

No. 736,720.

PATENTED AUG. 18, 1903.

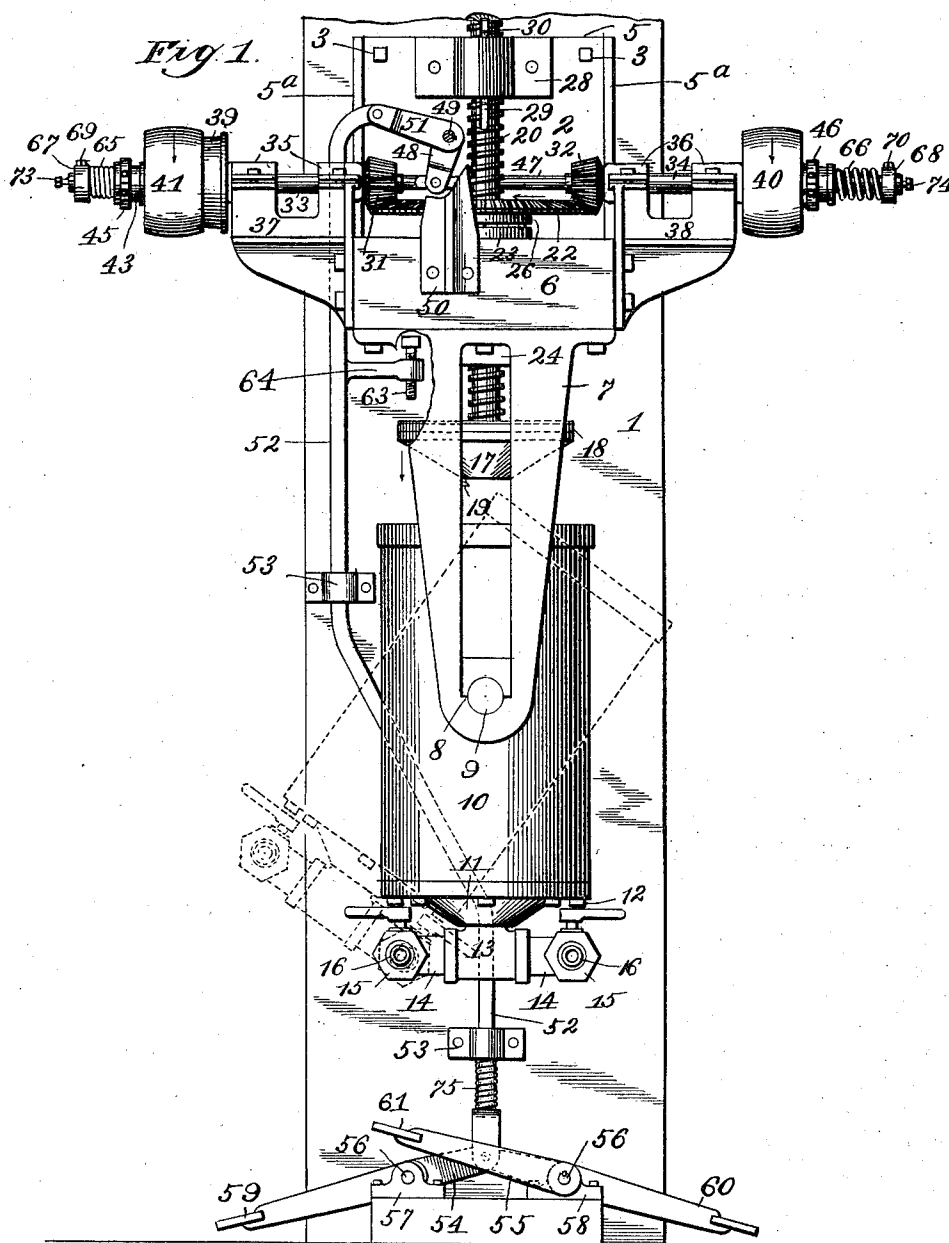
E. HAHN.

SAUSAGE STUFFING MACHINE.

APPLIOATION FILED MAR. 29, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses:

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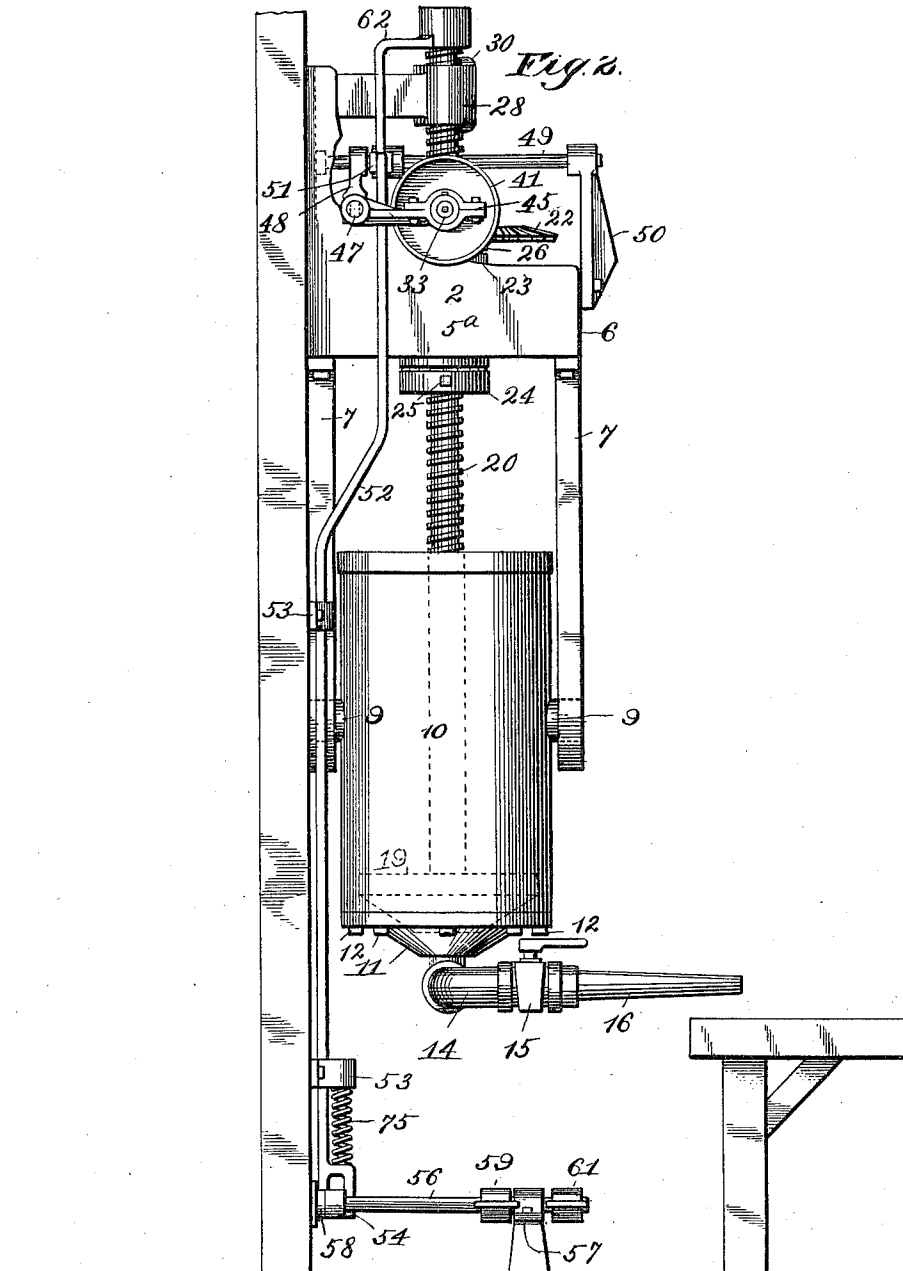
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SAUSAGE STUFFING MACHINE.

APPLICATION FILED MAR. 29, 1902.

NO MODEL.

3 SHEETS—SHEET 2.



Witnesses:

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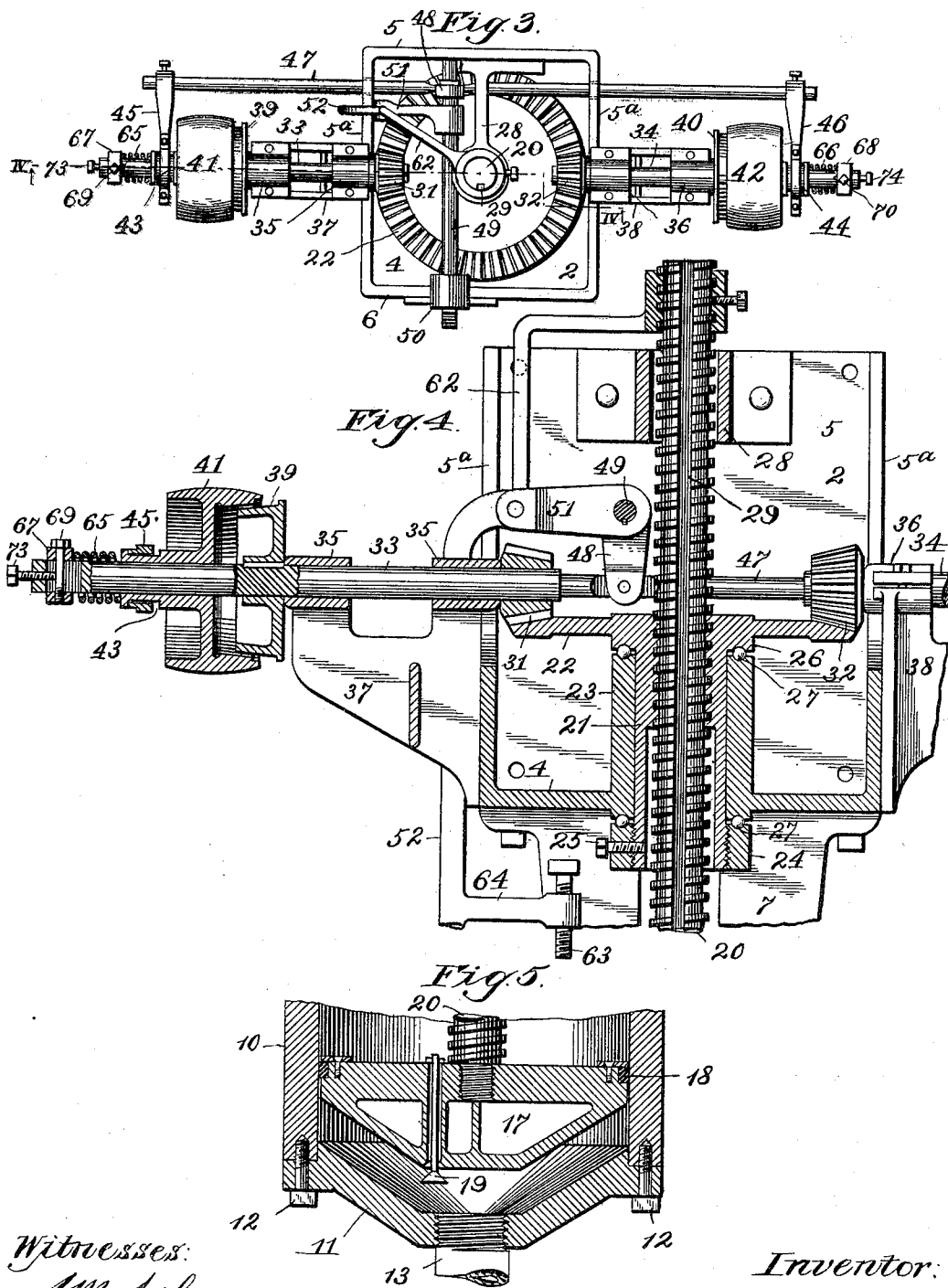
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SAUSAGE STUFFING MACHINE.

APPLICATION FILED MAR. 29, 1902;

NO MODEL.

3 SHEETS—SHEET 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

EDMUND HAHN, OF KANSAS CITY, MISSOURI, ASSIGNOR OF ONE-HALF TO
ALVIN H. GOSSARD, OF KANSAS CITY, MISSOURI.

SAUSAGE-STUFFING MACHINE.

SPECIFICATION forming part of Letters Patent No. 736,720, dated August 18, 1903.

Application filed March 29, 1902. Serial No. 100,518. (No model.)

To all whom it may concern:

Be it known that I, EDMUND HAHN, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Sausage-Stuffing Machines, of which the following is a specification.

My invention relates to improvements in sausage-stuffing machines in which the piston is driven at a variable speed and automatically arrested at the end of each stroke.

It consists of the peculiar arrangement and combination of the friction driving mechanism, which is geared to the screw-threaded piston-rod and drives the piston at a speed depending on the resistance of the meat which it is expressing from the cylinder.

As the machine is designed to fill two cases at the same time, it is necessary to provide a variable feed to prevent bursting of one of the cases when the valve controlling the feed to the opposite case is cut off. The shifting mechanism is also arranged to be operated by foot-levers, leaving the operators free to use their hands in manipulating the cases and cut-off valves, thereby resulting in a saving of time and cases which would otherwise be required were the shifting mechanism worked by hand.

In the accompanying drawings, which illustrate the invention, Figure 1 represents a front elevation of the machine with the piston in an elevated position. Fig. 2 is a side elevation of the same, showing the piston at the end of its downward stroke. Fig. 3 is a detail plan view of the driving and shifting mechanism. Fig. 4 is an enlarged broken vertical section of one side of the driving and shifting mechanism, taken on line IV IV of Fig. 3. Fig. 5 is a vertical section of the lower end of the meat-cylinder and the piston, showing the air-valve in the latter.

1 indicates a vertical supporting-post, to which an overhead casting 2 is firmly secured by bolts 3. Said casting consists of a rectangular base portion 4, with an integral vertical back portion 5, reinforced by integral side ribs 5^a and a front rib 6. Depending from the under side of base 4 are oppositely-disposed brackets 7, provided with bearings 8

at their lower terminals to receive journaled trunnions 9, projecting from the opposite sides of meat-cylinder 10. Said cylinder is open at the top to receive the meat and closed at its lower end by a conical bottom 11, held in position by screws 12, and is centrally bored and threaded to receive the upper end of a T-coupling 13, provided at its opposite sides with elbows 14, controlled by valves 15 and terminating in tapering nozzles 16, over which the ends of the cases are slipped for filling.

The meat is expressed from the cylinder by a conical piston 17, provided with an expansion-ring 18 to snugly fit the interior of the cylinder, and an automatic air-valve 19, which is closed by pressure against the meat on the downward stroke of the piston and opened by suction of the air on its upward stroke. This valve destroys the vacuum produced in the cylinder by the expulsion of the meat on the downward stroke of the piston by admitting air through the top of the latter on its upward stroke; otherwise it would be difficult for it to ascend, and the suction created thereby would draw the meat back into the cylinder from the nozzles. The piston is also provided with a threaded vertical piston-rod 20, which extends through the centrally bored and threaded hub 21 of a large bevel gear-wheel 22, journaled in the centrally-located bearing 23 in the base of casting 2, and is retained therein by a collar 24, secured to its lower end by a set-screw 25, and the enlarged hub portion 26, ball-bearings 27 being interposed between the opposite ends of the bearing and the hub and collar to minimize the friction between the hub 26 and ring 24 and their bearings on rotation of same.

The upper portion of the piston-rod extends through a guide-bracket 28, secured to the rear wall of casting 2, and has a longitudinal groove 29, representing the length of the piston-stroke, engaged by a feather 30 in the guide-bracket to prevent the rotation of the piston-rod with the bevel gear-wheel 22.

Bevel-gear 22 is alternately rotated in opposite directions by oppositely-disposed pinion bevel-gears 31 32, rigidly mounted upon the adjacent ends of horizontal shafts 33 34, journaled in bearings 35 36 on the upper por-

tions of brackets 37 38, secured to the opposite sides of casting 2.

Rigidly mounted upon the above-mentioned shafts contiguous to bearings 35 36 are friction members 39 40, adapted to be alternately engaged and rotated by companion members 41 42, loosely mounted upon their respective shafts and adapted to be driven by belts (not shown) in the well-known way.

The friction-pulleys have outwardly-extending hubs with peripheral grooves 43 44 to receive the forward ends of shifting arms 45 46, secured at their rear ends to the opposite terminals of a horizontal shifting bar 47, reciprocally mounted in the side ribs of casting 2 and pivotally engaged and actuated by a crank-arm 48, rigidly mounted upon a transverse rocker-shaft 49, journaled in the rear wall of casting 2, and a bearing 50, projecting upwardly from the front wall of said casting. Also rigidly mounted upon shaft 49 is another crank-arm 51, extending at right angles to the first-mentioned one and pivotally connected to a depending actuating-bar 52, reciprocally mounted in guides 53 and bifurcated at its lower end to receive pivotally-connected crank-arms 54 and 55, rigidly mounted at their opposite ends upon parallel rocker-shafts 56, journaled at their opposite ends in bearings 57 58. Rigidly secured to the rocker-shafts near their outer ends are oppositely-disposed foot-levers 59 60, arranged convenient to the operators, and secured to the terminal of one of the rocker-shafts is another lever 61, extending in the opposite direction from lever 60, so that one of the operators standing at one side of the machine may reverse the motion of the piston by depressing one or the other of foot-levers 59 61 or arrest its travel by bringing either of the foot-levers to a central position, as shown in Fig. 2.

In order to relieve the operators of the necessity of stopping the piston at the end of each stroke, I provide an automatic arrangement consisting of a bent arm 62, rigidly secured to the upper terminal of the piston-rod and adapted to contact with and depress crank-arm 51 to the position shown in Fig. 4, which throws friction-pulley 42 out of contact with its companion member 40 and arrests any further downward travel of the piston.

The upward stroke of the piston is terminated by its contact with an adjusting-screw 63 in the outer end of a horizontal arm 64, secured to the upper central portion of bar 52, which raises crank-arm 51 to a horizontal position and disengages friction-pulley 41 from its companion member 39.

The shifting mechanism is normally held to the central position (shown in Figs. 3 and 4) by coiled springs 65 66, interposed between the ends of the pulley hubs and collars 67 68, loosely secured upon the outer terminals of shafts 33 35 with transverse screws 69 70, which extend through slots 71 72 in the ends of the shaft. The collars are adjusted inwardly to compress the springs by adjusting-

screws 73 74, which extend through internally-threaded openings in the ends of the shafts and contact with transverse screws 69 70.

75 indicates a coiled spring interposed between the forked end of the actuating-bar 52 and its lower guide 53 for the purpose of assisting spring 65 to depress said bar and restore the shifting mechanism to its normal position after lever 60 has been depressed and then released by the operator.

The operation is substantially as follows: The cylinder having been tilted to the oblique position (shown by Fig. 1) and filled with meat is permitted to swing back to a vertical or working position, where it may be secured in any usual or preferred manner. (Not shown.) The cases are then drawn over the nozzles 16, and valves 15 are opened. The piston is caused to descend by the depression of either of foot-levers 59 60, which through the intermediate shifting mechanism forces pulley 42 laterally into frictional engagement with its companion member 40, rotating bevel-pinion 32, which in turn drives the large bevel gear-wheel 22 in the direction indicated by the arrow in Fig. 1, and thus causes the piston to descend. When the latter has nearly reached the bottom of the cylinder, arm 62 depresses crank-arm 52 and with the assistance of spring 65 throws the shifting mechanism to its normal position and disengages pulley 42 from its companion member 40.

To elevate the piston, lever 61 is depressed and pulley 41 is thrown into frictional engagement with its companion member 39, rotating bevel-pinion 31, which reverses the direction of bevel gear-wheel 22 and raises the piston. After the piston has emerged far enough from the cylinder to allow the latter to be tilted the piston comes into contact with the adjusting-screw 63, and with the assistance of spring 66 throws the shifting mechanism to its normal position and pulley 41 out of contact with its companion member 39.

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

1. In a sausage-stuffing machine comprising a cylinder with a conical bottom and a conical piston-head adapted to operate therein, the combination of a threaded piston-rod rigidly secured at its lower end to the piston-head, a large bevel gear-wheel suitably journaled through which the piston-rod is adapted to reciprocate, two oppositely-located bevel-pinions which mesh with the large bevel-gear, shafts on which the bevel-pinions are rigidly mounted, friction members also rigidly mounted upon said shafts, friction-pulleys loosely mounted upon said shafts, shifting arms loosely engaging the hubs of the friction-pulleys, a shifting bar to which the shifting arms are secured, a crank-arm pivotally secured to the shifting bar, a journaled shaft to which the crank is secured, another crank-arm secured to said shaft, an actuat-

ing-bar pivotally secured to the last-named crank-arm, foot-levers for operating the actuating-bar, an arm on the actuating-bar which extends over into the path of the piston-head, and an arm on the piston-rod adapted to contact with the crank-arm to which the actuating-bar is pivotally secured, substantially as described.

2. In a sausage-stuffing machine, a casting consisting of a rear wall, front and side ribs, a rectangular base portion, and a central bearing formed integral with the base portion; a large bevel gear-wheel, a centrally bored and threaded hub formed integral with the gear-wheel and journaled in the bearing, a collar secured to the lower end of the hub, ball-bearings interposed between the upper and lower portion of the hub and the collar and the bevel-gear, a threaded piston-rod which extends through and engages the in-

ternally-threaded hub, brackets secured to the opposite sides of the casting, shafts journaled thereon, bevel-pinions rigidly mounted upon the shafts and meshing with the opposite sides of the bevel-wheel, friction members also rigidly mounted upon the shafts, friction-pulleys loosely mounted upon the shafts, shifting mechanism for throwing the friction-gears in and out of engagement, collars adjustably mounted upon the shafts, and expansion-springs interposed between the hubs of the friction-pulleys and said collars, substantially as described.

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

EDMUND HAHN.

Witnesses:

F. G. FISCHER,
G. Y. THORPE.