

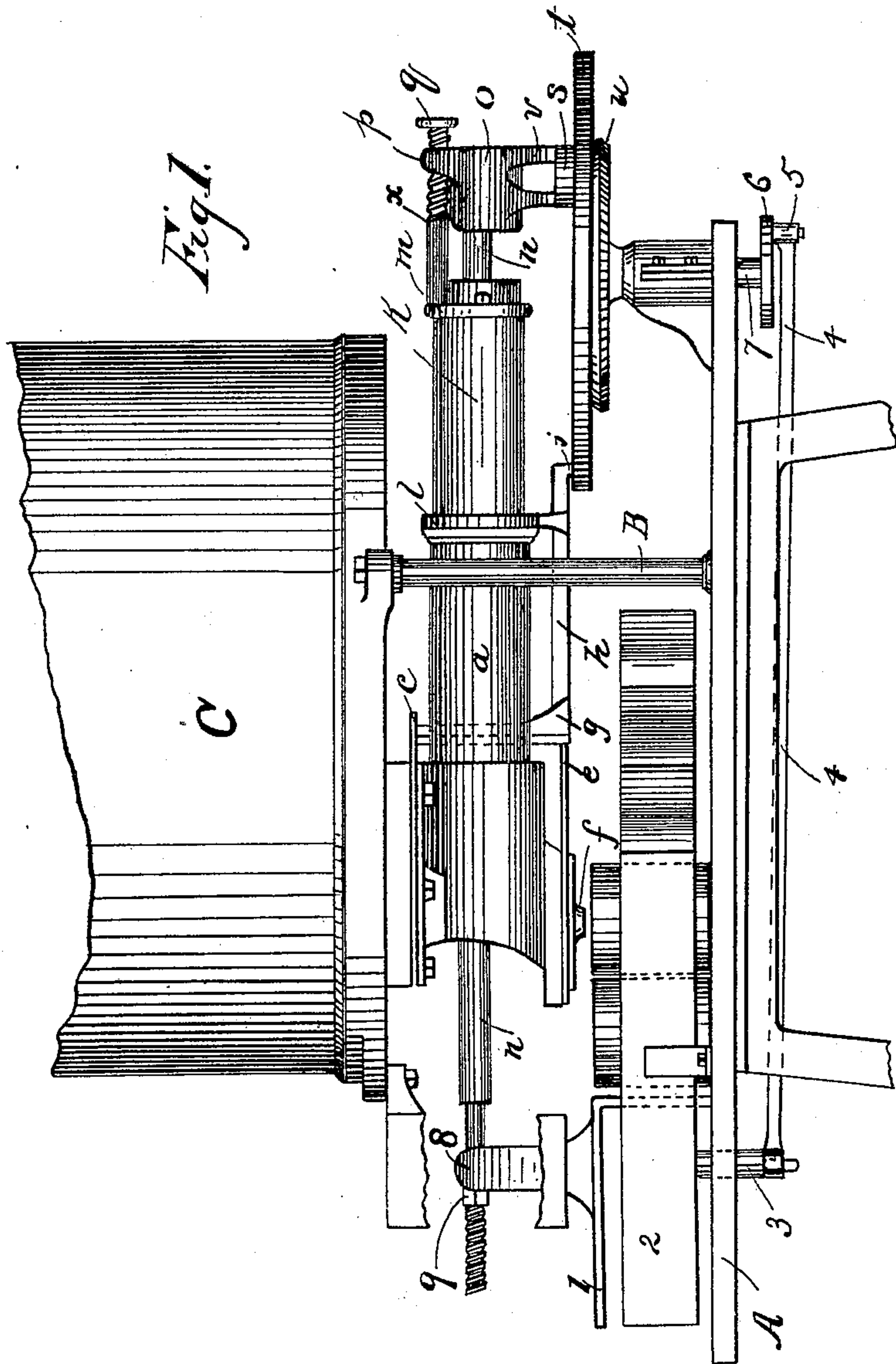
(No Model.)

3 Sheets—Sheet 1

F. W. SMITH.
CAN FILLING MACHINE.

No. 606,034.

Patented June 21, 1898.



Witnesses.
M. R. Wood
A. L. Perry.

Inventor.
Frank W. Smith

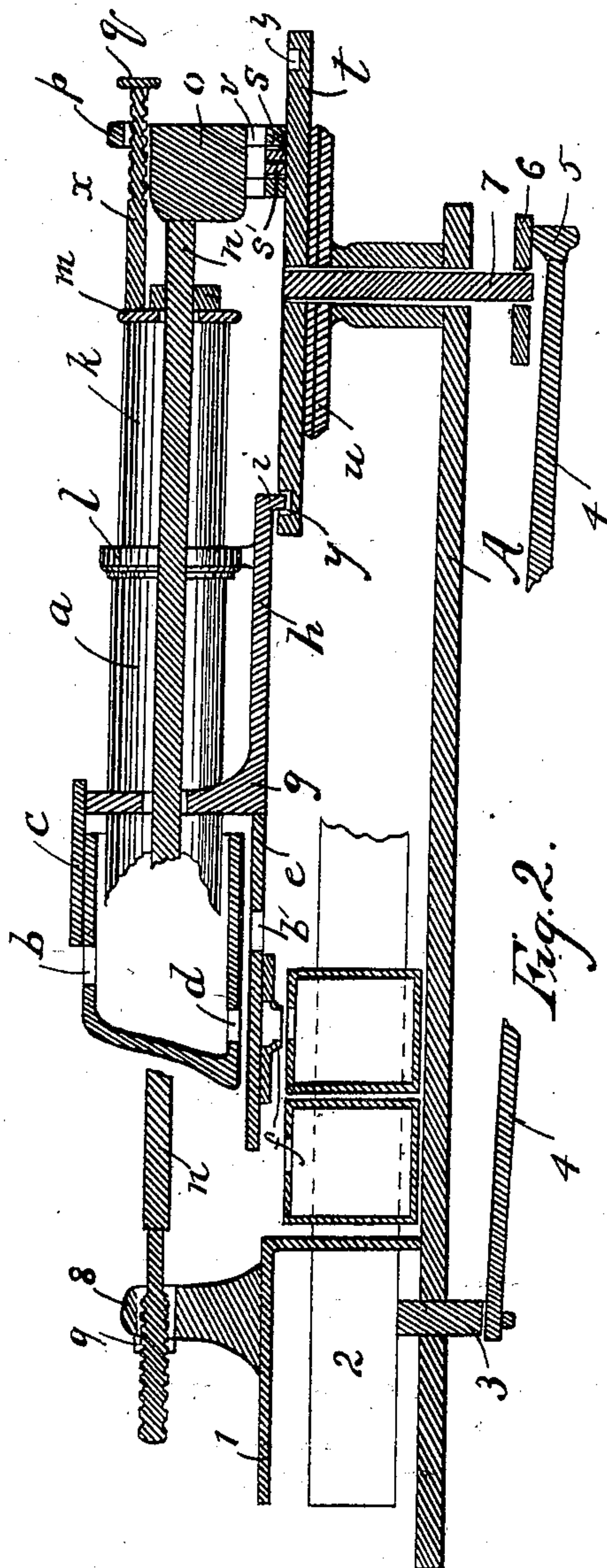
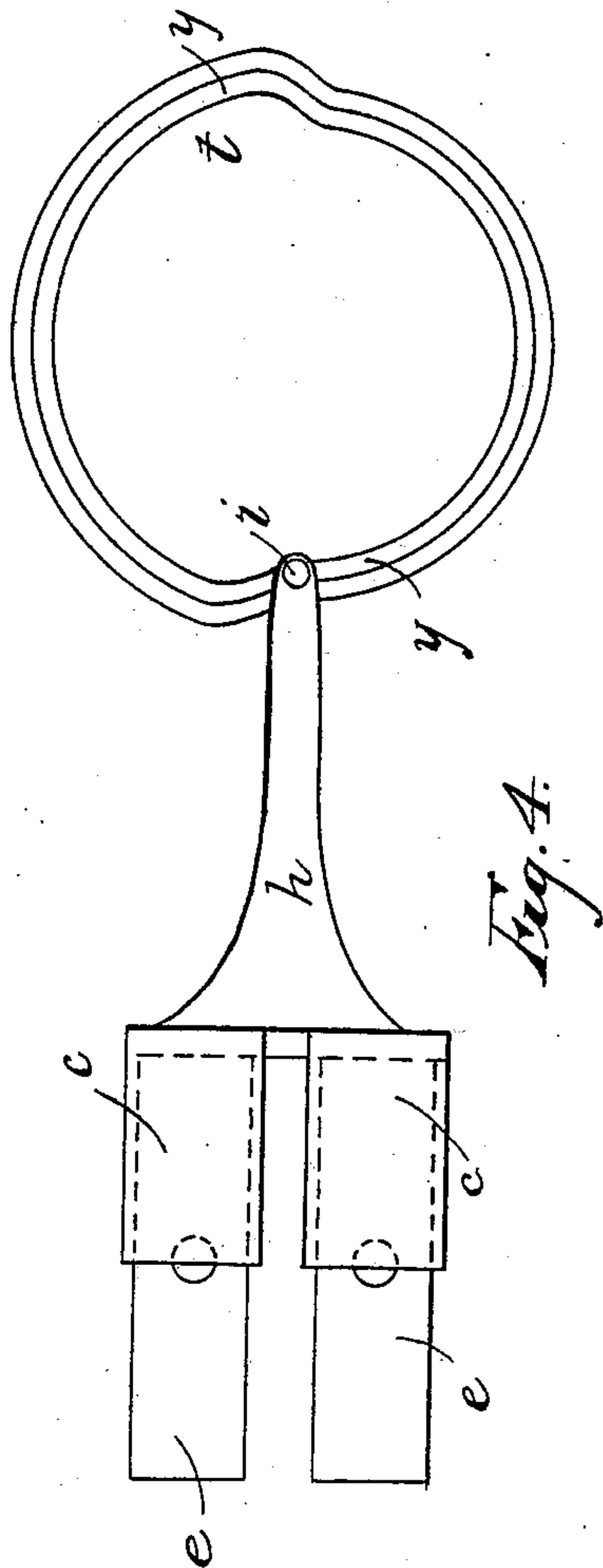
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3 Sheets—Sheet 2.

F. W. SMITH.
CAN FILLING MACHINE.

No. 606,034.

Patented June 21, 1898.



Witnesses:
McElwood
A. O. Berry.

Inventor:
Frank W. Smith

(No Model.)

3 Sheets—Sheet 3.

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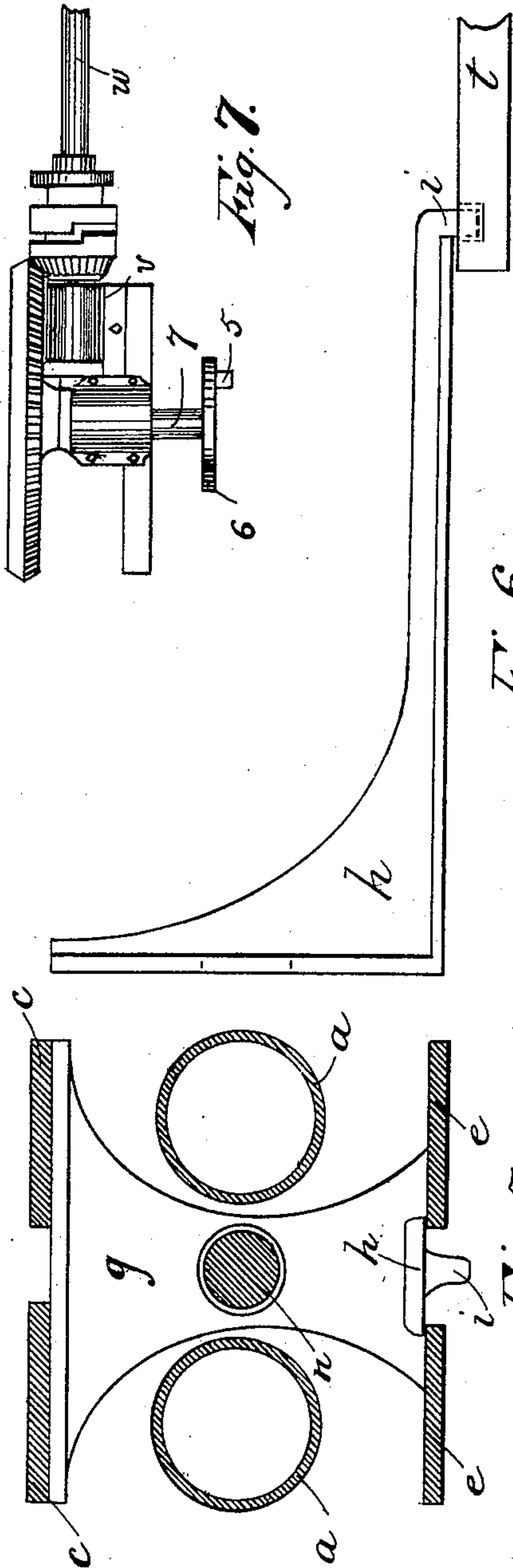


Fig. 7.

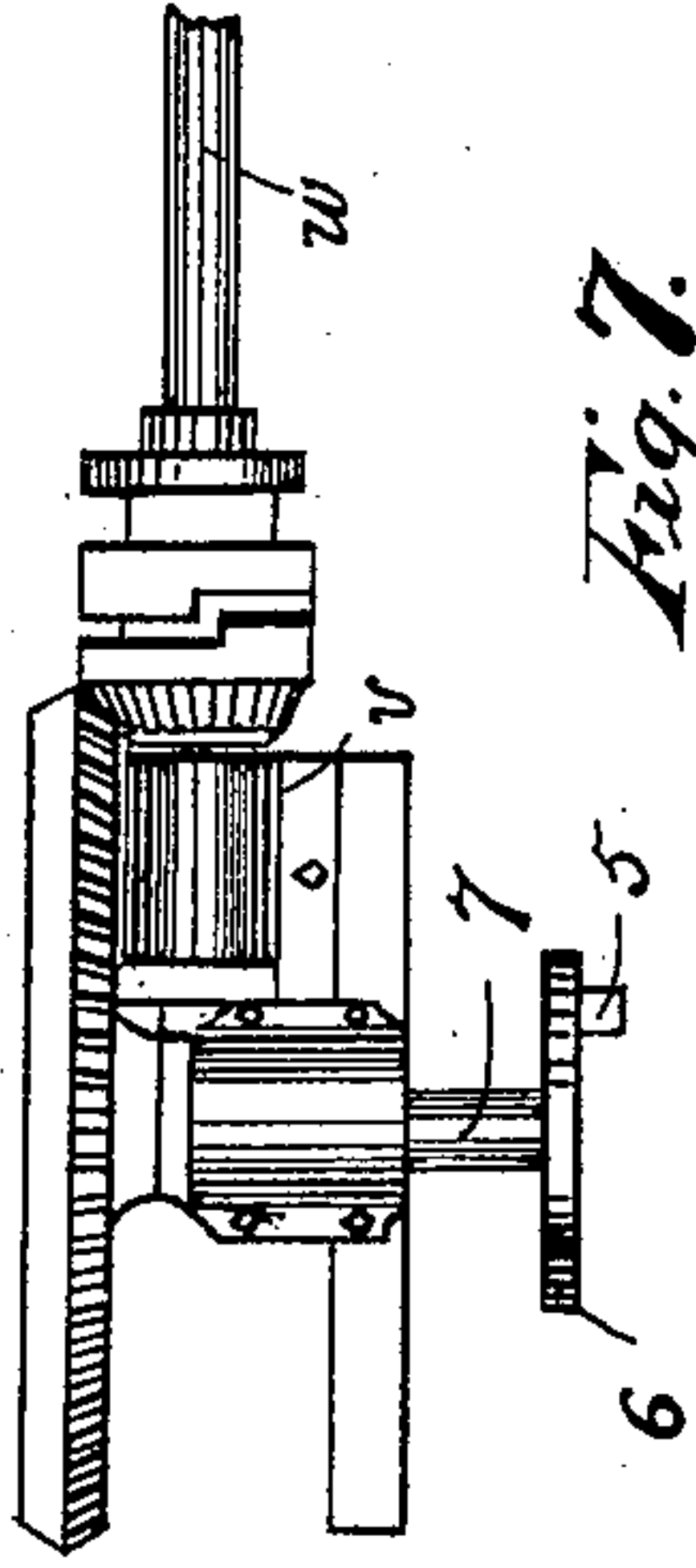


Fig. 6.

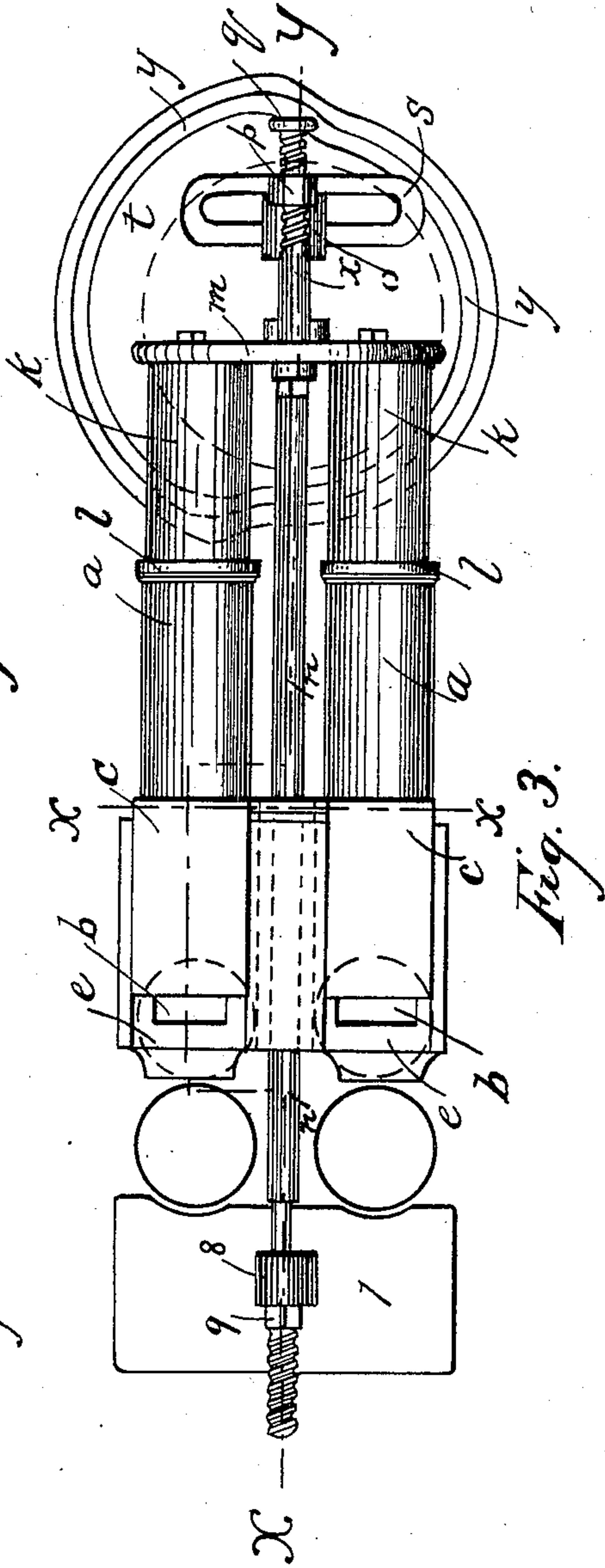


Fig. 3.

Witnesses.
M. L. L. L.
A. L. Berry.

Inventor.
Frank W. Smith

UNITED STATES PATENT OFFICE.

FRANK W. SMITH, OF PORTLAND, MAINE, ASSIGNOR OF ONE-HALF TO
FREDERICK O. CONANT, OF SAME PLACE.

CAN-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 606,034, dated June 21, 1898.

Application filed March 22, 1897. Serial No. 628,626. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. SMITH, a citizen of the United States, residing at Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Can-Filling 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 appertains to make and use the same.

My invention relates to machines for filling cans in the process of packing corn, squash, pumpkin, berries, mince-meat, and other articles of similar consistency; and it consists, primarily, of a cylinder having an opening by which it may be connected with the cooking-chamber or hopper, an opening or nozzle through which the can is filled, valves to control these openings, and a plunger within the cylinder, with means for operating the plunger and valves and for regulating the stroke of the plunger. There are also provided means for feeding the cans beneath the cylinder.

In the drawings is shown the machine in which I have embodied my invention.

Figure 1 is a side elevation; Fig. 2, a longitudinal vertical section of the machine; Fig. 3, a top plan; Fig. 4, a top plan of the valve and device for operating; Fig. 5, a section through the line *x x* of Fig. 3; Fig. 6, a side elevation of the arm operating the valves; and Fig. 7 is an end view of the mechanism for operating the valves, plunger, and feed.

A is the bed of the machine, upon which rests the mechanism hereinafter described and upon which also may rest, supported by proper standards B B, the cooking-chamber C or a hopper.

a a are cylinders placed horizontally under the cooking-chamber or hopper, the exterior upper and lower sides at one end being flattened to or provided with plain surfaces, as seen in Figs. 2 and 3. Each of these upper surfaces is provided with a port or opening *b*, which is connected with the cooking-chamber C or hopper. Above these openings, in proper slides, are the valves *c c*, and at the lower surface of the cylinders is an opening *d*, below which, also in proper slides, are valves *e e*, provided with ports *b'* to register

with the openings *d*, while on the lower side of the valve-seat is a nozzle *f* directly beneath the opening *d*. It should be noted that the opening *d* is nearer the front of the cylinder than the opening *b*. The ends of these sliding valves are connected together, as shown in Fig. 5, by a yoke *g*, which is provided with an arm *h*, (see Fig. 6,) rigidly connected therewith and terminating in a pin *i* at the rear end. Within the cylinders are plungers *k*, which fit closely within the cylinders, the end of the cylinders being provided with a packing-box *l* to insure the tightness of the connection. The ends of the plungers *k* are connected by a yoke *m*, through an aperture in which passes a rod *n*. This rod extends forward between the plungers and the cylinders and through an opening in the yoke *g* to bearings in the block 1 at the front of the machine. The rear end of the rod *n* is provided with the link *o*, to which it is rigidly connected. The upper part of this link has an ear *p*, which is threaded within and is provided with a regulating-screw *x*, passing loosely through the yoke *m*, having a shoulder at one end and provided at the other end with a hand-wheel *q*. The lower part of the link *o* terminates in a yoke *s*, within which plays the roller *s'*, which is pivoted to the upper surface of the cam *t*. The cam *t* is provided with gear *u* upon the under side, inter-matching with the beveled gear *v* on the shaft *w*. The cam-path *y* in the cam *t* receives the stud or pin *i* upon the end of the arm *h*. (See Fig. 6.)

The can-feeding device is seen in Figs. 1, 2, and 3, and consists of a block 1, moving in proper slides upon the bed of the machine, and of the cam-guides 2 2. The block 1 is provided with an ear 8, through which plays the rod *n*, having a shoulder and nut 9, which engage the ear 8, the travel of the block 1 being adjusted by the nut 9 at the end of the rod.

The operation of the machine is readily perceived. Assuming the machine to be in position as shown in the drawings, wherein the plunger has been withdrawn to nearly its limit, having thus drawn into the cylinder the amount of corn necessary to fill a can, the rotation of the cam-wheel *t* forces back the slide *c*, so that it closes the opening *b* and

later causes the port *b'* to register with the opening *d* and the nozzle *f*. At this point of the motion a projection on the link *o* engages the yoke *m*, and the plungers force the contents of the cylinder through the opening *d* and nozzle *f* into the can. Continued rotation of the cam-wheel *t* by action on the pin *i* now causes the closing of the opening *d* and opening of the aperture *b*. The motion of the link *o* engages the shoulder on the screw *x* with the yoke *m*, which withdraws the plunger, thus drawing into the cylinder the required quantity of corn. Meanwhile the action of the rod *n* brings another can into place and the filling process is repeated as before. Adjustment of the amount of corn drawn into the cylinder from the cooking-chamber or hopper at each stroke of the plungers is regulated by means of the hand-wheel *q* upon the regulating-screw *x*, by means of which the stroke of the plungers is diminished or increased, as desired.

The operation of the can-feed is equally simple. The cans are fed either by hand or automatically in front of the block 1 and within the can-guides 2. Supposing two cans to be in position, as shown in Figs. 1, 2, and 3, upon the forward movement of the rod *n* the shoulder thereon engages the ear 8 upon the block 1, forcing forward the block to a sufficient distance to admit of the insertion by hand or from a proper reservoir of another can in front of the unfilled can already within the guides. The reverse motion of the rod *n* engages the nut 9 upon the end of the rod *n* with the ear 8 and draws the block 1 back.

While I prefer to operate the can-feed by means of the rod *n*, it may also be operated by the rod 4, connected to the stud 3, extending through an opening below the bed of the machine, the rod being operated by the eccentric 5 on the wheel 6, which is fixed upon the shaft 7, which also carries the cam *t*. The valves controlling the openings of the cylinder may also be operated by means of a sleeve on the yoke *g*, the sleeve being moved by friction of the rod *n*.

What I claim as my invention is—

1. In a machine for filling cans, the combination of a horizontal cylinder having openings upon the upper and lower sides, valves

adapted to open and close said openings, both said valves being rigidly connected to a rod or arm operated by a path-cam, a filling-nozzle beneath said lower opening, a plunger within said cylinder, said plunger having a link with a yoke adapted to receive a roller fixed upon the surface of said cam, substantially as described.

2. In a machine for filling cans, the combination of a cylinder having openings upon the adjacent or opposite sides, valves to open and close said openings, a filling-nozzle registering with one of said openings, a yoke connecting said valves and terminating in an arm provided with a pin, a path-cam adapted to receive said pin, a plunger within said cylinder, said plunger having a link provided with a yoke and a roller upon the surface of said cam adapted to play within said yoke, substantially as described.

3. In a machine for filling cans, the combination of a cylinder having openings upon the adjacent or opposite sides, valves to open and close said openings, a filling-nozzle registering with one of said openings, a yoke connecting said valves and terminating in an arm provided with a pin, a path-cam adapted to receive said pin, a plunger within said cylinder, said plunger having a link provided with a yoke and a roller upon the surface of said cam adapted to play within said yoke and a rod fixed to said plunger and having a threaded end passing through an aperture in an ear fixed to said link, substantially as described.

4. In a machine for filling cans, the combination of the cylinder *a* having the port *b* with the valve *c* and the port *d* and nozzle *f* with the valve *e*, the latter being provided with the opening *b'*, the arm *h* connecting said valves and having the pin *i*, the plunger *k* within said cylinder with link *o*, yoke *s*, and cam *t* with path *y* and rollers *s'*, substantially as described.

In testimony that I claim the foregoing as my invention I have hereunto set my hand this 19th day of March, A. D. 1897.

FRANK W. SMITH.

In presence of—

WM. R. WOOD,
A. C. BERRY.