W. COLWELL.

Grain-Meters.

No. 166,593. Patented Aug. 10, 1875.

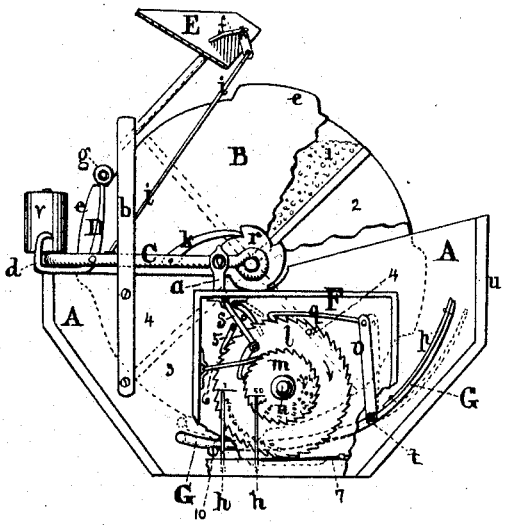

Fig. 1.

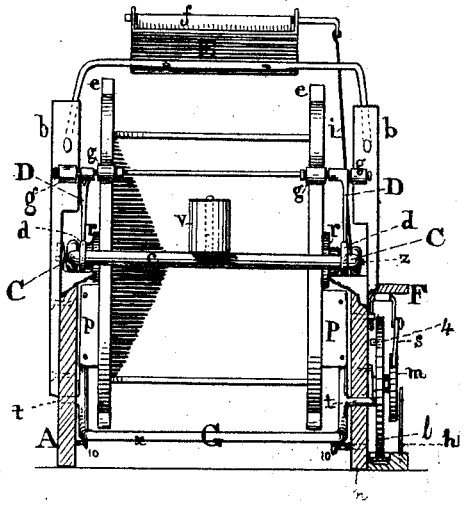

Fig. 2.

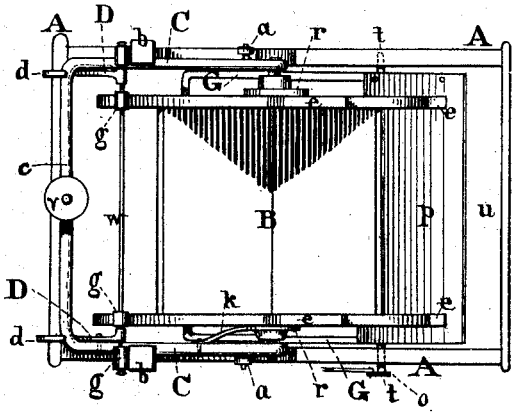

Fig. 3.

(Plan, without Hopper E, or Register-Wheels).

Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM COLWELL, OF CHILLICOTHE, ILLINOIS.

IMPROVEMENT IN GRAIN-METERS.

Specification forming part of Letters Patent No. **166,593**, dated August 10, 1875; application filed March 31, 1875.

To all whom it may concern:

Be it known that I, WILLIAM COLWELL, of the town of Chillicothe, in the county of Peoria, and in the State of Illinois, have invented an Improvement in Grain Weighers and Registers; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making a part of this specification, in which like letters of reference refer to like parts, and in which—

Fig. 1 represents a side elevation; Fig. 2, an end view, with part of inclosing-box removed; Fig. 3, a plan view, with surmounting spout removed.

The object of this invention is to weigh grain, and register the same automatically, in connection with a valve in the supply-spout for cutting off the supply the moment the weight is attained; and relates to that class of grain-measurers which revolve on a horizontal axle having radial pockets which dump the grain at each count. The revolving receiver B is pivoted at each end of its axle at the end of the shorter arm of steelyard C, from which rises a pivoted arm, D, which stops the circuit of the receiver when the grain has been dumped, and steadies the same for the filling of the next pocket. An automatic cut-off, *f i*, moved by a rod attached to the steelyard, manages the supply of grain in the spout above. The registering devices are operated by a trap, G, below, whose axle works the index-wheels *l m*, and checks the undue rotation of the receiver B.

In the drawings, A represents the inclosing-box conveying the grain off below, and having journals *a a* on either side, in which the double steelyard C C is pivoted, provided with removable weights *v*. At the bottom of this box is pivoted a duplicated or double-armed lever, G G, united by a diaphragm, *p*, which receives the dumped grain before it leaves the box, its axle *t* acting upon the index-wheels at each dump, at the same time that the cross-bar *x* of the levers, by rising, checks the rotation of the receiver beyond the proper point. B represents the grain-receiver, pivoted, at the ends of the axle in the sides of the box A, in the short arms of the steelyard C C, and having four radial pockets, 1 2 3 4, arranged around the axle, with vertical sides, and with a projection, *e*, of the latter beyond the edge of each pocket, conforming to the circular shape of said sides, and to act as stops in the manner hereafter described. C represents the steelyard, having two parallel arms which support the axle of the receiver B between them in journals in the shorter arms, the longer arms being united by a transverse rod, *c*, which carries the weights *v*. Near the journals are the steelyard-scale pivots *a a*, rising from box A, near which is a pawl, *k*, uniting the longer arm of the steelyard with a ratchet-wheel, *r*, on the axle of the said receiver B. D D are vertical arms, pivoted to either arm of steelyard C C, and united by a horizontal rod, W, carrying friction-rollers *g g* on those parts opposite the the standards *b b*, and above the projections *e* of the receiver B, to prevent the untimely rotation of the latter, and also to release the same when one of the rollers is thrown off by the standards *b b*. These arms D are each extended below the steelyard in a curved arm, *d d*, limiting the motion of the same to its proper uses by rising vertically for a small distance above the connecting-bar of the arms or steelyard C C, and projecting over the same far enough to detain said arms *d d*, and prevent their attached roller-bearing bars D D from falling away from the grain-receiver B more than sufficient to allow the lugs *e* to pass. E represents the spout for grain above the receiver B, and braced to and above the box A. It has a cut-off valve, *f*, which stops the descent of the grain when the steelyard, rising on the filling of a pocket, raises the attached rod *i*, pivoted to the crank at the end of the axle of said valve *f*, so preventing surplus flow, or waste, or overweight. F is the registering-box, containing two ratcheted wheels, *l m*, on a post, *n*, common to both, the larger one actuated by a pawl, *q*, connected by an arm, *o*, with the axle or pivot of the trap-lever G. This wheel represents the units, being numbered at each tooth from 1 upward, and, when it has revolved once, transfers the count to the outer wheel *m* by means of a pin on its margin, which moves a pawl, *s*, engaged in the teeth of said outer wheel. Each wheel is steadied by the usual tension-spring 7 and stops 5 6. A pointer, *h h*, is stationed opposite each wheel to indicate the exact point at

which to read the count. A glass door, provided with a lock, may be attached to the face of the box F.

The operation of this grain weigher and register is as follows: The grain runs in a stream down the spout E, which is provided with a cut-off valve, *f*, which is dropped, when a pocket has received its proper weight of grain, by the rising of the steelyard C with the rod *i*, at the same time that the receiver rolls over one-fourth of a rotation, bringing the next pocket beneath said spout. During these motions the tilting of the steelyard rolls the arms D D against the standards *b b*, the latter throwing said rollers *g* of said arms D D off the projection *e*, to fall and catch the next projection *e* simultaneously with the tilting up of the lower levers G G, whose rear bar *x*, which, striking the periphery of the receiver, also encounters a similar projection *e* below, both devices D G so acting together to keep the receiving-pockets at the proper points. As before said, the levers G G are tilted by the impact of the dumped grain upon the diaphragm *p*, so rotating slightly the axles *t t* of said levers, one of which is fixed in an arm or crank, *o*, bearing a pawl, *q*, which moves the unit-wheel of the index; but the register has been described already. The levers G G, when the grain has slidden off the diaphragm *p*, fall back and rest upon a projection, 10, in the side of the box A.

What I claim as my invention is—

1. The box A, when provided with steelyard C C, pivots *a a*, standards *b b*, and spout E, provided with valve *f* and with trap or levers G G, having a connecting board or diaphragm, *p*, said levers pivoted by axles *t t* in the sides of said box in such a manner as to receive the impact of the dumped grain and transfer the motion to the register-pawl *q*, substantially as and for the purposes described.

2. The combination, with the box A, of the pivots *a a*, levers C C, with pivoted arms D D *d d*, provided with friction-rollers *g g g g*, substantially as described, together with the standards *b b*.

3. The combination, with the box A, of the pivoted levers G G, united by diaphragm *p* and cross-bar *x*, and provided with an arm, *o*, on the axle *t*, terminating in the registering-pawl *q*.

4. The combination, with the lugs *e*, of the rotary grain-receiver B, projecting beyond its circle, the cross-bar *x* of the levers G G, as described.

5. The combination of the four-pocket receiver B, ratchet-wheel *r*, and pawl *k* of lever C, as described.

6. The receiver B, in combination with and operated simultaneously by the lugs *e*, ratchet *r*, pawl *k*, steelyard C, provided with vertical arms *d* D, with rollers *g g*, and the rod *x* of the levers G in the box A, as described.

In testimony that I claim the foregoing grain weigher and register I have hereunto set my hand this 26th day of March, A. D. 1875.

WILLIAM COLWELL.

Witnesses:

H. W. WELLS,

JAMES M. MORSE.