

(No Model.)

2 Sheets—Sheet 1.

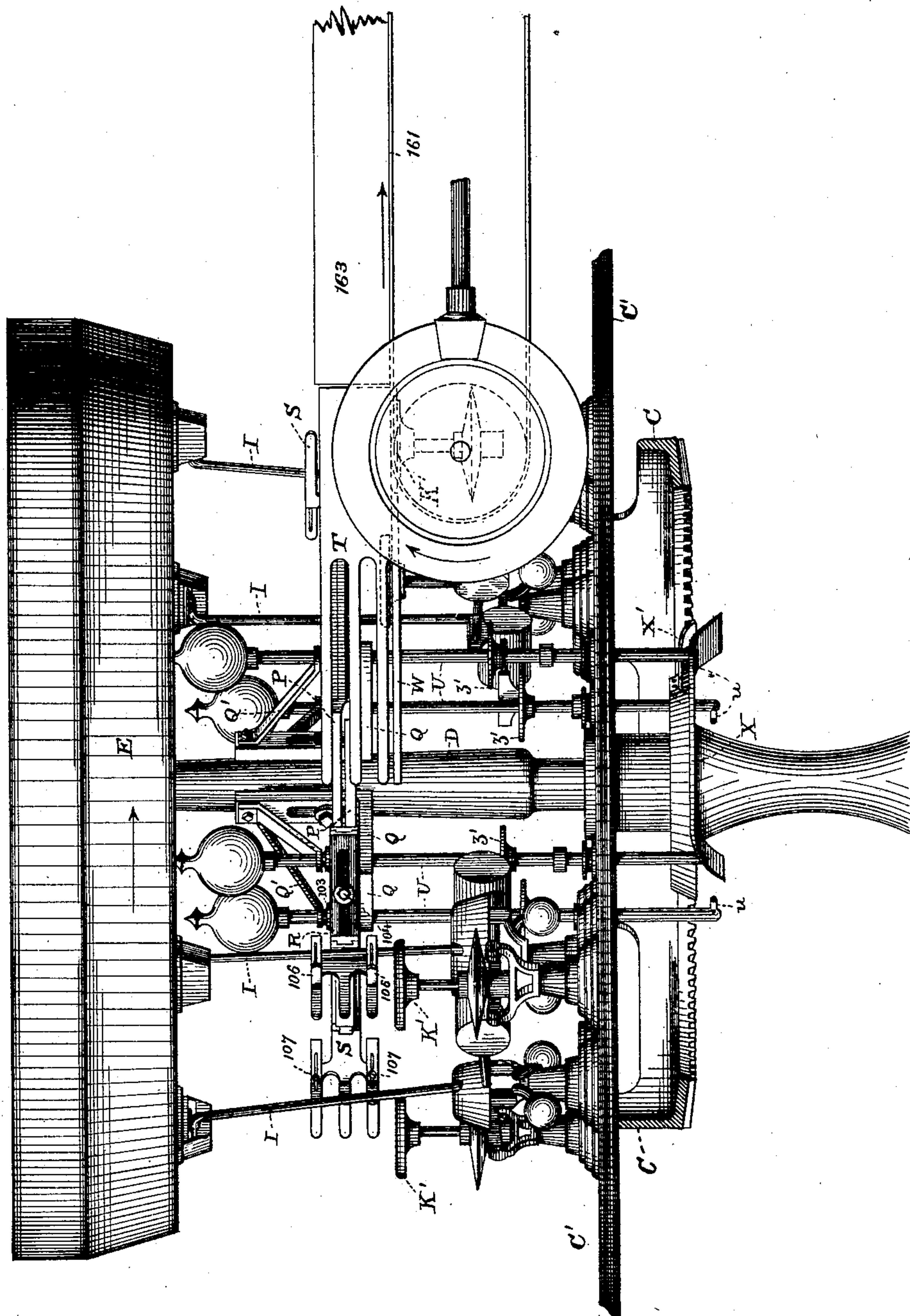
C. C. CLAWSON.

AUTOMATIC WEIGHING AND PACKAGE FILLING MACHINE.

No. 360,513.

Patented Apr. 5, 1887.

Fig. 1.



Witnesses:

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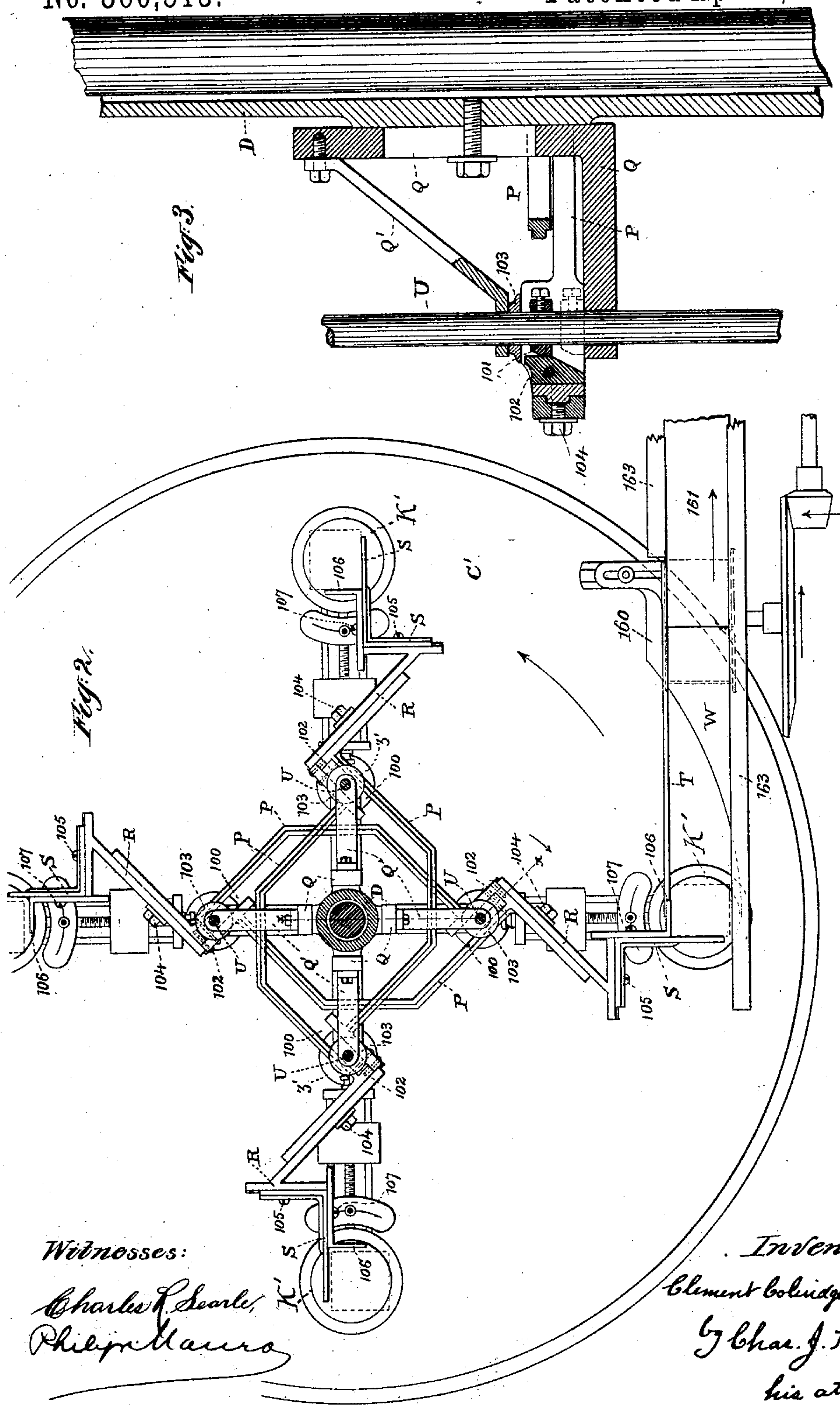
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UNITED STATES PATENT OFFICE

CLEMENT COLERIDGE CLAWSON, OF NEWARK, NEW JERSEY, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE UNITED STATES MACHINE AND INVENTIONS COMPANY, OF NEW YORK.

AUTOMATIC WEIGHING AND PACKAGE-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 360,513, dated April 5, 1887.

Application filed October 28, 1886. Serial No. 217,436. (No model.)

To all whom it may concern:

Be it known that I, CLEMENT COLERIDGE CLAWSON, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Automatic Weighing and Package-Filling Machines, of which the following specification is a full, clear, and exact description.

This invention relates more particularly to those machines for filling boxes or other packing-vessels with material to form packages of a definite weight in which the weighing-scales (having each a plate for supporting the packages) are placed upon a horizontal revolving table, as described and shown in my Patents No. 266,951, dated October 31, 1882, and Nos. 315,729 and 315,730, dated April 14, 1885.

The invention consists in the combination, with such a machine, of a mechanism for automatically removing the full packages from the machine, and in the construction, combination, and arrangement of the parts in said mechanism. By the use of this invention the attendant's duty, besides exercising a general supervision, will be simply to supply the scales with boxes or empty packages. The main features of this mechanism are as follows: (a)

A stationary receiving-plate or some substitute therefor (as a bar or rod, or series of bars or rods, for example) projects over the rotary table obliquely across the path of the packages on the said table, and a corresponding arm or pusher on the rotating table forces the packages along said receiving-plate and off the rotary table. Preferably both the pusher and the receiving-plate have the ends slotted, the fingers between the slots in one being opposite the slots in the other. (b) An outer or guard plate is placed parallel to the first-named plate in such position relatively to the pusher that the packages are delivered between them.

(c) A conveyer receives the packages as they are successively pushed from the rotary table.

(d) Guides or lateral supports are provided on the rotary table for keeping the packages in proper position to be removed therefrom, the pusher itself being preferably utilized as

such support. (e) These guides or supports are reciprocatory, or are combined with mechanical devices for moving the same, in order that they may not touch the packages at such times, as this would be undesirable.

In applying this automatic taking-off mechanism to a weighing-machine, the feature last named enables guides or supports for keeping the packages in proper position on the scale to be fastened to the machine-frame instead of to the scale-pan, and thus the scale may be relieved of a certain amount of wear. If the supports were fixed relatively to the scale-pan, and so remained always in contact with the packages, the friction would interfere with the accuracy of weighing.

The taking-off mechanism, when applied to automatic weighing-machines, is to be placed slightly above the level of the plates on which the packages are placed in weighing.

The following is a detailed description of what is considered the best mode of applying the principle of the invention, reference being had to the accompanying drawings, which form part of this specification, and which represent an automatic weighing and package-filling machine provided, in accordance with the invention, with mechanism for taking off the packages automatically.

Figure 1 is a side elevation; Fig. 2, a partial horizontal section; and Fig. 3, a detail view in section on line *x x*, Fig. 2, looking in the direction of the arrow.

The machine shown, so far as the weighing and package-filling mechanism is concerned, is practically identical with that described in my Letters Patent No. 315,730, and will require only a limited description here.

The rotary table *C* carries the weighing-scales *G*, and the rotary frame *C*, which supports it, supports also the annular hopper *E* through the intermediary of the column *D*. Each weighing-scale has a plate, *K*, on which the package to be filled is placed. The material to fill the package is supplied from the hopper *E* through a delivery-opening in the bottom thereof, and the supply is controlled by a gate at the upper end of the rod *I*, whose lower end is fastened to the scale-beam. When

the scale-plate K' is raised, the gate is open and the material flows. When it descends the gate closes and cuts off the flow.

The sliding rods U, one for each scale, are carried around with the table C', and are raised for a short time once in each revolution by the stationary cam X. When thus raised, the device \mathcal{Z} on each rod upholds the inner end of the scale-beam and keeps the supply-gate closed. During this time the full package is removed and its place supplied with an empty one. The delivery of material then recommences so soon as the cam X allows the rod U to fall. When the rod U is apt to become clogged, a cam, X', is provided to force it down by acting upon the pin u . The pusher-frames P, two in number, rest upon the brackets Q. They cross each other at right angles without touching. Each frame is made in two pieces or castings bolted together, and surrounds the column D. At each end of each frame there is an oblique slot, 100, through which one of the rods U passes, and in which the cam 101, fixed to said rod, is placed. The rods U keep the frames in line, and the cams 101 give an oblique endwise motion to the same. As the rods U are raised the cams act against blocks 102, fastened one in the outer end of each slot 100. The brackets Q' hold the frames down against the upward pressure of the cams 101. The end of each of these brackets partly surrounds the corresponding rod U and bears upon the washer 103.

To each end of each pusher-frame P an oblique-angled bracket, R, is fastened by a tongue and groove and a set-screw, 104. A pusher, S, is similarly fastened to each of these brackets, the set-screw being marked 105. This mode of fastening is adopted in order that the position of the pusher may be adjusted in all directions. The operating part of the pusher is made of considerable depth, so as to have a large bearing on the package, and is slotted. At some distance from the outer end are the bars 106, adjustably secured to the pusher and projecting at right angles therefrom. They are each secured by means of a set-screw, 107, passing through a slot in a foot or flange at the inner end of the bar. These bars 106 and the pusher S form guides or guards for insuring the correct position of the package on the scale-plate K'. The empty package is placed against them when in their outermost position, the rod U at the same end of the pusher-frame having then been lifted by the cam X. After a half-revolution of the table C', however, the rod U at the opposite end of the pusher-frame is lifted, and the pusher-frame is moved in the opposite direction, withdrawing the guides or guards (that is, the bar 106 and pusher S) from the partly-filled package. There is, therefore, no friction to interfere with the accuracy of weighing. After the package is filled the rod U at the same end of the frame is lifted again, bringing the bars 106 and pusher S to their first position. The slots 100 are made

oblique, so that one movement will withdraw or return both of the guides or guards. The receiving-plate T, adjustably attached to the frame 160 of the conveyer and tapping apparatus, like that of my said Patent No. 315,730, projects obliquely over the table C' slightly above the level of scale-plate K' and directly in the path of the pusher S. The end of this receiving-plate is slotted, the slots alternating with those of the pusher, so that as the latter passes by its fingers pass between the fingers of the receiving-plate. At the end of the conveyer nearest the weighing-machine there is a small receiving-table, W, on a level with the plates K'. When these are depressed and in immediate proximity to their path, the edge of the table being in fact curved in order to bring it nearer at all points, the conveyer-belt 161 is placed beyond the receiving-table W, and forms practically a continuation of it. The conveyer is provided with adjustable side plates, 163, as in my said patent. The outermost of these plates is prolonged to and beyond the end of the receiving-table W, and forms a guard to prevent the package being pushed off said table.

As each scale with its package comes opposite the receiving-table W, the package is arrested by the receiving-plate T, and the pusher S, continuing its rotation, forces said package lengthwise of said plate T off the scale-plate K' onto the receiving-table W. When the next package is removed from the scale, it pushes the package ahead onto the conveyer 161.

It will be understood that the motion of the pusher-frames P by the cams 101 on the rods U does not directly assist in the removal of the package, and that the pusher could be fixed to the column D; but in that case the attendant must either be careful not to place the package against the pusher, which it is not easy to do, and yet have the package-mouth always properly under the delivery-opening, or the weighing is apt to be irregular, because of the friction against the pusher. The periodical movement of the frames, as already explained, overcomes the difficulty and increases the practicability of the taking-off attachment.

It is evident that parts of the invention may be used without the others; also, that modifications can be made in details without departing from the spirit of the invention.

I have filed October 18, 1886, three applications for Letters Patent, officially numbered 216,561, 216,562, and 216,563, and marked Case I, II, and III, respectively. So far as any matters of invention common to those and the present application are concerned, the said matters are reserved to those applications or to the appropriate one of them.

Having now explained the principle of the improved machine and the best mode to me known of applying that principle, I claim the following as my invention or discovery, namely:

1. The combination, in an automatic weighing and package-filling machine, with the rotary table, the weighing-scales carried thereby and provided with suitable scale-plates or package-supports, and the means controlled by said scales for delivering a determinate quantity of material to the packages on said scales, of an automatic taking-off mechanism at the level of the scale-plates or package-supports, constructed and arranged to intercept the packages on said plates or supports and to remove the same, substantially as described.

2. The combination, with the rotating pusher having its outer end slotted or provided with a series of fingers, of the receiving-plate projecting obliquely across the path of the pusher and provided with corresponding fingers arranged to alternate with those of the pusher, substantially as described.

3. The combination of the rotary table, a pusher or pushers carried thereby, the receiving-plate extending across the path of said pusher or pushers, and the traveling belt conveyer provided with side plates for supporting the packages thereon, substantially as described.

4. The combination of the receiving-plate with a rotary table, and a pusher and package-guides carried by said table, substantially as described.

5. The combination, with the rotary table, of the pusher and reciprocatory package-guides and the receiving-plate, substantially as described.

6. The combination of the rotating table, the weighing-scales, and the pushers carried by said table, with the receiving-plate projecting over said table beyond the path of the package-supports, so as to intercept the packages thereon, substantially as described.

7. The combination, with a weighing-scale, of a reciprocatory package guide or guard for insuring the correct position of the package on the scale, the movement of said guide or guides leaving said package free in weighing, substantially as described.

8. The combination, with a rotary table and an automatic weighing scale or scales carried by said table, of reciprocatory package-guides for the packages on said scales, substantially as described.

9. The combination, with a rotary table and an automatic weighing scale or scales carried by said table, of a pusher and reciprocatory package-guides, and a receiving-plate, substantially as described.

10. The combination, with the rotating table, the weighing-scales thereon, the sliding rods, and the cam for operating the same, of the pusher-frames, the cams for moving said frames, and package-guides carried by said frames, substantially as described.

11. The combination, with the rotating table, the weighing-scales, the sliding rods, and the cam for moving said rods, of the pusher-frames, the pushers and package-guides, the cams for moving the same, and the receiving-plate, substantially as described.

12. The combination, with the rotating table and the weighing-scales, of the pushers, the receiving-plate, the guard-plate, the receiving-table, and the conveyer, substantially as described.

In testimony whereof I have signed this specification in the presence of two witnesses.

CLEMENT COLERIDGE CLAWSON.

Witnesses:

ALEX. WILEY,
FRED R. STAATS.