

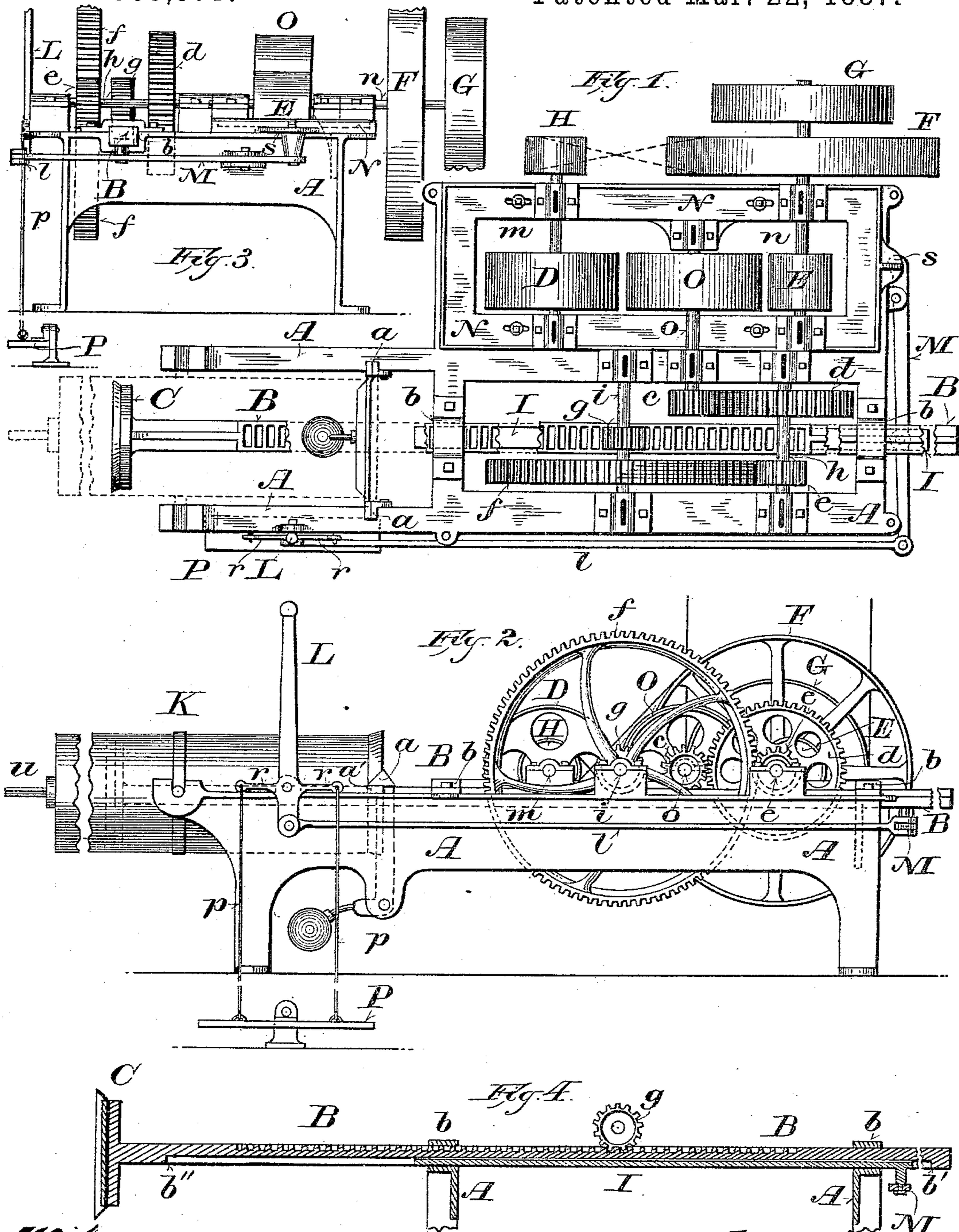
(No Model.)

G. A. HOFFMANN.

MECHANISM FOR OPERATING SAUSAGE STUFFING MACHINES.

No. 359,971.

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Witnesses:

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UNITED STATES PATENT OFFICE.

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MECHANISM FOR OPERATING SAUSAGE-STUFFING MACHINES.

SPECIFICATION forming part of Letters Patent No. 359,971, dated March 22, 1887.

Application filed January 19, 1886. Serial No. 189,094. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV ADOLPH HOFFMANN, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Mechanisms for Operating Sausage-Stuffing Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to that class of sausage-stuffing machines in which the piston is driven by steam or other power.

It consists, essentially, of friction driving mechanism suitably geared or connected with the piston and of an automatic stopping device. Its objects are, first, facility and rapidity of operation; second, economy of labor, and, third, a variable feed under the constant and instant control of the operator, whereby a great saving is effected in cases and the work more perfectly done than is possible with a regular invariable feed. These objects I attain by the mechanism hereinafter specifically described.

In the accompanying drawings like letters designate the same parts in the several figures.

Figure 1 is a plan view of the machine, portions of the piston-rod or rack-bar being cut away to disclose the automatic-brake attachment. Fig. 2 is a side elevation; Fig. 3, an end elevation; and Fig. 4 is a longitudinal vertical section of the rack-bar and underlying brake-bar with the driving-pinion shown in side elevation.

A represents the frame-work of the machine, formed of any suitable material—preferably cast-iron—and of the desired shape to support the various operative parts of the machine and furnish bearings therefor.

C is the piston, closely fitted by suitable packing to the inside of the meat-cylinder K, supported at the middle by trunnions in said frame-work A, so as to be readily swung from a horizontal or working position into an upright position for being refilled. It is secured in its horizontal or working position by the

counterweighted catches *a a*, pivoted to the frame A, and by the ears *a'*, formed upon said cylinder and resting upon said frame A.

The piston C is secured to or formed upon the end of the rack-bar B, which is supported and arranged to move horizontally in bearings *b b* in cross-pieces of frame A, and recessed upon its under side to reduce its bearing-surface and to receive the brake-bar I, placed underneath it.

The parts thus far described are common to machines of this class, and may be of the ordinary or any suitable construction and material.

Upon a lateral extension of the frame A is mounted the longitudinally-sliding frame N, provided with bearings for the shafts *m* and *n*. Upon the shaft *m* are secured the friction-wheel D, inside of the frame N, and the small pulley H, outside of said frame, and upon the shaft *n* are secured in like manner a smaller friction-wheel, E, in line with said friction-wheel D, a pulley, F, in line with and considerably larger than said pulley H, and the driving-pulley G, connected with suitable power. Between and in line with said friction-wheels D and E the main driving friction-wheel O is mounted upon the shaft *o*, which is journaled in fixed bearings formed on frame A. To the end of said shaft *o* adjacent to rack B is attached the pinion *c*, so as to mesh with the gear *d*, of greater size, mounted upon shaft *h*, which also has fixed bearings in frame A, and is provided with a pinion, *e*, meshing in turn with the large gear *f* on shaft *i*, which bears the pinion *g*, engaging and driving the rack B. The several gears and pinions interposed between the friction-wheel O and the rack B are so proportioned as to drive said rack and the piston C with the desired force and rate of speed in its advance movement when the friction-wheel O is driven at a certain rate. A cross-belt connecting the pulleys F and H drives the friction-wheel D in the opposite direction from the rotation of the friction-wheel E and at a much greater speed.

A lever, M, fulcrumed to the frame A of the machine, is connected by its shorter arm with frame N by means of an ear, *s*, projecting therefrom, as shown in Figs. 1 and 3, and by its longer arm, by means of the rod *l*, with

the actuating-lever L, attached to the frame A in a convenient position to be manipulated by the operator. For the purpose of operating the sliding frame N and the friction-wheels mounted thereon by the foot, thus freeing the hands of the operator for manipulating the cases on the gut-tube *u* of the meat-cylinder K, I provide the lever L with a cross piece or arms, *r r*, the ends of which are connected by cords or chains *p p* with the foot-lever P, pivoted between said cords *p p* to the floor.

The rod I, supported in boxes *b b* on frame A in the longitudinal groove or recess in the rack-bar B, as shown in Figs. 1 and 4, is connected with the lever M, as seen in Figs. 3 and 4, projecting a little beyond or to the rear of said lever at one end, and beyond or in advance of the box *b* at the end adjacent to the piston C. The rack-bar B is formed or provided at or near each end with lugs or shoulders *b' b''*, which strike the ends of said bar I when the piston C approaches near the limits of its travel, and cause said bar I to partake of its movement until either friction-wheel D or E is thrown out of contact with the fixed friction-wheel O, thereby preventing accidents and injury to the machine.

The operation of the machine may be briefly described as follows, although it must be apparent from an inspection of the drawings in connection with the foregoing description: The meat-cylinder K, having been swung to an upright position and filled in the usual manner, (the piston C having been first withdrawn therefrom,) is secured in its horizontal or working position, as seen in Fig. 2, by the dogs or catches *a a*. A case having been drawn over the gut-tube *u* in the usual way, the lever L is forced by the operator to the left, bringing the friction-wheel E into contact with the friction-wheel O, which, communicating motion to the several intermediate gears, causes the rack B and piston C to advance, forcing the meat through the tube *u* into the case, which is thus rapidly drawn off from said tube and filled, the operator regulating the force and rapidity with which the meat is expressed from cylinder K by pressure upon the lever L, or, when both hands are used in the manipulation of the cases on tube *u*, by the pressure of the foot on the front or left-hand arm of lever P. By means of the variable speed and force with which the piston C is thus fed forward, controlled by the hand or foot of the operator, the breaking of the cases wherever weak places occur in them can be to a great extent prevented, and the stuffing of the cases as perfectly done as by the hand machines. When the piston C approaches the end or bottom of the meat-cylinder K, the shoulder *b'* on rack B strikes the rear end of bar I, forces it forward, and withdraws the friction-wheel E from contact with the wheel O, thus arresting the advance of said rack and piston.

The operator, by forcing the lever L to the right, as seen in Fig. 2, brings the larger and more-rapidly-rotating friction-driver D

into contact with the fixed friction-wheel O, which is thus rapidly rotated in the reverse direction and the rack and piston quickly withdrawn from the cylinder K. As said piston emerges from said cylinder the shoulder *b''* on rack B strikes the front end of bar I and throws the friction-wheels D and O out of contact, arresting the movement of said rack and piston.

The details of my machine may be variously modified without departure from the spirit of my invention.

The number, size, and arrangement of the gears employed to transmit the variable movement of the friction-wheel O to the piston C may be changed, any of the known forms and arrangements of gearing suitable for that purpose coming within the scope of my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the cylinder K, piston C, arranged to work in said cylinder, a friction-wheel connected by suitable gearing with said piston, and a friction-driver arranged to impart a variable movement, under the control of the operator, to said piston, substantially as and for the purposes set forth.

2. The combination of the cylinder K, piston C, arranged to work therein, main frame A, and frame N, adjustable with relation thereto, a friction-wheel connected by suitable gearing with said piston, and the friction-driver carried by said frame N, and arranged to impart a variable movement to said piston under the control of the operator, substantially as and for the purposes set forth.

3. The combination of the cylinder K, piston C, frame A, sliding frame N, mounted thereon, wheel O, having bearings in frame A and connected by suitable gearing with piston C, and the oppositely-rotated wheels D and E, having bearings in sliding frame N, and arranged to be moved therewith alternately into and out of contact with said wheel O, substantially as and for the purposes set forth.

4. The combination of the cylinder K, piston C, frame A, sliding frame N, mounted thereon, wheel O, having bearings in said frame A and connected by suitable gearing with said piston C, wheel E, having bearings in said frame N, and stop *b'*, arranged to move said wheel E out of contact with said wheel O at the proper time, substantially as and for the purposes set forth.

5. The combination of the cylinder K, piston C, frame A, and wheel O, having bearings therein, sliding frame N, and oppositely-rotated wheels D and E, having bearings therein, and stops *b' b''*, arranged to move said wheels D and E out of engagement with said wheel O when said piston reaches either limit of its movement, substantially as and for the purposes set forth.

6. The combination of the frame A, cylinder K, piston C, rack B, shaft *i*, carrying the gear

f and the pinion *g*, which works with said rack, shaft *o*, rotatable in either direction and having bearings in frame A, wheel O, and pinion *c*, mounted upon shaft *o*, and shaft *h*, carrying 5 gears *d* and *e*, which work, respectively, with pinion *c* and gear *f*, substantially as and for the purposes set forth.

7. The combination of the cylinder K, piston C, stops *b' b''*, frame A, wheel O, having 10 bearings therein and connected by suitable gearing with said piston, sliding frame N, wheels D and E, having bearings therein, and lever M, fulcrumed to frame A and connected with said frame N, substantially as and for the 15 purposes set forth.

8. The combination of the frame A, cylinder

K, piston C, shaft *o*, having bearings in said frame A and geared by suitable connections with said piston, friction-wheel O, mounted upon shaft *o*, sliding frame N, shaft *m*, carrying 20 friction-wheel D and pulley H, and shaft *n*, carrying friction-wheel E, pulley F, and driving-pulley G, said shafts *m* and *n* having bearings in frame N, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as 25 my own I affix my signature in presence of two witnesses.

GUSTAV ADOLPH HOFFMANN.

Witnesses:

CHAS. L. GOSS,

A. W. GOSS.