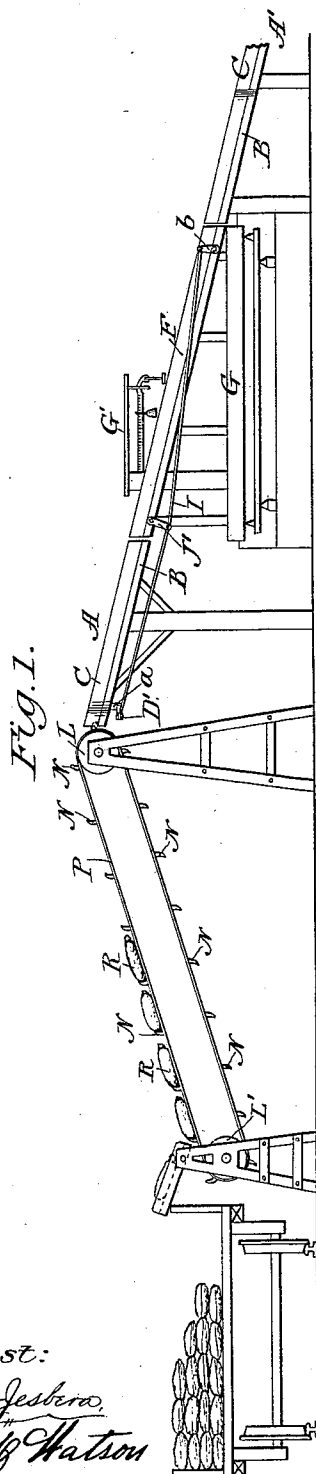


(No Model.)

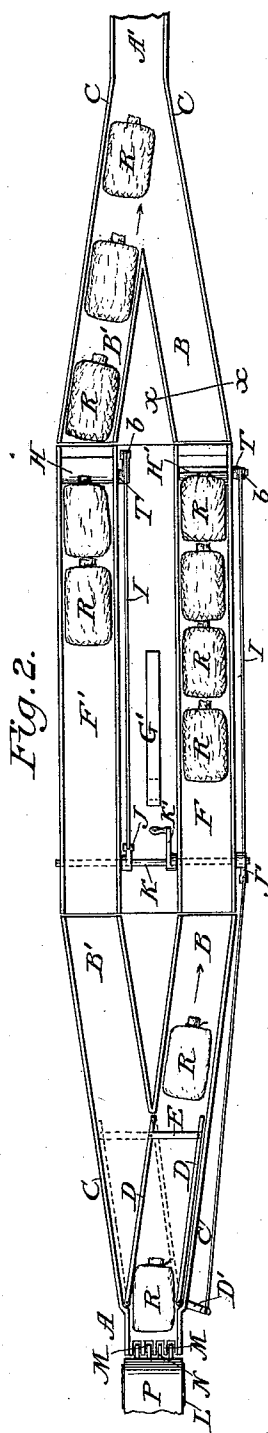
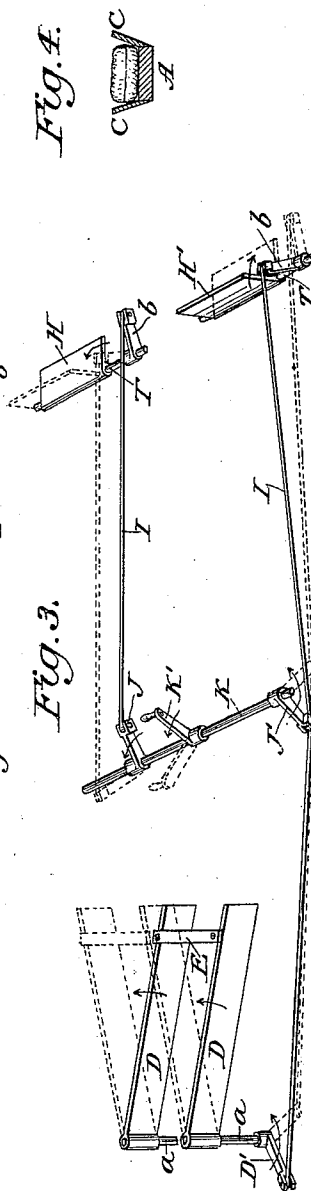
W. E. FERGUSON.
APPARATUS FOR TRANSFERRING, WEIGHING, AND DELIVERING BAGS
OF GRAIN.

No. 405,088.

Patented June 11, 1889.



Attest:
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UNITED STATES PATENT OFFICE.

WILLIAM E. FERGUSON, OF MONTCLAIR, NEW JERSEY.

APPARATUS FOR TRANSFERRING, WEIGHING, AND DELIVERING BAGS OF GRAIN.

SPECIFICATION forming part of Letters Patent No. 405,088, dated June 11, 1889.

Application filed February 13, 1889. Serial No. 299,735. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. FERGUSON, of Montclair, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Transferring, Weighing, and Delivering Bags of Grain and other Similar Packages; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to an improved apparatus for weighing grain in sacks and facilitating its automatic delivery after it has been weighed, and has for its especial object to provide means for the rapid weighing of the sacked grain while in transit without interrupting its continuous transfer or delivery to or from the warehouse; and it consists in the combination and arrangement of devices for effecting this object, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of my improved apparatus for transferring grain in sacks from a railway-car or other vehicle to a place of storage or delivery and for weighing the same in transit without interrupting the continuous delivery thereof. Fig. 2 is a plan view, on an enlarged scale, of the inclined weighing and delivery way. Fig. 3 is a view in perspective of the connected levers, stops, and switch by which the movement of the sacks of grain down the incline and upon the weighing-scales is governed; and Fig. 4 is a transverse section in line *xx* of Fig. 2.

Similar letters indicate like parts in all of the figures.

A A' is an inclined way or chute for the automatic delivery at its lower end of the grain delivered in sacks upon its upper end.

B B' are two branches of said way diverging therefrom and converging thereto in the length thereof, as shown in Fig. 2. These ways are severally formed with side boards C C, as shown in Fig. 4.

D D are switch-plates severally pivoted each upon a vertical pivot *a* at the point of intersection of the outer side board of one of the branch ways with the corresponding side

board of the upper section A of the single way.

E is a cross-bar connecting the lower free ends of the switch-plates, so that they shall move in unison. These switch-plates are of a length to extend from their pivotal axes to the intersection of the inner side boards of the two branch ways, and are adapted to connect, when swung laterally upon their pivots, the side boards of the upper section A of the way with the side board of either of the branch ways, (see Fig. 2,) so as to guide the bags of grain sliding down the upper section onto either of said branches, as desired.

F and F' are parallel sections of the two inclined branch ways, each forming a part of its length, but which are disconnected therefrom to admit of vertical movement. Each of said independent inclined sections is mounted upon a weighing-scale G, which may be of any approved description, and whose details are not shown in the drawings, and is provided with a hinged stop-plate H at its lower end, secured upon a transverse pivotal rod T to admit of being turned therewith, so as to project up across the face of the way, or of being folded down, so as to be flush with the surface, and thereby offer no obstruction to the automatic movement down the way of articles placed thereon.

Each independent section F and F' thus constitutes in effect a weighing-scale having an inclined platform to receive the articles to be weighed, so that they will be discharged automatically therefrom by gravity when the stop H or H' at the lower end of the inclined platform is folded down or removed.

The pivotal rods T T are each provided with a crank-arm *b*, fitted thereto so as to project radially therefrom, preferably in a line parallel, or nearly so, with the stop-plate carried by the rod, and the two rods are severally connected by coupling-links I I with counterpart arms J J' projecting in opposite directions from the rock-shaft K, extending parallel with said rods T T transversely between the weighing-sections F F', as shown in Fig. 2.

The rock-shaft K is oscillated at pleasure by means of a lever K' fitted thereto. By rocking the same one of the stop-plates H' is

turned up and the other H folded down, or vice versa, as illustrated by dotted lines in Fig. 3. The vertical pivot *a* of one of the switch-plates D is also fitted with an arm D' and coupled with the corresponding arm J' on the rock-shaft K, so that the movement of the rock-shaft to turn up either of the stop-plates will operate to turn the switch into connection with the branch way and scale upon which said stop is located, as illustrated in Figs. 2 and 3 of the drawings.

The upper end of the inclined way A A' terminates in a series of fingers M M, in proximity to the periphery of a roller or pair of pulleys L, mounted in a supporting-frame, over which the upper end of an inclined endless carrying band or chain P is carried, the lower end of said band or chain being passed around a second roller or pair of pulleys L', mounted in a suitable frame, as shown in Fig. 1. This endless carrier P is fitted with a series of fingers N N N, adapted to pass between the stationary fingers M M as the carrier moves over the roller or pulleys L; hence in the operation of the apparatus the bags of grain or other articles delivered upon the endless carrier P and carried upward by its movement will be automatically delivered upon the fingers M M, and will automatically slide therefrom down the way A, and, being guided by the switch-rails D D, will pass upon the weighing-section F', whose stop is in position to arrest their movement. So soon as the section F' is loaded and the weight of the load noted—which may be done in the brief interval between the successive delivery of the bags—the attendant, by an oscillation of the shaft K, may turn the switch so as to divert the next bag onto the opposite weighing-section F, and with the same movement bring up the stop-plate at the foot of said section and turn down the stop-plate on the loaded section F', so as to allow the bags thereon which have been weighed to move on down the slide. The weight of the bags or other articles passing down the way may thus be obtained and noted without materially retarding their delivery.

It is evident that various well-known mechanical devices may be substituted for the rock-shaft, arms, and connecting-rods herein described for producing a simultaneous movement of the stops H H' and switch-rails D D.

I claim as my invention—

1. The combination, with an inclined way or chute, of an independent vertically-moving section interposed in the length thereof to form a continuous unbroken extension of said inclined way or chute, a weighing-scale upon which said section is mounted, and a movable stop adjusted at the lower end of the section, substantially in the manner and for the purpose herein set forth.

2. The combination, in an apparatus for weighing bagged grain in the course of its delivery or transfer, of two inclined ways converging and merging at each end into a single way, an independent section introduced in each way to form a continuation thereof, an independent weighing-scale upon which said section is mounted, and a switch at the upper intersection of the branch ways, substantially in the manner and for the purpose herein set forth.

3. The combination, in an apparatus for weighing bagged grain in the course of its delivery or transfer, of two inclined ways converging and merging at each end into a single way, an independent section introduced in each way to form a continuation thereof, an independent weighing-scale upon which said section is mounted, a movable stop at the foot of each section, a transverse rock-shaft actuated by a suitable lever, rods connecting each stop device with arms upon said shaft, whereby when one stop is elevated above the level of its way by an oscillation of the shaft the other stop shall be depressed, and vice versa, a pair of switch-plates pivoted at the upper intersection of the double ways with the single way to connect said single way with either of the others, and a coupling-rod connecting the rock-shaft actuating the stops with said switch-plates, whereby the bars are carried automatically into connection with the way whose stop is elevated, substantially in the manner and for the purpose herein set forth.

4. The combination, substantially as set forth, of an endless elevating-chain, an inclined way extending from its upper end and branching into two parallel ways which merge again into one, movable sections interposed in the branch ways to form a portion of the length thereof, weighing-scales supporting each section, a movable stop at the foot of each of said sections, a switch at the upper intersection of the branch ways to divert the articles sliding down the single way into either branch, and devices, substantially as described, controlling the stops and switch, whereby when the stop at the foot of one of the weighing-sections is depressed the stop on the opposite section will be elevated and the switch turned to divert the descending articles upon said section, in the manner and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WM. E. FERGUSON.

Witnesses:

A. N. JESBERA,
E. M. WATSON.