J. NURNBERGER.

Grain-Meter.

No. 220,861. Patented Oct. 21, 1879.

Fig. 1.

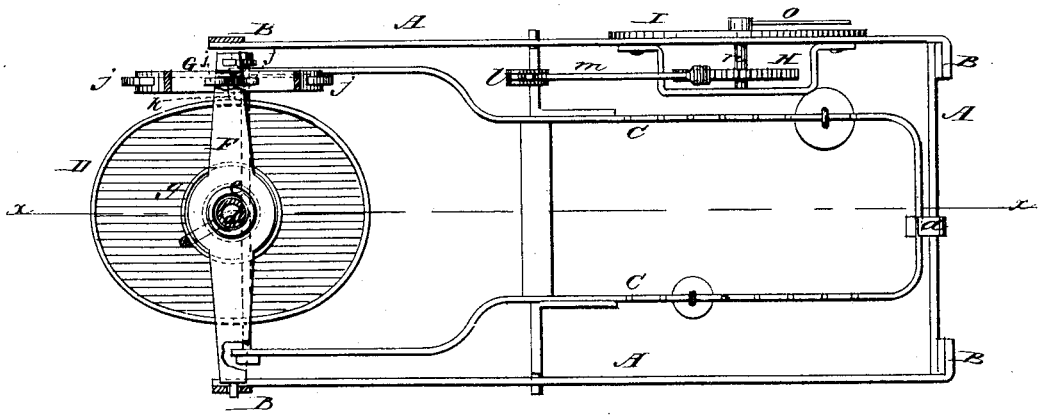
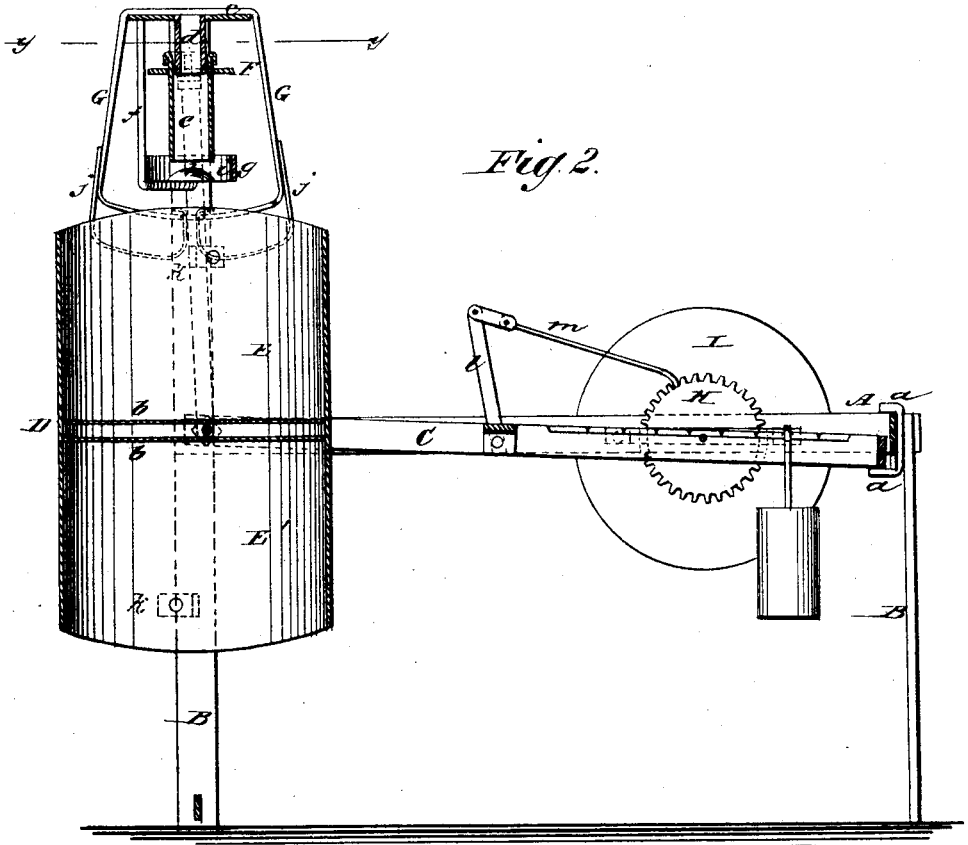


Fig. 2.



WITNESSES:

Francis McArdle.

C. Sedgwick

INVENTOR:

J. Nurnberger

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOSEPH NURNBERGER, OF ST. ALBANS, WEST VIRGINIA.

IMPROVEMENT IN GRAIN-METERS.

Specification forming part of Letters Patent No. **220,861**, dated October 21, 1879; application filed May 16, 1879.

To all whom it may concern:

Be it known that I, JOSEPH NURNBERGER, of St. Albans, in the county of Kanawha and State of West Virginia, have invented a new and Improved Grain-Weigher, of which the following is a specification.

The object of this invention is to weigh the grain and register the amount weighed out automatically.

It consists of a double-ended vessel pivoted to the scale-beam under the grain-spout, a pawl and ratchet connected with the scale-beam, a register, and a stop device for holding the vessel, whereby, when the quantity to be weighed and registered each time is admitted to the vessel, it turns the beam, releases the vessel, which reverses by its own gravity, empties the grain, and turns the empty compartment up under the spout, and at the same time the pawl moves the index on the register.

In the accompanying drawings, Figure 1 is a top view or plan of my improvement, with a part in section on line *y y*, and Fig. 2 is a vertical longitudinal section on line *x x*.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A is a rectangular frame, supported on legs B at the four corners. In this frame is pivoted the scale-beams C C, connected together at the forward or weight end, which is limited in its movement by stops *a a*, above and below it, fixed to the upper and lower edge of the end plate of the frame.

In the open ends of the scale-beams, beyond the pivots, is pivoted the weighing-vessel D. This vessel is elliptical in cross-section, and is divided into two equal compartments, E E′, by bottoms *b b*, and it is pivoted through its shorter axis in the exact center of gravity.

The legs of the frame adjacent to vessel D are carried up above the vessel and connected with a cross-piece, *c*, from the center of which the grain-spout *d* depends, and over this spout is placed a sleeve, *e*. From the cross-piece *c* depends a hanger, *f*, which supports a ring, *g*, and in the center of this, immediately under the mouth of the sleeve, is fixed to the end of the hanger a convex valve, *h*, of such a size as to close the mouth of the sleeve, but leaving a space, *i*, all around it.

F is a lever, having one end fulcrumed to one of the uprights, while through a hole in its center is passed the sleeve *e*, so that by moving the lever up and down the sleeve is lifted to permit the grain to flow out from the spout, or closed down on the convex valve *h*, whereby the flow of grain is stopped.

From the cross-piece *c*, on one side, depends a stirrup, G. To the sides of this stirrup are attached the ends of springs *j j*, which are curved under toward each other, and the ends bent up through slots in the bottom of the said stirrup, as clearly shown in Fig. 2 in dotted lines. This forms a spring-latch. On the same side of the vessel D, in the proper positions, are fixed the lugs *k k*, one near each end. When the vessel is turned on its axis these lugs strike the springs, move them out of the way, and are caught between the two, as shown by the dotted lines in Fig. 2, and thus hold the vessel in a vertical position.

To the pivot of the scale-beam, on one side, is fixed an arm, *l*, to the upper end whereof is pivoted a pawl, *m*, engaging the ratchet-wheel H on shaft *n*, which projects through the adjacent side plate, and a circular register, I, and is fixed to an index, O. The upward movement of the weighted end of the beam throws the pawl back, and the downward movement, throwing it forward, causes it to turn the ratchet and move the index one step.

The operation of this improvement is as follows: The weights are placed at the required point on the scale-beam—say at one hundred pounds—and the vessel is secured in an upright position. By means of the lever F the sleeve is now lifted from the valve *h*, and the grain allowed to run through the ring *g* into the upper compartment of the vessel. When the proper quantity of grain is delivered into the vessel the beam turns, the sleeve is immediately closed down on valve *h* to stop the flow, and, the vessel descending, the lug *k* is released from the spring-latch; the center of gravity being changed, the vessel turns on its pivot and dumps its load, throwing the empty compartment up. The scale being relieved, the beam turns at the same instant, and the lug *k*, adjacent to the empty compartment, is engaged by the spring-latch, thus holding the vessel poised for another weight. When the

beam turned with the weight of grain the pawl was drawn back, but when it went back the pawl was pushed against the ratchet-wheel, and the index moved one step on the register, thus indicating that one weight of one hundred pounds had been measured off. This operation is continued until the register shows that the proper quantity has been weighed out.

Thus it will be seen that when the scale is set to weigh a certain quantity the descent of this quantity into one of the compartments of the vessel turns the beam and releases the vessel from the spring-latch engaging one of the lugs *k*, whereupon the filled compartment gravitates, throws out the grain, and the momentum acquired by the vessel throws the empty compartment up, and simultaneously the beams turn, whereby the spring-latch catches the lug on the side of the empty compartment and holds the vessel in an upright position, and the turning of the scale-beam likewise moves the index on the register, as before mentioned.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the scale-beam C, arm *l*, pawl *m*, the vessel D, having two compartments, E E′, and provided with the lugs *k*, with the frame A, the springs *j*, secured to the stirrup G, the ratchet-wheel H, register I, and index O, substantially as and for the purpose set forth.

2. In combination with the vessel D, having two compartments, E E′, and lugs *k* on the side of each, the spring-latch, composed of springs *j j*, fixed to stirrup G, for the purpose of engaging the lugs *k* and holding the vessel in an upright position, substantially as described.

3. In combination with the vessel D, having two compartments, E E′, the spout *d*, sleeve *e*, moving thereon, operated by lever F, ring *g*, and convex valve *h*, held within ring *g*, whereby the flow of grain can be started and stopped instantly, substantially as described.

JOSEPH NURNBERGER.

Witnesses:
H. V. SATTES,
C. D. HEREFORD,
J. H. MCCANAHA.