(No Model.)

Z. W. STURTEVANT.

MACHINE FOR MEASURING PILLS.

No. 590,635. Patented Sept. 28, 1897.

Fig. 5.

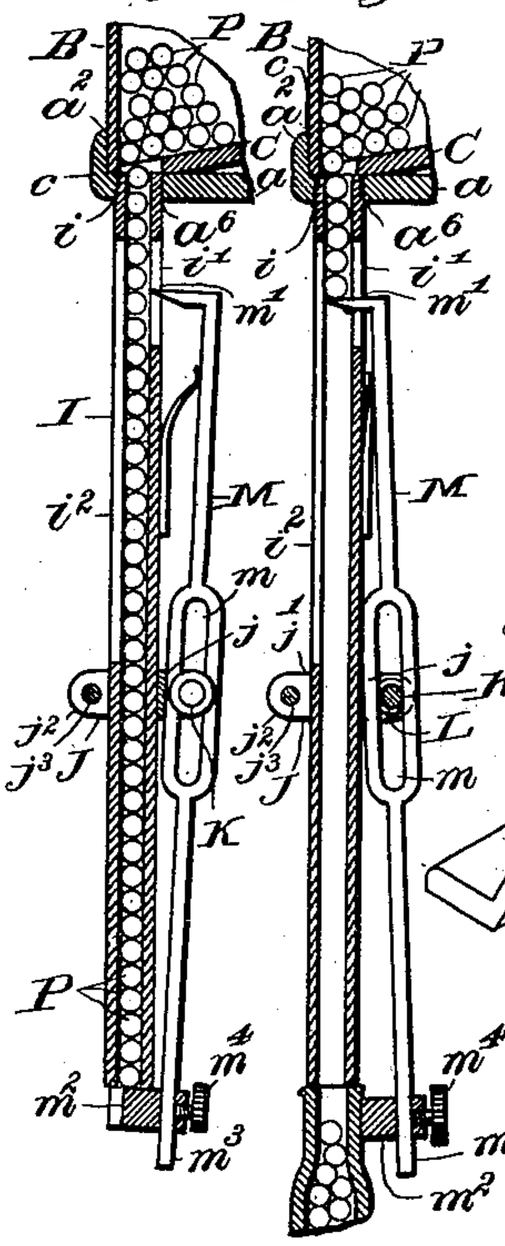


Fig. 6.

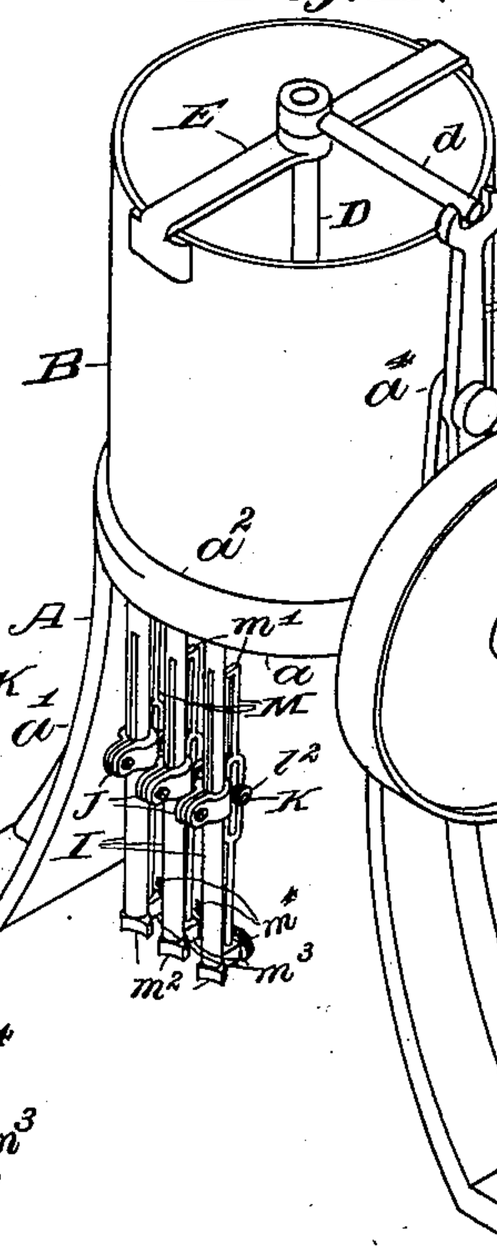


Fig. 1.

Fig. 7.

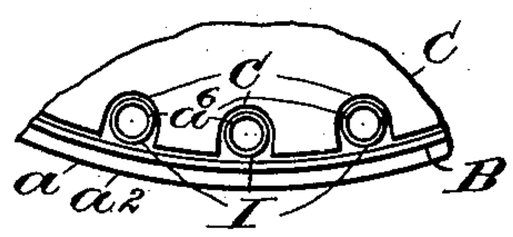


Fig. 8.

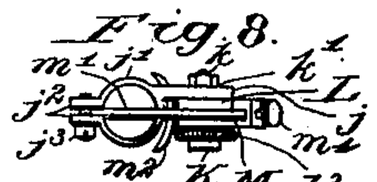


Fig. 9.

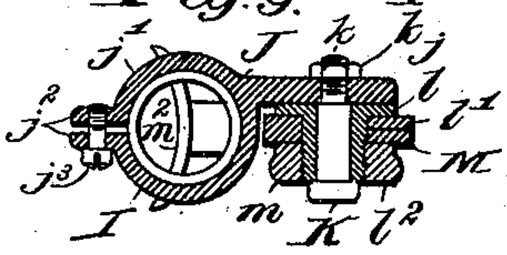


Fig. 10.

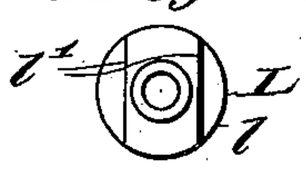


Fig. 2.

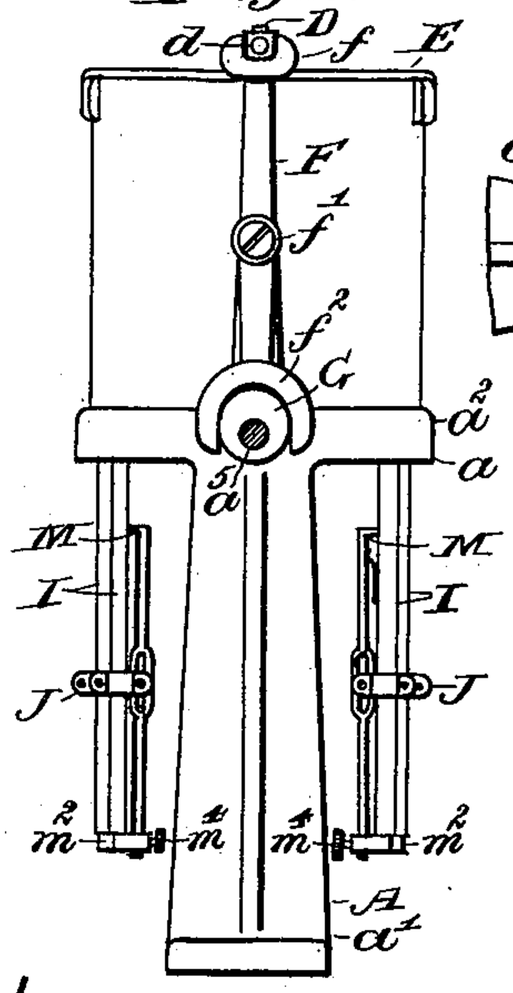


Fig. 4.

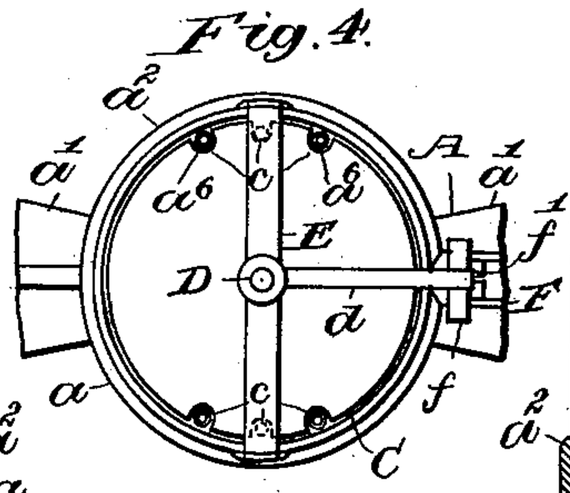
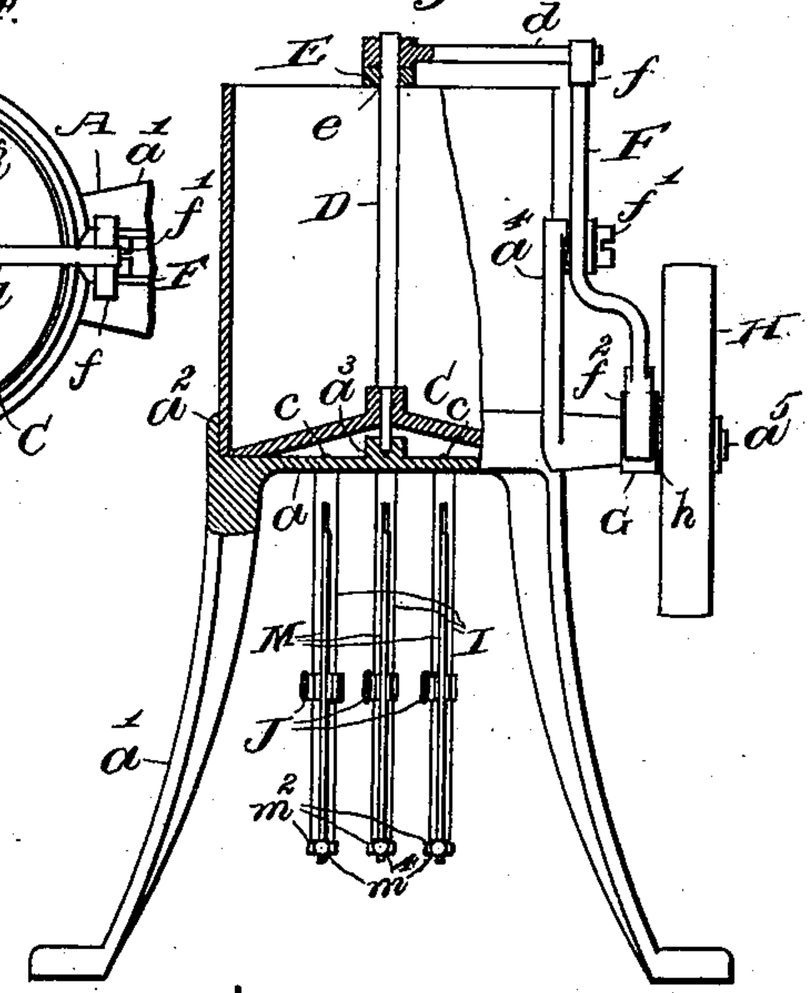


Fig. 3.



Witnesses—
Kirkley & Hyde.
Otis A. Merrill.

Inventor—
Zophar W. Sturtevant,
By Albert M. Moore,
His Attorney

UNITED STATES PATENT OFFICE.

ZOPHAR W. STURTEVANT, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO CHARLES I. HOOD, OF SAME PLACE.

MACHINE FOR MEASURING PILLS.

SPECIFICATION forming part of Letters Patent No. 590,635, dated September 28, 1897.

Application filed August 3, 1894. Serial No. 519,394. (No model.)

To all whom it may concern:

Be it known that I, ZOPHAR W. STURTEVANT, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Machines for Measuring Pills and Similar Articles, of which the following is a specification.

My invention relates to machines for measuring pills and similar articles, as capsulated medicines; and it consists in the devices and combinations hereinafter described and claimed, the object of the invention being to measure out, without the necessity of counting, a definite number of pills or other articles into a bottle, box, or other receptacle.

In the accompanying drawings, Figure 1 is an isometric perspective view of a machine constructed according to my invention; Fig. 2, a side elevation of the same, omitting the driving-pulley; Fig. 3, a front elevation of the same, the hopper and a part of the frame being in vertical central section; Fig. 4, a plan of said machine, omitting the cam, driving-pulley, and a part of the legs of the frame; Fig. 5, a vertical central section of the discharge-tube, the adjacent part of the hopper, lower valve, and fulcrum-clip, showing the valve-lever and upper valve in side elevation and pills in the hopper and discharge-tube, showing the upper valve open and the lower valve closed; Fig. 6, like Fig. 5, except that the upper valve is closed and the lower valve is held open by the neck of a bottle pressed against said lower valve, the bottle being represented in central section and filled with pills and the discharge-tube below the upper valve being empty; Fig. 7, a plan of a part of the hopper, showing the false hopper-bottom and the discharge-holes; Fig. 8, a horizontal section of the discharge-tube on the line 8 8 in Fig. 6, showing in plan the valves, valve-lever, and fulcrum-clip; Fig. 9, a horizontal section on the line 9 9 in Fig. 5 of the discharge-tubes, fulcrum-clip, valve-lever, hollow lever-bearing screw and its nut, and a plan of the fulcrum-stud and its nut; Fig. 10, an elevation of the point or smaller end of the bearing-screw.

The frame A is represented as a circle a, supported upon stout legs a' a', which rest upon the floor. Within an annular flange a^2 on the circle a is held a vertical hollow cylinder B, provided with a false bottom C, convex on its upper surface and having at its edge discharge-holes c, each large enough to allow pills P or similar articles contained in the hopper to pass singly through said false bottom. The false bottom C is secured to a central vertical spindle D, the lower end of which turns in a vertical socket a^3, cast or otherwise centrally secured on the top of the circle a, while the upper end of said spindle turns in a hole e in a cross-piece E, secured to the top of the cylinder B, and is provided with a rigid horizontal arm d, the free end of which enters a fork f at the upper end of a lever F, pivoted at f' on a stand a^4, cast or otherwise secured on the frame A. The lower end of the lever F is forked at f^2 and straddles an eccentric G, fast on the hub h of the driving-pulley H, said eccentric and pulley turning on a stud a^5, secured to the frame A.

The pulley H, when driven by a belt from any usual motor, will obviously cause a reciprocating rotary movement of the false bottom C, keeping the contents of the cylinder from packing together and causing the remaining contents to descend in the cylinder as the lower portion of said contents is removed, as hereinafter described.

The circle is provided with perforations a^6, arranged at the same distance from the center of said circle as the holes c in the false bottom. In each perforation a^6 is removably secured a vertical discharge-tube I of a suitable internal diameter to allow a single vertical row of pills P to pass freely down through said tube, said tube I having an externally-screw-threaded upper end i, which enters the correspondingly internally-threaded hole a^6.

A fulcrum-clip J consists of a bracket or arm j, provided with a split ring j', adapted to embrace the discharge-tube and having ears j^2, which are drawn together by a screw j^3 in a well-known manner (sufficiently indicated in Fig. 9) to cause said ring to pinch said tube. It is evident that by loosening the screw j^3 the fulcrum-clip J may be adjusted vertically on the discharge-tube I. A fulcrum-bolt K has a reduced screw-threaded

point k, which passes through the arm j and is retained therein by a nut k'. On the stud K freely turns a hollow screw L, provided with an enlarged head l, Fig. 10, having a central ridge l' on its under surface of a sufficient width to fill the slot m of the valve-lever M and of a thickness not greater than the thickness of said lever M at the sides of said slot m. A nut l^2 turns on the small end of said screw L, causing said valve-lever M to be securely clamped between said head l and said nut l^2, so that said screw L serves as an adjustable hub for said valve-lever, inasmuch as the lever may be moved the length of its slot m on said screw when said nut l^2 is loosened. (See Fig. 9.)

The upper end of the valve-lever is bent at right angles to the body of said lever to form the upper valve m', and when the lever is turned into the position shown in Fig. 6 enters a vertical slot i' and prevents the descent of any pills which may be above said upper valve. To the valve-lever, near the lower end thereof, is secured the lower valve, the same being a block m^2, having a hole m^3, through which said valve-lever passes, said lower valve being held at the desired height on said lever by a set-screw m^4, which turns in said lower valve and thrusts radially against said lever, so that by loosening said screw m^4 said lower valve may be adjusted vertically on said valve-lever. The free end or front end of the valve is concaved, Fig. 9, to approximately fit the neck of a bottle.

The valves are normally held in the positions shown in Fig. 5 (the lower valve below and stopping the lower end of the corresponding discharge-tube and the upper valve open or withdrawn from said tube) by means of a spring m^5, compressed between the upper arm of the valve-lever and the discharge-tube. A vertical sight-slot i^2 in the front side of each discharge-tube enables the operator to see whether the pills are passing through said discharge-tube.

In practice two or more tubes may be arranged at opposite sides of the machine for the use of two operators. Each operator opens the lower valve by pushing the side of a box or the neck of a bottle against the same, Fig. 6, rocking the valve-lever, closing the upper valve simultaneously with the opening of the lower valve, and discharging the pills below the upper valve into said box or bottle. When the bottle is drawn away from the lower valve, the latter closes and the upper valve opens.

By adjusting the fulcrum-clip on the discharge-tube, the valve-lever on the screw L, and the lower valve on the valve-lever the number of pills or other articles delivered at each movement of the valves may be increased or diminished.

I claim as my invention—

The combination of the hopper, provided with a bottom having holes, the false bottom, having a reciprocating rotary motion therein and provided with holes, discharge-tubes leading from the holes of said hopper and each provided with connected upper and lower valves, each adapted to open when the other is being closed, and a spring, to close normally said lower valve, as and for the purpose specified.

In witness whereof I have signed this specification, in the presence of two attesting witnesses, this 31st of July, A. D. 1894.

ZOPHAR W. STURTEVANT.

Witnesses:

ALBERT M. MOORE,

KIRKLEY HYDE.