

B. M. PULLIAM.
GRAIN-METER.

No. 170,965.

Patented Dec. 14, 1875.

Fig. 1.

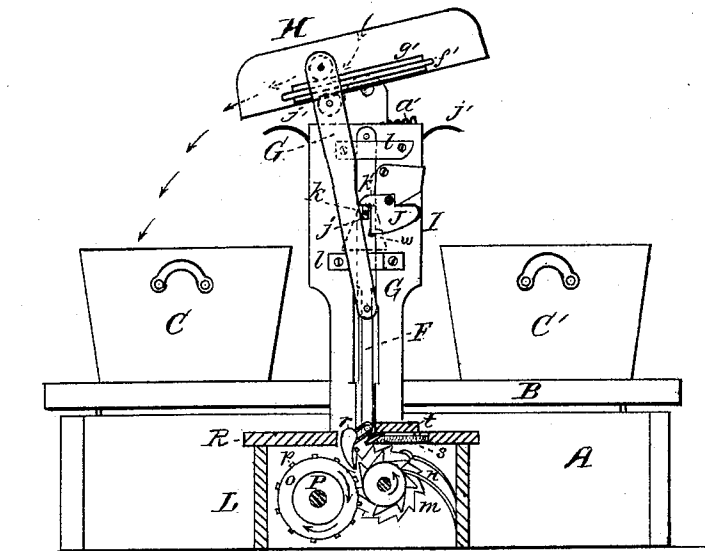
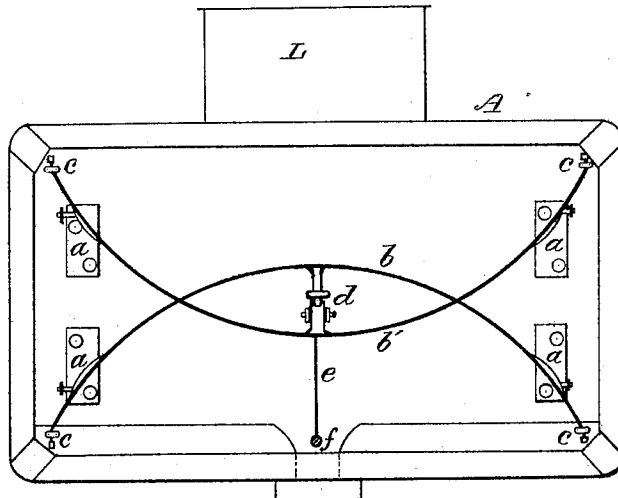


Fig. 2



WITNESSES:

WITNESSES:
Nas E. Cliphams
Geo. D. Renneker

INVENTOR.

Benjamin M. Pulliam
per Charles H. Fowler,
ATTORNEY.

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Fig. 3

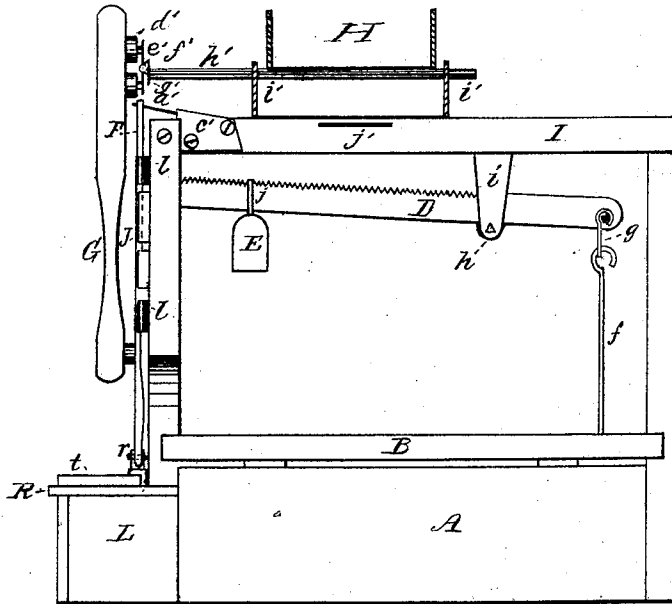
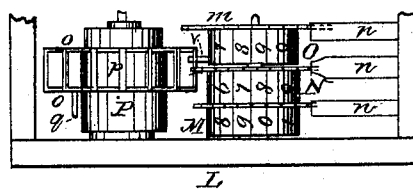


Fig. 4.



WITNESSES:

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Geo. D. Renner

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UNITED STATES PATENT OFFICE.

BENJAMIN MILLARD PULLIAM, OF TOLONO, ILLINOIS, ASSIGNOR OF PART OF HIS RIGHT TO CHARLES TROOP CARPENTER AND JAMES DUDDLY PULLIAM, OF SAME PLACE.

IMPROVEMENT IN GRAIN-METERS.

Specification forming part of Letters Patent No. **170,965**, dated December 14, 1875; application filed February 15, 1875.

To all whom it may concern:

Be it known that I, BENJAMIN MILLARD PULLIAM, of Tolono, Champaign county, and State of Illinois, have invented certain new and useful Improvements in Grain-Weighing Registers; 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, and to the letters and figures of reference marked thereon.

Figure 1 is a side elevation. Fig. 2 is a bottom view, showing the interior construction of the device; Fig. 3, an end view, and Fig. 4 a detached plan view of the registering mechanism.

This invention has relation to devices used for registering grain as it passes from the thrashing-machine; and consists of a tilting trough, which receives the grain as it passes from the thrashing-machine and conveys it to either of two receptacles placed upon the ends of a platform, said platform being connected to an arrangement of levers and other devices in a manner that will cause the weight of the grain upon either end of the platform to depress the same and change the angle of the trough to fill one receptacle while the other is removed to be emptied.

My invention further consists in a registering mechanism of peculiar construction, operated by the tilting of the trough, all of which will be hereinafter more fully described.

In the drawings, A is designed to represent the box or casing, with a platform, B, upon which is placed suitable receptacles C C' for containing the grain, and provided with handles upon their sides, so as to admit of their easy removal from the platform. This platform has upon its under side downwardly-projecting lips *a*, by which means it is connected to curved metal bands *b b'*, the ends of the same being suspended from the corners of the box or casing A by chain-links *c*, and connected together at the center by a link, *d*. Upon the outer side of the link *b'* projects a band, *e*, to the end of which is connected a rod, *f*, the upper end of said rod being connected through a link, *g*, to a beam or lever, D, the same having its fulcrum at *h*, at which

point it is pivoted to the brackets *i*, the beam or lever being serrated upon its upper face to receive the link *j* of a suitable weight, E.

By the arrangement above described the platform is made a means by which the several parts of the device are operated.

The outer end of the lever or beam D has formed thereon a pin, *k*, which works in an elongated slot, *j*, in a sliding bar, F, said bar being guided in its movement by plates *l l*, and is forced upward, after being acted upon by the lever or beam D, by a spiral spring, *a'*, one end of which passes through an opening in the upper end of the sliding bar, and the other end secured to a flat plate, *e'*.

At about the center of the sliding bar F is pivoted one end of an oscillating lever, G, the other end carrying two friction-rollers, *d' d'*, and plate *e'*, by which means it is connected to a rod, *f'*, secured upon a plate, *g'*, and to which is rigidly connected one end of a rod, *h'*, carrying a trough, H. The rod *h'* works in bearings in plates *i' i'*, and the trough H is limited in its oscillatory movement by spring-stops *j' j'*, secured to the sides of the cross-piece I. The sliding bar F has formed thereon a notch, *w*, into which engages a catch, J, having a finger, *k'*, against which the pin *k* of the lever or arm D strikes in operating the same. Secured to the side of the casing or box A is a small box, L, which incases the registering mechanism, consisting of cylinders M N O, having connected to their inner sides tooth-disks or ratchet-wheels *m*, into which engage spring-pawls *n*. A drum, P, having two plates, *o*, with cross-bars *p* and finger *q*, also assists in completing the registering mechanism, motion being first communicated to the cylinder O through a pivoted latchet, *r*, upon the lower end of the sliding bar F. The cover R of the box L is cut away on a line directly over the cylinders M N O, to receive a glass window, *s*, to enable the figures upon the periphery of the cylinders to be seen, and at the same time completely closing the top of the box, and protecting the registering mechanism from the dust and dirt, which would tend to impede the operation of the machine. A slide, *t*, is pivoted to the

cover R, so as to protect the glass from injury or becoming accidentally broken.

The operation of my device will be readily understood from the following: As the grain passes from the thrashing-machine it enters the trough H, leading the grain in its course to receptacle C until it receives its required weight, when the outer end of the lever or beam D, through the rod *f*, connecting-link *g*, and curved bands *b b'*, will be elevated; the pin *k* striking against finger *k'* upon the catch J, and causing it to be moved aside, releasing the sliding bar F, when the spring *a'* will force it upward, which, in turn, communicates motion to the oscillating lever G, and operates trough H, changing the direction of the grain to the receptacle C', while receptacle C is removed to be emptied, which causes the outer end of the lever or beam D to descend by the weight E. At this point of the operation, by the descent of the lever or beam D, the pin *k*, working in the elongated slot, moves the sliding bar F down, forcing the latchet *r* between the teeth of the plate or ratchet-wheel *m* of the cylinder O, and moving it forward the distance of one of the teeth, the sliding bar carrying with it the oscillating lever G, and moving it down the slot formed by the rod *f'* and plate *g'*, in a position ready to act in tipping the trough when the lever or beam D ascends.

When receptacle C receives the same weight of C' the trough H is again tipped, so as to allow the grain to be directed in its course to receptacle C, when the receptacle C' is removed from the platform, which causes the same operation of the machine as when the removal of receptacle C took place. In describing the operation of the registering device, the cylinders M N O have the same direction in their revolution as shown by the arrow in Fig. 1 of the drawing, while the drum P is made to rotate in an opposite direction. The teeth upon the cylinder O number twenty, double the number of those upon the cylinders M N, though it is not regarded essential to the successful operation of the registering device to employ the exact number described so long as the number upon the inner cylinder O is double those upon the cylinders M N. The latchet *r*, as has been before described, is forced by the sliding bar F into the notches or between the teeth in the plate *m* of the inner cylinder O, and moving the same the distance of one of the teeth at each descent of the sliding bar F, and at every complete revolution of the cylinder, a pin, *v*, thereon comes in contact with cross-bars *p* upon the drum P, moving it in an opposite direction, and bringing one of the cross-bars *p* in contact with the teeth upon the cylinder N, moving the same one-tenth of a revolution, or the distance of one of the teeth. When the cylinder O has completed its tenth revolution the drum P has moved once around, also the

cylinder N. At the completion of the revolution of the drum P a finger, *q*, projecting from the side thereof, is brought in contact with the teeth upon cylinder M, moving the cylinder the distance of one of the teeth. It will thus be seen that every ten revolutions of the drum P will complete a single revolution of the cylinder M. The figures upon the periphery of the cylinder O indicate the number of bushels until they exceed ten, which completes the revolution of the cylinder, each revolution being registered by the partial rotation of the cylinder N, and at every complete revolution of the same will be registered upon the cylinder M, one revolution of the cylinders O N M indicating ten, one hundred, and one thousand bushels, respectively.

Having now fully described the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The tilting trough H, in combination with platform B and suitable intermediate operating mechanism, whereby said trough may be operated to direct the grain in its course to either end of the platform, substantially as and for the purpose specified.

2. In a grain-weighing register, the combination, with oscillating lever G, tilting trough H, and sliding bar F, of a platform and intermediate connecting-levers, by means of which the trough may be operated, substantially as and for the purpose specified.

3. The combination, with the tilting trough H, oscillating lever G, and the sliding bar F, having the elongated slot *j*, of the lever or beam D, with pin *k*, substantially as and for the purpose specified.

4. The combination, with the sliding bar F, having slot *j* and notch *w*, and catch J, with finger *k'* and the spring *a'*, of the oscillating lever G, trough H, and lever or beam D, carrying pin *k*, substantially as and for the purpose set forth.

5. In a grain-weighing register, the combination, with the sliding bar F, oscillating lever G, tilting trough H, and the rod *f* and beam D, of the platform B, connected to the casing or box A by curved bands *b b'*, protecting-lips *a*, chain-links *c*, and link *d*, and the rod or band *e*, substantially as and for the purpose specified.

6. In a grain-weighing register, the combination, with a platform, intermediate operating-levers, and the sliding bar F and latchet *r*, of the registering mechanism, consisting substantially of the toothed cylinders M N O, pin *v*, and drum P, with cross-bars *p* and finger *q*, constructed to operate as and for the purpose set forth.

BENJAMIN MILLARD PULLIAM.

Witnesses:

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WM. T. PULLIAM.