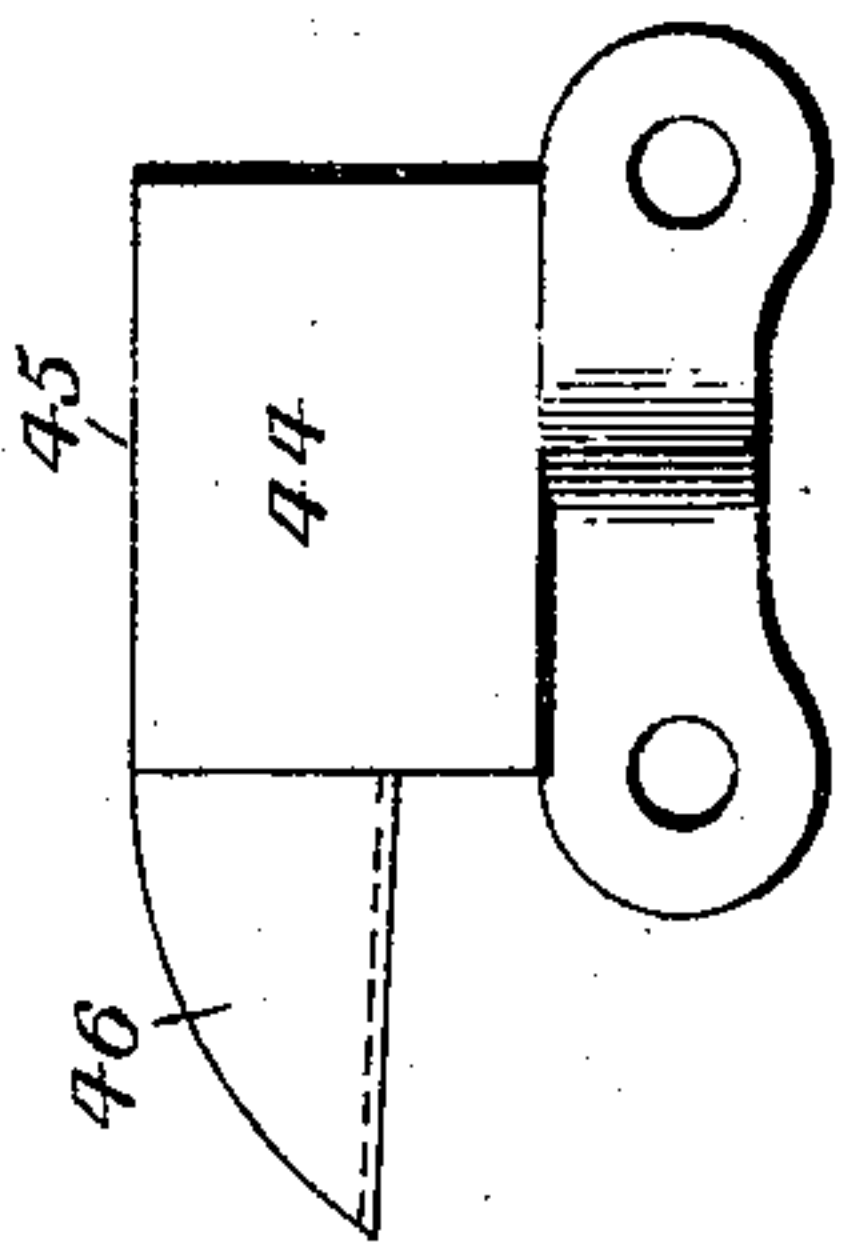


Fig. 7.

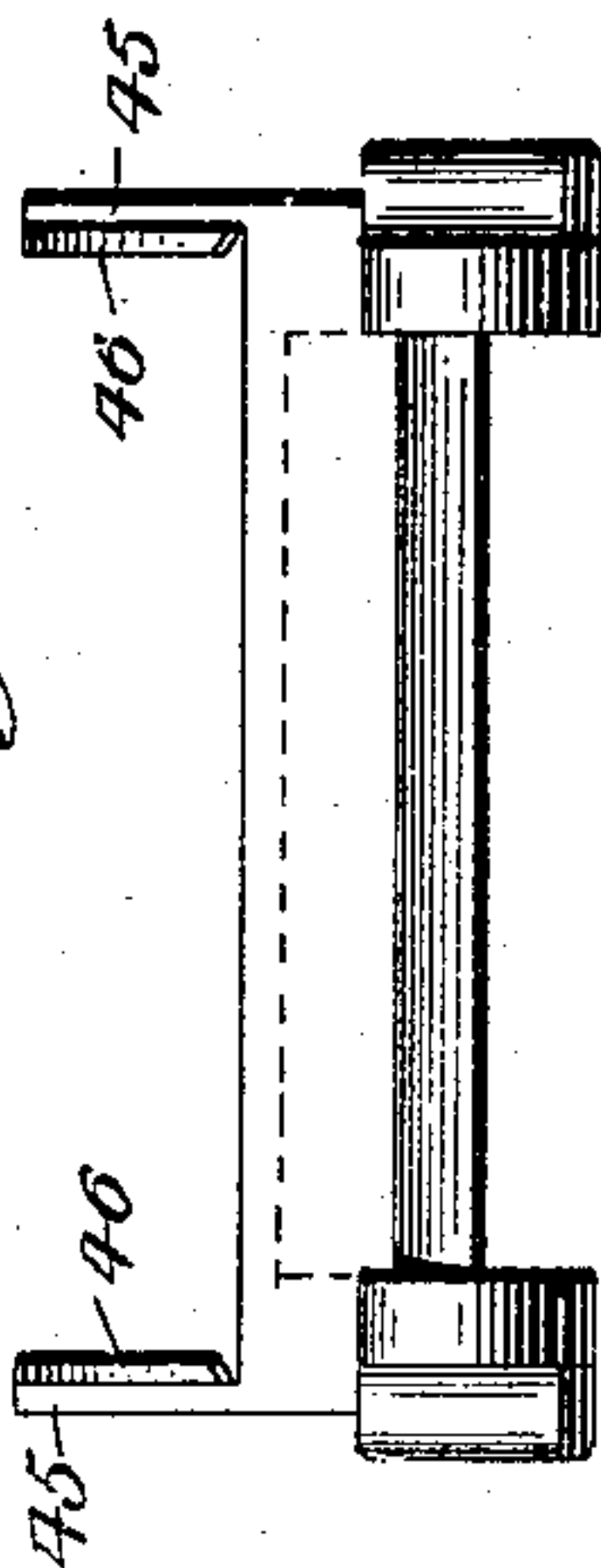


Fig. 9.

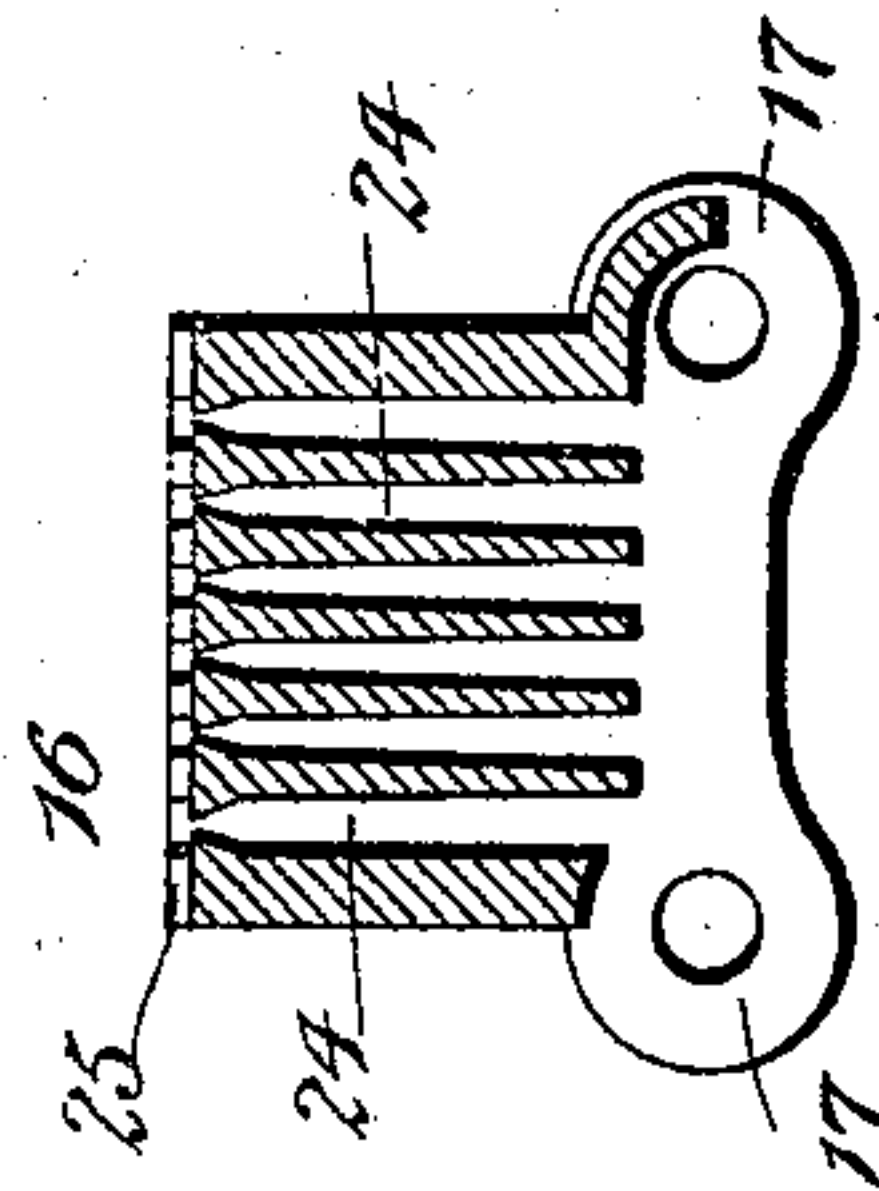


Fig. 8.

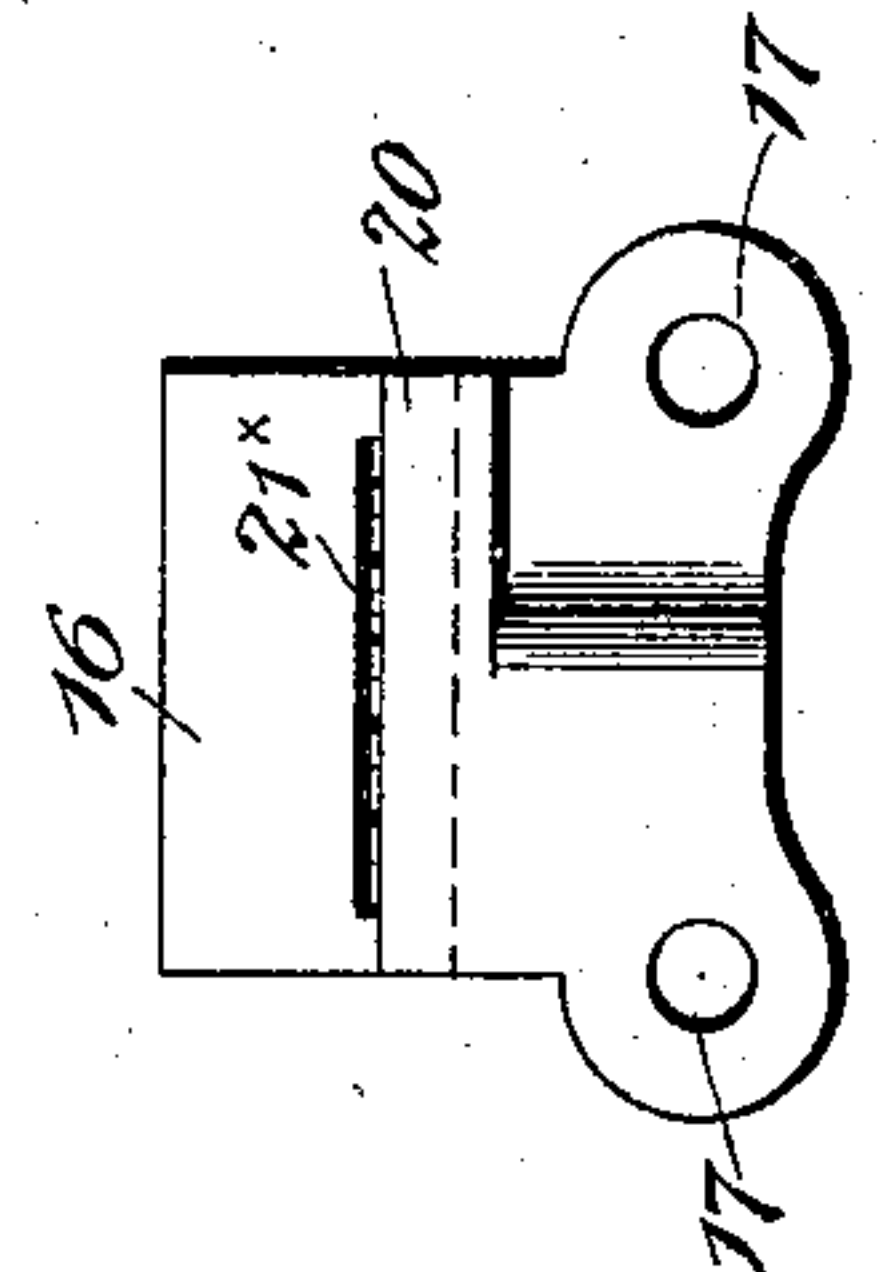
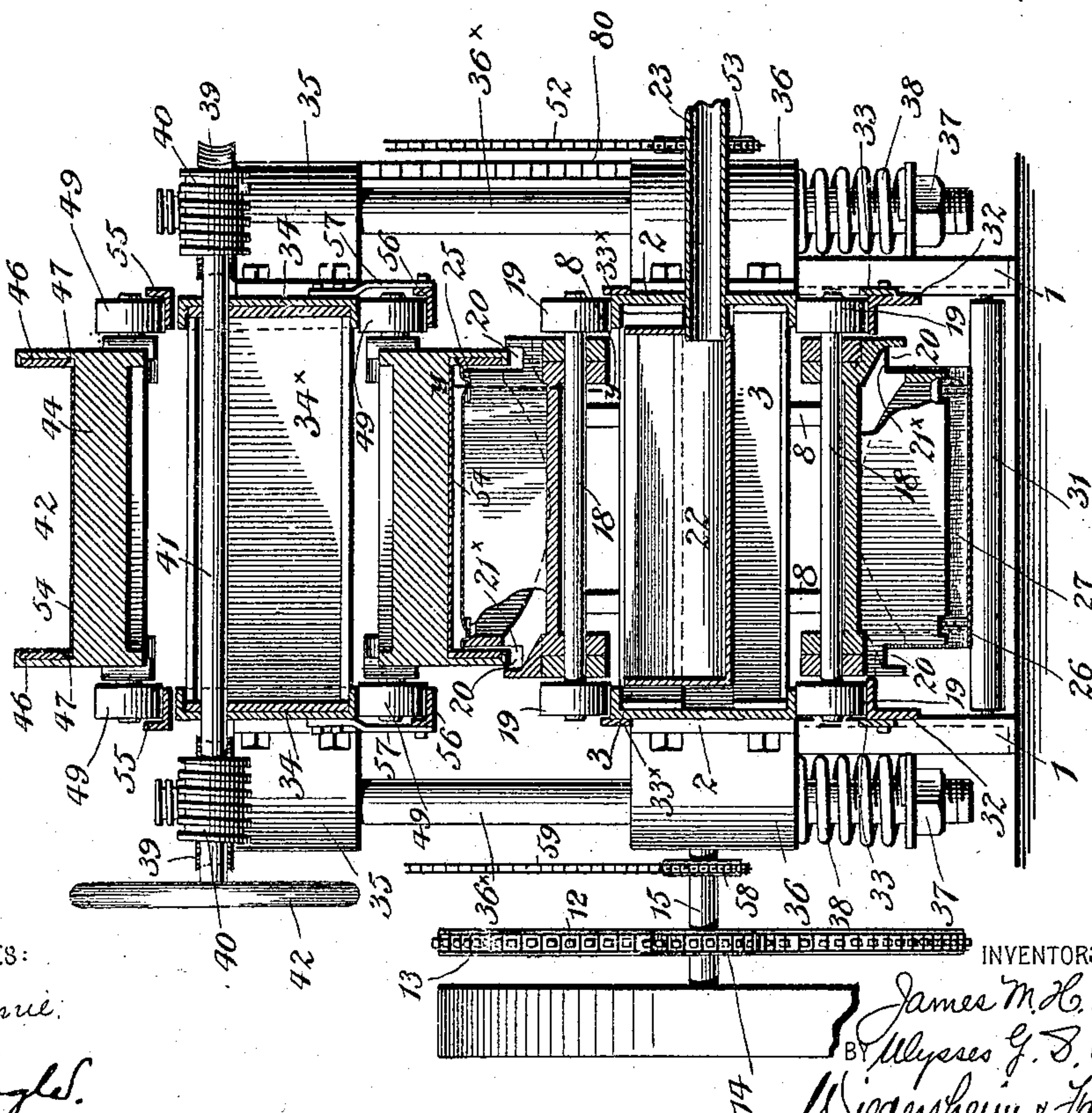


Fig. 5.



WITNESSES:

John A. Kessie.
P. F. Taylor.

INVENTORS

James M. H. Walters
U. G. S. Walters
Wiedersheim & Thibault
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES M. H. WALTERS AND ULYSSES G. S. WALTERS, OF POTTSTOWN,
PENNSYLVANIA.

PRESS.

SPECIFICATION forming part of Letters Patent No. 639,797, dated December 26, 1899.

Application filed May 13, 1898. Serial No. 680,553. (No model.)

To all whom it may concern:

Be it known that we, JAMES M. H. WALTERS and ULYSSES G. S. WALTERS, citizens of the United States, residing at Pottstown, in the county of Montgomery, State of Pennsylvania, have invented a new and useful Improvement in Presses, which improvement is fully set forth in the following specification and accompanying drawings.

Our invention relates to certain improvements in presses, and more particularly to that class of press described and claimed in Letters Patent granted to us February 18, 1896, and numbered 554,847, wherein the substance to be treated is introduced between and pressed by oppositely-disposed aprons or belts; and the primary object of our present invention is to improve the construction of the same and produce a machine of this character capable of treating garbage which has been previously digested in such manner that the oils or grease contained therein will be thoroughly and completely extracted, means being also employed whereby the operative parts may be properly adjusted to give the best results, as well as to give to the apparatus continuous feed or supply of material destined for treatment.

The invention further provides simple and effective means for removing and carrying away the surplus water or liquids that may be contained in the garbage or other substance destined for treatment before its delivery to the press.

Our invention consists in the novel details of construction and arrangement of parts, all as will be hereinafter fully described, and particularly defined in the claims.

Figure 1 represents a side elevation of a press embodying our invention, a portion of the feed device, to the right thereof, being broken away. Fig. 1^a represents in side elevation a view of the remaining portion of the said feed device. Fig. 2 represents a plan view of Fig. 1, the feed device being also broken away. Fig. 2^a represents a similar view of the remaining portion of the said feed device. Fig. 3 represents a plan view of a portion of the lower apron or belt and the adjacent parts thereof. Fig. 4 represents a central vertical longitudinal section of one end

of the apparatus and feed device. Fig. 5 represents a vertical transverse section thereof, taken on line *xx* of Fig. 4. Figs. 6 and 7 represent a side and end view, respectively, of one of the blocks which go to make up the upper apron or belt, to be referred to. Fig. 8 represents a side elevation of one of the links which go to make up the lower apron or belt. Fig. 9 represents a vertical section thereof, taken on line *yy*, Fig. 5.

Similar reference-numerals indicate corresponding parts in the figures.

Referring to the drawings, 1 designates a series of vertical posts, preferably channel-irons, arranged at suitable distances apart, to which are secured two oppositely-disposed rails 2, which latter, being also preferably of channel-iron, are held at the proper distance apart and securely fastened together by means of the transverse beams 3, as shown, thus forming a substantial framework for the operating mechanism to be described. The rails 2 are provided at their terminals with segmental blocks 4, the edges of which meet the edges and form a continuation of the rails 2, said segmental blocks being provided with radial flanges 5 upon the outer sides thereof for the purposes of preventing lateral displacement of the lower apron or belt, as we shall presently describe. The segmental blocks 4 at one end of the rails 2 are perforated to receive a shaft 7, upon which is mounted sprocket-wheels 8 and a gear-wheel 9, the former being adapted to engage the apron or belt 6 and give movement thereto, while the latter meshes with and receives its motion from a pinion 10, secured to a shaft 11, which in turn is driven by means of a sprocket-wheel 12, also secured to said shaft 11, and a chain 13, which passes over said sprocket-wheel 12 and over a sprocket-wheel 14, mounted upon the driving-shaft 15.

The apron or belt 6 is made up of a plurality of juxtaposed blocks 16, whose ends are provided with perforated extensions 17, adapted to lie adjacent to and overlap each other, rods 18 being inserted within said perforations to connect said blocks together and projecting sufficiently beyond the outer faces thereof to receive thereon rollers 19, which latter travel over and upon the rails 2, as clearly

shown in the drawings. The blocks 16 are each provided with a gutter 20 at the end thereof, so that where the apron or belt is in a horizontal plane the said gutters will join and form a continuous channel 31 on the sides thereof (shown clearly in Fig. 3) to catch any particles of oil or other liquids that may separate themselves and flow over the edges of the blocks 16. Such overflow will pass out through the openings 21^x, leading from the said gutters into a tray or receptacle 22, located beneath the blocks 16, from whence it is carried away through the outlet-pipe 23. Each of the blocks 16 is also formed with a plurality of interstices or passages 24 and with depressions 25. The latter, when the blocks are in a continuous horizontal line, form a groove or channel adapted to receive endless chains 26, which are provided with laterally-projecting prongs or points 26^x, which engage with and securely retain a flexible and permeable band or belt 27, which travels in unison with the blocks 16 and through which latter and the passage 24 the oils or grease will permeate under pressure, as will be described, and fall into the tray or receptacle 22, before referred to. The endless chains 26 and their attached apron or belt are guided over sprocket-wheels 28, mounted on a shaft 29, carried in adjustable supports 30, the latter being secured to the rails 2, by means of which the sprocket-wheels 28 may be moved to readily take up or compensate for any slack in the chain or belt caused by undue strain or constant use, and transverse rollers 31 are also arranged at convenient intervals across the machine to support and guide the said apron or belt while moving below the rails 2. (Clearly shown in Figs. 1 and 4.)

32 designates supplemental rails secured to the posts or channel-irons 1 beneath the rails 2, upon which the rollers 19 will travel and so prevent the blocks 16 from sagging when they are moving under the said rails, and suitable guard-plates 33 are fastened to and project above the surface of said supplemental rails to prevent any lateral displacement of the rollers 19.

33^x designates guard-plates secured to and projecting above the upper edges of the rails 2, which serve the same purpose as the guard-plates 33, just described.

34 designates two oppositely-disposed rails or channel-irons arranged in close proximity to and above the rails 2 and in a vertical plane therewith, from which project suitable brackets 35, through openings in which and corresponding openings in brackets 36, secured to the lower rails 2, shafts 36^x pass, the upper and lower terminals of which are threaded, the lower terminals being adapted to receive nuts 37 and interposed springs 38 and the upper terminals being adapted to engage the internally-threaded openings in worm-gears 39, the teeth of which latter engage the teeth of worm-gears 40, secured to transverse shafts 41, carried by the upper

rails 34. By this construction and arrangement the relative position of the rails or channel-irons 2 and 34 is rigidly and effectively maintained, while a rotative movement of the shafts 41, through the media of the hand-wheels 42, secured to said shafts 41, will serve to adjust the distance between them and their respective aprons when necessary or desired, as will be hereinafter described. The rails 34 are secured together and retained at the proper distance apart by the transverse beams 34^x, and from a point near their terminals at one end of the press these rails rise slightly from a horizontal plane in order that an open space may be left between the upper surface of the lower apron and the under surface of the upper apron 42, so that the digested garbage or other substance to be pressed may be delivered from a hopper 43 directly onto the lower apron or belt, where it may have time to spread before the operation of pressing has actually begun, thus insuring a more thorough extraction of the oils or grease.

The upper apron or belt is composed of a plurality of juxtaposed blocks 44, resembling closely those just described as composing the lower apron or belt; but their ends are formed with additional vertical walls 45, from which project noses 46, adapted to enter juxtaposed recesses 47, located in the opposite sides of the vertical walls 45 of each succeeding block. The lower edge of these noses incline to a slight degree upwardly and are preferably beveled so that the adjacent edges thereof and the walls of the recess 46 will lie close together, the sharp beveled edges serving to cut away and remove any accumulation which might gather within the said recesses.

Rods 48 are passed through the perforated extensions of the blocks 44, which overlap each other, as previously described with relation to the blocks of the lower apron, and the extremities of these rods are provided with rollers 49, adapted to travel over and upon the rails or channel-irons 34. The rods 48 are engaged by the sprocket-wheels 49^x, mounted upon a shaft 50, and serve to give motion to the apron or belt 42 through the media of a sprocket-wheel 51, secured to the shaft 50, and a chain 52, which engages the teeth thereof and the teeth of a sprocket-wheel 53, fastened to the shaft 11, hereinbefore described.

A thin endless band 54, preferably of metal, is placed over and is caused to travel with the blocks 44 by its frictional contact therewith, the said band serving to prevent any of the garbage from falling or being forced between the blocks and clogging the same as well as to facilitate in the cleaning of the apron, as will be apparent.

Owing to the upward rise or inclination at one end of the rails or channel-irons 34, above referred to, we have found it expedient, in order to compensate for the space that would otherwise be left, to arrange angle-irons 55 above and contiguous to the said rails, so that

the blocks 44 may be properly supported and the rods 48 relieved of all strain as the rollers 49 pass thereover, and angle-irons 56 are also arranged below the rails to form a substantial support for the apron or belt 42 as it travels beneath the rails 34. These last-mentioned angle-irons are sustained by the straps or arms 57, fastened thereto and to the rails 34, as clearly shown.

58 designates a sprocket-wheel secured to the driving-shaft 15, and 59 designates a chain which engages the teeth thereof as also those of a sprocket-wheel 60, fastened to a shaft 61, which passes through the hopper 43 and carries a gang of toothed disks 62, the latter being arranged adjacent to and rotating between the disks 63 of a corresponding gang mounted upon a shaft 64, journaled in the sides of the hopper 43. These gangs of disks are juxtapositioned, and the peripheries of one gang lie within and beyond the peripheries of the opposite gang, so that as the disks are rotated the garbage will be drawn between them and disintegrated or separated before its delivery to the lower apron described. The shaft 64 may be provided with movable bearings in order that the disks thereon may be separated to a more or less extent from those of the opposite gang and so regulate the supply of garbage or other substance delivered to the machine to be pressed.

The upper end of the hopper 43 is arranged contiguous to a trough 65, and the latter extends rearwardly and downwardly to a slight degree, being provided with a perforated false bottom 66 and properly supported by the cross-pieces 67, secured to uprights 68. Upon the upper extremities of these uprights journals 69 are secured to receive shafts 70 and 71, respectively, of which the former carries a sprocket-wheel 72 and the latter carries a small idler, over both of which a sprocket-chain 73 passes, the latter having fastened to it a plurality of blades 74, which lie transversely of the trough 65, being adapted to bear upon the perforated false bottom 66 thereof and convey the garbage or other material up into the hopper, where it contacts with the disks 62 and 63 and is delivered to the lower apron or belt, as described. The blades 74 are preferably faced with rubber strips 75, and when contacting with the false bottom these strips will bend, as shown, thus tending to more completely gather up the entire mass, while the liquids or water contained therein will drain through the perforations in the false bottom and pass out through the pipe 76, located at the lower extremity of the trough 65.

79 designates a sprocket-wheel mounted upon one end of the shaft 70, the teeth of which engage a chain 80, which in turn passes around and engages the teeth of a sprocket-wheel 81, secured to the driving-shaft 15, and in this manner rotation is given to the shaft 70, which, through the sprocket-wheel 72,

moves the chain 73 and attached blade 74, thus conveying the material destined for pressing up the trough 65 and into the hopper 43.

It will be observed that the blocks 16 of the lower apron fit snugly between the walls of the blocks 44 of the upper apron, which arrangement effectively prevents the garbage or other substance from flowing over the edges of the apron, and the lower end of the hopper 43, at each side thereof, is provided with baffle-plates 78, the lower edges of which cover the open space between the upper and lower aprons or belts, and so prevent the garbage or other substance from overflowing the sides thereof at that particular point, as also where the blocks 16 necessarily open in their circuit around the segmental blocks 4, as clearly shown to the right of Figs. 1 and 4.

The segmental blocks 4, at one end of the rails 2 and 34, respectively, and preferably the end opposite that where the sprocket-wheels which move the aprons are located, are adjustable in order that any slack caused by constant use or otherwise may be readily and quickly compensated for.

4' designates slots formed in an extension of the segmental blocks 4, and 5' indicates bolts which pass therethrough and through the rails or channel-irons 2 and 34, by loosening which the said blocks may be moved and adjusted through the medium of the screws 6', which pass through threaded openings in the segmental blocks and bear upon the end of the rails 2 and 34, after which the said bolts 5' will be tightened to secure the said blocks 4 against movement.

The operation is as follows: Motion having been given to the aprons or belts, whose adjacent surfaces move in the same direction, together with the other parts, which are actuated through the media of the driving-shaft 15 and its connections, the garbage or other material for treatment will be emptied into the trough 65 by any suitable or convenient means, where it is carried by the blades 74 and discharged through the hopper 43 upon the lower apron or belt 6, which conveys it beyond the open space between the two aprons, where it is thoroughly squeezed, causing the oils or grease contained therein to pass through the permeable band or belt 27 and through the interstices or passages 24 into the tray or receptacle 22, as before described. The residue of the material so treated will be carried by the lower apron and discharged into any conveniently-located receptacle, (not shown,) at the outer end thereof.

82 designates a water-supply pipe which is arranged transversely of the press and in proximity to the lower apron, being provided with a series of openings or jets, through which water may be sprinkled upon the under side of the blocks 16 and flexible band 27 as they pass beneath the same, thus washing off any particles of garbage or refuse which might adhere thereto and keeping the apron and blocks thoroughly clean.

The springs 38 will yield more or less in proportion to the quantity of material being pressed, thus insuring an even pressure there-
 5 to and a successful extraction of the maxi-
 mum quantity of oils or grease therefrom, as
 well as minimizing the chance for escape of
 any pressed raw material through any uneven
 feed or supply to the press.

The ends of the rails 2 at that end where
 10 the residue of the material being pressed is
 discharged may be provided with segmental
 baffle-plates 83, which are arranged adjacent
 the sides of and project beyond the upper
 surfaces of the blocks 16, so that the residue
 15 will be properly guided from the lower apron
 and prevented from falling over the edges
 thereof when the blocks 16 open while pass-
 ing around the segmental blocks 4, located at
 that end, as will be readily understood.

20 Having thus described our invention, what
 we claim as new, and desire to secure by Let-
 ters Patent, is—

1. In a press, traveling aprons or belts hav-
 ing opposing runs, one of said aprons or belts
 25 being carried by a frame that is freely mov-
 able at both ends thereof bodily toward and
 away from the other apron or belt, and means
 for yieldingly supporting both ends of said
 frame relative to said other apron or belt.

30 2. In a press, traveling aprons or belts hav-
 ing opposing runs, one of said aprons or belts
 being carried by a frame that is freely mov-
 able at both ends thereof toward and away
 from the other apron or belt, and resilient
 35 cushions supporting both ends of said frame.

3. In a press, traveling aprons or belts hav-
 ing opposing runs, one of said aprons or belts
 being carried by a frame that is freely mov-
 able at both ends thereof bodily toward and
 40 away from the other apron or belt, and resili-
 ent cushions acting upon both ends of said
 frame for moving the same toward and hold-
 ing the apron or belt carried thereby yield-
 ingly against the other apron or belt.

45 4. In a press, traveling aprons or belts hav-
 ing opposing runs, one of said aprons or belts
 being carried by a frame that is freely mov-
 able at both ends thereof bodily toward and
 away from the other apron or belt, and ad-
 50 justable means for yieldingly supporting both
 ends of said frame relative to said other apron
 or belt.

5. In a press, traveling aprons or belts hav-
 ing opposing runs, one of said aprons or belts
 55 being carried by a frame that is freely mov-
 able at both ends thereof bodily toward and
 away from the other apron or belt, and means
 for yieldingly supporting both ends of said
 frame relative to said apron or belt, the lower
 60 apron or belt being composed of a plurality
 of intersticed blocks.

6. In a press, traveling aprons or belts hav-
 ing opposing runs, one of said aprons or belts
 being carried by a frame that is freely mov-
 65 able at both ends thereof bodily toward and
 away from the other apron or belt, means for
 yieldingly supporting both ends of said frame

relative to said apron or belt, the lower apron
 or belt being composed of a plurality of in-
 tersticed blocks, a flexible, permeable band 70
 trained around said lower apron or belt, and
 an impermeable band trained around the up-
 per apron or belt.

7. In a press, traveling aprons or belts hav-
 ing opposing runs, the lower apron or belt be- 75
 ing composed of intersticed blocks around
 which is trained a permeable band, a water-
 supply pipe situated between the runs of the
 lower apron or belt and over the lower run
 thereof and adapted to discharge upon the 80
 rear sides of said blocks and said permeable
 band.

8. In a press, traveling aprons or belts hav-
 ing opposing runs, the lower apron or belt
 consisting of intersticed blocks having lateral 85
 gutters on the end walls thereof, there being
 openings leading from said gutters into the
 interior of said blocks.

9. In a press, traveling aprons or belts hav-
 ing opposing runs, the lower apron or belt be- 90
 ing composed of intersticed blocks provided
 with longitudinal depressions in their outer
 faces, the depressions of the different blocks
 forming in connection with each other longi-
 tudinal channels, chains situated in said chan- 95
 nels, and a permeable band around said lower
 apron or belt connected with said chains to
 travel therewith.

10. In a press, traveling aprons or belts
 having opposing runs, the lower apron or belt 100
 being composed of intersticed blocks provided
 with longitudinal depressions in their outer
 faces, the depressions of the different blocks
 forming in connection with each other longi-
 tudinal channels, chains situated in said chan- 105
 nels, forks or prongs on said chains, a perme-
 able band trained around said apron or belt
 and engaging said forks or prongs, whereby
 it travels with said chains.

11. In a press, traveling aprons or belts 110
 having opposing runs, the lower apron or belt
 consisting of a plurality of intersticed blocks
 around which is trained a permeable band,
 and the upper apron or belt consisting of a
 plurality of blocks having outwardly-extend- 115
 ing flanges or walls between which the blocks
 of the lower apron or belt enter when situated
 opposite to each other, and an impermeable
 band trained around said upper apron or belt.

12. In a press, traveling aprons or belts 120
 having opposing runs, the upper apron or belt
 consisting of a plurality of blocks having out-
 wardly-projecting walls provided with re-
 cesses in their inner faces, said recesses being
 open at the rear ends of said blocks, and noses 125
 projecting from the front ends of said blocks
 to enter the said recesses of an adjacent block.

13. In a press, traveling aprons or belts
 having opposing runs, the upper apron or belt
 consisting of a plurality of blocks having out- 130
 wardly-projecting walls provided with re-
 cesses in their inner faces, said recesses being
 open at the rear ends of said blocks, and noses
 projecting from the front end of said blocks

to enter said recesses of an adjacent block, the inner edges of said noses being sharpened or beveled on the side thereof adjacent the walls of said recesses.

5 14. In combination with an apparatus for the purpose described, an upper and lower endless apron arranged adjacent each other and suitably mounted, said aprons being composed of a plurality of juxtaposed blocks, one series
10 of which is intersticed and provided with gutters, the latter having openings leading inwardly therefrom, there being depressions in said blocks to form a channel, a chain adapted

to said channel, said chain being provided with forks or prongs, an endless permeable 15 band engaging said forks or prongs, a tray or receptacle adapted to receive the oils or liquids while the material is being pressed between the aprons, and means for giving motion to the latter.

JAMES M. H. WALTERS.

ULYSSES G. S. WALTERS.

Witnesses:

JOHN A. WIEDERSHEIM,

WM. C. WIEDERSHEIM.