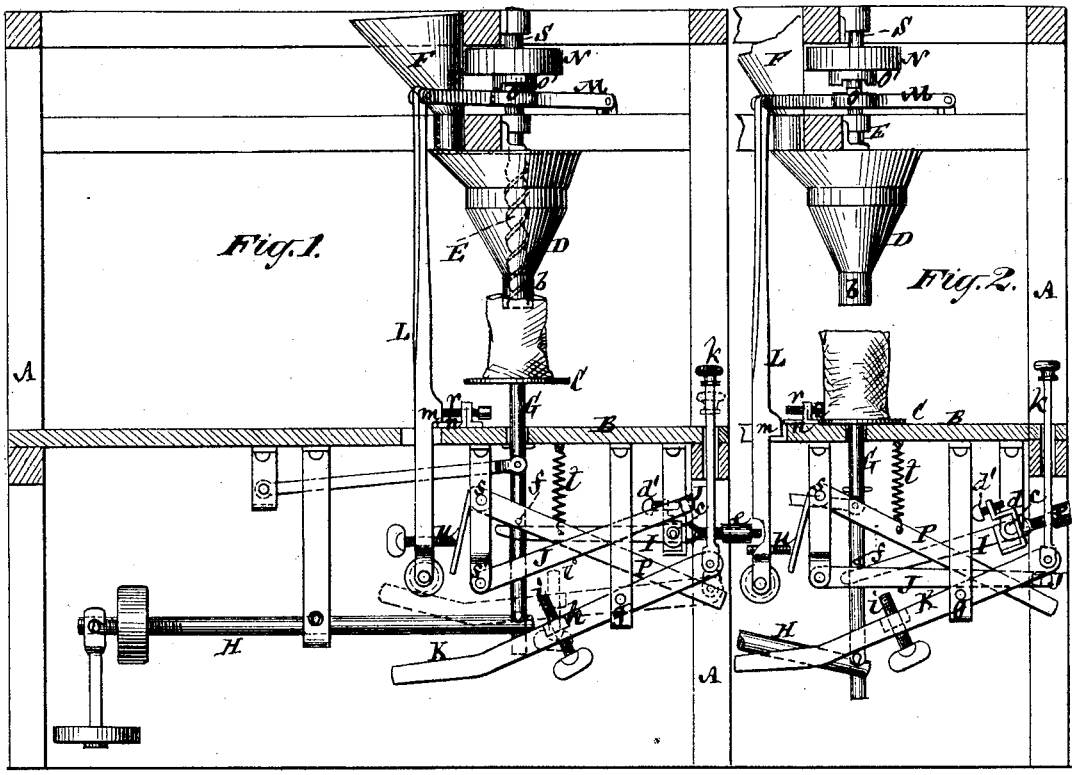
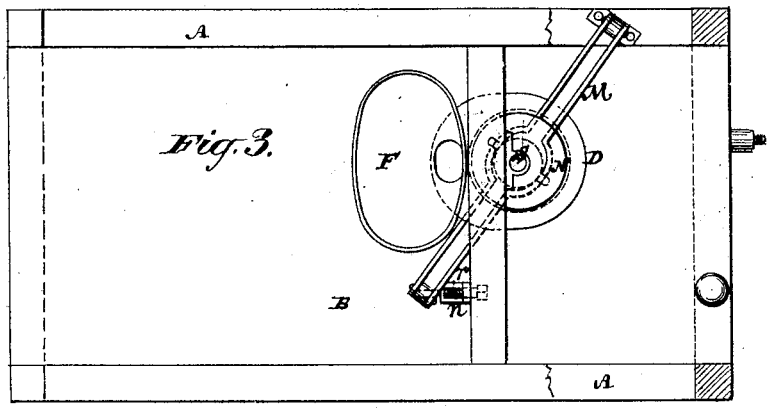
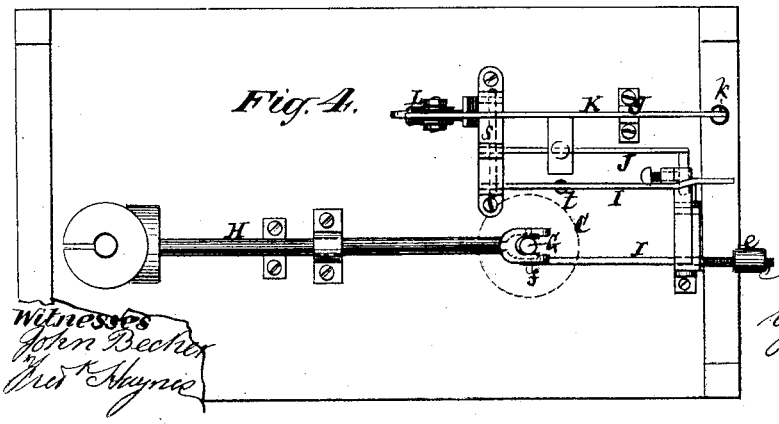
A. STEARNS.

Machine for Filling and Weighing Packages.

No. 219,322. Patented Sept. 2, 1879.







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UNITED STATES PATENT OFFICE.

ALBERT STEARNS, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MACHINES FOR FILLING AND WEIGHING PACKAGES.

Specification forming part of Letters Patent No. **219,322**, dated September 2, 1879; application filed July 19, 1879.

To all whom it may concern:

Be it known that I, ALBERT STEARNS, of the city of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Weighing-Machines, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

This invention more particularly relates to apparatus for measuring out in weighed quantities, within bags, packages, or other suitable receivers, drugs, including bicarbonate of soda and other materials which it is desirable should be put up in a loose state, as distinguished from being hard-packed or jammed.

The invention consists in certain combinations of devices, including a rotating feed-screw within a filling-funnel, and operating, also, as a valve, a weighing-platform, a trigger operated by said platform, a hammer supported by the trigger, a tripping-bar actuated by the hammer, a shifting and tripping rod for controlling a driving-clutch, and a starting-bar for setting the apparatus and putting its feed-screw in motion, substantially as hereinafter described.

In the accompanying drawings, Figures 1 and 2 represent vertical sections of a weighing machine or apparatus constructed in accordance with my invention, and showing the working parts in different positions; Fig. 3, a top view of the same, and Fig. 4 an under view thereof.

A indicates a main frame, which may be of any suitable construction, but is preferably provided with a table or intermediate floor, B. C is a weighing-platform, arranged above the table B and beneath a filling-funnel, D, having a neck, *b*, below, through which the material to be weighed is discharged, and which may serve to receive around it the mouth of a bag or other receptacle for the material as weighed out, said bag or receptacle resting on the platform C.

The filling-funnel D has arranged within it a rotating feed-screw, E, the same passing down within said funnel into the neck *b*. This screw serves to keep the material loose or lively, to tone or regulate its discharge, free from all packing or jamming, and, by its approximately close fit within the neck *b* of the funnel D, to serve as a valve when its motion is stopped, to arrest the discharge of the material.

F is a hopper for feeding the material to be weighed to the funnel D.

The weighing-platform C is mounted on a bar, G, which is free to slide up and down through the table B, and is connected below with a steelyard, H, preferably provided with a removable weight and an adjustable weight to determine as required the weighed quantities of material.

I is a trigger or tripping device, which is mainly in the form of a bar, pivoted at *e*, and which has a tripping-lip or shouldered portion, *d*, and screw *d'*, to provide for catching and supporting a hammer, J, and so that the latter, which works on a pivot, *s'*, may be readily tripped when required. Said trigger, which may be balanced, or nearly so, by means of a weight, *e*, or otherwise, extends beneath a pin or projection, *f*, on the platform-bar G.

K is a starting-bar, pivoted at *g*, and having an arm, *h*, which is provided with a lifting-screw, *i*, that, on hand-pressure being applied to depress a push-rod, *k*, connected with said starting-bar, causes the screw *i* to raise the hammer J and set it on the lip or shouldered portion *d* of the trigger I. The depression of the push-rod *k* also causes the starting-bar K to lift a shifting-rod, L, and move a clutch-lever, M, which puts in clutch gear or connection the shaft S, which carries the feed-screw E, with a driving-pulley, N, running loose on said shaft, said shaft and pulley being fitted, the one with a sliding clutch, O, and the other with a fixed clutch, O'.

The shifting-rod L is not only capable of rising and falling, but also of slight motion in the same horizontal plane as the starting-bar K, and is provided with a step or projection, *m*, which, when the rod L is raised, catches onto or over a tripping rest or shelf, *n*, the lap of the step on the shelf being adjusted by a screw, *r*. P is a tripping-bar, pivoted at *s*, and balanced, or nearly so, by a spring, *t*. This tripping-bar is struck by the hammer J when released from the trigger I, and, as it is moved by the action of the hammer, it strikes a screw, *u*, and shifts the rod L, with its step *m*, from off the shelf *n*.

The operation of the apparatus is as follows: The weights on the steelyard H having been adjusted to correspond with the quantities by weight of the material to be weighed which the bags or packages should contain, and to lift the platform C, the loose pulley N is set in motion by a belt, and a bag or package is then placed upon the platform immediately under or around the neck *b* of the funnel D, and the latter being supplied from the hopper F with the material to be weighed the push-rod *k* is depressed by the hand. This action of the push-rod operates the starting-bar K, and causes its lifting-screw *i* to raise the hammer J onto the tripping-lip *d* of the trigger I, and also causes the starting-bar K to lift the shifting-rod L and put the step or projection *m* of the latter onto the tripping rest or shelf *n*, and likewise to put the sliding clutch O in gear with the pulley-clutch O′. This sets the feed-screw E in motion, and, upon a sufficient weight of material being supplied from the funnel D to the bag or package on the platform C to counterbalance, or slightly more than counterbalance, the weight or weights on the steelyard H, the platform drops, and the pin or projection *f* on the platform-bar G acts upon the trigger I to tilt the latter and to trip or throw from off its lip or shoulder portion the hammer J, which accordingly drops, and in falling strikes the tripping-bar P, that in being depressed acts upon the screw *u* of the shifting-rod L, and throws the step *m* of the latter from off the shelf *n*. The shifting-rod L accordingly drops, and throws the sliding clutch O from out of gear with the clutch O′, and arrests the motion of the feed-screw E, thus stopping all further supply of material to the package.

A weighing-machine constructed and operating as described will measure out, both in small and large weighed quantities, drugs and other materials with accuracy, and without jamming or packing of the material, by simply keeping the hopper F or the funnel D properly charged with material, and pressing on the push-rod *k* to set the machine each time a new package is to be filled.

I claim—

1. The combination of a filling funnel or receptacle, a rotating feed-screw, also acting as a valve within said funnel, a weighing-platform, a trigger operated by said platform, a clutch connecting the rotating feed-screw with a driving pulley or device, and tripping mechanism controlled by the platform and operating the clutch, substantially as specified.

2. The combination, with the platform-bar G, of the trigger I, the hammer J, and the balanced tripping-bar P, essentially as and for the purpose herein set forth.

3. The combination of the starting-bar K with the hammer J and the trigger I, substantially as and for the purpose described.

4. The combination, with a tripping-bar or device controlled by the weighing-platform, of the shifting-rod L, having a step or projection, *m*, the tripping shelf *n*, and the clutches O O′, essentially as and for the purpose described.

5. The combination of the starting-bar K with the shifting-rod L and its tripping shelf *n*, the clutches O O′, the hammer J, the trigger I, and the tripping-bar P, substantially as and for the purposes specified.

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