

(No Model.)

2 Sheets—Sheet 1.

B. SIMONS.
AUTOMATIC WEIGHING MACHINE.

No. 564,946.

Patented July 28, 1896.

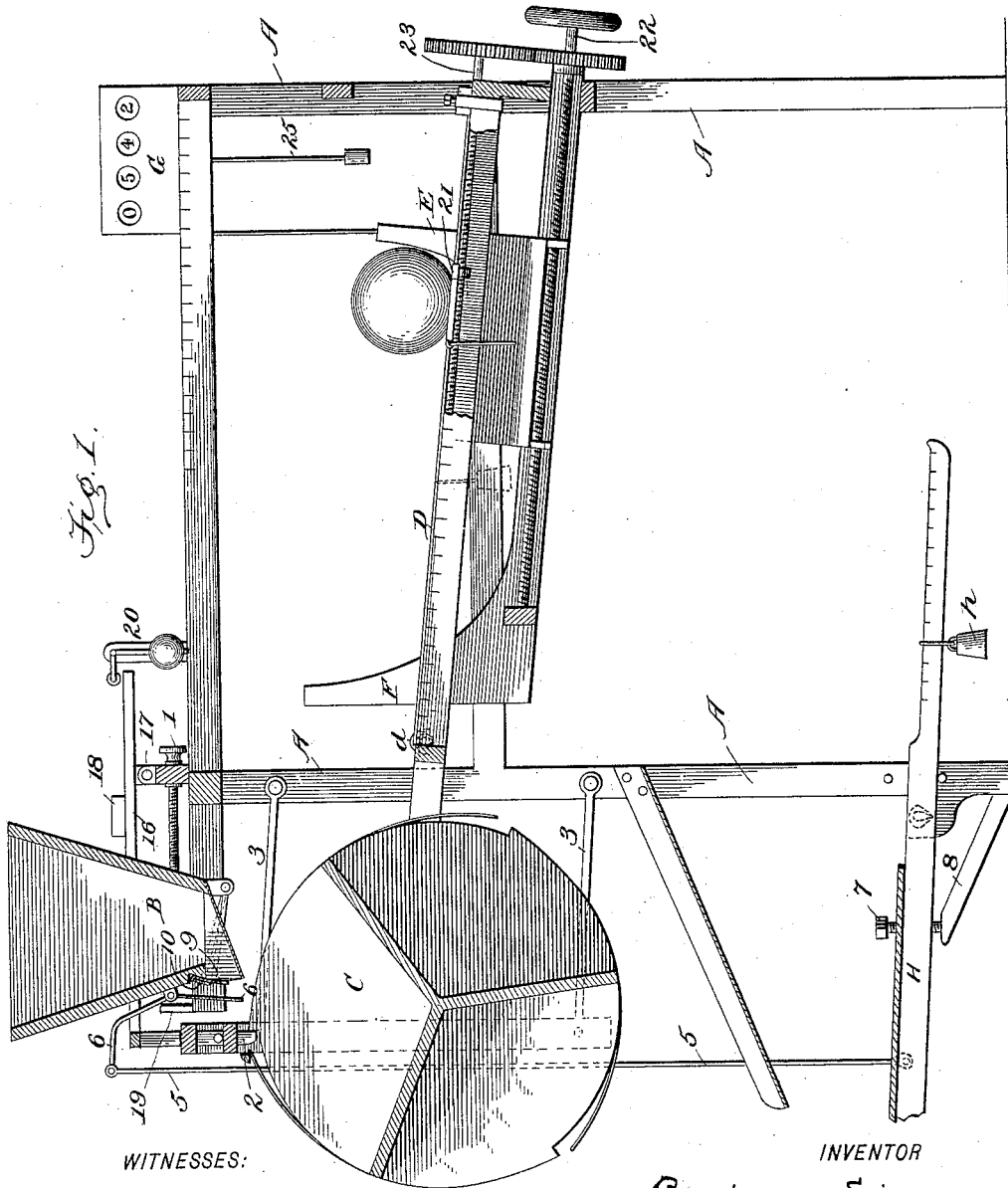


Fig. 1.

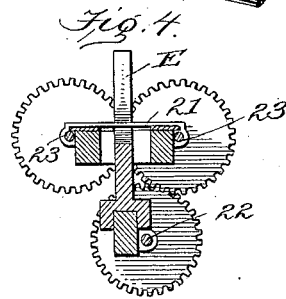
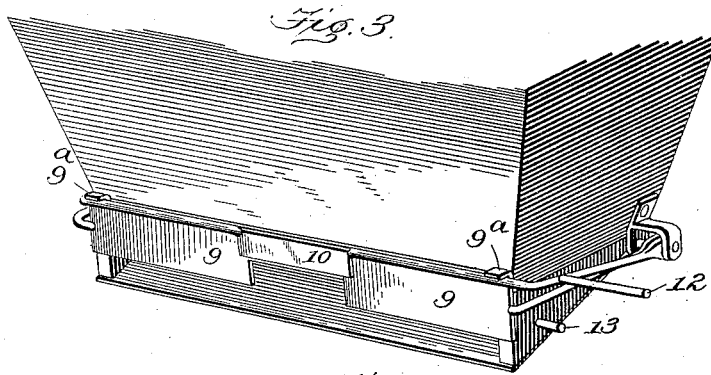
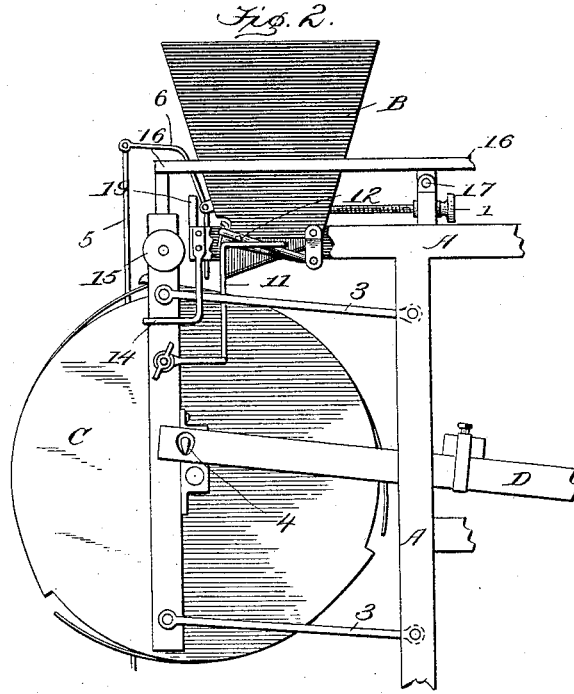
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UNITED STATES PATENT OFFICE.

BENJAMIN SIMONS, OF CHARLESTON, SOUTH CAROLINA.

AUTOMATIC WEIGHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 564,946, dated July 28, 1896.

Application filed July 20, 1895. Serial No. 556,616. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN SIMONS, a citizen of the United States, residing at Charleston, in the county of Charleston and State of South Carolina, have invented certain new and useful Improvements in Automatic Weighing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in automatic weighing-machines of the general character of those described in my Patent No. 494,035, dated March 21, 1893.

The object of the invention is simplicity of construction, convenience of manipulation, and efficiency in operation, and the same consists in the improvements hereinafter described and claimed.

In the drawings forming a part of this specification, Figure 1 is a sectional view showing the arrangement of the operative parts in their relation to the frame or support and to each other. Fig. 2 is a side elevation of the forward part of the machine. Fig. 3 is a broken view showing the front of the feeding-hopper and the throttling and cut-off valves, and Fig. 4 is a section showing the arrangement of screw-rods for adjusting the chock and ball-gage.

A is a suitable main frame for supporting the mechanism.

B is the feed-hopper having a laterally-discharging mouth or throat.

C is a rotating bucket-wheel of the character described in my patent above referred to, which rotates in one direction only.

D is the scale-beam hung on knife-edge pivots *d*.

E is the chock arranged between parallel bars of the scale-beam.

F is a post or stop for the forward movement of a ball-weight, constructed and arranged as described in said former application, and G is a register.

The hopper is adjustable forward and back on the frame by means of set-screw 1, or otherwise, so that the stream of material will be delivered more or less forward of the axis of the bucket-wheel to cause it to tilt and dump the contents when it drops and is released

from its catches 2 2. This is desirable because different materials to be weighed flow with differing degrees of freedom and come to rest within the bucket more or less in front of the pivot of the bucket. If too much in front, the momentum of the bucket-wheel will cause it to thresh and strain the machine. The catches and bucket-wheel are described in my prior patent referred to. The bucket-frame is held to rise and fall in a vertical plane by parallel rods or bars 3 3, and it is supported on the front end of the scale-beam by knife-edge pivots 4 4. By using two bars 3 3 at the extremities of the bucket-frame the shock due to the abrupt stop of the bucket-frame is taken up by said bars and the knife-edge pivots are relieved from strain and shock.

H is a balanced platform or supplemental weighing device provided with a heavy adjustable weight *h*. This device is adjusted to sustain a predetermined weight, the same being a multiple of that carried by the bucket, in the ordinary operation of the machine. When the predetermined weight has been delivered, the platform drops and through rod 5 and vibrating gate 6 the mouth of the hopper is closed and the machine is thus automatically stopped.

When the machine is intended for continuous use, the platform H is kept from movement by means of a screw-threaded stop 7 and supporting-brace 8.

9 is the throttling-valve pivoted to the hopper or frame and swings upward to open and downward to close. The blade or plate of this gate or valve is cut away at its middle part, so that when the gate is closed a stream of about one-third of the width of the mouth of the hopper will pass to the weighing-bucket. This narrow stream slowly finishes the proper load of the bucket after its preliminary motion has taken place.

10 is the cut-off valve, which completely stops the stream from the hopper while the bucket descends to dump its contents. The valve 9 is provided with ledges or lugs 9^a, which catch over the top of valve 10. The valve 10 is lifted by bracket 11 as it comes in contact with arm 12, projecting from the arm of said valve, and as this valve is lifted valve 9 is also raised by reason of its lugs 9^a engaging the frame of valve 10. In closing to

throttle the stream or cut it off, the valves operate by gravity and come to rest on a lug 13, projecting from the bottom of the hopper. The bucket-wheel stop-pins are operated to
 5 release the wheel and permit it to dump through the medium of angular bracket 14, which is adjusted in the range of roller 15, which actuates said stops. The operation is substantially like that described in my pat-
 10 ent before referred to.

16 is a frame pivoted to the main frame at 17, one end of said pivoted frame resting on the bucket-frame. A weight 18 is adjustable backward and forward on this pivoted frame
 15 16, and together they constitute an adjustable counterweight to give the bucket and contents the preliminary downward movement for throttling the stream just before a final load is discharged into the bucket.
 20 When the scale-beam has approximated a horizontal position and the throttle-valve has closed, the frame 16 comes to rest on a thwart-piece or stop 19, and material sufficient to overbalance the main weight drib-
 25 bles slowly from the hopper.

A variable counterpoise 20, connected with the main frame, is arranged in the path of one end of frame 16 to take up the weight of the floating stream as it reaches the surface
 30 of the deposit in the bucket and thus vibrations of the bucket-frame are prevented. The principle of operation is the same as that described in my application, Serial No. 556,412, filed July 18, 1895.

35 The chock E and the ball-gage 21 are simultaneously adjusted backward and forward by means of screws 22 and 23, 23 operating in suitable lugs on the parts named and geared together, as shown. The register G
 40 is operated to tally the number of vibrations

of the scale-beam by means of vertically-reciprocating bar 25, carrying a suitable pawl, the bar being in the range of the scale-beam and operated thereby. The bar is weighted, as shown, to bring it back to normal position
 45 when released by the fall of the scale-beam.

The gear on screw 22 is adjustable back and forth on the screw-rod in a well-known way.

Having now described my invention, what
 I claim is—

1. In a weighing-machine having a balanced platform or frame and a hopper-closing gate, the combination of said platform and gate and means for locking them in inoperative
 55 tive position, substantially as described.

2. In a weighing-machine, the combination of an adjustable counterbalance to start the weighing-bucket before it is loaded arranged above both main frame and bucket-frame,
 60 and a variable pendulous counterpoise also mounted above the main frame, substantially as described.

3. In a weighing-machine having an automatic weight, the combination of a chock, a
 65 weight-gage and means for simultaneously adjusting the chock and weight-gage, substantially as described.

4. In a weighing-machine having an automatic weight, the combination of a chock, a
 70 weight-gage and screw-rods operatively connected with the chock and weight-gage and geared together for simultaneous operation, substantially as described.

In testimony whereof I affix my signature
 75 in presence of two witnesses.

BENJAMIN SIMONS.

Witnesses:

V. D. STOCKBRIDGE,
 HUGH M. STERLING.