(No Model.) 2 Sheets—Sheet 1.

C. F. WALTERS.

FLOUR PACKER.

No. 418,480. Patented Dec. 31, 1889.

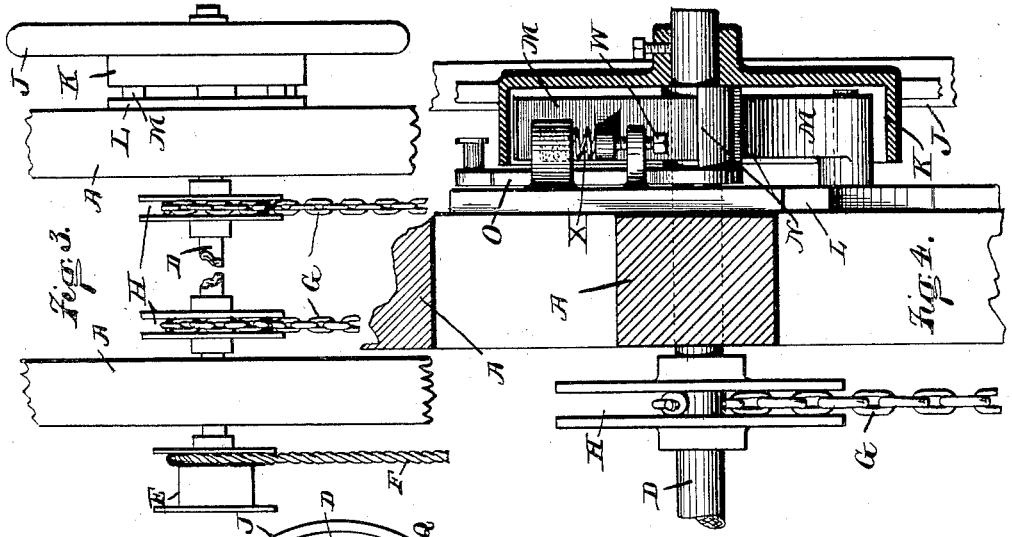

Fig. 3.

Fig. 4.

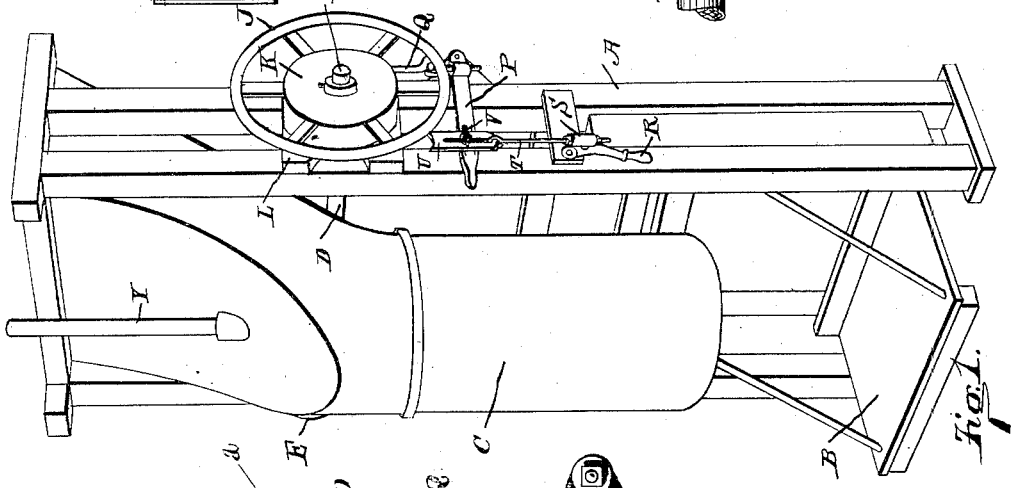

Fig. 1.

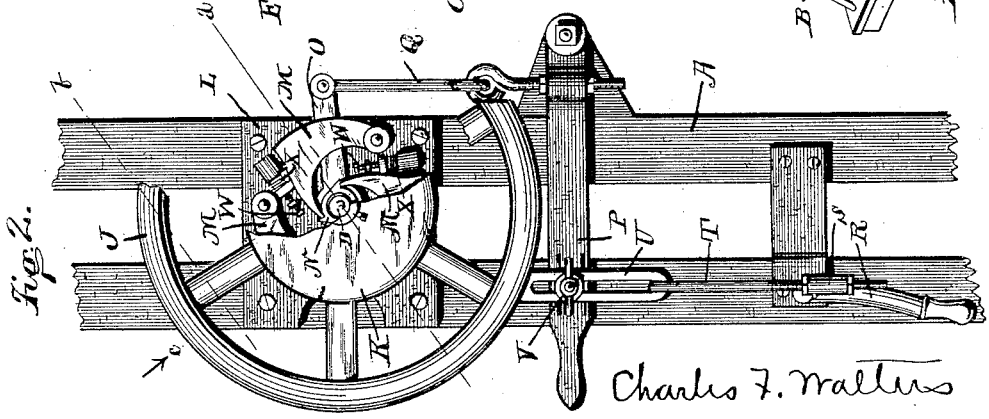

Fig. 2.

Witnesses:
Wa Seward
A. C. Rogers.

Charles F. Walters
Inventor
by James N. See
Attorney

(No Model.) 2 Sheets—Sheet 2.

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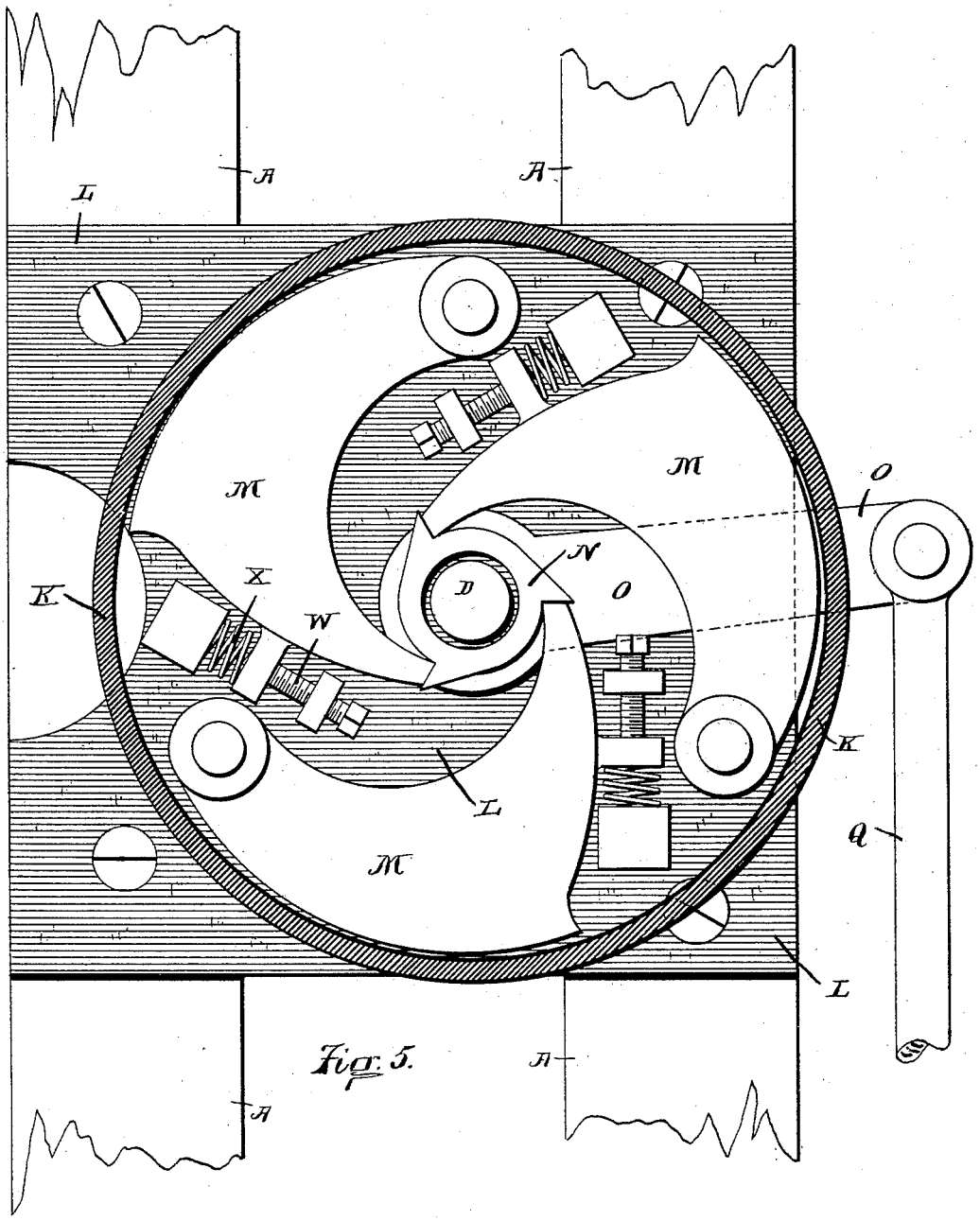

Fig. 5.

Witnesses:
A. C. Rogers.
C. Crawford.

Charles F. Walters Inventor
by James W. See
Attorney

UNITED STATES PATENT OFFICE.

CHARLES F. WALTERS, OF RICHMOND, INDIANA, ASSIGNOR TO THE RICHMOND CITY MILL WORKS, OF SAME PLACE.

FLOUR-PACKER.

SPECIFICATION forming part of Letters Patent No. 418,480, dated December 31, 1889.

Application filed April 29, 1889. Serial No. 308,945. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. WALTERS, of Richmond, Wayne county, Indiana, have invented certain new and useful Improvements in Flour-Packers, of which the following is a specification.

This invention pertains to machines employed in packing flour into barrels, sacks, and so forth.

June 19, 1883, United States Letters Patent No. 279,678 were granted to the Richmond City Mill Works, on my application, for certain improvements in flour-packers, which Letters Patent will be hereinafter referred to as Walters's patent "A;" and June 16, 1885, United States Letters Patent No. 320,419 were granted to the Richmond City Mill Works, on my application, for certain improvements in flour-packers, which Letters Patent will be hereinafter referred to as Walters's patent "B." These two patents constitute elements in the prior state of the art, and the reader of this specification is presumed to be familiar with these two patents, which illustrate a general type of flour-packer, to which my present improvements are applicable.

My present improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a perspective view of a flour-packer embodying my improvements; Fig. 2, a side view of a portion thereof in the general neighborhood of the resistance-wheel, a portion of the resistance-wheel being broken away to exhibit the friction-jaws behind it; Fig. 3, a front elevation of a portion of the framing of the machine, exhibiting the winding-shaft and its spools and the resistance-wheel; and Fig. 4, a diametrical section of the resistance-wheel in the plane of line *a* of Fig. 2, portions of the framing-uprights appearing in section in plane of line *b* of Fig. 2. Fig. 4 is upon an enlarged scale; and Fig. 5, a side elevation, on an enlarged scale, of the friction-arcs and adjacent parts, the friction-rim of the resistance-wheel appearing in vertical section.

In the drawings, A indicates the usual upright framing, furnishing supports for the mechanism and guides for the platform; B, the usual platform, guided by the framing and arranged to rise and fall therein, so as to support the barrel or sack and allow the same to descend from the packing-tube as the barrel or sack becomes filled under compression; C, the usual packing-tube disposed vertically over the platform, and adapted to be connected with the source of supply of flour, and to deliver such flour to the barrel or sack; D, the usual winding-shaft journaled in the framing above the platform, and connected to the platform by chains which wind up upon the shaft as the platform rises, and unwind therefrom as the platform descends; E, the usual reel fixed upon the winding-shaft to receive the rope or chain of the counterbalance-weight; F, the rope or chain wound on this spool and adapted to have the usual counterbalance-weight secured at its lower end; G, the usual chains to be attached at their lower ends to the platform, and having their upper ends secured to the winding-shaft, so as to be wound upon the winding-shaft; H, the spools on the winding-shaft on which these chains wind, these spools having faces of a width corresponding, substantially, with the width of the chain, so that the chains are compelled to wind upon the spools in the form of volute coils; J, a resistance-wheel in the form of a hand-wheel made fast to the winding-shaft; K, a smoothly-bored friction-rim forming a large hub for the resistance-wheel, the smoothly-bored interior of this friction-rim being concentric with the winding-shaft; L, a plate secured against the framing and forming one of the bearings for the winding-shaft, the outer face of this plate standing but a short distance from the inner edge of the friction-rim; M, three friction-arcs whose peripheries correspond with the bore of the friction-rim, one end of each of these arcs being pivoted to the plate L, while the other end of each arc has a toe projecting inwardly, tangent to the winding-shaft; N, a sleeve very loosely mounted on the winding-shaft within the friction-rim and provided with three radially-facing wings, each of the wings being engaged by the toe of a friction-arc; O, a lever rigidly united to this winged sleeve and projecting radially to the

rear from the sleeve between the inner edge of the friction-rim and the outer face of the plate L; P, a horizontal lever pivoted to the framing below the resistance-wheel; Q, a connection reaching from the lever O to the lever P; R, a hand-lever pivoted to the framing below the lever P; S, a spring-case pivoted to this lever; T, an adjustable link or connection reaching from the hand-lever R upward toward the lever P; U, a link secured to the lever P and engaged by the connection T; V, a hand-screw for clamping the link U to the lever P in adjusted position of downward projection; W, set-screws through lugs projecting outwardly from the face of the plate L, the point of each of these screws engaging a lug upon the appropriate one of the friction-arcs, these set-screws engaging the inner surface of such lugs, so as to limit the inner pivotal movement of the friction-arcs; X, compression-springs engaging the outer face of lugs on the friction-arcs and abutting in lugs projecting outwardly from the outer face of the plate L, these springs tending to press the friction-arcs inwardly; and Y, the usual auger-shaft.

The general operation of this machine and the construction of details (not herein specifically referred to) may be the same as in Walters's patents "A" and "B."

The usual counterbalance-weight attached to the rope F is to be of such weight as to balance or overbalance the platform when a barrel is on the platform; hence, when a barrel is on the platform, under the packing-tube, and left free, the platform will automatically rise until the packing-tube projects down into and to or near to the bottom of the barrel. By turning the resistance hand-wheel J the winding-shaft may be turned and the chains G unwound and the platform with the barrel moved to its downward position, if, for any reason, it should be desired to remove the empty barrel before packing. The barrel being upon the platform and in its highest position up around the packing-tube, the auger is started in the usual manner, and the flour flows to the lower end of the packing-tube and is pressed into the barrel by the action of the auger. The effect of the compression of the flour in the bottom of the barrel is to cause the barrel to descend, and when the barrel has descended to a position corresponding with a proper degree of fullness the auger and the flow is stopped in the usual manner and by the usual means. The barrel may be still farther lowered by the hand-wheel, if necessary or desired, and it may then be removed and a new barrel placed in position.

The quantity of flour which is packed into the barrel is regulated to a great extent by the degree of resistance offered to the downward movement of the platform, and this resistance must be regulated to suit the degree of compactness desired in the packing. This resistance is provided for by frictionally retarding the rotation of the winding-shaft. The friction-arcs M, whose peripheries are preferably faced with leather, have their peripheries fitting fairly against the inner surface of the friction-rim. The springs X press these arcs away from contact with the friction-rim, leaving the friction-rim entirely free from the influence of the friction-arcs. The set-screws W serve to limit the inner movement of the friction-arcs and to adjust the limit of that motion. The presence of these screws or some equivalent stops is recommended, but is not at all essential. The toes of the friction-arcs bear against the faces of the wings on the sleeve N, and consequently, if this sleeve be rotated by a downward motion of the lever O, all of the friction-arcs will be forced outwardly into powerful contact with the bore of the friction-rim. This frictional contact between the friction-arcs and the friction-rim will serve to lock the resistance-wheel, and consequently the winding-shaft against rotation, or, rather, to resist rotation. It is to be remembered that the friction-rim is fast on the winding-shaft, and that the friction-arcs are secured to the stationary plate L. The sleeve N is entirely free from all contact with the winding-shaft, and consequently is at liberty to take a compromising position, and thus equalize the outward pressure of the three friction-arcs.

The arrangement of levers P and R and spring-case S and the connections between the two levers are the same as in Walters's patent "B." When the lever R is turned down in the position indicated in Fig. 2, the lever O is pulled downwardly and held down and the friction-arcs are in frictional engagement with the friction-rim. In this condition the rotation of the winding-shaft is resisted. When the handle R is turned up, then the lever O is elevated and the friction-arcs released from the pressure, and the winding-shaft is free to turn. When the platform is up and the packing operation begins, the friction-arcs are put into frictional engagement with the friction-rim, and the platform can only descend by reason of the compression of flour producing a downward effect in excess of the resistance given to the motion of the winding-shaft. When a new and empty barrel is set in position, the friction-arcs are relieved from action by turning the handle R up, and the platform is then at liberty to rise.

When the empty barrel is clear up and the packing just started, the descending power is represented by the weight of the platform plus the weight of the barrel plus the compressive action of the auger. The resistance to the descent is represented by the counterbalance-weight plus the resistance due to the friction-arcs. The tightness with which the flour is packed into the barrel will therefore be represented by the preponderance of the resistance over the descending power; but when the barrel is about half-way down it

will contain about a hundred pounds of flour, and this becomes an addition to the descending power. It would follow, in the absence of special provision against it, that each pound of flour put into the barrel increased its descending power, and thereby lessened the degree of compactness with which the packing is done. This would mean that the flour in the bottom of the barrel would be tightly packed and that in the top of the barrel packed with comparative looseness. I provide against this by causing the chains G to wind at all times in the form of a volute coil. The flanges of the spools H compel the chains to wind upon themselves in single volutes. The consequence is that as the barrel descends and its greater fullness adds to its gravity the downward pull of the chains upon the winding-shaft is upon a lessened leverage. In practice the operation of my machine leaves nothing to be desired in the uniformity of the packing.

I claim as my invention—

1. In a flour-packer, the combination, substantially as set forth, of a vertically-movable platform, a winding-shaft, chains extending from the platform and adapted for being wound upon the shaft, a resistance-wheel secured to the winding-shaft and provided with an internal friction-rim, friction-arcs mounted against rotation within said friction-rim, and mechanism, substantially as set forth, for forcing the periphery of said arcs into frictional engagement with said friction-rims.

2. In a flour-packer, the combination, substantially as set forth, of a vertically-movable platform, a winding-shaft, chains connected to said platform and adapted to be wound upon said shaft, a resistance-wheel fixed to said shaft and provided with an internal friction-rim, a sleeve upon said winding-shaft within said friction-rim and provided with radial wings and a lever, and friction-arcs mounted on fixed pivots and disposed within said friction-rim and having toes projecting inwardly into engagement with the wings of said sleeve.

3. In a flour-packer, the combination, substantially as set forth, of a vertically-movable platform, a winding-shaft, chains attached to the platform and arranged to wind upon the shaft, a resistance-wheel fixed upon the shaft and provided with an internal friction-rim, a sleeve mounted upon said shaft and free of contact therewith and provided with radial wings and a lever, and friction-arcs mounted on fixed pivots and disposed within said friction-rim and provided with toes engaging the wings of said sleeve.

4. In a flour-packer, the combination, substantially as set forth, of a vertically-movable platform, a winding-shaft, chains engaging the platform and shaft, a resistance-wheel fixed to the shaft and provided with an internal friction-rim, a fixed plate disposed near the inner edge of said friction-rim, friction-arcs pivoted to said plate and provided with inwardly-projecting toes, a friction-sleeve mounted on the shaft and having wings engaging said toes and having an operating-lever, and springs carried by the plate and engaging the friction-arcs and serving to press them inwardly.

5. In a flour-packer, the combination, substantially as set forth, of a vertically-movable platform, a winding-shaft, a resistance-wheel fixed to said shaft, friction mechanism operating in conjunction with said resistance-wheel and arranged to resist the rotation of the shaft, chains engaging said platform and shaft, and spools upon said shaft to receive the convolutions of the chains and having a width corresponding to the width of the chain, whereby each chain is caused to wind in a single volute coil.

CHAS. F. WALTERS.

Witnesses:
L. T. LEMON,
HAMLIN T. LEMON.