No. 780,757. PATENTED JAN. 24, 1905.

E. M. LOCKWOOD, Jr.

CAN FILLING MACHINE.

APPLICATION FILED APR. 29, 1904.

3 SHEETS—SHEET 1.

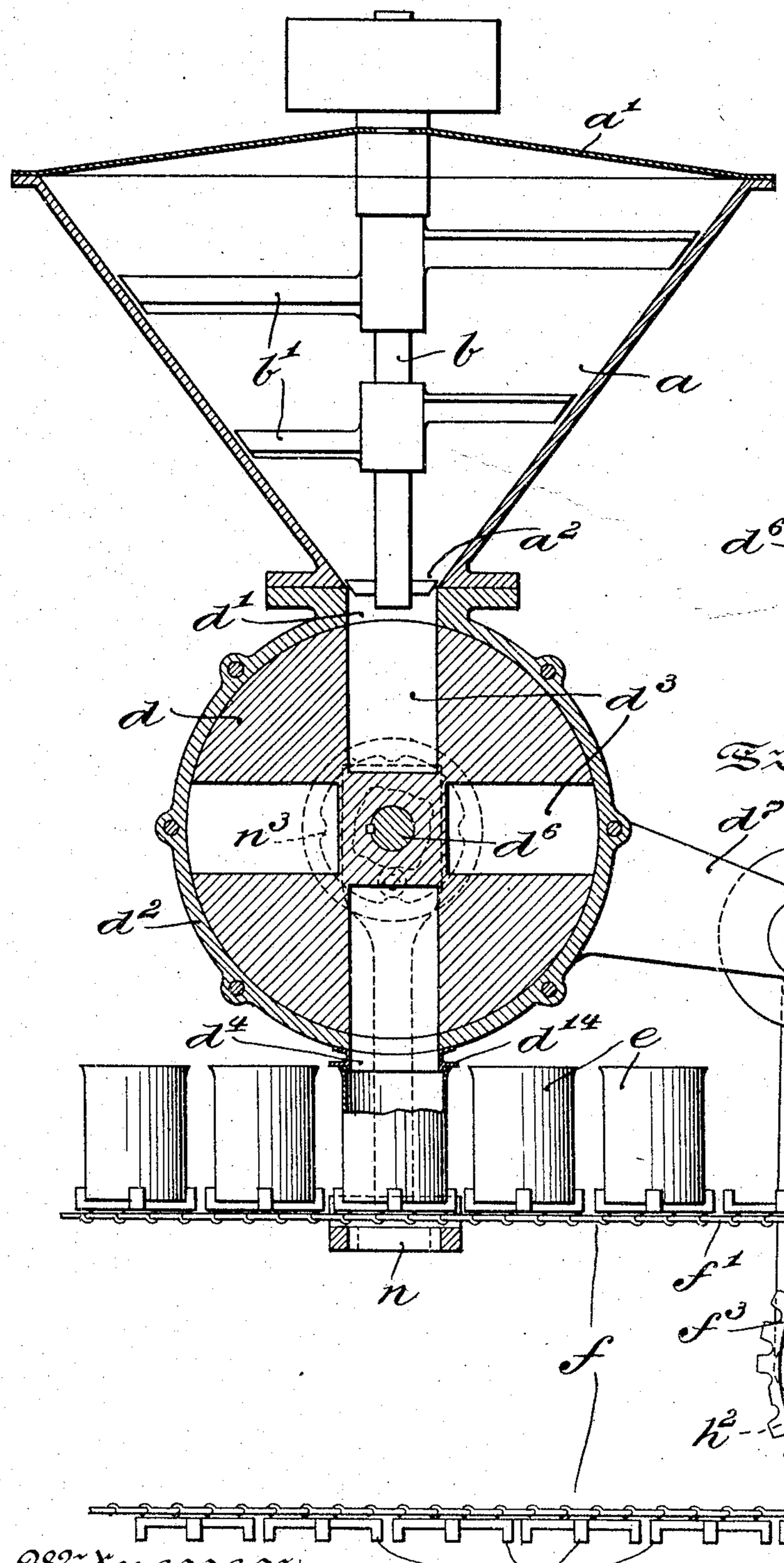

Fig. 6.

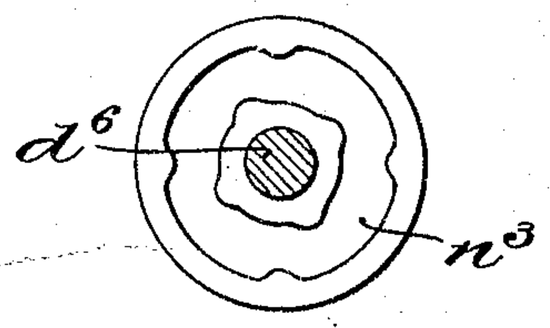

Fig. 1.

Witnesses:
Jas. C. Wolbrusmith
Wilhelm Voigt

Inventor:
Edward M. Lockwood Jr.
By J. Walter Douglass
Attorney.

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3 SHEETS—SHEET 2.

Fig. 3.

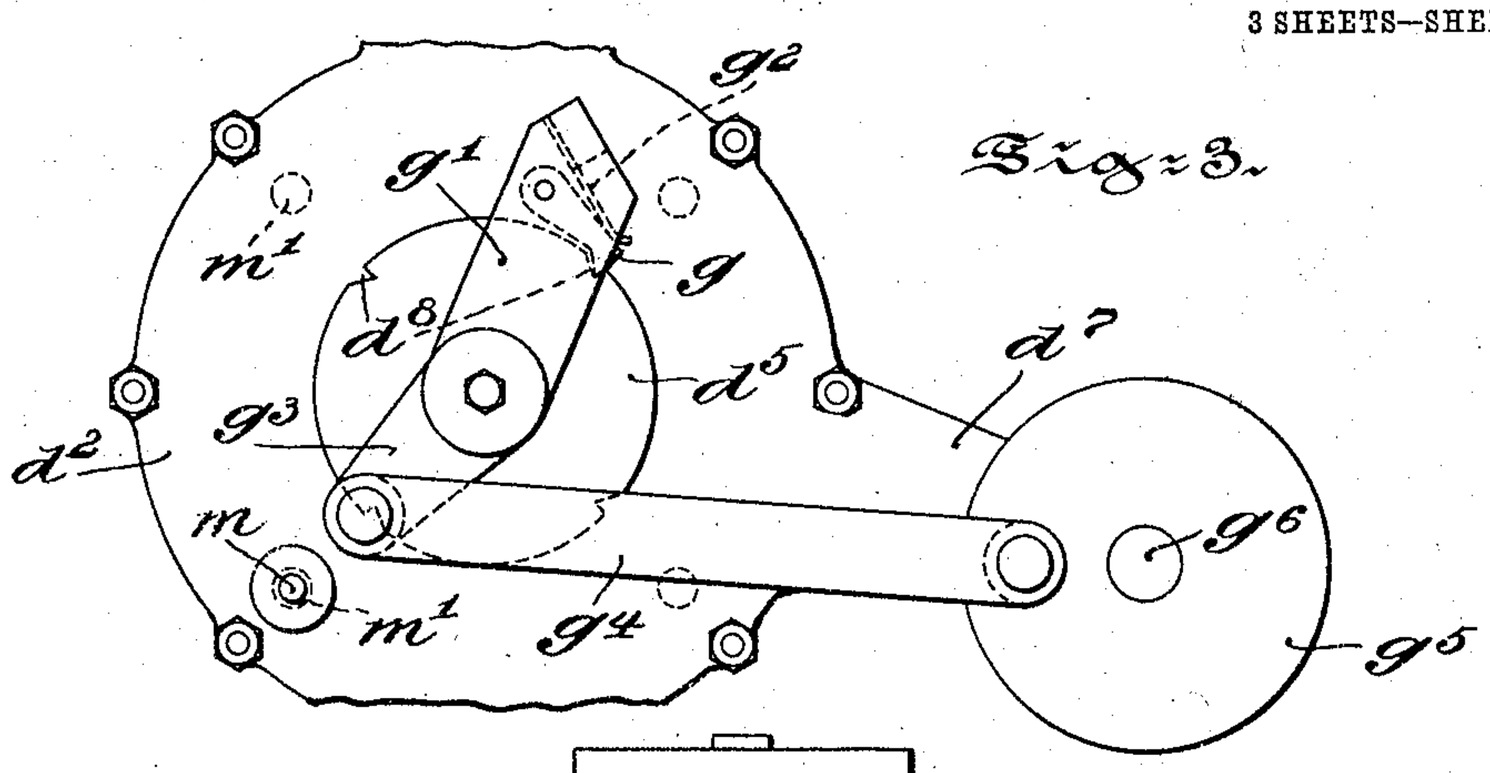


Fig. 2.

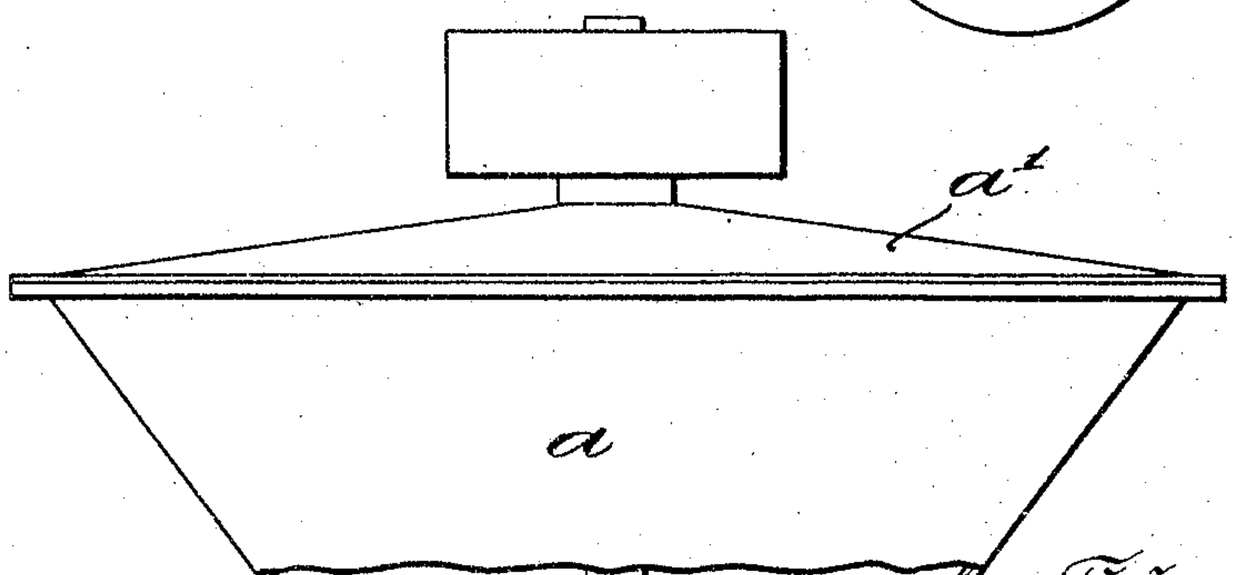


Fig. 4.

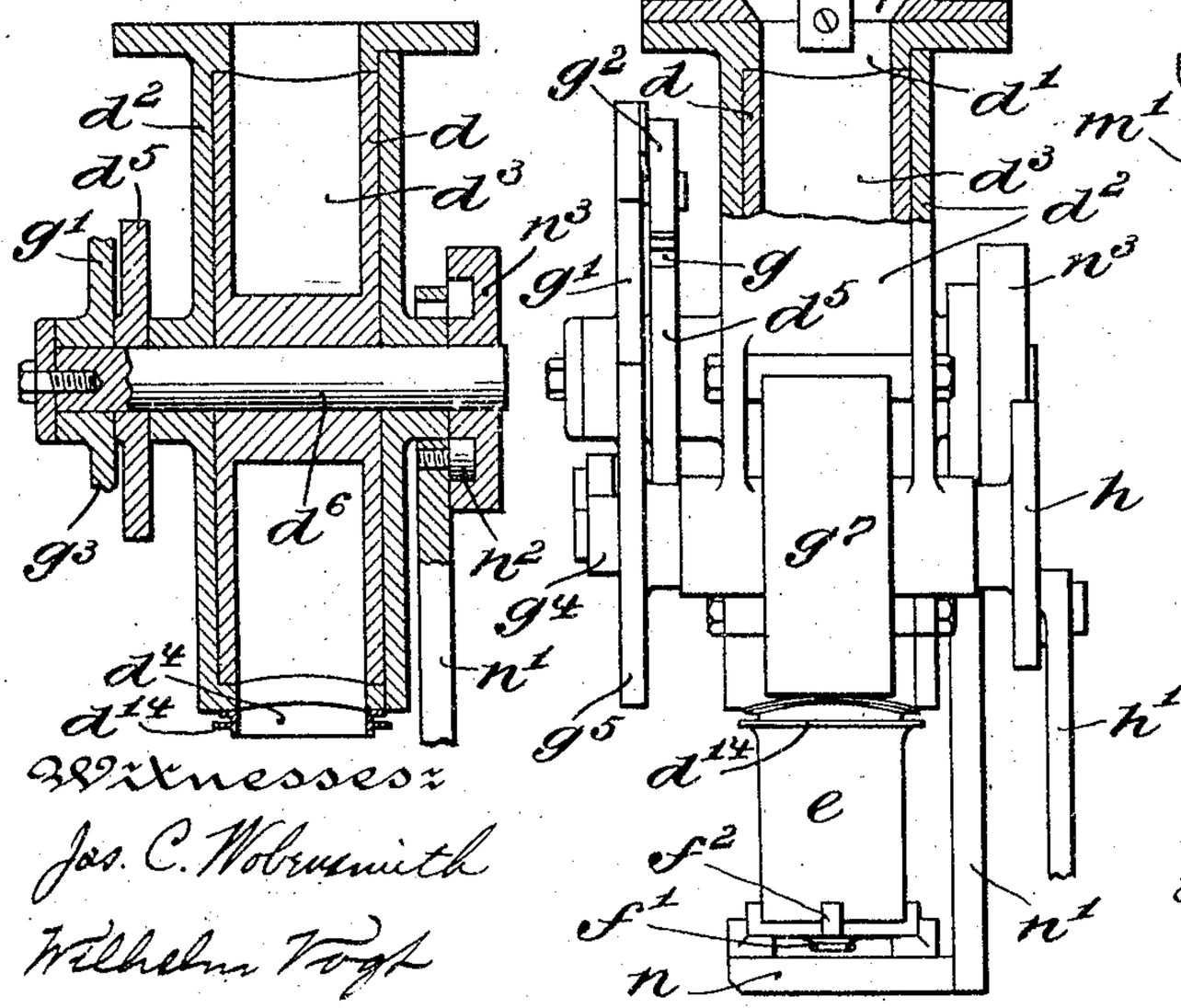
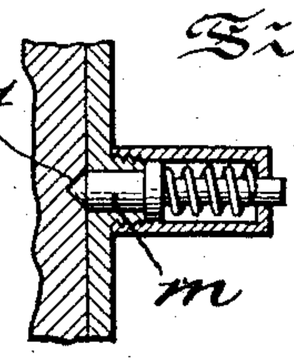


Fig. 5.



Witnesses:

Jos. C. Wobrusmith

Wilhelm Vogt

Inventor:

Edward M. Lockwood Jr.,

By J. Walter Douglas.

Attorney.

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3 SHEETS—SHEET 3.

Fig. 7.

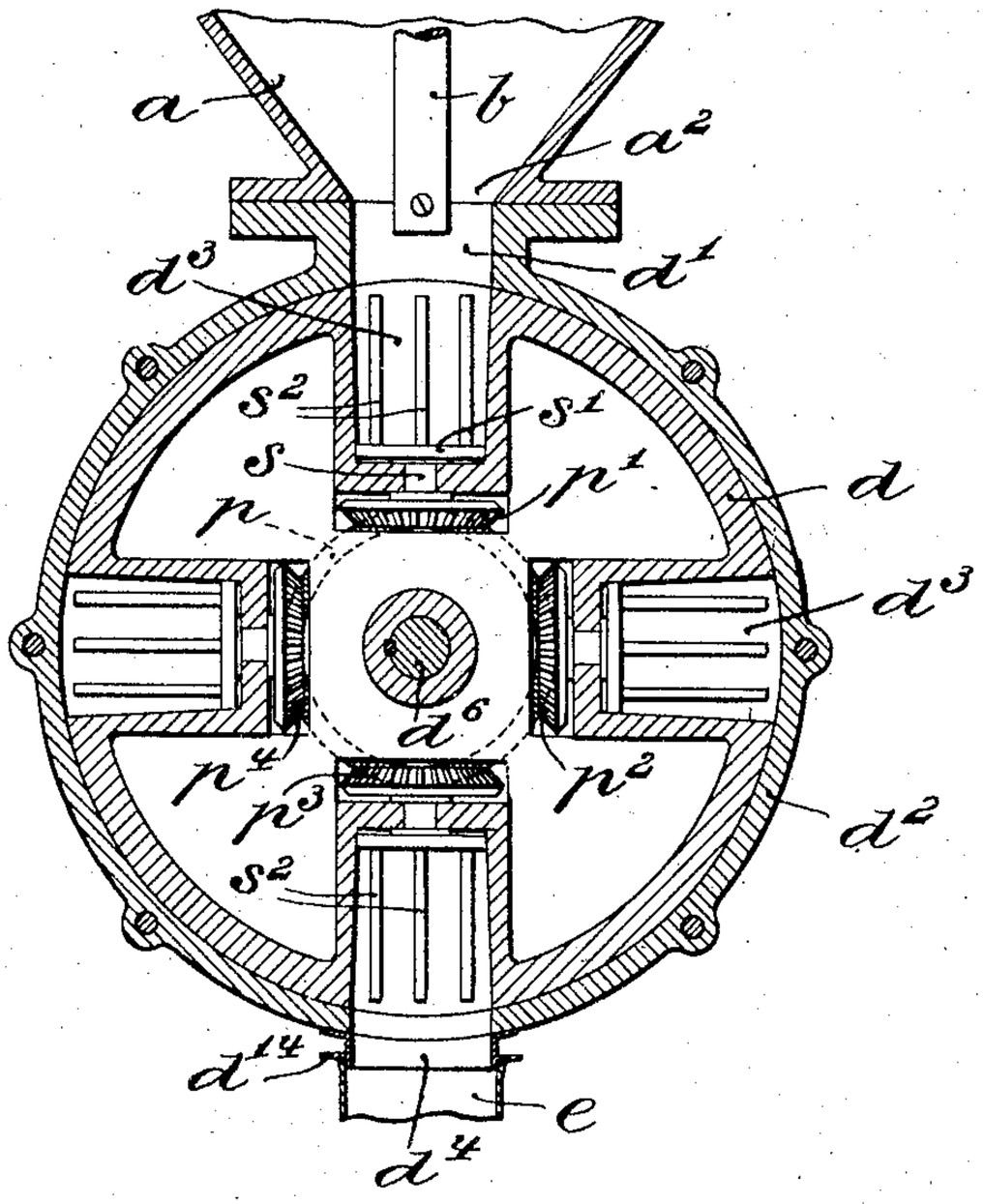
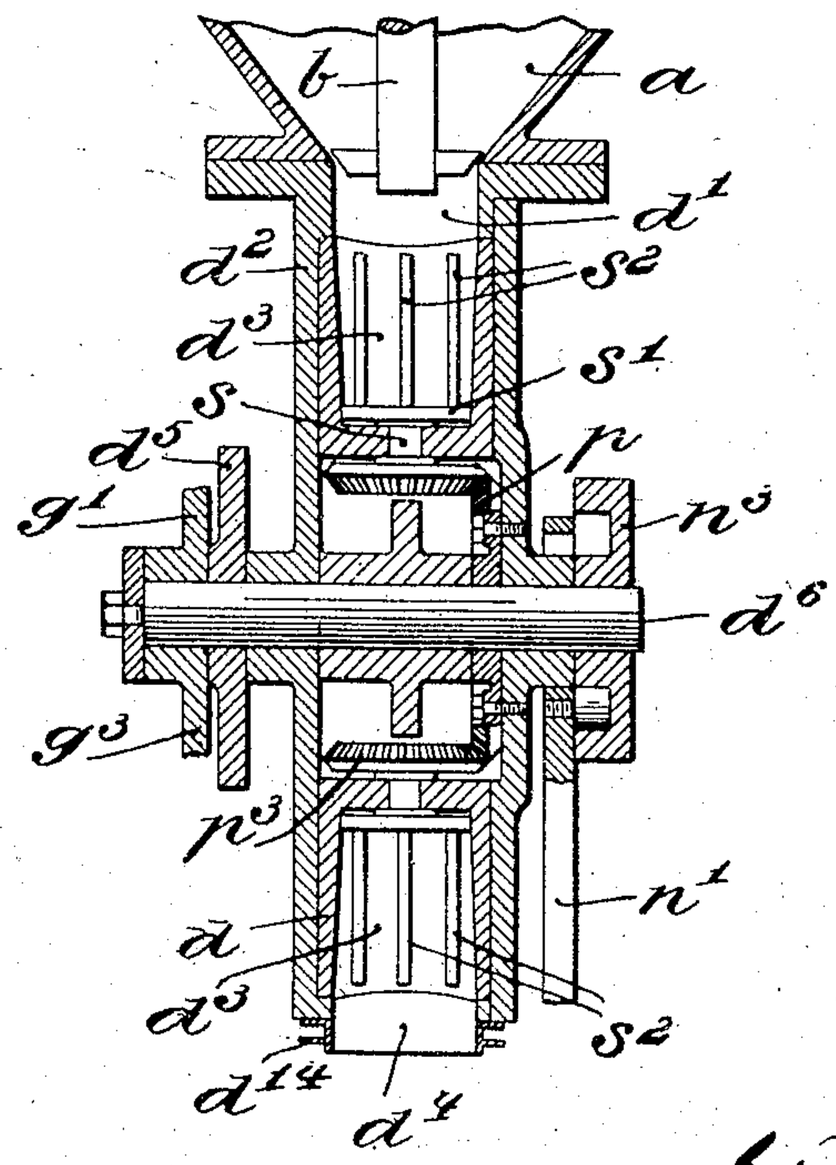


Fig. 8.



Witnesses:

Jas. C. Wobensmith.

Wilhelm Vogt

Inventor:

Edward M. Lockwood Jr.

By J. Walter Douglass

Attorney.

No. 780,757. Patented January 24, 1905.

UNITED STATES PATENT OFFICE.

EDWARD M. LOCKWOOD, JR., OF OAKLYN, NEW JERSEY, ASSIGNOR OF ONE-HALF TO REUBEN D. WIRT, OF PHILADELPHIA, PENNSYLVANIA.

CAN-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 780,757, dated January 24, 1905.

Application filed April 29, 1904. Serial No. 205,476.

To all whom it may concern:

Be it known that I, EDWARD M. LOCKWOOD, Jr., a citizen of the United States, residing at Oaklyn, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Can-Filling Machines, of which the following is a specification.

My invention has relation to a machine for filling cans with predetermined quantities of material; and in such connection it relates to the construction and arrangement of such a machine.

The principal objects of my invention are, first, to provide in a can-filling machine, in conjunction with a hopper for containing the material in mass and a conveyer whereon the cans are supported, a measuring-wheel arranged to be operated synchronously with the movement of the conveyer and arranged between the hopper and conveyer, so as to properly receive a determined quantity of material from the hopper and to discharge the same into a can on said conveyer; second, to provide, in conjunction with the hopper, the conveyer, and the measuring-wheel coöperating as above described, a mechanism for lifting a can and the portion of the conveyer supporting said can into close proximity to the discharge from the measuring-wheel during the discharge of the material to prevent accidental spilling of said material; and, third, to provide, in conjunction with the measuring-wheel having a series of chambers, of mechanism located within each chamber and arranged to stir the contents of the chamber during the travel of the chamber from the hopper to the can.

The nature and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which--

Figure 1 is a vertical sectional view of a can-filling machine embodying main features of my invention. Fig. 2 is a side elevational view of the same, partly in section. Fig. 3 is a face view of the mechanism for rotating the measuring-wheel with a step-by-step movement. Fig. 4 is a cross-sectional view of the measuring-wheel of the machine. Fig. 5 is a detail of the mechanism for locking the measuring-wheel at the end of each prescribed movement. Fig. 6 is a detail of the cam removed from the machine controlling the lifting of a can and the conveyer toward the discharge-outlet for the measuring-wheel. Fig. 7 is a vertical sectional view of a modified form of measuring-wheel wherein the chambers are each provided with a mechanism for stirring the material in the chamber, and Fig. 8 is a cross-sectional view of Fig. 7.

Referring to the drawings, a represents a hopper for the reception of the material to be canned, and b represents a shaft traversing the hopper a and provided with blades b' for the purpose of stirring, mixing, or agitating the materials in said hopper. The upper end of the hopper a is closed by a removable lid a' or other suitable closure, and the lower end or discharge-neck a^2 registers with an opening d' of a shell or casing d^2. Within this shell or casing d^2 rotates a measuring-wheel d, having a plurality of chambers d^3 of predetermined size, each adapted to measure the amount of material to be placed in a can e. The chambers d^3 are arranged radially around the wheel d, and as the wheel d is rotated, as hereinafter described, a chamber d^3 will be upended periodically and will register with the outlet-opening d^4 in the shell d^2 to discharge its contents through said opening. Arranged in alinement with the discharge-opening d^4 is a conveyer f of preferably endless-belt form. The base of the conveyer is formed, preferably, of a sprocket-chain f', and upon this chain is mounted a series of platforms f^2, upon which the cans e are placed and by which they are supported during the filling operation.

The mechanism for driving the measuring-wheel d with a step-by-step motion necessary in the manipulation of the machine is arranged, preferably, as follows: A ratchet-disk d^5 is secured to the shaft d^6 of the wheel d on preferably the outside of the casing d^2. A pawl g, carried by an arm g', is forced under tension of the spring g^2 upon the periphery of the disk d^5 and when moved by the arm g'

in one direction is adapted to enter one of the notches d^7 of said disk to advance the disk one step. The arm g' is loosely supported upon the shaft d^6 and is oscillated thereon by a crank-arm g^3 when said crank-arm is oscillated by a link g^4, connecting the crank-arm g^3 eccentrically with a disk g^5. The disk g^5 has a shaft g^6 rotating in a bearing or bracket d^7, projecting from the casing d^2, and the shaft g^6 and disk g^5 are arranged to be rotated by the pulley g^7 by means of belting. (Not shown.) In order that the movement of the measuring-wheel d may be synchronous with the movement of the conveyer f, upon which the cans e are supported, the shaft g^6 is provided with a second disk h, to which is eccentrically pivoted one end of a link h', connected at its other end with a crank-arm h^2, arranged to oscillate upon a shaft h^3, carrying the sprocket-driving wheel f^3. The crank-arm h^2 carries an arm h^4, carrying a pawl h^5, adapted under spring tension to bear upon the notched periphery of a disk h^6, secured to the shaft h^3 of the driving-wheel f^3. When now the mechanism is set in motion by the rotation of the shaft g^6, the measuring-wheel d is advanced step by step by its pawl and ratchet, and a corresponding step-by-step movement to the conveyer f is imparted by said shaft g^6 through the pawl h^5 and ratchet-disk h^6.

To prevent the measuring-wheel d from traveling too far when moved by the pawl-and-ratchet mechanism, a spring-pressed pin m (see Fig. 5) is arranged in the casing d^2 and is adapted at intervals to enter a recess m' in the face of the wheel d to stop the movement of said wheel d. In order that the open end of a can e may come fully into alinement with the discharge-outlet d^4 of the casing, and thereby prevent spilling of the material during the passage of the material from a chamber d^3 through said outlet d^4 into the can e, the following mechanism is provided: That portion of the conveyer f directly below the outlet d^4 travels over a bracket n, and this bracket n is connected by a standard n' with a roller n^2, entering a cam-disk n^3, located on the shaft g^6 of the wheel d. The cam-faces on the interior of this disk n^3 are so arranged that at proper intervals of time the roller n^2, standard n', and bracket n are raised or lowered. When raised, the bracket n forces the conveyer f, with a platform f^2 and a can e, supported on said platform f^2, upward, so that the open mouth of said can e is tightly pressed upon a flange d^{14} upon the outer edge of the discharge-neck d^4. The chamber d^3 may then discharge into a can e through the neck d^4 without the materials spilling out of the can during the filling operation.

Where the materials to be filled in the cans e are of a sticky or hygroscopic nature, some provision should be made for constantly stirring the materials in the compartments during the travel of the compartments from the hopper to the can. In Figs. 7 and 8 a preferred form of such a stirring mechanism is illustrated. It consists of a miter-gear p, bolted or otherwise fixed to the inner side of the casing d^2. Meshing with this stationary gear p is a series of gears p' p^2 p^3 p^4, each of which is keyed to a shaft s, entering a compartment d^3 and rotating in said compartment. Each shaft s supports a bracket s', rotating within the compartment and carrying fingers or prongs s^2, penetrating the materials in said compartment. As the measuring-wheel d revolves within the casing d^2 the miter-gears p' p^2, &c., are rotated by revolving about the stationary miter-gear p, and the rotary movement of the gears p' p^2, &c., is transmitted through the shafts p and brackets s' to the fingers or prongs s^2, which serve to stir or agitate the materials in the compartments during the movement of each compartment from the hopper to a can.

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

1. In a machine of the character described, a hopper having a discharge end, a shaft and stirring-blades arranged within the hopper, a measuring-wheel having a series of compartments and arranged adjacent to the discharge from the hopper, a pawl-and-ratchet mechanism arranged to rotate said wheel with a step-by-step movement, a discharge-neck communicating with successive compartments of said wheel, an endless conveyer supporting the cans and arranged in alinement with the discharge-neck, a pawl-and-ratchet mechanism arranged to move the conveyer with a step-by-step movement, and a power-shaft and intermediate mechanisms arranged to drive the measuring-wheel and conveyer synchronously.

2. In a machine of the character described, a measuring-wheel having a series of compartments, a casing surrounding the wheel, a discharge-neck in said casing arranged to register with successive chambers of the wheel, an endless conveyer for the cans arranged below the discharge-neck, a shaft for said wheel, a driving-sprocket for said conveyer, a power-shaft, intermediate mechanisms controlled by said power-shaft and arranged to rotate the measuring-wheel and to drive the sprocket in synchronism with step-by-step movements, a cam arranged on the measuring-wheel shaft, a standard arranged to be raised and lowered by said cam, and a bracket arranged below the conveyer in alinement with the discharge-neck, said bracket carried by said standard, all arranged so that the cam elevates the bracket and conveyer at intervals in synchronism with the rotation of the measuring-wheel.

3. In a machine of the character described, a measuring-wheel having a series of compartments, a hopper arranged to discharge into

each compartment successively, means for rotating said measuring-wheel, and mechanism in each compartment arranged to stir the contents of said compartments, and means controlled by the rotation of said wheel and arranged to rotate said stirring mechanism.

4. In a machine of the character described, a measuring-wheel having a series of compartments, a shaft entering each compartment, a series of stirring-fingers carried by each shaft and entering said compartments, means for rotating said measuring-wheel and means controlled by the rotation of said wheel and arranged to rotate said shafts and fingers.

5. In a machine of the character described, a measuring-wheel having a series of compartments, a casing inclosing said wheel, a stationary gear-wheel arranged within the casing, a series of shafts each entering a compartment, a gear-wheel for each shaft arranged to mesh with the stationary gear-wheel, means for rotating the measuring-wheel to cause the gear-wheels of the shafts to revolve around the stationary gear-wheel, and stirring-fingers traversing each chamber and carried by the respective shafts.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

EDWARD M. LOCKWOOD, JR.

Witnesses:
J. WALTER DOUGLASS,
THOMAS M. SMITH.