

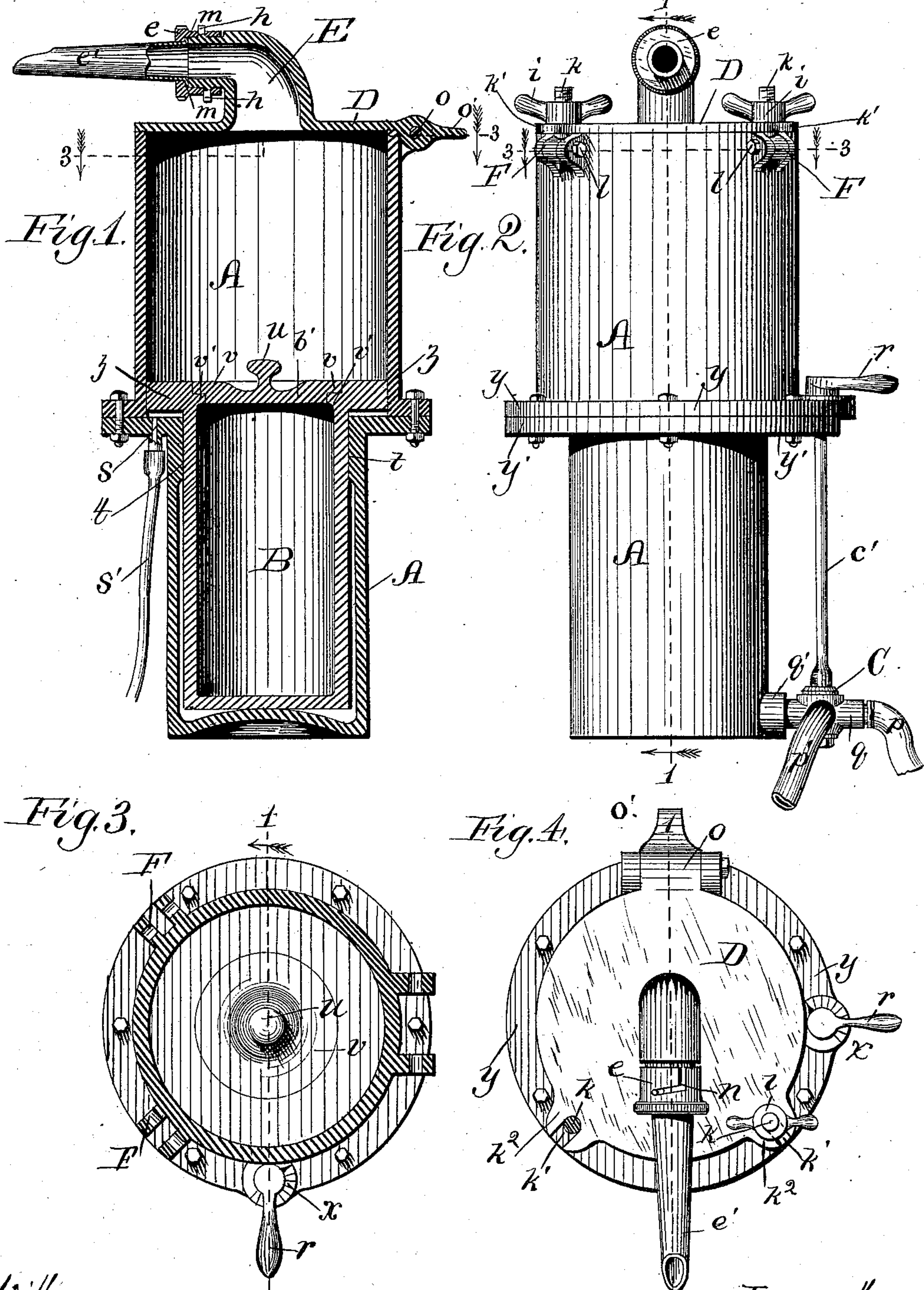
(No Model.)

F. W. TUERK, Jr.

HYDRAULIC SAUSAGE STUFFING MACHINE.

No. 294,826.

Patented Mar. 11, 1884.



Witnesses:

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HYDRAULIC SAUSAGE-STUFFING MACHINE.

SPECIFICATION forming part of Letters Patent No. 294,826, dated March 11, 1884.

Application filed June 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. TUERK, Jr., a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hydraulic Sausage-Stuffing Machines; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of devices used in the manufacture of sausages for stuffing the intestine with prepared sausage-meat.

It is the object of my invention to provide a machine wherein two chambers shall be formed, the upper and larger to contain sausage-meat and a piston-head, and the lower and smaller a piston to be operated by hydraulic pressure, the construction being such that the water will serve as a lubricator for the piston, but will be prevented, without the use of packing, from entering the upper chamber containing the sausage-meat, and being such also that the difference in the dimensions of the two chambers, and consequently the size of the piston, may be gaged according to the pressure obtainable from the water-supply at the place where the device is to be used, the piston and cylinder inclosing the piston being made relatively small for a high pressure and relatively large for a low pressure, whereby uniform results may be obtained without waste of water, thus permitting the economizing of water in proportion to the pressure.

To this end my invention consists in providing a hollow cylinder or shell, preferably formed of metal, and having its lower portion narrower than its upper, and a second cylinder of dimensions smaller than the first-named, to be contained within the narrower portion of the same, and having a piston-head of dimensions to fit within the upper portion of the first-named cylinder, to serve as a piston, and combining with these features means for admitting water under pressure into the cylinder below the piston, and discharging it therefrom at will, and also a tube at the top of the device to form an outlet for the sausage-meat.

My invention consists, further, in certain details of construction and combinations of parts, all as hereinafter more fully set forth.

Referring to the drawings, Figure 1 is a central vertical section of my device, taken on the line 1 1 of Figs. 2, 3, and 4, and viewed in the direction of the arrow-heads; Fig. 2, a front elevation of the same; Fig. 3, a horizontal section taken on the irregular lines 3 3 of Figs. 1 and 2, showing the interior construction of the device; and Fig. 4, a plan view of my device with the top in position.

A is the shell, which in use is always vertical, preferably of metal, and cast, for the sake of convenience, in two parts, although it may be cast as a whole. In either case an internally-convex bottom is provided, as shown in Fig. 1 of the drawings. When formed in the first-named manner, lateral flanges are caused to project, the one y from the lower edge of the upper portion, and the one y' from the upper edge of the lower portion, as shown in the drawings, and the two parts are firmly secured together by means of bolts passing through bolt-holes provided in the said flanges and nuts. When the shell A is formed as a whole, only the flange y' exists, which in this case may be shorter than in the other, since it then only serves as a shoulder.

B is a hollow cylinder, cast separately from the outer shell, just described, and provided with a lateral flange, z , extending down from its upper edge to a depth sufficient to afford a thickness capable of offering the required resistance, and to insure smoothness and evenness of its motion within the said shell, and of the requisite length to fit closely within the same. The cylinder B forms a piston, and is cast hollow, in preference to solid, to save material and reduce its weight to the minimum. Both ends are closed, the lower in the casting, and the closing of the upper being effected by means of a tightly-fitting cover, b' , having a lateral flange, v , around its upper edge, whereby it is permitted to rest upon the projecting flange v' , formed at a suitable distance below the edge of the said opening around the inner wall of the cylinder B. The body of the cover b' extends downward the width of the flange v' . A suitable handle, u , is provided upon the cover, to afford a means for lifting the piston B whenever it shall be necessary to remove the latter. To save material and the labor of boring out the whole

depth of the shell A, and at the same time to provide sufficient sliding-surface to insure a smooth motion of the piston B, the core used in casting is formed to shape the interior of the lower portion of the shell in a manner to bring but a small portion of the external surface of the piston into close contact with the shell, as shown at *t*, whereby the employment of packing is obviated, the friction lessened, and a space is provided between the cylinder and shell where water may enter to afford the necessary lubrication. The piston B may be nickel-plated on its exterior surface, to prevent its rusting by contact with the water; or it may be formed entirely of brass, for the same purpose; or, if desired, the projection shown at *t* may, to prevent rusting, consist of a brass ring cast into the iron shell. The cylinder is made somewhat longer than the height of the lower and narrower portion of the shell, not only to permit the flange or piston-head to lie within the upper portion, but also to provide a receptacle for water, which may be forced into the same by the action of the piston B, whence it escapes through an outlet, *s*, provided in the flange *y'*, and having a hose or pipe connection, *s'*.

C is a three-way valve, connected with the handle *r* by means of a rod, *c'*, which projects through a suitable hole made through the flanges of the shell A, where the handle *r* is secured to it. The three-way valve fits within a pipe, *q*, formed to receive it, and the pipe *q* in turn is inserted into a tube, *q'*, which projects from the side of the shell A, near the lower end of the same, and leads into its interior. The pipe *q* is open at its outward extremity, where one end of a hose or pipe, *p*, is attached, the other end being connected with a hydrant or reservoir whence the hydraulic power is obtained. At one side of the pipe *q* is an opening provided with suitable means for attaching the hose or pipe *p'*, through which the waste water escapes. The three-way valve C is formed after the ordinary manner of three-way cocks—viz., of a plug having a transverse channel through its center, and an auxiliary channel formed in one side of the plug equidistant from the openings of the transverse channel, to meet the latter.

D is the cover, hinged to one side of the shell, as shown at *o*. The portion of the hinge which projects from the cover has an extension, *o'*, which strikes against the side of the shell when the cover is raised, to prevent tipping back of the latter farther than is necessary completely to uncover the opening to the interior of the device. The cover D is provided with an outlet-tube, E, bent to form an elbow, which is made tapering toward its mouth, over which a spout, *e'*, having a flange, *m*, around its larger end, is fitted and firmly secured in place by means of a collar, *e*, provided on opposite sides with inclined or spiral slots *n*, to receive the pins *h*, formed ex-

ternally and opposite to each other, one on each side near the mouth of the outlet-tube. To secure the spout *e'* firmly upon the tapering end of the outlet, it is first adjusted there to, when the collar *e* is slipped over it, to bring the pins *h* within the slots *n*, and as the collar is turned and forced backward it becomes more and more firmly secured in position, while its pressure against the flange *m* on the spout *e'* firmly holds the latter in place. This construction permits spouts with nozzles of different sizes to be readily substituted.

F F are bearings formed on the exterior surface of the shell A, to receive the bolts *l*, which support the swinging eyebolts *k*. These eyebolts fit into recesses *k'*, formed in the lips *k''*, which project from the cover and beyond the wall of the shell A over the flange *y*. When the cover is down, the nuts *i* are screwed upon the bolts *k* firmly, to secure it in place. When it is desired to raise the cover, a few turns of the nuts *i* will loosen them sufficient to permit the bolts *k* to be swung back on their hinges out of the recesses, and thus free the cover.

To operate my device, conveniently supported by the lower flange, *y'*, which may be made to rest upon a table provided with an opening in its top to admit the lower portion of the shell, the cover is raised, when the upper chamber, formed in the shell by the position of the piston-head, is filled with sausage-meat. The cover is then fastened down by means of the nuts *i* and bolts *k*, when the intestine, or whatever the covering may be, is slipped over the mouth of the spout *e'*. All being now in readiness, the operation of stuffing the casing begins. The hose *p* is connected with the water-supply, and the three-way cock turned by means of the handle *r*, to admit water into the spaces between the convex bottom of the shell A and the piston. The pressure exerted by the water drives the piston upward, thereby forcing the meat through the outlet E and spout *e'* into the casing. When the charge of meat shall have been exhausted, or when, for any other reason, it shall be desired to lower the piston, the supply of water is cut off, and the three-way cock turned to cause the auxiliary channel to register with the projection *q'*, whereby one end of the main channel will be closed by its position against the wall of the tube *q*, while the opposite end registers with the opening to which the hose or pipe *p'* is secured, thus providing a passage for the waste water to the hose *p'*, which leads it off, and at the same time hastens the evacuation of the water by the suction produced, and causes the piston to fall by gravity.

If desired, a dial may be placed under the end of the handle *r*, as shown at *x* in Fig. 3 of the drawings, to indicate the angle to which it is necessary to turn the handle for either of the before-mentioned purposes, or for the regulation of the pressure to any desired degree below its full capacity.

Among the advantages attendant upon the use of my device over others for a like purpose are that it operates both ways by the simple turning of a valve, and that it is capable of being supplied with meat while the piston is descending, whereby loss of time is avoided. The piston will descend by its own gravity alone in a short time while the water is discharging, and the time consumed in the descent of the piston may be considerably lessened if the discharge-hose p' be made long enough in a vertical direction to create material suction by the fall of the water. By making the discharge-hose of considerable length, the waste water in the shell is drawn off very rapidly, and the piston descends with proportionate rapidity.

In my device, as will be seen, power is applied only in one direction—to wit, to propel the piston upward to effect the stuffing. The return is effected, as just described, wholly through the medium of gravity acting upon the piston itself and upon the water; hence only half the power is expended in my machine that is expended in other machines for the same purpose, rendering it very economical. This is of course incident to the vertical position of the cylinder. If the cylinder were placed in a horizontal position, power would have to be applied to cause the negative as well as the positive motion.

What I claim as new, and desire to secure by Letters Patent, is—

1. A sausage-stuffing machine comprising, in combination, a hollow cylinder or shell made narrowest toward its lower end, a second cylinder of dimensions smaller than the first named, to fit within the narrower portion of the latter, and provided with a piston-head of dimensions to fit within the upper portion of the outer cylinder to serve as a piston, means for admitting water under pressure into the cylinder below the piston and discharging it therefrom at will, and a tube at the top of the device to form an outlet for the sausage-meat, substantially as described.

2. In a stuffing-machine, the combination of the shell A, having an outlet, s , hollow cylin-

der B within the same, and provided with a cover, v , and knob u , and cover D, hinged at one side to the shell A, and provided with an outlet-tube, E, and detachably secured at the other side to the shell A by means of swinging eyebolts k and nuts i , as and for the purpose set forth.

3. In a stuffing-machine, the shell A, having its lower portion narrower than its upper, and provided with means for admitting water under pressure into its lower end, and for discharging the same, and provided also with an outlet-tube at its upper end for the discharge of the sausage-meat, and with a shoulder, y' , having an opening, s , in combination with the piston comprising the cylinder B within the lower portion of the shell and flange z , fitting within the upper portion, the said cylindrical part B being somewhat higher than the interior of the narrower portion of the shell within which it fits, whereby when it rests upon the bottom of the same a space intervenes between the shoulder y' and the piston-head, substantially as described, and for the purpose set forth.

4. In a stuffing-machine, the combination of the following elements, viz: the shell A, provided with an outlet, s , and having its upper and lower portions of unequal size, as shown, and provided with an internally-convex bottom, piston B, provided with a lateral flange, z , fitting within the upper portion of the shell A, and with the cover b' and handle u , three-way valve C, operating within the tube q , which is connected with a water-supply, and provided with an outlet-pipe, p' , cover D, hinged to one side of the said shell and detachably secured thereon by means of swinging eyebolts having their bearings upon the shell A, and provided with an outlet-tube, E, bent to form an elbow and made tapering toward its mouth, and spout e' , secured thereon by means of a collar, e , all being arranged to operate substantially as described.

FREDERICK W. TUERK, JR.

In presence of—

C. C. LINTHICUM,

EDWARD McCaffrey.