(No Model.)

# H. ROBERTS, Jr.

## GRAIN LOADER AND WEIGHER.

No. 418,751. Patented Jan. 7, 1890.

Fig. 1.

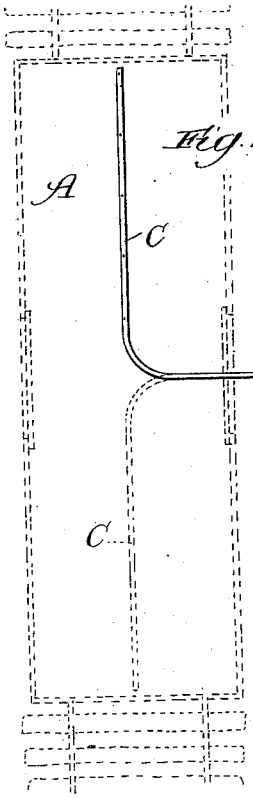



Fig. 2.

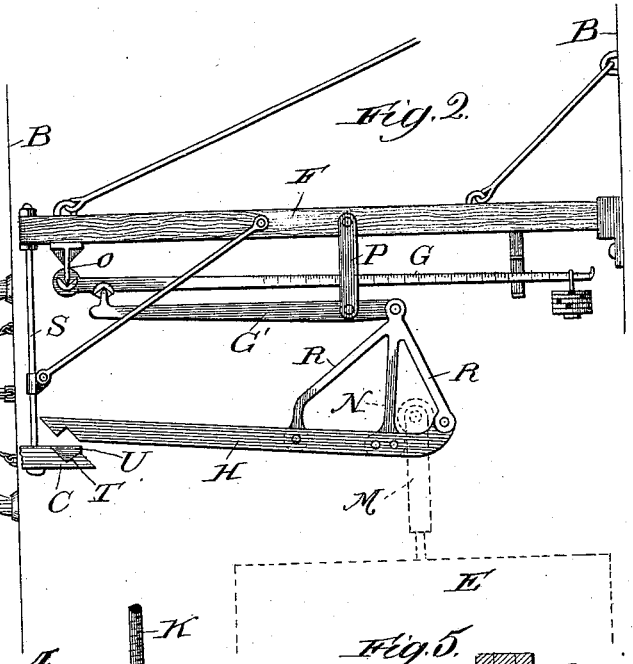



Fig. 4.

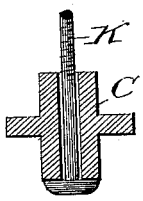



Fig. 5.

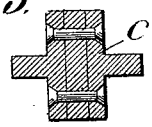



Fig. 3.

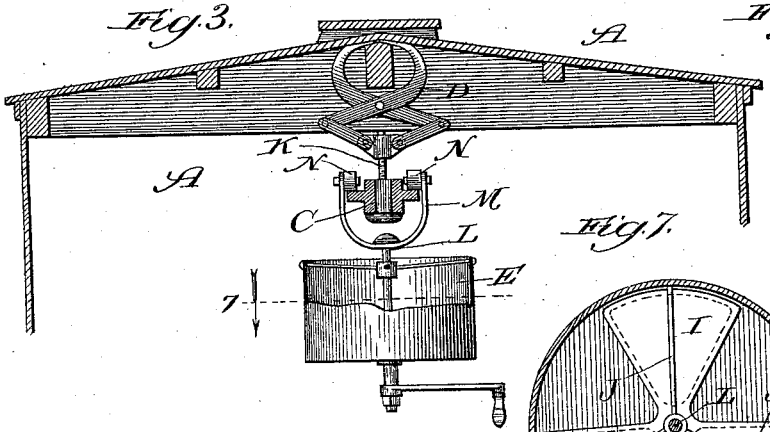



Fig. 6.

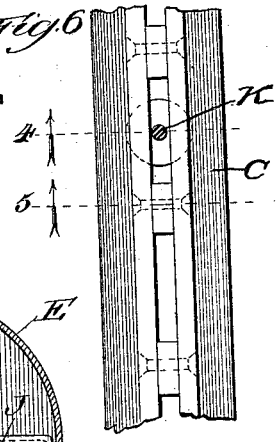
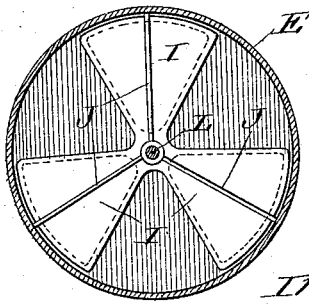



Fig. 7.

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# UNITED STATES PATENT OFFICE.

HUMPHREY ROBERTS, JR., OF WATERMAN, ILLINOIS.

## GRAIN LOADER AND WEIGHER.

SPECIFICATION forming part of Letters Patent No. 418,751, dated January 7, 1890.

Application filed August 12, 1889. Serial No. 320,453. (No model.)

*To all whom it may concern:*

Be it known that I, HUMPHREY ROBERTS, Jr., a citizen of the United States, residing at Waterman, De Kalb county, Illinois, have invented a new and useful Improvement in Grain Loaders and Weighers, of which the following is a specification.

The object of my invention is to provide a simple and economical means for conveying the grain from the elevator into the car, dumping it therein, and weighing it while in transit; and my invention consists in the features and details of construction hereinafter described and claimed.

In the drawings, Figure 1 is a plan view of my device, showing the car which is being loaded in dotted lines; Fig. 2, a side elevation of the scale or weighing part thereof. Fig. 3 is a cross-section of a car with my device attached thereto. Fig. 4 is a cross-section on line 4 of Fig. 6, looking in the direction of the arrow, showing the means for connecting the tongs or grappling-irons to the track; Fig. 5, a cross-section on line 5 of Fig. 6, looking in the direction of the arrow, showing the construction of the track. Fig. 6 is a plan view of a portion of the track, and Fig. 7 a plan view of the inside of the bottom of the grain-bucket.

A is the car; B, the elevator-wall; C, the track; D, the tongs for attaching the track to the car; E, the bucket; F, a beam to which the weighing device is attached; G G′, the scale-beams; H, a movable section of the track attached to one of the scale-beams; III, a damper or valve in the bottom of the bucket, and J J J scrapers inside of the bucket.

In constructing my improved loader and weigher I make what I term a "track" or "way" of suitable size, its length of course varying with the length of the car-body. This track is preferably made of steel, and preferably consists of two T-shaped pieces of that metal fastened head to head by means of thimbles or spacers placed at suitable distances apart along the length of the track, and bolts or rivets countersunk, passing through the T-rails and the thimbles. This method of construction (which is more particularly shown in Figs. 5 and 6) furnishes me with a strong and light double track, which is capable of being easily handled and adjusted. This track is preferably made as shown in Fig. 1, having one part thereof bent at an angle with the rest, so as to run along inside of the car, and then turn and pass out of the car-door.

For the purpose of attaching this track to the car, I provide it with a number of tongs or grappling-irons, as shown more particularly in Fig. 3. A bolt K passes up between the rails of the track, as shown in Fig. 4, the rails resting upon the upper side of the head of the bolt, and the shank thereof passing up through and above the rails. To the upper end of this shank I attach, in any suitable manner, a pair of tongs, preferably of the shape shown in Fig. 3, and of a size suitable to embrace one of the roof-timbers of the car. It will readily be seen that when the track is brought into the car and the tongs attached to the timber, as shown in Fig. 3, the heavier the track and grain-bucket may be the more tightly the tongs will grapple the timber and the more firmly the device will be held in place, any downward pulling tending to force the points of the tongs together. I next construct of steel, iron, or any other suitable material what I term a "grain-bucket." This bucket consists of a preferably cylindrical vessel of any desired height and diameter not too great to prevent its free entrance into and passage out of the car. This bucket is provided with a bolt L, preferably passing through the center of the same and engaging with a U-shaped yoke M, which is provided with rollers N at the upper and inner sides of its arms. The yoke is of a size to pass over the end of the track, and the wheels or rollers N are adapted to rest upon the two sides or rails of the track, thus allowing the bucket to move freely back and forth along the same. It will be noticed that from the peculiar construction of the track it may be reversed, so as to allow it to be run into one end or the other of the car as desired, as indicated by dotted lines in Fig. 1, and when inserted in either direction it still affords a double track on which to run the bucket. The bottom of

the bucket is preferably provided with a valve or damper I, as shown in Fig. 7, and to this damper I prefer to connect a sleeve inclosing the bolt L and passing out at the bottom of the bucket, beneath which it may be connected with a suitable crank, by which to revolve the dampers. I also prefer to provide this bucket with a number of vertical scrapers J, placed immediately above the upper surface of the valve I, and adapted as the valve rotates to remove therefrom whatever grain may have lodged thereon. In the drawings I have shown three of these scrapers, and such is the construction I prefer to use with a three-part valve such as shown; but of course, if desired, the valve may be made with a less or greater number of openings, and the number of scrapers diminished or increased to correspond.

Having described the loading mechanism, I will now describe that which I have devised for weighing the grain. This mechanism is more particularly shown in Fig. 2. I first construct a beam F, preferably of wood, which is to be attached in any suitable manner to the wall of the elevator, store-house, or other place in which the grain which it is desired to load may be contained. I next construct of metal a graduated scale-beam G, provided with suitable weights and means for attaching them. This beam G is fulcrumed at O and rests upon the other scale-beam G′, this latter beam being attached by means of links P to the beam F. The lever G rests upon the lever G′ at a point near one end of the latter, and at the other end I attach by any suitable means what I term a "movable section" of the track. This track is made like the track already described, and when made as shown in the drawings is attached at or near the end of the beam G′ by means of a three-pronged arm or link R, passing between the two pieces of T-rail that form the track and fastened by bolts passing through the track and arm. While I consider this a preferable method of construction, since it allows of an easy tilting or rocking motion of the movable section, any other method of construction that will attain the same result would of course be within my invention, the object of this part thereof being to attach the movable section of track H to the beam G in such manner as to allow of its tilting up and down to accomplish the results I am about to describe. The free end of the section H is preferably curved upward to prevent the bucket from running off. The end of the track C is connected with the beam F by means of a bolt S, whereby it is held in a fixed position. The end of the track is preferably provided with a notch T in each of the rails and a tongue U between the rails, and the end of the movable section H is similarly notched to engage with the notches of the track C and provided with a groove to receive the tongue U, whereby the parts of the track C and H may be fitted together and firmly held in such way as to render sidewise motion impossible. This construction is particularly shown in Fig. 2 of the drawings, where the movable section H is shown as separated from the track C, being tilted upward by the weight of the grain-bucket.

My device operates as follows: The weighing apparatus is attached to the wall of the elevator or store-house in which the grain is contained, and the car being brought in front thereof the track is carried into the car and attached to the roof-timbers by the tongs in the manner already set forth. The bucket-yoke is then slipped over the end of the track and the bucket run out through the door of the car onto the movable section H, which in its normal position lies flush with the surface of the track C. As the bucket approaches the upwardly-curved end of this movable section H, the latter swings upon its pivot, and, rising upward, is released from engagement with the track, so that all the weight of the bucket is borne by the weighing apparatus. The bucket is then filled and the grain weighed. The bucket is then run along toward the car, and as it approaches the end of the movable section nearest the car its weight forces the section down and brings it again into connection with the track C, on which track the bucket is run into the car. The valve is then opened and the grain dumped into the car. The bucket may then be run back and refilled, and the operation repeated as often as desired. One end of the car being filled, the track may, if desired, be taken down, turned over, and inserted into and attached to the other end of the car, after which the operation is carried on just as above described.

Although I have described what I consider the preferred way of constructing and operating my apparatus, I do not wish to be considered as limiting myself to the precise and exact form of construction herein shown and described, since, of course, changes of material and form may be made without departing from the spirit of my invention, the gist whereof consists in providing a movable section of the track connected with a suitable weighing device for the purpose of weighing the grain while in transit.

It will of course be understood that my device is capable of being used in connection with vessels and warehouses, and may be used to carry other things besides grain—as, for instance, hay, coal, and other substances.

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

1. A grain loader and weigher comprising a portable track adapted to be attached to the interior of the car, a movable track supported by a scale-beam adapted to engage with the portable track, and a bucket adapted to hold grain while being weighed and to carry it into the car, and provided with suit-

able means for discharging the grain, substantially as described.

2. A grain loader and weigher comprising a portable track adapted to be attached to the interior of the car, a movable track adapted to engage with the portable track, a bucket for carrying the grain along both tracks and discharging it into the car, and a scale connected with the movable track, substantially as described.

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