

UNITED STATES PATENT OFFICE.

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AUTOMATIC CUT-OFF FOR WEIGHING-SCALES.

SPECIFICATION forming part of Letters Patent No. 790,231, dated May 16, 1905.

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To all whom it may concern:

Be it known that I, CHRISTIAN SUNDBY, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Automatic Cut-Offs for Weighing-Scales; and I do 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.

This invention relates to improvements in cut-off mechanisms for weighing-scales.

The object of the invention is to provide a cut-off mechanism for scales which will be automatically operated by the weight of the goods discharged onto the scale-pan, whereby when the required amount of goods has been deposited on said pan and the same is tipped a cut-off mechanism will be released to cut off the discharge of material onto said scale-pan.

A further object is to provide a device of this character which will be simple, strong, and durable in construction, efficient and reliable in operation, means being provided whereby the weight of the material in the hopper will be removed from the cut-off mechanism, thus permitting the same to freely operate when released.

With these and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter described and claimed.

In the accompanying drawing is illustrated a vertical sectional view of the device, showing the application of the same.

Referring more particularly to the drawing, 1 denotes a hopper which is adapted to contain the material or goods to be weighed. The hopper 1 is provided with a bottom 2, which inclines from the front and rear sides of the same and terminates in a zigzag discharge-spout 3, which forms a tortuous passage through which the material passes before being discharged. Near the lower or discharge end of the spout 3 is arranged a reciprocating cut-off valve 4, the upper edge of which is pivotally connected to one arm of a

bell-crank lever 5, mounted upon the upper side of the spout 3. Near the opposite end of the bell-crank lever 5 is connected one end of a coil-spring 6, the opposite end of which is connected to the bottom of the hopper, as shown. Pivotaly mounted in a bracket 7 on the inner side of the hopper is a detent 8, with which the end of the bell-crank lever 5 is adapted to be engaged to hold the valve 4 in an open position. Arranged on the bottom of the hopper adjacent to the detent 8 is an electromagnet, which when energized will attract the detent 8 and disengage the same from the bell-crank lever 5, thus allowing the spring 6 to actuate the same and close the valve 4. On the lower side of the discharge-spout beneath the valve 4 is arranged a pad 10, preferably formed of a brush construction, said pad being adapted to receive the lower end of the valve when the same is forced or projected to a closed position by the spring 6, this arrangement preventing the valve from forcibly striking upon the goods being discharged from the hopper, and thereby breaking or injuring said goods.

Beneath the discharge-spout 3 is arranged a scale 12, upon which the goods is to be laid. The scale 12 may be of any suitable construction of balance-scale and is here shown as consisting of two pans or receptacles 13 and 14, mounted upon a pivoted beam 15, one of said pans being adapted to receive weights, while the other is arranged beneath the spout 3 to receive the goods discharged therefrom. Arranged upon the base of the scale is one contact-point 16 of an electric circuit, while in juxtaposition therewith and connected to the scale-beam is the other contact-point 17 of the circuit. The opposite ends of the circuit are connected with the electromagnet 9. The electric circuit here shown consists of a battery-circuit, the battery 18 being arranged with a battery-box 19, forming a part of the hopper-support, and is disposed beneath the hopper.

In operation a weight of the required size is placed upon the weight-pan 14, after which the valve 4 is opened and the bell-crank lever 5 engaged with the detent 8 to hold the same

in opened position. The material from the hopper now discharges upon the scale-pan 13 until a quantity equal to the weight on the opposite pan has been discharged, at which
 5 time the weighted end of the scale will be overbalanced, thus bringing the contact-point 17 into engagement with the point 16 and completing the electric circuit, causing the magnet 9 to be energized, which will then
 10 attract the detent 8 and disengage the same from the bell-crank lever, thereby permitting the spring 6 to actuate the same and close the valve 4. The zigzag construction of the discharge-spout 3 will tend to hold back the
 15 weight of the material in the hopper and prevent the same from pressing upon the valve 4 to such an extent as to prevent the same from working easily.

An automatic cut-off device such as hereinbefore described will be found to be advantageous in weighing all materials which will readily pass through a discharge-spout from a hopper or other receptacle and will be found
 20 to be particularly useful in the weighing of large quantities of goods to be put up into packages.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the prin-

ciple or sacrificing any of the advantages of this invention. 35

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

1. In an automatic cut-off for weighing-scales, the combination of a weighing-scale, a hopper having a zigzag discharge-spout, a cut-off valve at the discharge end of said spout, a bell-crank lever connected to said valve, a pivoted detent for holding said lever in position to retain the valve in open position, electrical means whereby the lever is released from the detent to permit the valve to close when a predetermined weight has been fed to the scales, and a spring connected
 40 to the lever and hopper for closing the valve, substantially as described. 45

2. In an automatic cut-off mechanism for weighing-scales, the combination of a hopper having a zigzag spout whereby a tortuous
 50 discharge-passage is formed, a cut-off valve arranged in said spout, a lever and detent whereby said valve is held in an open position, electrical means whereby the same is automatically released, and a spring whereby the
 60 same is closed, substantially as described.

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

CHRISTIAN SUNDBY.

Witnesses:

P. GEO. HANSON,
 OSCAR HANSON.