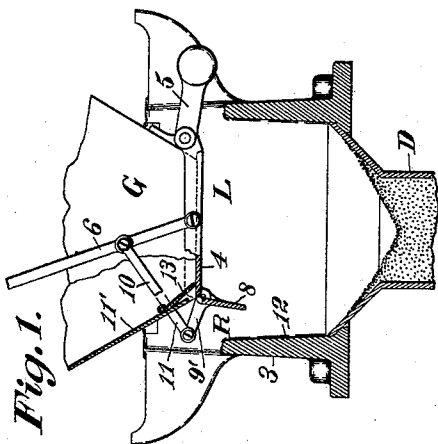
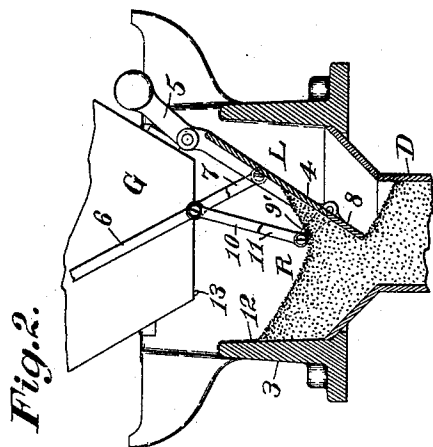


(No Model.)

F. E. THOMPSON.
WEIGHING MACHINE.

No. 568,589.

Patented Sept. 29, 1896.



Witnesses:

Chas. W. King.
Fred. J. Gole

Inventor:

Frank E. Thompson;
By his Attorney,
F. A. Richards.

UNITED STATES PATENT OFFICE.

FRANK E. THOMPSON, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE
PRATT & WHITNEY COMPANY, OF SAME PLACE.

WEIGHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 568,589, dated September 29, 1896.

Application filed April 16, 1896. Serial No. 587,781. (No model.)

To all whom it may concern:

Be it known that I, FRANK E. THOMPSON, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Weighing-Machines, of which the following is a specification.

This invention relates to weighing-machines, and more especially to the bucket-closers thereof, the object being to provide improved means for regulating and controlling the closing movements thereof, so that ample time is insured for the full and complete discharge of the bucket-loads, and the adherence to or picking up of particles by said closers is prevented.

In the drawings accompanying and forming part of this specification, Figure 1 is a left-hand end elevation of part of a weighing-machine embodying my improvements, the chambered supporting-base of the machine being in central vertical section and the bucket-closer also illustrated in section and in its normal or shut position. Fig. 2 is a similar view showing the bucket-closer in its extreme open position. Figs. 3 and 4 are similar views showing the bucket-closer at two successive points as it approaches its normal position.

Like characters designate like parts in all the figures of the drawings.

The present invention is in the nature of an improvement upon the automatic grain-scale shown and described in Letters Patent No. 548,842, granted October 29, 1895, to Francis H. Richards, and for convenience is herein illustrated in connection with a weighing-machine of the type disclosed by Letters Patent No. 548,840, granted to said Richards on the same date, to which Letters Patents reference may be had.

A chambered supporting-base is shown at 3, said base sustaining the various operative mechanisms, including the beam mechanism. (Not shown.)

The lower part of the bucket or load-carrying receptacle of the machine is illustrated and is designated by G, and in practice will be suitably supported by the beam mechanism for ascending and descending movements therewith, intermittently discharging

its bucket-loads into the chamber of the supporting-base 3 from whence they gravitate downward into the communicating discharge conduit or pipe D, the flared mouth of which is suitably secured within said chamber.

The bucket G is shown pivotally supporting on its front wall and adjacent to one side of its discharge outlet or opening the bucket-closer L, which embodies a plate or closer proper, 4, having upturned flanges for preventing lateral escape of the material within the bucket when said closer is in its normal position. The bucket-closer is also shown provided with a counterweighted arm 5, which may be formed integral therewith, the office of which is to return said closer to its normal or shut position, as indicated in Fig. 1.

In connection with the closer-plate the invention embodies a regulator or regulator-blade, the preferred form of which will be hereinafter more fully described, and means for moving said blade into alinement with the closer-plate, so that the effective surface or area of the closer-plate will be correspondingly increased, and so that when said closer is in its open position the pressure of the mass discharged by the bucket will so act against the regulator-blade as to check or retard the return movement of the closer and allow ample time for the full and complete discharge from the bucket of its load and the slipping from the closer of any adhering particles or lumps.

As a means for supporting the bucket-closer in the Letters Patent last mentioned herein an inverted toggle is preferably employed, which comprises a rocker pivotally supported on the bucket and a relatively long connecting-rod pivotally connected with said rocker and to the closer, a depressible latch being employed for engaging the rocker when the closer is in its normal position. On the depression of said latch the rocker and likewise the bucket-closer will be released, so that the weight of the bucket-contents therein may force the closer open for discharging the bucket-load. A second rod on the opposite side of the bucket is also employed, and is also operatively connected with the rocker-shaft, said last-mentioned rod on the opening movement of the closer having a movement

in unison with the toggle member or rod. (Said rocker and latch forming no part of the present invention are not herein illustrated.)

A part of the connecting-rod or toggle member constituting the closer-supporting means, to which reference has been made, is herein illustrated, and is designated by 6, its companion rod being designated by 7 and located at the opposite side of the bucket, these two rods being shown pivotally connected with the bucket-closer. Said rod 7, in practice, will be operatively connected with the rocker-supporting shaft, to which allusion has hereinbefore been made.

The regulator for the closer is designated in a general way by R, and is shown comprising a blade 8 (herein shown as flat) in length approximately equaling the width of the bucket-closer and as pivotally supported at the discharge edge of the latter, so that when shifted into its working or operative position it practically forms a continuation or part of the bucket-closer. The regulator will be preferably connected with the closer-supporting means, the connecting-rods 6 and 7 of which are herein illustrated. Said regulator R, preferably at its extremities, will carry rock-arms 9 and 9', (see Fig. 3,) which are respectively connected with the rods 6 and 7, the connection being such that as the said closer is forced open by the weight of the bucket-contents the regulator thereon will be shifted upward and into alinement with the closer-plate, as illustrated in Fig. 2, the bucket-closer being there shown in its extreme open position.

The connection herein illustrated between the regulator R and the closer-supporting means comprises the connecting-links 10 and 11, which are pivotally connected, respectively, with the rods 6 and 7 and the regulator rock-arms, so that as the closer is forced open the regulator-blade will be moved upward into alinement with the closer-plate by virtue of such connection. The action of these connected parts and the regulator is as follows:

On the opening movement of the closer the discharged mass is thrown against the wall 12 of the base 3. When the bucket has discharged its load, the natural tendency of the bucket-closer L, due to its counterweighted arm 5, is to return to its normal position, but this action will be checked by the discharged mass, which acts against the regulator-blade R with such a pressure that any material on the closer may readily slip therefrom, said closer being disposed at a considerable inclination. As the pressure acting against the regulator-blade R is decreased—due to the downward gravitation of the discharged material from the chamber of the base 3 into the discharge-conduit D—the closer L may slowly close, the regulator-blade being moved downwardly simultaneously and out of alinement therewith, but still in position to be acted upon by the discharged mass, the pres-

sure thereof having been sufficiently decreased to allow a more free movement of the closer. When the closer L has nearly reached its normal position, as indicated in Fig. 4, the regulator R will be disposed in an oblique position relatively thereto, so that any adhering particles may also drop therefrom, and when the upper edge of the discharged mass has passed below the lip of the regulator R it will be obvious that it, and hence the closer, is free of all restraint, and said closer may be shut by its counterweighted arm 5. During the return movement of the closer it will be evident that the regulator R is being moved slowly downward and out of alinement with the closer-plate, so that when said closer has resumed its normal position the regulator-blade will be disposed approximately vertically or at right angles to the closer-plate, and the adherence of any of the discharged material thereto will be prevented.

My present improvements also contemplate the provision of a guard or guard-plate located interiorly of the bucket, and so operative therein as to prevent waste as the supply-stream commences to flow into the empty bucket. Such a guard-plate is illustrated at 13 pivotally supported between the end walls of the bucket and adjacent to the lower edge thereof, and extending slightly below said lower edge. The action of this guard-plate is as follows: On the opening of the bucket-closer to permit the discharge of a bucket-load this guard-plate will, by the impact of the discharging stream, be forced against and into parallelism with the front wall of the bucket. When the closer has nearly reached its normal position, it will strike this pivotally-supported guard-plate 13 and slightly raise the same, and when said closer is shut and locked the guard-plate will drop downward by gravity, forming a tight joint between the lower edge of the wall 11' of the bucket and the closer, and escape of the material and consequent waste thereof at this point is therefore prevented.

It is to be understood that I do not claim, broadly, bucket mechanism embodying a member shiftable for discharging a bucket-load and a regulator-blade movably supported by the shiftable member and so located as to take hold of the mass of material discharged by the bucket, whereby the return movement of the shiftable member will be retarded; nor do I claim, broadly, the combination, with a bucket having a closer, of a blade pivotally supported by said closer adjacent to the discharge edge thereof, as said broad subject-matter is covered in a concurrently-pending application of Francis H. Richards for patent for weighing-machine, filed March 26, 1896, Serial No. 584,958, and is therefore not of my invention.

Having thus described my invention, I claim—

1. The combination with a bucket, of a closer therefor comprising a plate; a blade

supported by said plate; and means for moving said blade into alinement with said plate, whereby it is adapted to take hold of the mass discharged by the bucket, to thereby retard the return movement of said closer.

2. The combination with a bucket, of a closer therefor comprising a plate; a blade pivotally supported at the discharge edge of said plate; and means for moving said blade into alinement with said plate, whereby it is adapted to take hold of the mass discharged by the bucket, to thereby retard the return movement of said closer.

3. The combination with a bucket, of a closer therefor comprising a plate; a blade pivotally supported by said plate; and means for moving said blade into alinement with said plate, whereby it is adapted to take hold of the mass discharged by the bucket, to thereby retard the return movement of said closer.

4. In a weighing-machine, the combination with a bucket having a closer, of means for supporting said closer; a movable blade on the closer; and connections between said blade and the closer-supporting means.

5. In a weighing-machine, the combination with a bucket having a closer, of a rod connected to the same; a blade supported by said closer and provided with a rock-arm; and connections between said rock-arm and rod.

6. In a weighing-machine, the combination with a bucket having a closer, of rods pivotally connected to the closer; a blade pivotally connected thereto at the discharge edge thereof and provided with rock-arms; and links connecting said rock-arms and rods.

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Witnesses:

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