

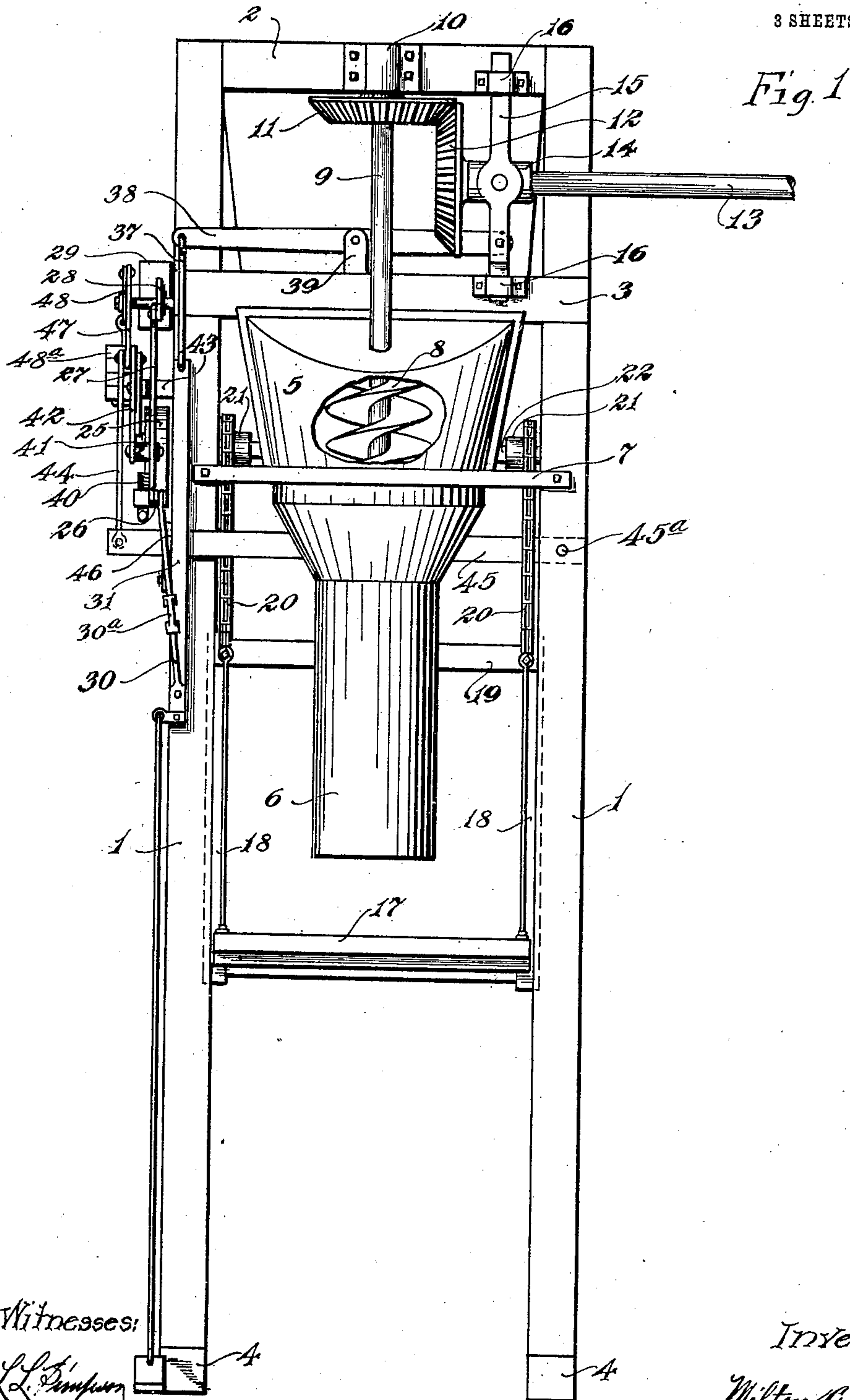
No. 863,596.

PATENTED AUG. 20, 1907.

M. C. ELLISON.
FLOUR AND FEED PACKING MACHINE.

APPLICATION FILED JUNE 3, 1907.

3 SHEETS—SHEET 1.



Witnesses:

L. L. Simpson

A. H. Opsahl

Inventor:

Milton C. Ellison

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William M. Merdian

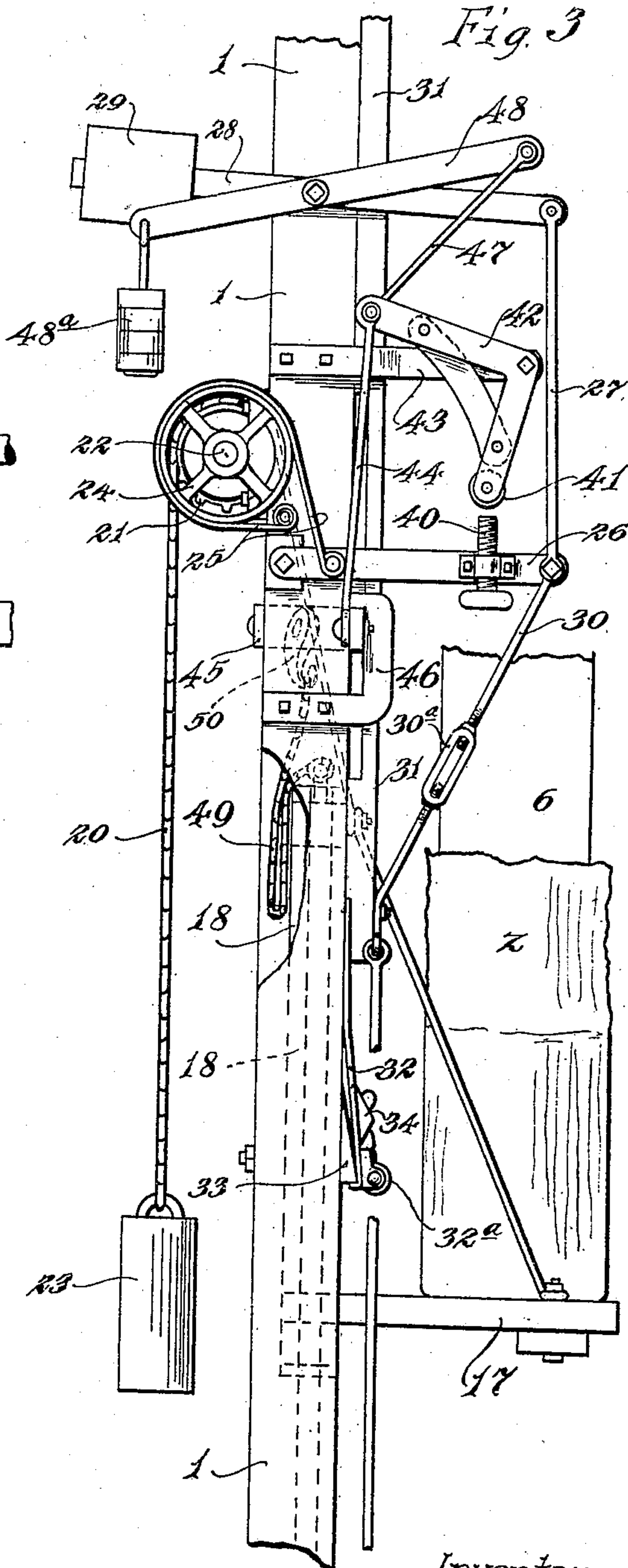
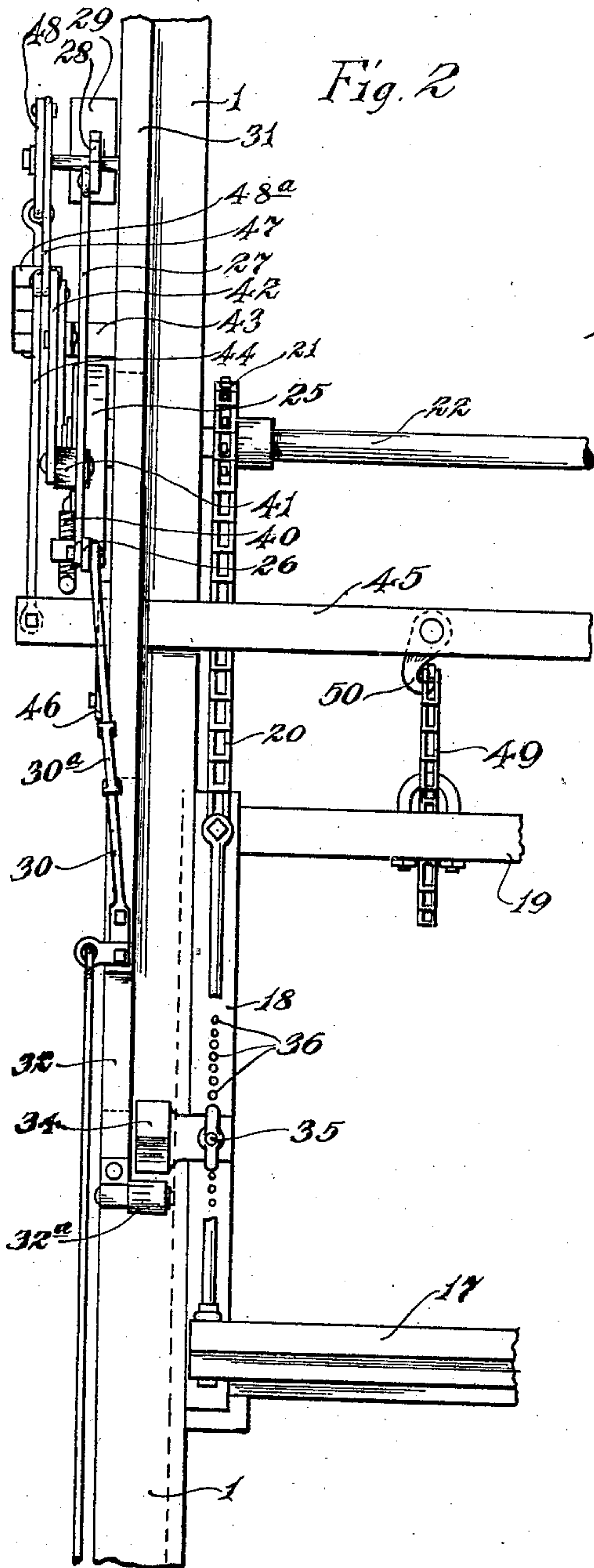
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3 SHEETS—SHEET 2.



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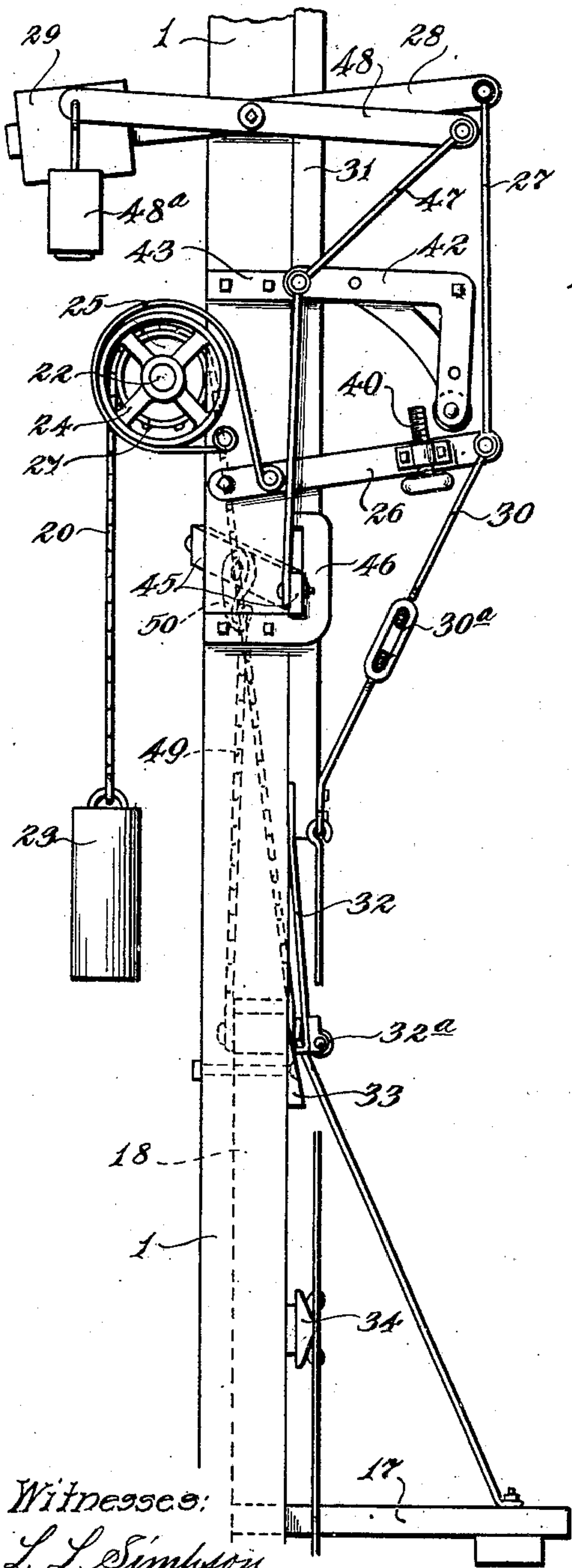
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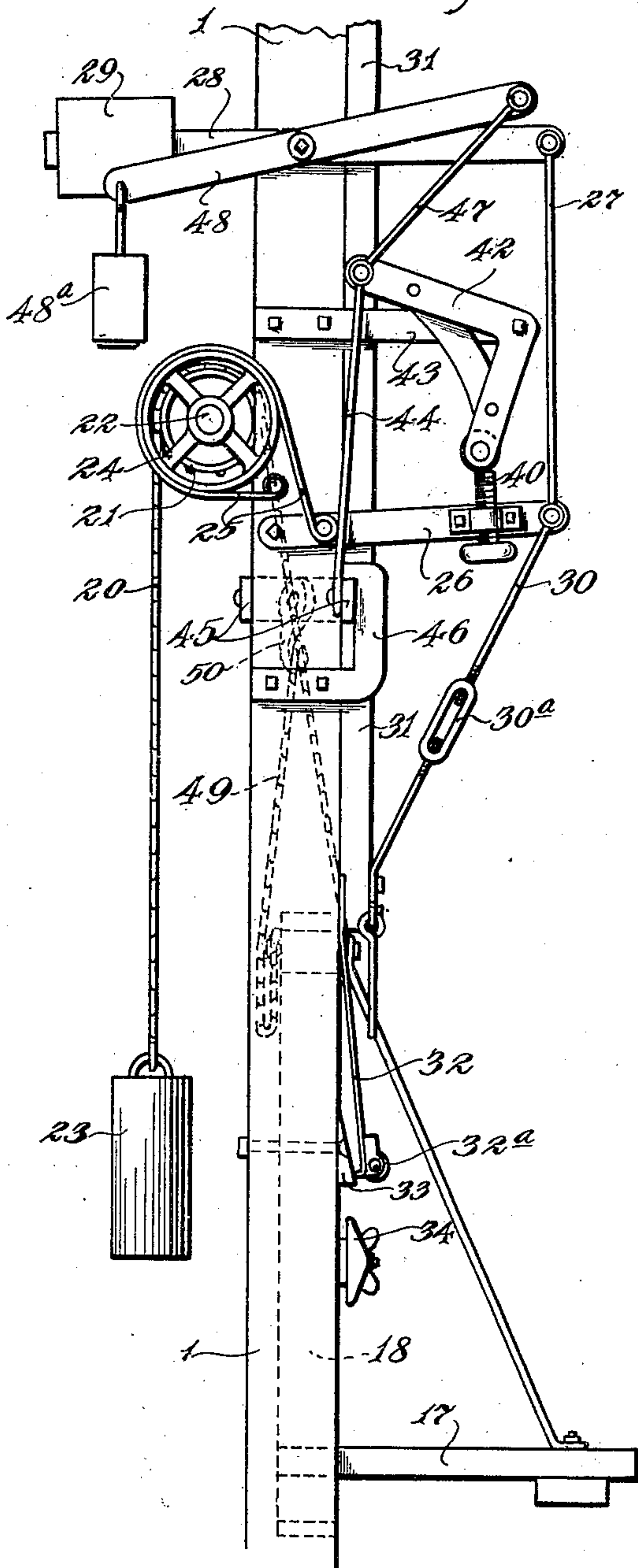
3 SHEETS—SHEET 3.

Fig. 5



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Fig. 4



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UNITED STATES PATENT OFFICE.

MILTON C. ELLISON, OF ST. PAUL, MINNESOTA.

FLOUR AND FEED PACKING MACHINE.

No. 863,596.

Specification of Letters Patent.

Patented Aug. 20, 1907.

Application filed June 3, 1907. Serial No. 376,981.

To all whom it may concern:

Be it known that I, MILTON C. ELLISON, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Flour and Feed Packing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 My invention has for its object to provide an improved packer for packing flour and feed in sacks, and to this end it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

15 The improved packer is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view in front elevation, showing the several features of my invention applied to a flour packer of the general character of those now used extensively in flour mills. Fig. 2 is a fragmentary view in front elevation, showing on a larger scale than in Fig. 1 the mechanism at the left hand side of the machine, directions being taken with respect to Fig. 1; and Figs. 3, 4, and 5 are views in left side elevation, showing in different positions the parts shown in Fig. 2.

The frame-work of the machine is made up of a pair of laterally spaced vertical columns 1 tied together at their upper ends by cross bars 2 and 3, and provided at their lower ends with foot brackets 4. A feed hopper 5 having a depending discharge spout 6 is supported by the columns 1 being, as shown, directly secured to the cross bar 3 and a tie strap 7. A spiral packer 8 works within the hopper 5 and discharge spout 6. The upwardly extended shaft 9 of this spiral packer is journaled in a bearing 10 on the cross bar 2 and is provided with a bevel gear 11 that meshes with a bevel gear 12 carried by the inner end of a power driven shaft 13. This shaft 13 is journaled in a bearing 14 that is supported by a vertically movable slide 15 mounted in suitable bearings 16 on the cross bars 2 and 3. By vertical movements of the slide 15, the gear 12 may be moved into and out of mesh with the gear 11, so that an intermittently acting driving mechanism is thus provided. This, however, is the construction found in flour packers now in general use.

The sack supporting platform 17 is secured to the lower ends of upright frame bars 18 that are guided for vertical movements by the frame columns 1, and the upper ends of which are tied together by a cross beam 19. To the upper ends of the frame bars 18 are attached the depending ends of sprocket chains 20, which chains run over sprockets 21 carried by a transverse counter shaft 22 mounted in suitable bearings on

the columns 1. Quite heavy weights 23 are attached to the other depending ends of the chains 20. These weights 23 should be heavy enough to raise the platform 17 when the loaded sack is removed therefrom, as will hereinafter more clearly appear. In Fig. 3 a sack in position for filling is indicated by the character z.

In packers of this kind, it is customary to provide a friction brake which permits the bag supporting platform to be forced slowly downward under the action of the packer when the sack is being filled, and to provide an automatic trip for releasing the said brake whenever the sack has been filled to a predetermined extent. In packers hitherto designed, when the friction brake is thus released, the loaded platform will instantly drop to its extreme lowermost position, thus producing a pounding action which strains the machine, produces an objectionable noise and is otherwise objectionable.

My invention provides means whereby the friction clutch or retarding device will be released with a two-step action, that is, it will when the sack has been filled to the desired extent, be sufficiently released or relieved from friction to permit the loaded platform to slowly move approximately to its extreme lowermost position, and then when the said loaded platform has reached or approximately reached its extreme lowermost position, the said brake or retarding device will be further or completely released so as to permit the free return movements of the platform when the load is removed therefrom. This, as is obvious, will avoid all sudden jars or pounding action due to downward movement of the loaded platform.

In the preferred application of my invention just above briefly outlined, the customary form of friction brake is employed, which brake consists of a friction wheel 24 secured to one end of the sprocket-equipped shaft 22, and a cooperating brake strap 25, one end of which is anchored to the adjacent frame column 1, and the other end of which is attached to the intermediate portion of a brake lever 26. One end of the brake lever 26 is pivotally attached to the adjacent frame column 1, and the free end thereof is, as shown, connected by a link 27 to a releasing lever 28 pivoted to said column 1, and provided with a weight 29, the force of which tends to raise said lever 26 and release the brake strap 25 from the friction wheel 24. The free end of the brake lever 26 is also connected by a longitudinally adjustable link 30 to a vertically movable bar 31, which bar at its lower end has a spring latch hook 32 adapted for engagement, under a camming action, with a bevel lock lug 33 secured on the adjacent frame column 1. When the bar 31 is forced downward so that its latch hook 32 engages with the latch lug 33 as shown in Fig. 3, the brake will be fully set to an extent which may, however, be varied by adjustments of the turn buckle

30^a of the adjustable link 30. This adjustment makes it possible to set the brake so as to properly hold filled sacks of different weight.

For action on a roller 32^a of the spring latch 32 to release said latch from the lock lug 33 when the platform 17 has been forced downward and the bag has been filled to a predetermined extent, a tripping cam or beveled head 34 is applied to a part movable with said platform and, as shown, this tripping cam is rigidly but adjustably secured to one of the upright frame bars 18 of the said platform by means of a nutted bolt 35 which is adapted to be passed through any one of the series of perforations 36 in said bar 18. Of course, by adjustments of the tripping cam 34 on the frame bar 18, the device may be set to trip the clutch at different positions of the platform 17.

The vertically movable bar 31, as shown, is connected by a link 37 to one end of a lever 38, which lever at its other end is pivotally connected to the sliding gear supporting bar 15, and at its intermediate portion is pivotally supported by a bearing 39 on the frame bar 3, as best shown in Fig. 1. When the spring latch 32 is released from the lock lug 33 by the tripping cam 34, under the downward movement of the platform 17 as above described, the weight 29 acting through the connections described imparts slight upward movements to the brake lever 26 and to the bar 31, and this slight upward movement of said lever 26 decreases the tension of the brake strap 25 on the brake wheel 24, while the upward movement of the said bar 31 acting through the lever 38 and slide 15 moves the gear 12 downward and out of mesh with the cooperating gear 11, thereby stopping the spiral packer 8. This partial release of the brake wheel 24 from the brake band 25 permits the platform 17 and the loaded sack to slowly lower.

The complete release of the brake, however, is prevented, as shown, by the engagement of a stop screw 40 carried by the brake lever 26 with a roller 41 carried by the lower arm of an intercepting device in the form of a bell crank 42 that is pivoted to an arm 43 rigidly secured to one of the columns 1. The upper arm 42 is connected by a link 44 to the free end of a transversely extended lever 45, the other end of which is pivoted, as shown at 45^a, to the right hand columns 1 (see Fig. 1), and the movement of the other end of which is limited by a stop yoke 46 secured to the left hand column 1 (see Fig. 3), and the upper arm of said bell crank 42 is further connected by a link 47 to one end of a lever 48 that is intermediately pivoted to the left hand column 1, and provided at its other end with a weight 48^a, which weight acting through the said connections normally holds the bell crank 42 and lever 45 in the positions shown in Figs. 1, 3 and 4. The transverse cross bar 19 of the platform structure is connected, as shown, by a chain 49 to a hook 50 on the intermediate portion of the lever 45. This chain 49 is of such length that it will have slack at all times except when the platform is in its extreme lowermost position, at which time it is stretched taut and the weight of the platform and its load acting through the said chain pull the lever 45 downward. This downward movement of the lever 45 acting through the link 44 moves the bell crank 42 into the position shown in Fig. 5, thereby carrying the roller 41 out of line with the stop

screw 40 and permitting the weight 29 to complete the upward movement of the brake lever 26 and thereby completely release the brake, as shown in Fig. 5. The brake is thus released at the extreme downward movement of the platform so that the platform will be freely returned to its normal or uppermost position by the weights 23 when the loaded sack is removed from said platform. Under the upward movement of the platform, the tripping cam 34 cams itself under the roller 32^a of the spring latch 32, so that it may assume its normal position above the same. After these return movements of the parts have taken place, the machine will, of course, remain idle until the bar 31 is drawn downward and the spring latch 32 again engaged with the lock lug 33, whereupon the gear 12 is again engaged with the gear 11 and the spiral packer is again thrown into action. The so-called extreme lowermost position of the platform may be varied by connecting one or the other of the upper links of said chain with the coupling hook 50 of the lever 45, it being, of course, understood that when the said lever reaches the limit of its downward movement against the lower portion of the stop bracket 46 and the chain 49 is drawn taut, the platform will be supported from the said lever.

What I claim is:

1. In a machine of the kind described, the combination with a frame, a packer and a vertically movable platform, of a friction brake for yieldingly supporting said platform and its load, means for partially releasing said brake under a predetermined downward movement of said platform, to thereby permit said platform and its load to slowly lower, and means for further releasing the brake under further downward movement of said platform, substantially as described.
2. In a machine of the kind described, the combination with a frame, a power driven packer and a vertically movable platform, of a friction brake adapted when set to yieldingly support said platform and its load, means for partially releasing said brake under predetermined downward movement of said platform, to thereby permit said platform and its load to slowly lower, means for completing the release of said brake under further downward movement of said platform, and means for automatically moving said platform upward when said brake is released, substantially as described.
3. In a machine of the kind described, the combination with a frame, a power driven packer and a vertically movable platform, of a friction brake adapted when set to yieldingly support said platform and its load, means for throwing said packer out of action and for partially releasing said brake, under predetermined downward movement of said platform, to thereby permit said platform and its load to slowly lower, means for completing the release of said brake under further downward movement of said platform, and means for moving said platform upward when said brake is released, substantially as described.
4. In a machine of the kind described, the combination with a frame, a vertically movable platform, a hopper having a depending spout and a power driven packer working in said spout, of a friction brake operating when set to yieldingly support said platform and its load, connections for throwing said brake into action and for setting said brake, involving a latch for holding said connections in action, a trip carried by said platform and operative on said latch to release the same, under predetermined downward movement of said platform, an intercepting device operative to hold said brake lightly set when said latch is released, and a connection operative on said intercepting device to cause the same to permit the complete release of said brake, when said platform is given further downward movement, substantially as described.

5. In a machine of the kind described, the combination
with a frame, a vertically movable platform, a hopper
having a depending spout and a power driven packer
working in said spout, of a friction brake operative when
5 set to yieldingly support said platform and its load, said
brake involving a brake lever, a weight connected to said
brake lever and tending to release the same, a trip car-
ried by said platform and operating to release said latch
under predetermined downward movement, a brake lever
10 intercepting device operating thereon to hold said brake
lightly set when said latch is released, a lever connected
to said intercepting device, a slack connection between

said platform and said latter noted lever, operating when
said platform is in the vicinity of its lowermost position
to cause said intercepting device to permit the complete 15
release of the brake, and means for moving said platform
upward when said brake is completely released, substan-
tially as described.

In testimony whereof I affix my signature in presence of
two witnesses.

MILTON C. ELLISON.

Witnesses:

ARTHUR W. SELOVER,
F. D. MERCHANT.