

(No Model.)

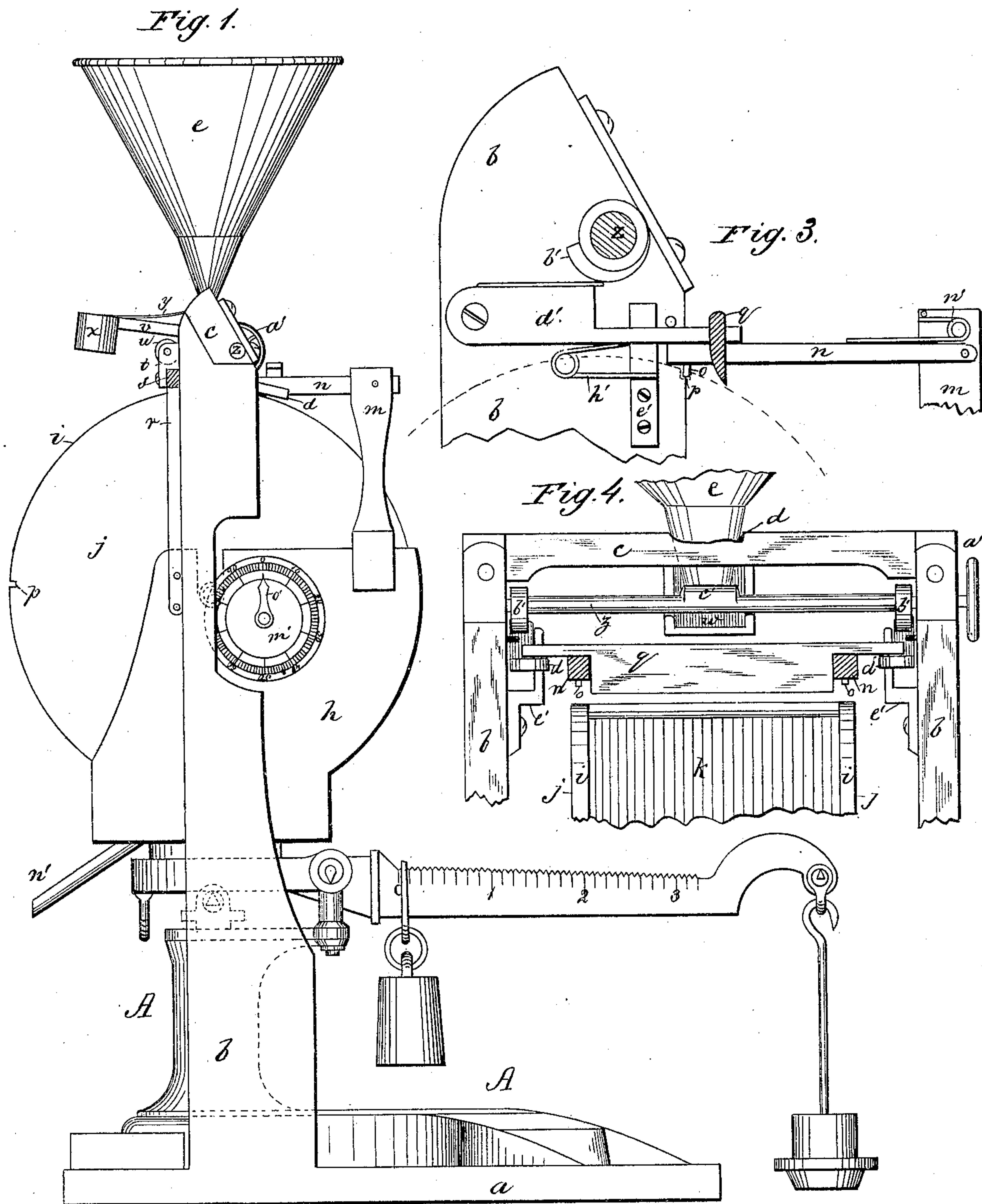
2 Sheets—Sheet 1.

H. A. McLAUGHLIN.

AUTOMATIC GRAIN AND LIQUID WEIGHING SCALES.

No. 247,090.

Patented Sept. 13, 1881.



WITNESSES:

W. W. Hollingsworth
John A. Kemmer

INVENTOR:

H. A. McLaughlin
BY *Robert L. ...*
ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

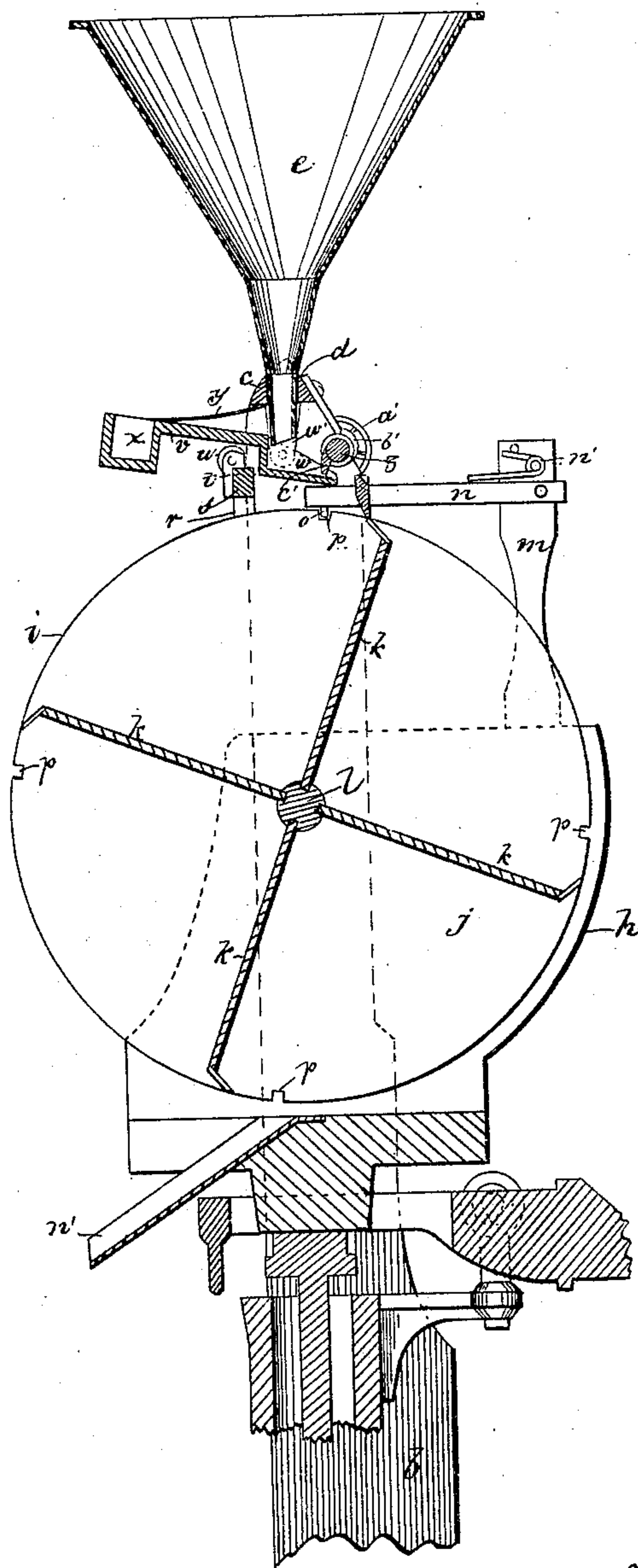
H. A. McLAUGHLIN.

AUTOMATIC GRAIN AND LIQUID WEIGHING SCALES.

No. 247,090.

Patented Sept. 13, 1881.

Fig. 2.



WITNESSES:

W. W. Hollingsworth
John C. Kemon

INVENTOR:

H. A. McLaughlin

BY

Wm. L. Le

ATTORNEYS.

UNITED STATES PATENT OFFICE.

HENRY A. McLAUGHLIN, OF KARNs CITY, PENNSYLVANIA.

AUTOMATIC GRAIN AND LIQUID WEIGHING SCALE.

SPECIFICATION forming part of Letters Patent No. 247,090, dated September 13, 1881.

Application filed June 25, 1881. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. McLAUGHLIN, of Karns City, in the county of Butler and State of Pennsylvania, have invented a new and useful Improvement in Weighing-Scales; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of my improved weighing-scales. Fig. 2 is a vertical central section. Fig. 3 is a detail view of the tripping mechanism. Fig. 4 is a detail front view of the upper part of the scales with the rack down.

My invention relates to improvements in devices adapted to be attached to weighing-scales for the purpose of weighing dry or liquid substances; and it consists in the peculiar construction and arrangement of the parts, whereby a revolving wheel provided with buckets and held stationary by spring-catches for the reception in a bucket of the material to be weighed is automatically dumped, as herein-after more fully set forth.

In the accompanying drawings, the frame A, for supporting the scales, consists of a bottom piece, *a*, provided with posts *b b*, joined together at their upper ends by a horizontal cap-piece, *c*, provided with a central slot, *d*, for the reception of the lower end of the hopper *e*.

h represents a rack, which is attached to the weighing-scales, of ordinary construction, in the same manner as a common scoop-rack is attached to counter-scales.

i represents a revolving bucket-wheel composed of two end disks, *j*, divided into four or more equal compartments or buckets by partitions *k*, extending from one disk to the other. The partitions *k* may be made of brass, sheet-iron, or galvanized sheet-iron, or other suitable material.

l represents the horizontal axle of the revolving bucket-wheel, secured thereto and extending through the center of the bucket-wheel, and having its bearing in the rack *h*.

m m represent two parallel vertical posts secured to the side faces of the rack *h* and lying opposite each other.

To the upper end of each of the posts *m* are

pivotaly secured arms *n*, each pressed down by a spring, *n'*, and provided with catches *o*, projecting downwardly near their inner ends, and adapted to engage with notches *p*, made in the peripheries of the disks. The inner ends of the arms *n* are connected together by a transverse bar, *q*, the ends of which project out on each side beyond the disks, for a purpose hereinafter described. The notches *p* in the disks *j* lie opposite each other, and there are two opposite notches for each bucket. By this construction it will be seen that the spring-catches hold the bucket-wheel by entering the notches until the spring-catches are released therefrom.

To the sides of the rack *h* are secured two opposite vertical posts, *r r*, joined together at their upper ends by the cap-piece *s*, to the middle of which are secured the vertical lugs *t t*, in which the axle of the wheel *u* is journaled, which wheel *u*, when the rack and bucket-wheel are up, and the latter receiving from the hopper the material to be weighed, bears against the lower face of the arm *v* of the delivery-spout *w*, journaled in lugs *w'*, depending from the lower face of the cap-piece *c*. The delivery-spout *w* is arranged directly under the discharge-spout of the hopper *e*, and the outer end of the projecting arm *v* of the delivery-spout is provided with a weight, *x*, which overbalances the weight of the delivery-spout and throws the delivery-spout up into a horizontal position, or nearly so, when the bucket-wheel and rack sink, so that no material will be discharged into the bucket-wheel, the play or vibration of the delivery-spout upward being limited by stops on the sides of the delivery-spout abutting against the lugs *w'*, in which the delivery-spout is journaled.

y represents a spring secured at one end to the upper face of the arm *v* of the delivery-spout, the opposite end of said spring bearing against the lower face of the cap-piece *c*, the tension of the spring being exerted to throw the arm *v* downward.

z represents a horizontal shaft journaled in the posts *b b* near their upper ends, and provided at one end with a wheel or crank, *a'*, to which power may be applied by hand or by a belt driven by steam or other power. The horizontal shaft *z* is provided near each end

with a cam, b' , and near its middle, opposite the delivery-spout, with a scoop or scraper, c' .

d' d' represent hammers pivoted to the inner faces of the posts b b , opposite each other 5 and opposite the spring-catches o .

e' e' represent recessed brackets secured to the inner faces of the posts b , in the recesses of which the hammers d' are adapted to oscillate when pressed downward by the cams on 10 the shaft z , the hammers d' d' being forced upward when the cams are released from the hammers in the revolution of the shaft z by springs h' h' , each bearing at one end in the bottom of the recess in the bracket, passing 15 thence around a pin secured to the inner face of each post b , and the opposite end of the spring bearing against the lower face of the hammer. Stops are secured to the inner faces of the posts b b , near the hammers, to limit 20 their upward play. By this construction the hammers have a constantly upward striking motion imparted to them, caused by the revolution of the cam-shaft and the action of the springs, as described.

25 The operation of the machine is as follows: The slide on the scale-beam is moved out to the desired weight to be obtained, when the outer end of the scale-beam will descend, and the rack and bucket-wheel will ascend, the 30 wheel u on the cap-piece of the vertical posts secured to the rack bearing against the under face of the delivery-spout and causing the latter to stand in an inclined position to receive from the hopper the material to be weighed. 35 The delivery-spout conducts the material from the hopper into one of the buckets of the wheel, the latter being prevented from turning by the spring-catches engaging with the notches of the receiving bucket-wheel. When the desired 40 quantity has almost passed into the bucket-wheel the weight of the material in the bucket, the downward pressure of the spring exerted on the upper face of the arm of the delivery-spout, and the weight at the end of 45 the arm of the delivery-spout will cause the bucket-wheel and rack to sink downward somewhat, and the wheel u no longer bearing against the arm of the delivery-spout, the latter will assume a horizontal position, or nearly 50 so, so that the material to be weighed will not run out or pass from the delivery-spout to the bucket-wheel. Power is then applied to the wheel a' at the end of the cam-shaft, and at each revolution of the cam-shaft the scraper or scoop 55 at its middle carries small quantities of the material into the bucket-wheel until the correct weight is obtained, when the rack and bucket

will further descend, and the projecting ends of the transverse bar connecting the inner end of the spring-catches will be struck by the 60 hammers in their upward movement and released from engagement with their notches, causing the bucket-wheel to rotate from the weight of the material and automatically dump 65 its contents into a spout, n' , in the lower end of the rack and under the bucket. The bucket-wheel will revolve until arrested by the spring-catches entering the next notches in the rims or disks of the bucket-wheel. Secured to one end of the axle of the bucket- 70 wheel is a pinion, which meshes with a larger cog-wheel placed under the dial m' and attached to the rack. The action of the bucket in discharging or emptying its contents rotates the gears and a dial-indicator, o' . 75

What I claim as my invention is—

1. The combination, with weighing-scales carrying the rack h and notched revolving bucket-wheel i , journaled in said rack, posts b b , carrying slotted cap-piece c , and hopper e , 80 of the spring-catches n o , vertical posts r r , provided with a cap-piece, s , carrying a wheel, u , and pivoted delivery-spout w , whereby the material to be weighed is fed into a bucket of the wheel held stationary, substantially as described. 85

2. The combination, with the revolving bucket-wheel i and pivoted delivery-spout w , provided with the arm v , having a counterbalance-weight on its outer end, and spring y , of the 90 shaft z , carrying the scraper c' , substantially as described, and for the purpose set forth.

3. The combination, with the notched bucket-wheel i and spring-catches n o , having connecting cross-bar q , projecting beyond the 95 bucket-wheel on each side thereof, of the shaft z , provided with cams b' , pivoted hammers d' , and springs h' , substantially as described, and for the purpose set forth.

4. The combination, with weighing-scales 100 carrying a rack, h , having spout n' , and notched revolving bucket-wheel i , of the slotted cap-piece c , carrying the hopper e , spring-catches n o , connected by the cross-bar q , pivoted delivery-spout w , having a counterbalance-weight, 105 spring y , cap-pieces s , carrying the wheel u , cam-shaft z , having scraper c' , pivoted hammers d' , and springs h' , substantially as described, and for the purpose set forth.

HENRY AUGUSTINE McLAUGHLIN.

Witnesses:

P. R. BURKE,
A. H. SIMPSON.