

(No Model.)

2 Sheets—Sheet 1.

E. R. JONES.
WEIGHING MACHINE.

No. 576,583.

Patented Feb. 9, 1897.

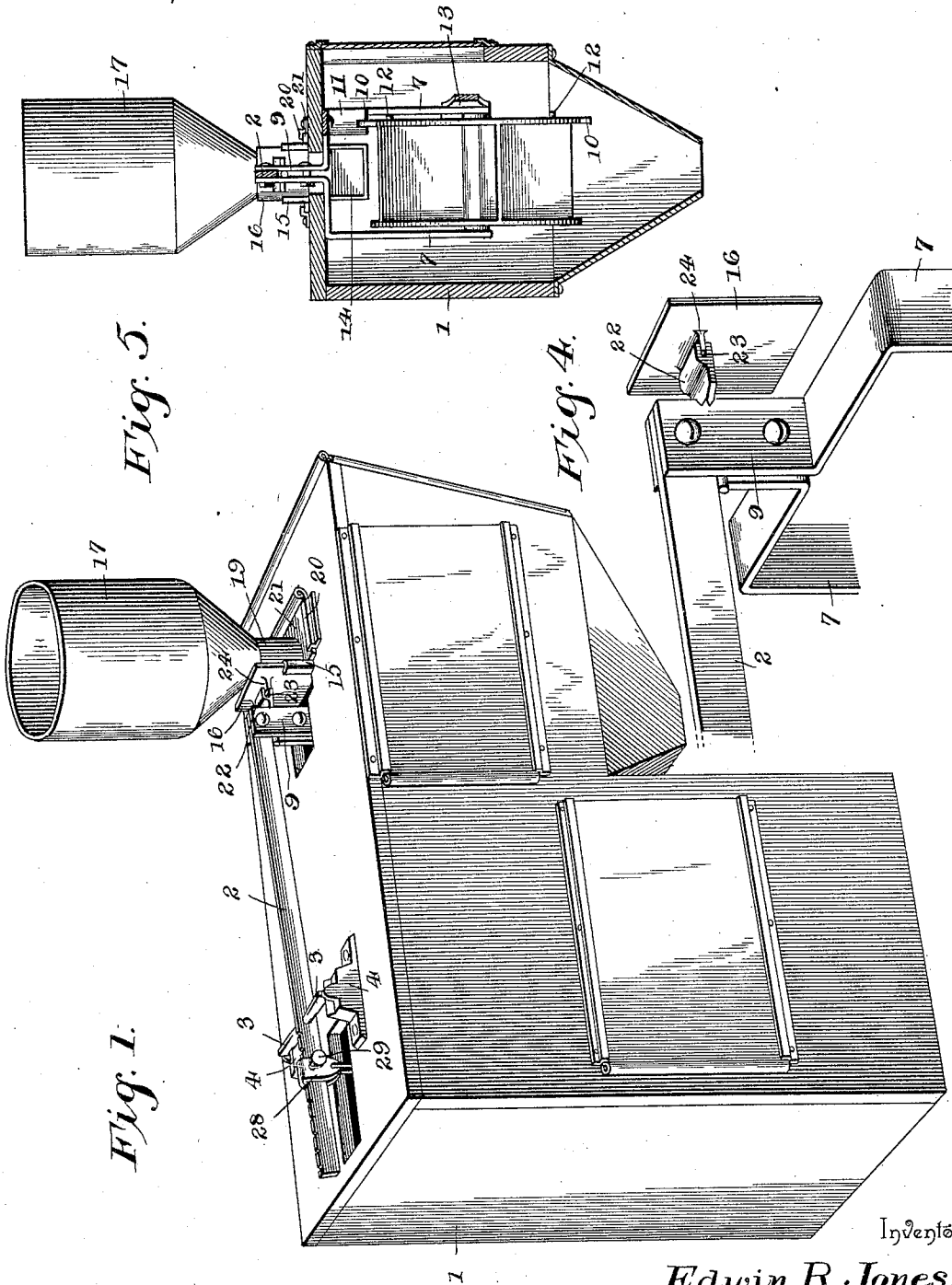


Fig. 5.

Fig. 4.

Fig. 1.

Inventor

Edwin R. Jones,

Witnesses

Chas. A. Ford
[Signature]

By his Attorneys.

C. A. Snow & Co.

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Fig. 3.

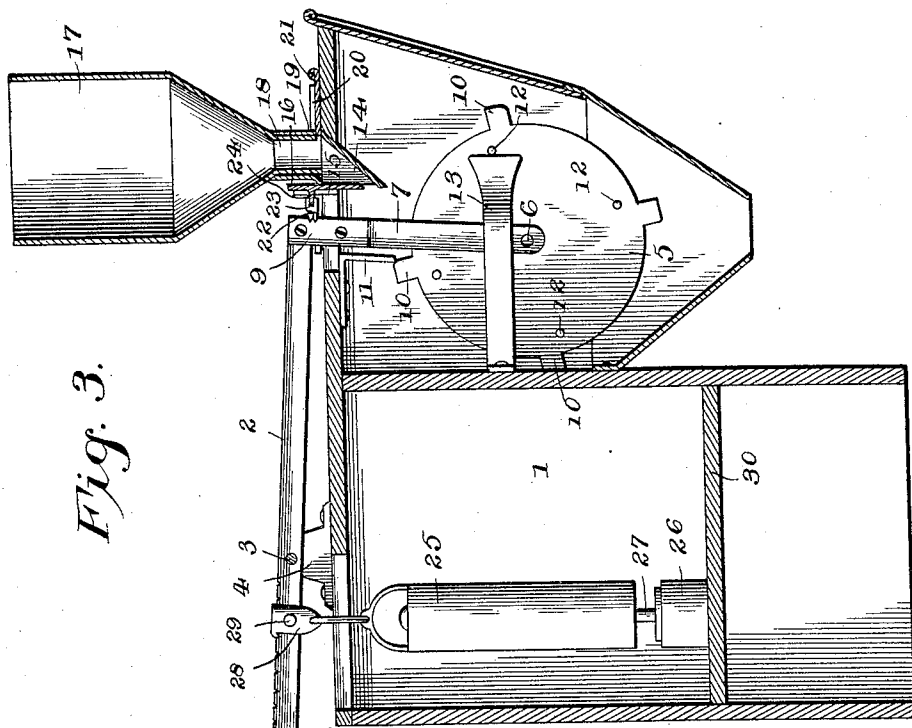
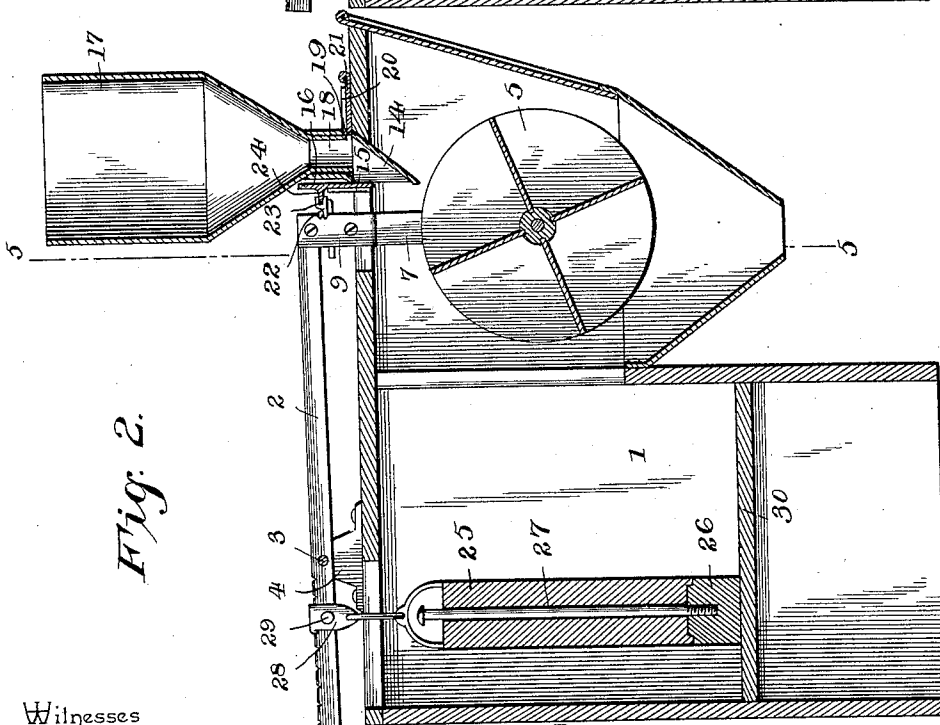


Fig. 2.



Witnesses

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[Signature]

By his Attorneys,

Edwin R. Jones,
Chas. Snow & Co.

Inventor

UNITED STATES PATENT OFFICE.

EDWIN RUTHVEN JONES, OF KINSMAN, OHIO.

WEIGHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 576,583, dated February 9, 1897.

Application filed April 30, 1895. Serial No. 547,678. (No model.)

To all whom it may concern:

Be it known that I, EDWIN RUTHVEN JONES, a citizen of the United States, residing at Kinsman, in the county of Trumbull and State
5 of Ohio, have invented a new and useful Weighing-Machine, of which the following is a specification.

My invention relates to weighing-machines adapted for weighing grain, ground coffee,
10 spices, soda, &c.; and the objects in view are to provide simple and efficient means for regulating the flow of grain from the hopper and controlling the operation of the bucket-wheel.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings, Figure 1 is a perspective
20 view of a weighing-machine constructed in accordance with my invention. Fig. 2 is a longitudinal vertical section of the same, showing the position of the parts at the beginning of the operation of filling a bucket. Fig. 3 is a similar view showing the positions
25 of the parts when, by reason of the weight of the partially-filled bucket, the main weight is elevated from its point of support and the cut-off is partially closed to reduce the rapidity of the flow of the grain. Fig. 4 is a detail
30 view in perspective of the cut-off valve and contiguous parts. Fig. 5 is a transverse vertical section on the line 5 5 of Fig. 2.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a casing which supports a balance-beam 2, the latter being provided with transverse knife-edge trunnions 3, seated in
40 bearings 4 upon the upper side of the casing. The bucket-wheel 5 is provided with lateral trunnions 6, mounted in bearings in the lower extremities of a supporting-strip 7, having parallel vertical arms which approach each
45 other above the plane of the upper side of the wheel and combine to form a loop 9, within which is fitted the extremity of the long arm of the balance-beam. The bucket-wheel is provided at intervals, regulated by the
50 number of buckets and the intervals between the partition-walls separating the buckets,

with stop-fingers 10, which are adapted to successively engage a fixed stop 11, depending from the top of the casing in the path of said stop-fingers, and the wheel is also provided upon one side with a series of spaced
55 pins 12 for engagement by a stop-spring 13 to prevent backward rotation of the bucket-wheel. These pins are adapted to pass the stop-spring during the forward rotation of the
60 bucket-wheel, but are prevented by said spring from moving in the opposite direction.

Arranged above the bucket-wheel and adapted to discharge into the uppermost bucket or compartment thereof is a chute 14,
65 having an inclined wall to prevent the accumulation of the grain in the chute, and operating in vertical guides 15 at the open side or mouth of the chute is a sliding cut-off valve
70 16, adapted, when depressed, to close the chute and prevent the escape of grain therefrom. Communicating with the inlet-opening of the chute is a hopper 17, having a reduced outlet 18 to fit in a collar 19, fixed to
75 the casing, and mounted in guides 20 at the top of the chute is a regulating-valve 21, adapted to partially or wholly close the inlet-opening of the chute and thus regulate the flow of the grain to the chute.

The connection between the balance-beam
80 and the cut-off valve, in order to provide for the closing of the cut-off when the long arm of the balance-beam is depressed by a sufficiency of weight in one of the buckets or compartments of the wheel, such depression
85 being sufficient to disengage a stop-finger of the bucket-wheel from the fixed stop and therefore allow said bucket-wheel to rotate sufficiently to discharge the contents of the
90 filled bucket, comprises a clip 22, carried by the long arm of the balance-beam and having a transverse channel 23 for the reception of an ear 24 on the cut-off. This allows freedom
95 of movement of the balance-beam and cut-off to follow, respectively, their pivotal and rectilinear movements.

The weight which is attached to the short arm of the balance-beam is so constructed as to allow a limited movement of the balance-beam to partially close the cut-off before the
100 contents of the uppermost bucket or compartment of the wheel reach the weight de-

sired for disengaging the stop-finger of the bucket-wheel from the fixed stop, and hence said weight is sectional in construction and comprises a main upper section 25 and an auxiliary section 26, connected loosely to the main section to allow a limited vertical movement of the main section without communicating motion to the auxiliary section. In the construction illustrated in the drawings this loose connection is attained by means of a rod 27, secured at its lower end to the auxiliary section or member of the weight and fitted to slide in an opening in the main section or member, the movement of this connecting-rod being limited by a stop on the upper end of the rod when the separation of the two weights is sufficient to allow a movement of the balance-beam necessary to close the cut-off valve to the desired extent. The upper or main section or member of the weight is connected to a slide 28 on the balance-beam, said slide being secured in place by means of a set-screw 29, whereby the weight in a bucket or compartment of the wheel necessary to depress said wheel and elevate the weight may be varied.

The normal positions of the parts of the apparatus are indicated in Fig. 2, from which it will be observed that the weight is supported by a platform 30 in the casing, the main or upper section or member of the weight resting upon the upper end of the auxiliary section or member, and in this position of the weight the cut-off valve is open to its greatest extent to allow the free escape of grain from the chute into the uppermost bucket or compartment of the wheel. When, however, the grain which has been deposited in said bucket or compartment is sufficient to counterbalance the main or upper section or member of the weight, the latter will be raised until checked by the loose connection between the members of the weight, and at the same time the cut-off will be partly closed, the amount of movement of the cut-off being proportionate to the extent of movement of the main or upper member of the weight independently of the auxiliary or lower member thereof. The object in thus partly closing the cut-off as the weight of the contents of a bucket approaches the point of counterbalancing the weight is to reduce the rapidity of the flow of grain into the bucket, whereby the bucket will be depressed when it contains exactly the amount desired. This is to prevent the grain from flowing into the bucket so rapidly as to overrun the amount desired before

the mechanism can respond and thereby cut off the flow.

Obviously the ratio of the weights of the two sections of the weight may be varied to suit the point at which it is desired to partially close the cut-off, but I have found in practice that the main section of the weight may be seven-eighths of the entire weight, and, if desired, it may even be equal to fifteen-sixteenths thereof in order to avoid a long delay in completing the filling of a bucket after the cut-off has been partly closed. All that is necessary in order to carry out this object of my invention is that the weight should have a loosely-connected section or member supported independently of the main section or member, whereby it checks the movement of the balance-beam after the main section or member has been counterbalanced and raised a limited distance. The ratio of the weights is immaterial, as it is obvious that the independently-movable sections thereof may be of equal weight or a greater number of sections than two may be employed when it is desirable to gradually close the cut-off as the weight in the bucket nears the desired amount, instead of allowing it to increase to within a fraction of the weight, as in the construction illustrated in the drawings.

Various other changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

In a weighing apparatus, the combination with a balance-beam and weight, of a stirrup connected to and supported by the beam, a bucket-wheel mounted in the stirrup, spaced stop-fingers 10 upon the wheel, a fixed stop 11 to engage said fingers when the wheel is elevated, a stationary stop-spring 13 adapted to engage spaced lateral pins 12 on the side of the wheel to prevent backward rotation of the wheel, said spring bearing at its extremity against the side of the wheel, and means for controlling the supply of material to the buckets, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EDWIN RUTHVEN JONES.

Witnesses:

W. W. DAVIS,
J. A. CATLIN.