

S. A. HAZELTON.

Grain-Tally.

No. 163,590.

Patented May 25, 1875.

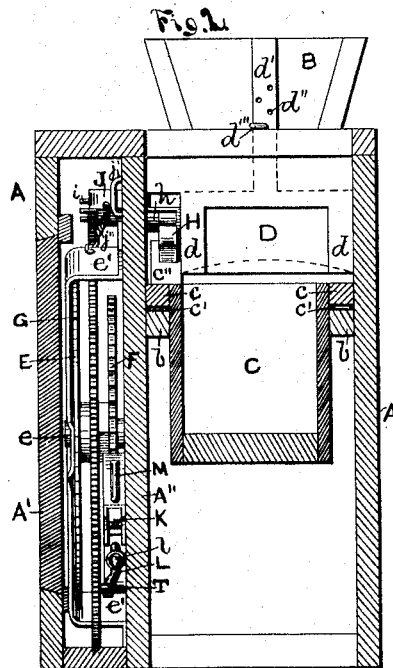
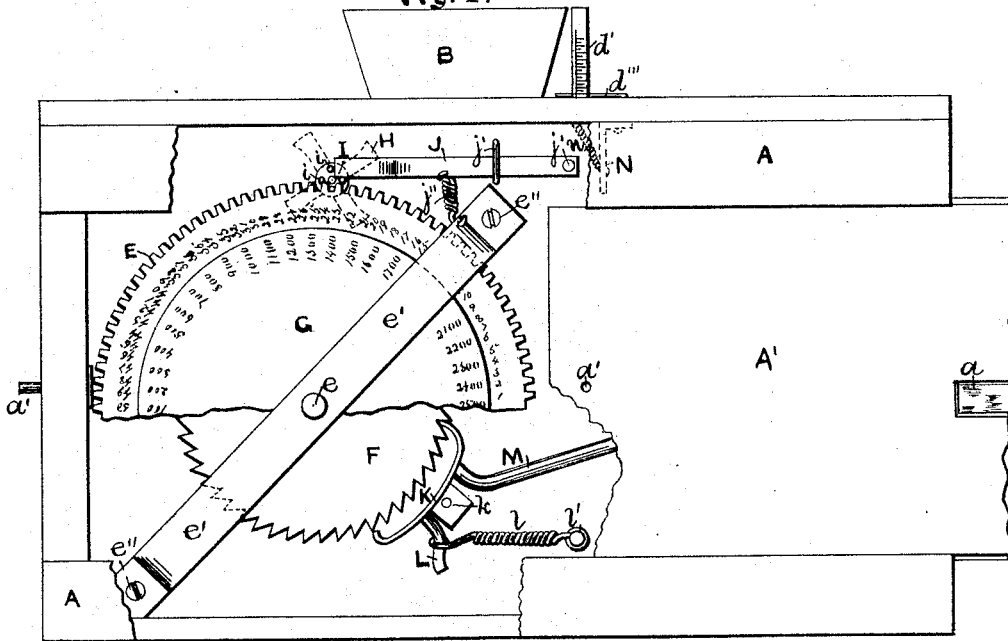


Fig. 1.



WITNESSES

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## IMPROVEMENT IN GRAIN-TALLIES.

Specification forming part of Letters Patent No. 163,590, dated May 25, 1875; application filed June 10, 1874.

*To all whom it may concern:*

Be it known that I, SIMON ALBERT HAZELTON, of Bethany, in the county of Genesee and State of New York, have invented certain new and useful Improvements in Machines for Measuring and Tallying Grain; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to apparatus for measuring and recording the measurement of grain.

The invention consists in a new and improved attachment to thrashing-machines, by means of which the grain is measured, and a tally or register of the grain, as measured, is preserved for reference, as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of my improved apparatus, with portions cut away to show the operating mechanism. Fig. 2 is a vertical cross-sectional view, showing a side view of the registering mechanism and the measuring-boxes.

Referring to the parts by letters, A represents the frame or casing which sustains the registering mechanism, and through which the measuring-boxes are passed to be filled and measure the grain. One side is made plain; or this side may be a part of the thrashing-machine, to which our improved apparatus is attached. The opposite side is provided with a sliding or hinged door, A', which has an opening, a, covered with glass or other transparent medium, through which the tally-figures on the registering-dials may be seen without opening the door. This door permits of access to the registering-dials by the person in charge of the machine, for adjustment or other legitimate purpose; but it is also provided with a lock, a', of any suitable description, to prevent unauthorized persons from getting at the registering-dials for any purpose whatever. A'' is a dividing-wall in the interior of the casing A. (The position of this dividing-wall is clearly shown in Fig. 2 of the drawings.) B is the hopper, on the top of the casing, through which the grain to be measured is fed into the measuring-boxes, which

are passed through the casing beneath it. *b b* are cleats or ledges running lengthwise of the casing, on the inside, as shown. These ledges form ways, on which the measuring-boxes are suspended and moved through from one end of the casing to the other. The measuring-boxes C are provided with lips or flanges *c*, projecting from their sides at the top; and they have small wheels or rollers *c'*, journaled in these projecting flanges. The wheels rest on the ledges or ways *b b*, and the boxes are also provided with suitable handles on their ends, for convenience of operation in moving them along the way through the casing. *c''* is a striker or bar, projecting upward from the side of the box C next to the division-wall A'', for the purpose hereinafter set forth. D is an adjustable gate, which is suspended across the upper interior portion of the casing in vertical ways *d*, secured at one side of the hopper. This gate D is secured to a post, *d'*, which passes up through the top of the casing A, and is perforated with a series of holes, *d''*, by means of which and a bolt, *d'''*, inserted in one or other of the holes *d''*, the gate can be adjusted up or down, so as to leave a greater or less space between the bottom of the gate and the top of the measuring-box, which is passed beneath it.

As the box passes beneath the gate, the latter cuts off and smooths the grain projecting above the top of the box, and thereby regulates the quantity measured. Thus when the gate is lowered to its fullest extent it will cut off the grain level with the top of the box; but should it be necessary to heap the measure to any given degree, the gate is raised to the extent required; and, for convenience of measurement in this respect, the post *d'* may be marked with a scale, and the adjusting-holes be arranged in accordance therewith.

The bottom of the gate may also be made arc-shaped, as shown by dotted lines, Fig. 2, instead of being straight, so that the grain heaped above the top of the box may be rounded off as it passes under the gate. The ends of the casing A, or the upper portions of its ends, are left open, for the passage of the boxes, and for convenience in handling them. The bottom of the casing is also left open, so that any grain which spills over the sides of

the measuring-boxes will fall through below them, and not impede their passage through the casing.

E represents a wheel, loosely mounted on a shaft, *e*, the latter having bearings in the wall A'', and in a diagonal bar, *e'*, the ends of which are bent inward, and secured to the wall A'' at *e'' e'''*. The periphery of the wheel E is cut with any given number of teeth or cogs, say, 100, that being the number of teeth on the wheel shown in the drawings. The face of the wheel, near its rim, is numbered with a series of numbers, from 1 to 100, corresponding with the number of teeth on the wheel. T is a rod or pin projecting from the inner face of wheel E. F is a ratchet-wheel keyed to the shaft *e*, and having a given number of ratchet-teeth, the one shown in the drawings having fifty. G is a disk also secured to the shaft *e*, so as to revolve with it. The face of this disk is also numbered near its rim with a series of numbers corresponding in number with the number of ratchet-teeth on wheel F—that is to say, there are fifty different numbers, commencing with 100 and running up to 5000. *h* is a shaft having bearings in the wall A'', near its top. Its ends pass through the wall, and on one end is keyed a four-armed wheel, H, and on its other a small pin-wheel, I, having four laterally-projecting pins, *i*, which gear with the cogs or teeth of the wheel E. J is a spring-lever, one end of which is secured to the wall A'' at *j*. Its other or free end rests against the pins of the wheel I, and operates as a pawl to prevent it turning except in one direction. It is retained in position by a staple, *j*, and a spiral spring, *j''*, the latter keeping its free end in contact with the pins of the wheel I. K is a pallet-lever pivoted at *k* to the wall A'', the pallets or bent ends engaging with the ratchet-teeth of wheel F. L is a bent arm or rod secured to the lower arm of the lever K. *l* is a spiral spring, one end of which is secured to the arm L, and the other to the wall A'' at *l'*. M is a bent rod or handle secured to the upper arm of lever K. N is a spring-lever, (shown by dotted lines, Fig. 1,) secured to the top of the casing and depending therefrom immediately to one side of the gate D, and kept in position by means of a spiral spring, *n*. This latter spring permits of the measuring-boxes being moved through from left to right, but effectually prevents them from being moved in the opposite direction.

The operation of those portions of the apparatus not hereinbefore described is as follows: The measuring-boxes are presumed to hold one bushel of grain, but as the grain differs somewhat in quality it may be desirable to have the box heaped more or less. This is regulated by adjusting the gate D, as before described. When adjusted, the empty boxes

are pushed into the casing along the ways *b*, and under the hopper, through which the grain flows into the box as it passes along, the gate cutting off the superfluous grain, which falls into the next box. As the box passes along, the projection *e''* comes in contact with one of the arms of the wheel, causing it to turn on its shaft the distance of one of its four arms as each box passes, and thereby, through the pin-wheel I, gearing with the wheel E, causes it to turn the distance of one tooth as each box passes, and thereby registering the number of bushels measured. This operation will continue until the wheel E has nearly completed one revolution and registered ninety-nine bushels. While the hundredth bushel or box is passing through the projecting pin T on the wheel E comes in contact with the bent arm L of the pallet-lever K, and, forcing it down, will operate the pallet, and thereby cause the wheel F to move the distance of one ratchet-tooth, turning the shaft *e* and the disk G so as to register one hundred bushels. The projection T on the wheel E is then carried past the arm of the pallet K, and the wheel E again revolves as before. And so on, the passage of each box through the casing causes the wheel E to register one bushel, and each revolution of the wheel E causes the dial G to register one hundred bushels.

The exact number of bushels measured is thus registered, and the amount ascertained by looking through the transparent medium or window in the door A'.

When it is desired to set the registering wheel and disk, the latter can be moved until any required number is opposite a given point, by operating the pallet by means of the arm or handle M by hand, and the wheel E may also be moved to any desired point by turning the wheel H.

The lever prevents the boxes being inserted from the wrong end, as before described.

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

1. The wheel E, having the projection T, arranged to operate in combination with the dial G, ratchet-wheel F, and pallet-lever K, having the arm L, and spring *l*, substantially as and for the purpose specified.

2. The pallet-lever K, having the hand-lever M operating in combination with the ratchet-wheel F and dial G, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 28th day of May, 1874.

S. ALBERT HAZELTON.

Witnesses:

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ARAD P. MOORE.