

O. M. MORSE.
Flour-Packer.

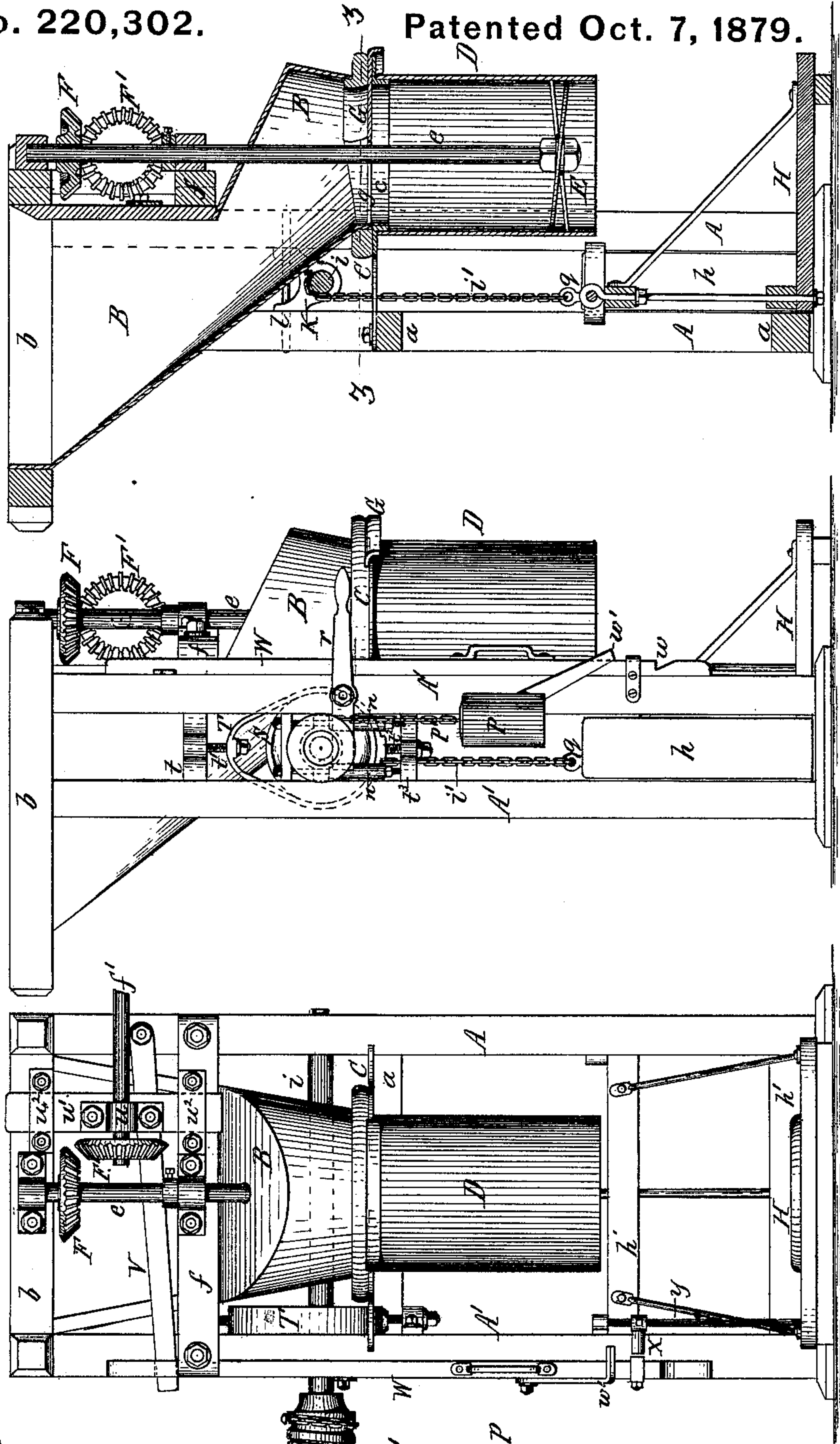
No. 220,302.

Patented Oct. 7, 1879.

Fig. 3.

Fig. 2.

Fig. 1.



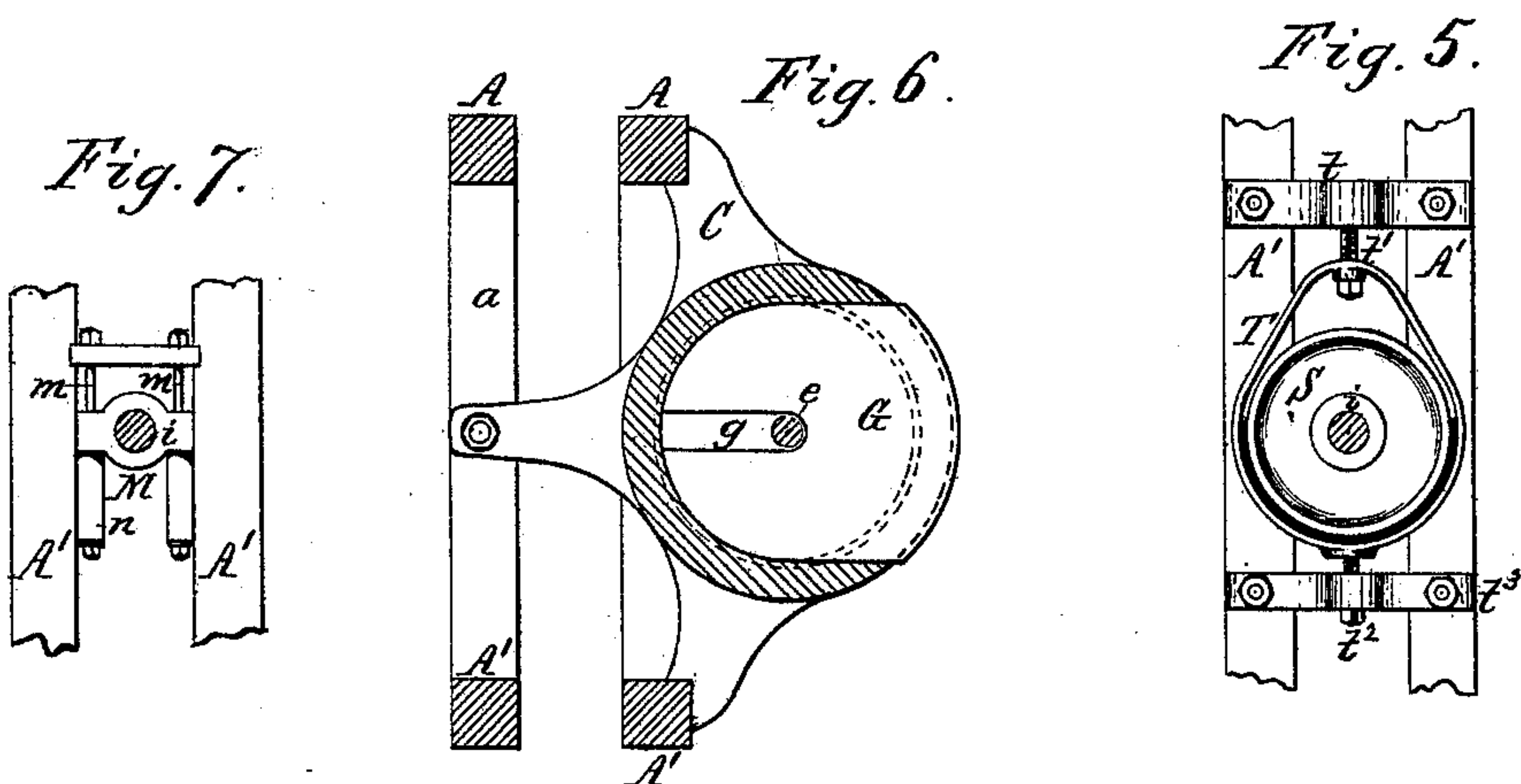
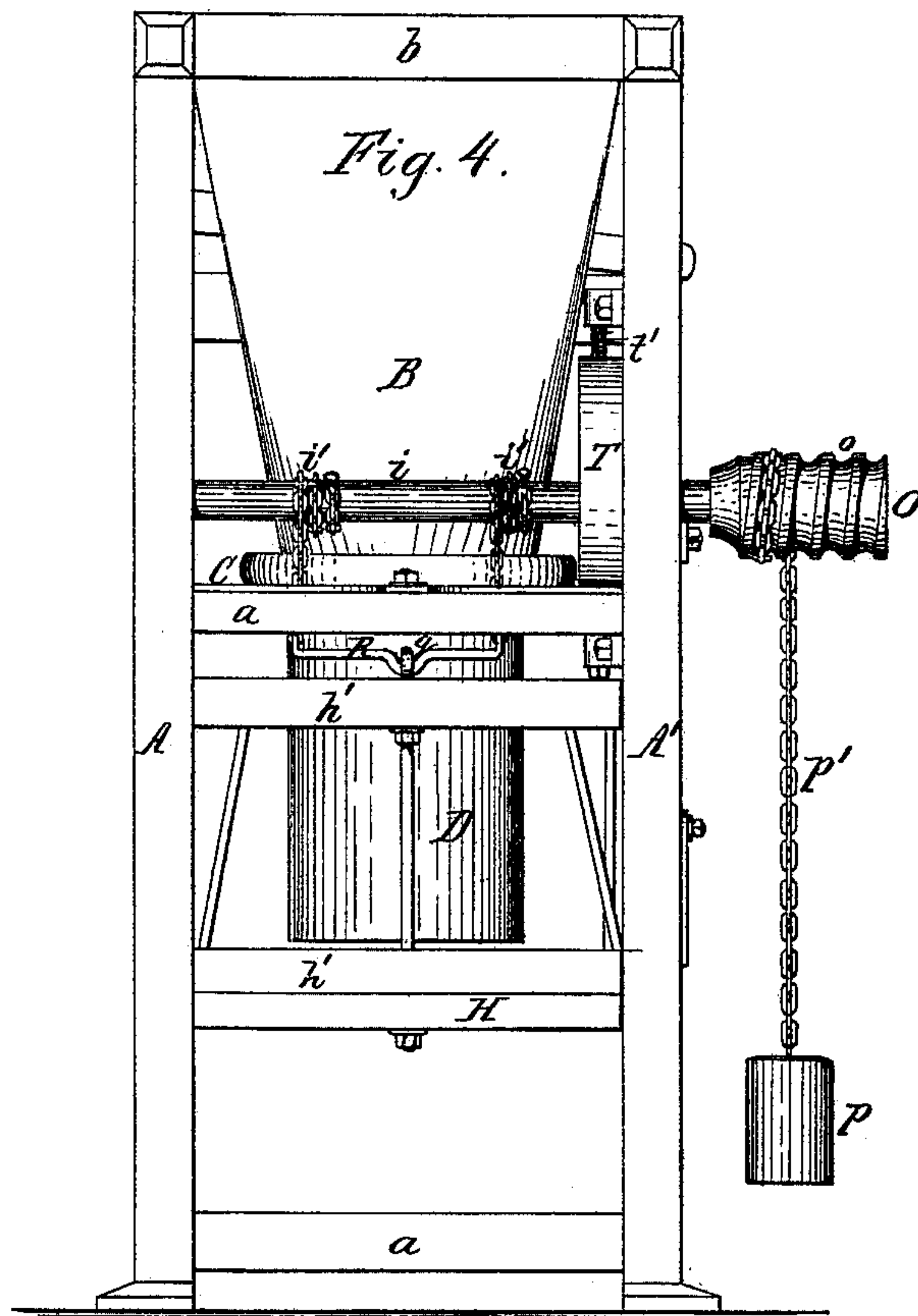
Chas. J. Buchheit.
Edw. J. Brady. } Witnesses-

O. M. Morse Inventor
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UNITED STATES PATENT OFFICE

ORVILLE M. MORSE, OF SILVER CREEK, NEW YORK, ASSIGNOR TO HOWES BABCOCK & CO., OF SAME PLACE.

IMPROVEMENT IN FLOUR-PACKERS.

Specification forming part of Letters Patent No. 220,302, dated October 7, 1879; application filed August 12, 1879.

To all whom it may concern:

Be it known that I, ORVILLE M. MORSE, of Silver Creek, in the county of Chautauqua and State of New York, have invented new and useful Improvements in Flour-Packers, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to that class of flour-packers which are provided with a movable platform, upon which the sack, bag, or barrel to be filled is placed, and which have a stationary auger or feed-screw and a surrounding tube or cylinder, whereby the flour is forced into the sack, bag, or barrel placed upon the platform, which latter recedes automatically from the feed-screw as the receptacle is being filled.

My invention consists of an improved device whereby the moving parts are promptly thrown out of gear when the sack or other receptacle is filled; also, of an improved device for regulating the resistance which the receding platform opposes to the action of the feed-screw; also, of an improved device for compensating for the varying weight of the receding platform, and of various details of construction, as will be hereinafter more fully set forth.

In the accompanying drawings, consisting of two sheets, Figure 1 is a front elevation of a flour-packer provided with my improvements. Fig. 2 is a side elevation, Fig. 3 a sectional elevation, and Fig. 4 a rear elevation, thereof. Fig. 5 is a side elevation of the brake mechanism. Fig. 6 is a horizontal section in line *z z*, Fig. 3; and Fig. 7, a detached elevation of the sliding bearing.

Like letters of reference designate like parts in the several figures.

A A' represent the posts of the vertical frame of the machine, the posts being arranged in two pairs and connected by suitable cross-pieces *a*.

B is a hopper-shaped receptacle, secured between the upper portions of the posts *A*, and connecting with the bottom of the flour-bin. The top of the receptacle *B* is formed by a rectangular frame, *b*, which is secured to the upper ends of the posts *A*. The lower end of the receptacle *B* projects in front of the vertical frame *A*, and rests upon an annular frame or

plate, *C*, which is secured to the frame *A*, and provided on its under side with a short cylindrical sleeve or collar, *c*, to which the removable tubes *D* are attached.

e is the vertical shaft arranged axially within the tube *D*, and *E* is the auger or feed-screw secured to the lower end thereof. The shaft *e* extends through the top plate of the projecting portion or throat of the hopper *B*, and is supported above the latter in a cross-piece, *f*, secured to the frame *A*.

F is a bevel-wheel mounted on the upper end of the shaft *e*, and receiving motion from a similar wheel, *F'*, mounted on a horizontal shaft, *f'*.

G is a horizontal slide, arranged upon the annular plate *C*, for closing the throat of the hopper and preventing the passage of the flour through the same when it is desired to change the tube *D*. The slide *G* is provided with a central slot, *g*, through which the shaft *e* passes, and when the slide is withdrawn from the throat of the hopper the opening at the front is closed by a strip of rubber, leather, or other suitable material.

H is the movable platform arranged underneath the tube *D* between the posts *A A'*, and *h* is a vertical piece secured to the platform *H* at each side, so as to slide between the adjacent pair of posts *A A'*. The vertical pieces *h* are connected by cross-pieces *h'* in the usual manner. *i* is a horizontal shaft arranged transversely between the two pairs of posts *A A'*; and *i'* represents one or more chains or ropes connecting the movable platform *H* with the shaft *i* in such manner that, by turning the shaft in one or the other direction, the platform is raised or lowered. One end of the shaft *i* is supported in a bearing, *K*, which is pivoted to the posts *A* at *l*, so that the opposite end of the shaft *i* can be freely raised or lowered by swinging the bearing *K* on its pivot. The opposite end of the shaft *i* is supported in a bearing, *M*, which is capable of sliding vertically between the posts *A'*. The upward movement of the sliding bearing *M* is limited by a cross-piece, which is provided with two depending rods, *m*, on which the bearing slides. The downward movement of the bearing is limited by screw-nuts applied to

the lower ends of the rods m and washers or sleeves n placed upon the rods m between the bearing and the screw-nuts. O is a drum secured to the outer free end of the shaft i , and p is a counterbalancing-weight attached to the drum O by a chain or rope, p' , in such manner that the chain is wound upon the drum as the platform is lowered. The drum O is provided with a spiral groove, o , which is so arranged that the rope or chain p' , which supports the weight p , lies in this groove and travels toward the outer end of the drum as the weight is raised and the platform lowered, thereby increasing the length of the lever on which the weight operates in the same measure as the weight of flour supported by the platform increases.

As shown in the drawings, the platform H is connected with the shaft i by two ropes or chains, i' , which are so wound upon the shaft i that the point at which the chains i' bear upon the shaft i moves from the pivoted bearing K toward the free end of the shaft i , thereby increasing the length of the lever on which the weight of the platform operates as the platform is lowered. The lower ends of the chains, i' , are connected with the central ring or eye, q , of the platform by a yoke, R , having two arms of unequal length, whereby the chains are held in the required inclined position to properly wind upon the shaft i . r is a hand-lever pivoted to the side of the posts A' so as to bear with its short inner end under the shaft, whereby the latter can be raised away from the band T by depressing the outer end of the lever r . S is a pulley mounted upon the shaft i on the inner side of the posts A' , and T is a friction-band surrounding the pulley S and bearing against the lower side thereof.

The band T is preferably made in the form of an elongated ring or loop, and adjustably secured at its upper end to a cross-piece, t , by a screw, t^1 . Its lower end may be raised and lowered by a screw, t^2 , working in a cross-piece, t^3 . The lower part of the band T is lined with rubber, leather, or some other suitable material which will produce the requisite friction against the pulley S . The free end of the shaft i is supported by the pulley S , which rests upon the friction-band T , as the sliding bearing M permits the free end of the shaft to descend until the pulley comes in contact with the friction-band.

By raising and lowering the lower screw, t^2 , the friction of the band may be increased or lessened, and any improper deflection of the band may be avoided by adjusting the upper screw, t^1 .

u is the bearing in which the inner end of the driving-shaft f' is supported. The bearing u is attached to a sliding bar, u^1 , which is guided in vertical ways u^2 , so arranged that by raising the bar u^1 the wheel F' , which is mounted on the inner end of the shaft f' , is thrown in gear with the wheel F , and by lowering the bar

u^1 the wheel F' is thrown out of gear. The bar u^1 is attached to a lever, V , which is pivoted to the front post, A , and extends across the top of the machine to the opposite post, A' , where it connects with a vertical sliding bar, W . The latter is provided, near its lower end, with a notch or depression, w . w' is a hook which is pivoted to the side of the post A' , and which drops into the notch w when the bar W is raised and the wheels $F F'$ are thrown into gear.

X is a laterally-projecting finger, which is adjustably secured to a vertical rod, y , secured to the side of the platform H . The finger X is so arranged that when the platform H has been lowered to the point at which the desired quantity of flour has been packed into the receptacle contained on the platform the finger X will force the hook w' out of the notch w of the bar W , thereby releasing the latter and the lever V , bar u^1 , and shaft f' , all of which parts will immediately descend by gravity, whereby the wheels $F F'$ are thrown out of gear, and the operation of packing is arrested at the desired point.

In packing flour with my improved machine the bag, sack, or barrel is placed over the tube D , the platform H being raised to its highest position immediately beneath the tube D . The bar W is then raised, throwing the wheels $F F'$ into gear, when the feed-auger is rotated and the flour forced into the receptacle placed on the platform. The latter gradually recedes from the tube as the flour is forced into the receptacle by the feed-auger, the density to which the flour is compressed by the auger being determined by the friction which the band T opposes to the rotation of the pulley S and shaft i , to which the platform is connected in the same measure. As the platform is lowered under the pressure of the feed-auger the weight of the flour upon the platform increases, and as this increasing weight would in part overcome the friction of the band T , the flour would be less tightly packed toward the upper end of the receptacle. This increasing weight of the platform is compensated for by the increasing leverage on which the counterbalancing-weight p and the platform H operate during the descent of the latter, thereby insuring a uniform pressure upon the flour in packing. When the predetermined quantity of flour has been packed into the receptacle the operation of the packing mechanism is promptly stopped by the finger X releasing the moving parts, when the filled receptacle is removed from the platform and the latter returned to its highest position by raising the shaft i from the friction-band T by the hand-lever r , and applying a slight downward pull on the rope p' of the counterbalancing-weight p .

I claim as my invention—

1. The combination, with the driving-shaft f' and the movable platform H , having a finger, X , of the sliding bearing $u u^1$, lever V , and bar W , provided with notch w and hook w' , all

arranged to descend by gravity and throw the driving-shaft out of gear when the hook is withdrawn, substantially as set forth.

2. The combination, with the movable platform H, of the shaft *i*, supported at one end in a pivoted bearing and having its opposite end made vertically movable, substantially as set forth.

3. The combination, with the movable platform H, of the shaft *i*, supported at one end in a pivoted bearing, K, and carrying at its opposite free end a drum, O, provided with a spiral groove, *o*, substantially as set forth.

4. The combination, with the movable platform H, of the shaft *i*, supported at one end in a pivoted bearing, K, and carrying near its free end a pulley, S, resting upon a friction-band, T, substantially as set forth.

5. The combination, with the movable platform H, of the shaft *i*, supported at one end in

a pivoted bearing, K, and having its opposite end supported in a sliding bearing, of the inclined chains *i'*, wound upon the shaft in the direction from its free end toward its pivoted end, and the connecting-yoke R, having arms of unequal length, substantially as set forth.

6. The combination, with the movable platform H, of the shaft *i*, pivoted bearing K, sliding bearing M, pulley S, friction-band T, drum O, and counterbalancing-weight *p*, substantially as set forth.

7. The combination, with the shaft *i*, provided with pulley S, of the endless friction-band T, provided with an upper and lower adjusting-screw, *t*¹ *t*², substantially as set forth.

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Witnesses:

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