W. H. BRAMBLE.

Grain Meter.

No. 14,687.

2 Sheets—Sheet 1.

Patented April 15, 1856.

Fig. 1.

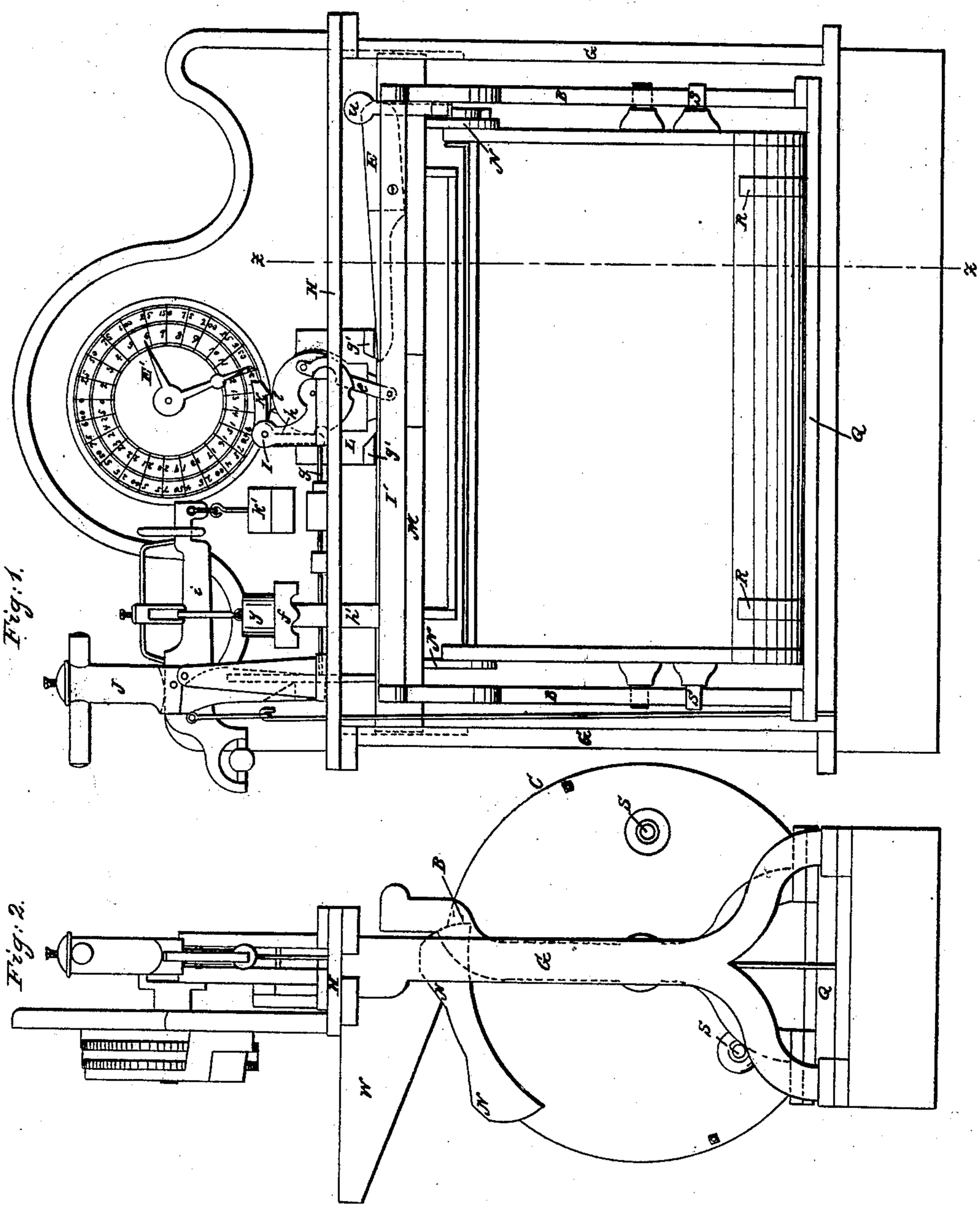

Fig. 2.

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Fig. 3.

Fig. 4.

UNITED STATES PATENT OFFICE.

W. H. BRAMBLE, OF CINCINNATI, OHIO.

GRAIN-WEIGHING MACHINE.

Specification of Letters Patent No. 14,687, dated April 15, 1856.

To all whom it may concern:

Be it known that I, W. H. BRAMBLE, of Cincinnati, on the county of Hamilton and State of Ohio, have invented a new and Improved Automatic Grain-Weighing Machine; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, Figure 1 being a side elevation of said machine; Fig. 2 an end view, and Figs. 3 and 4 are transverse sections on the line *z z* of Fig. 1.

Similar letters indicate like parts in all the figures.

The circular weighing vessel C, of my automatic grain weigher, has journals projecting from the center of its heads that are received into journal apertures in uprights from a frame that is supported upon a system of combined levers, similar to those which are employed in platform scales; which levers are connected to a suitably graduated scale-beam *i*. The said weighing vessel C, is divided lengthwise into two compartments by means of a flexible partition *a*, whose upper edge is made fast to a rod which is secured a short distance within the center of the open mouth at the top of said vessel; and falling vertically therefrom, the said partition passes through a slit between the two inclined pieces *b*, *b*, at the bottom of the vessel, and is secured to an outside rod,—as shown in Figs. 3 and 4. The said flexible partition *a*, I generally make of such a length that it can sag toward the front or rear a sufficient distance to enable the said vessel to be filled about three fourths full of grain to be weighed at each charge on either side of said partition. The discharging door-ways between the lower ends of the inclined pieces *b*, *b*, and the lower edges of the periphery of the vessel C, are closed by the outwardly opening doors *c'*, *c'*. When the weighing vessel is swung into the proper position for receiving a charge of grain shown in Fig. 3—the door under the compartment that is to be filled, is self-closed by the action of the curved pieces R, R, which project from the scale frame; and by the same movement of said weighing vessel, the door which closes the aperture in its opposite compartment, is opened to discharge its contents, as shown also in Fig. 3. The grain is discharged into the vessel C, through the chute *w*. In the mouth of said conducting chute, two gates M, and L, are placed;—the former extending the whole length of the chute, and entirely closing its orifice, with the exception of a narrow opening in its center which is closed by the gate L. A short distance above the central portions of the aforesaid gates M and L, two ratchet wheels *e*, *e'*, placed side by side loosely upon a suitable axle, are supported by the beam H. The gate M, is suspended by a bridle piece *c*, which is jointed to the side of the front ratchet wheel *e;* and the gate L, is jointed to the bridle-piece *c'*, which is also jointed to the side of the rear ratchet wheel *e'*. Lugs *g'*, *g'*, project forward from the gate L, over the upper edge of the gate M, and support the said gate L, when the gate M, is in an elevated position, but when the gate M, descends to its closed position, the gate L, is caught by its bridle piece *e'*, which holds it in such a position as to leave a narrow opening beneath its lower edge for the grain to escape through. Immediately under the scale beam *i*, a mortise is formed in the beam H, through which the leg *h*, of the table *f*, passes and rests upon the upper edge of the gate M.

A tilting lever J, is loosely jointed to the short end of the scale beam, and the shank of said lever descends nearly to the supporting beam H; standards I, rise from the beam H, and support the axle of the click *k*, which rests upon the peripheries of the two ratchet wheels *e*, *e'*. A lever descending from the axle of the disk *k*, is connected to the horizontal rod *g*,—which rod extends to the left in suitable guides and terminates in the space between the standards which support the scale beam. Double arms N, N, are secured to each end of the vessel C, and project beyond its periphery at points opposite the sides of the open mouth of said vessel,—as shown in Fig. 4. The pin *u*, descending from the outer end of the lever E, passes into a notch in the right hand head of the vessel C, when it attains the proper position for receiving grain into one of its compartments, and holds the vessel securely until the said pin is detached from its hold in the manner hereinafter set forth.

In arranging the apparatus for weighing, the poise *k'*, which is placed on the outer end of the scale beam, should be about ten pounds less than is necessary to balance the quantity of grain it is desired to weigh at one time; and the auxiliary weight *y*, which

is necessary to make up the deficiency of the weight k', is connected to a slotted shank which embraces the scale beam, and is of such length that said weight will rest upon the table f, when the said table is elevated by and rests upon the gate M.

When a sufficient quantity of grain has entered the receptacle C, to vibrate the scale beam, the first upward movement of said beam will tilt the weighted lever J, and thereby cause its descending shank to strike against the end of the rod g, with sufficient force to throw up the click k, from the ratchet wheels and allow the gate M, to close itself by force of gravity; but the instant that the gate M, descends, the weight y, drops upon the scale beam and brings it back to its horizontal position, and resets to the weighted lever J, in its upright position. The click k, being but for an instant raised from the peripheries of the ratchet wheels, it catches as it descends, a tooth on the rear wheel e', and thereby arrests the descent of the gate L, just before it attains a closed position; which causes the grain to sift in slowly to complete the operation of weighing a draft, and enables the flow of grain to be instantly stopped at the proper moment, for the purpose insuring the greatest possible accuracy. At the second upward movement of the scale beam, the rearward tilting of the weighted lever J, detaches the click k, from the tooth of the rear ratchet wheel e', and allows the gate L, to descend and instantly stops the flow of grain into the vessel C. The gate L, as it descends, strikes against and depresses the inner end of the lever E, which movement detaches the pin u, from its hold upon the vessel C, and permits the greater weight on the full side of said vessel to vibrate it on its axis, until it is arrested by one of its projecting pins s, being brought in contact with the base of the standard G, (Fig. 2), when the said vessel attains the position shown in Fig. 3. At the moment that the vessel C, attains the aforesaid position, a pair of the cams N, N, will be brought under the gate M, and elevate both gates so high that they will be caught and retained by the click k; and the door at the bottom of the filled compartment of said vessel, will at the same instant open to discharge the grain therefrom. As soon as the scale beam is relieved from the weight of the grain just weighed, it will reset itself, and the weighted lever J, in their proper positions for again performing their proper functions. The table f, will also be elevated by the gate M, and support the auxiliary poise y, and the fastening pin u, will reset itself and retain the vessel C, in its position until it is again ready to be tilted in the manner above set forth.

The movements of the weighing vessel C, may be communicated to the hands of a registering dial plate, in any well known or usual manner.

What I claim as my invention and desire to secure by Letters Patent, is—

1. The double-chambered oscillating vessel C, when combined with and forming a part of an automatic weighing apparatus constructed and operating substantially in the manner herein set forth.

2. I also claim dividing the vessel C, into two compartments by means of a longitudinal flexible partition, when the said vessel is arranged with and forms a part of a weighing apparatus constructed and operating substantially as herein set forth.

3. I also claim combining gates of different sizes with the conducting chute and with apparatus that can be operated by the vibration of the scale beam, substantially in the manner and for the purpose herein set forth.

4. I also claim the combination of the double gates with each other and with the ratchet wheels, the retaining click, and the detaching movements, substantially in the manner herein set forth.

5. I also claim detaching the click which holds the gate or gates, in an open position, through the medium of a vertical tilting lever combined with the scale beam and operating substantially in the manner herein set forth.

6. I also claim the arrangement of the auxiliary weighing poise y, and the movable table f, when the said table is combined with and operated by the gate M, substantially in the manner and for the purpose herein set forth.

W. H. BRAMBLE.

Witnesses:
Z. C. Robbins,
Fred. Mathys.