

(No Model.)

2 Sheets—Sheet 1.

R. R. HOWELL.

GRAIN TALLY.

No. 377,158.

Patented Jan. 31, 1888.

Fig. 1.

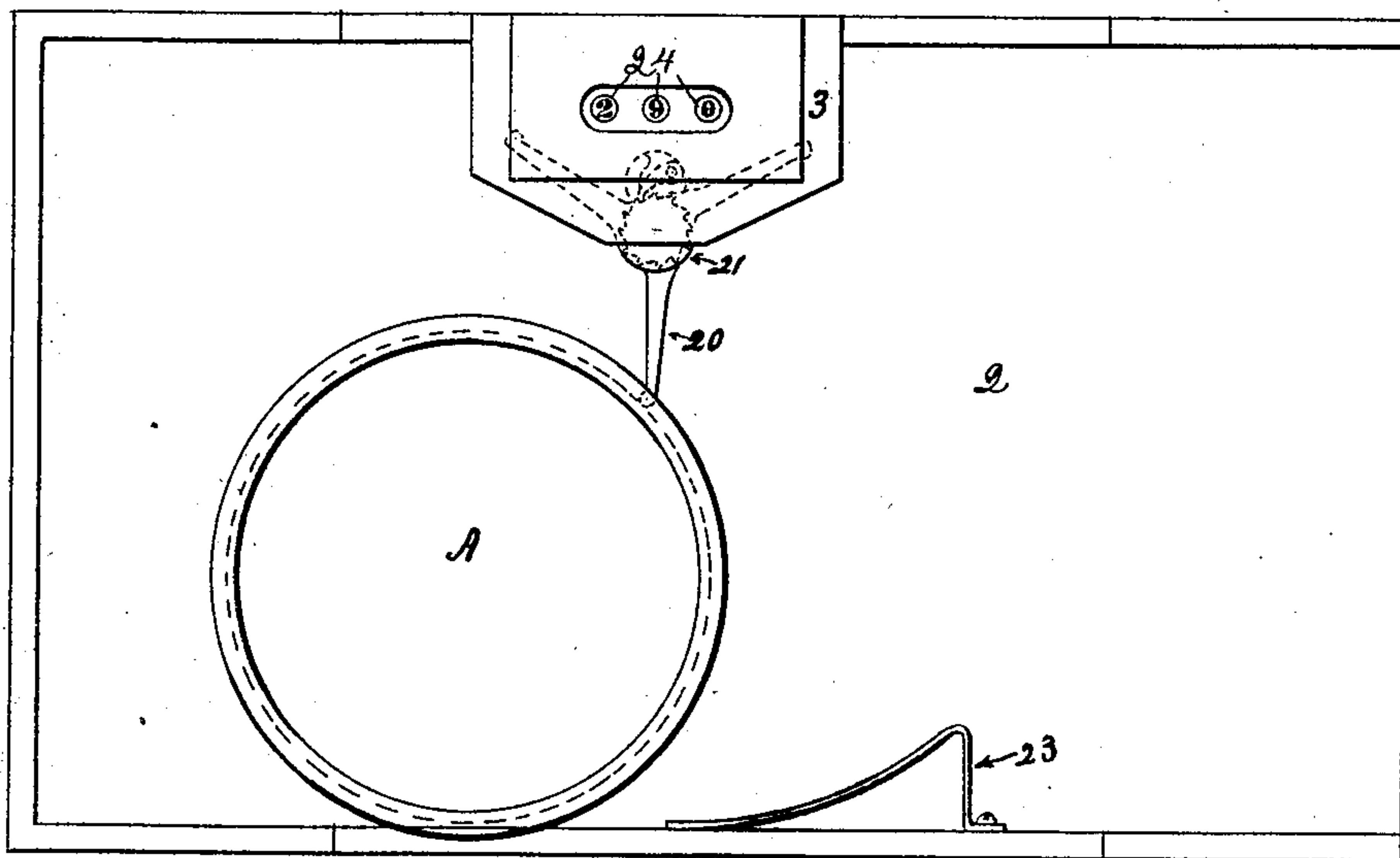
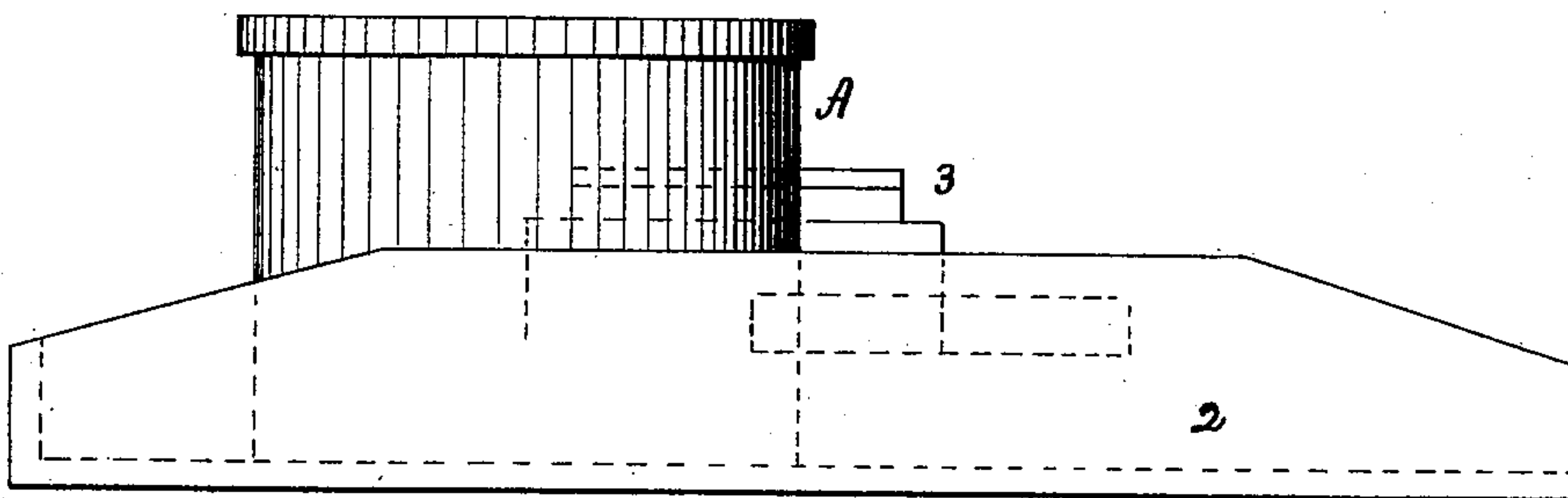


Fig. 2.



Witnesses

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Fig. 3.

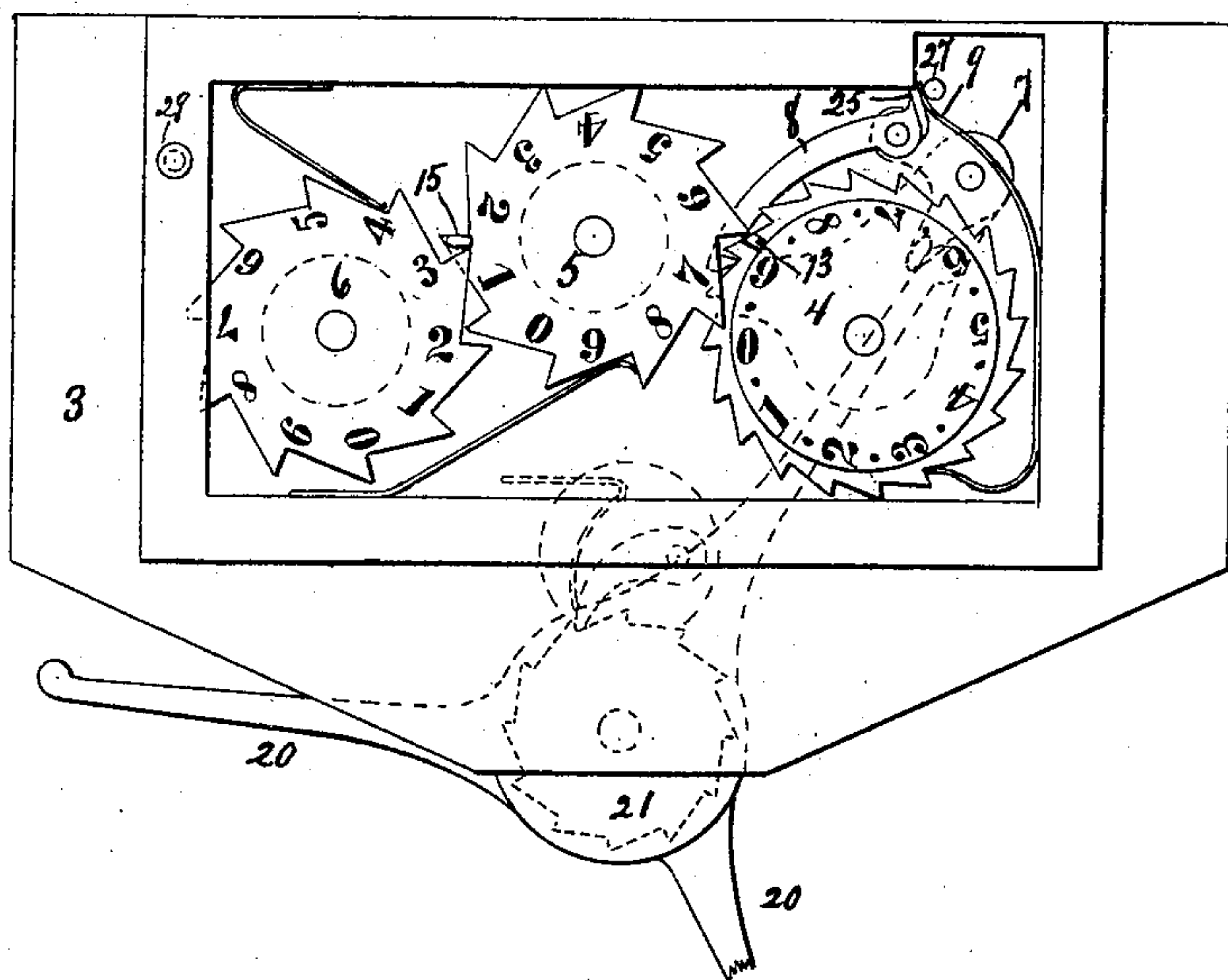


Fig. 4.

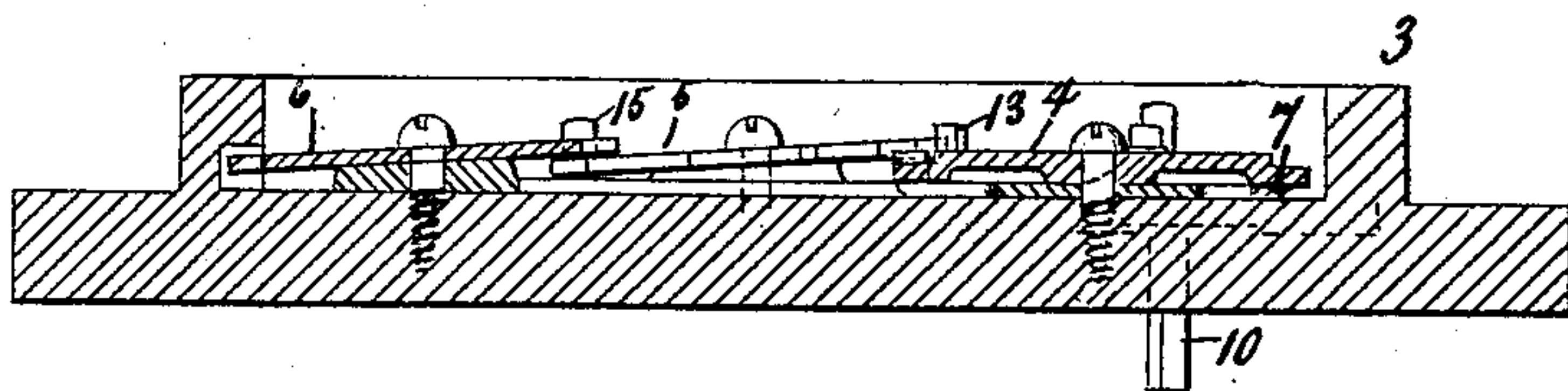
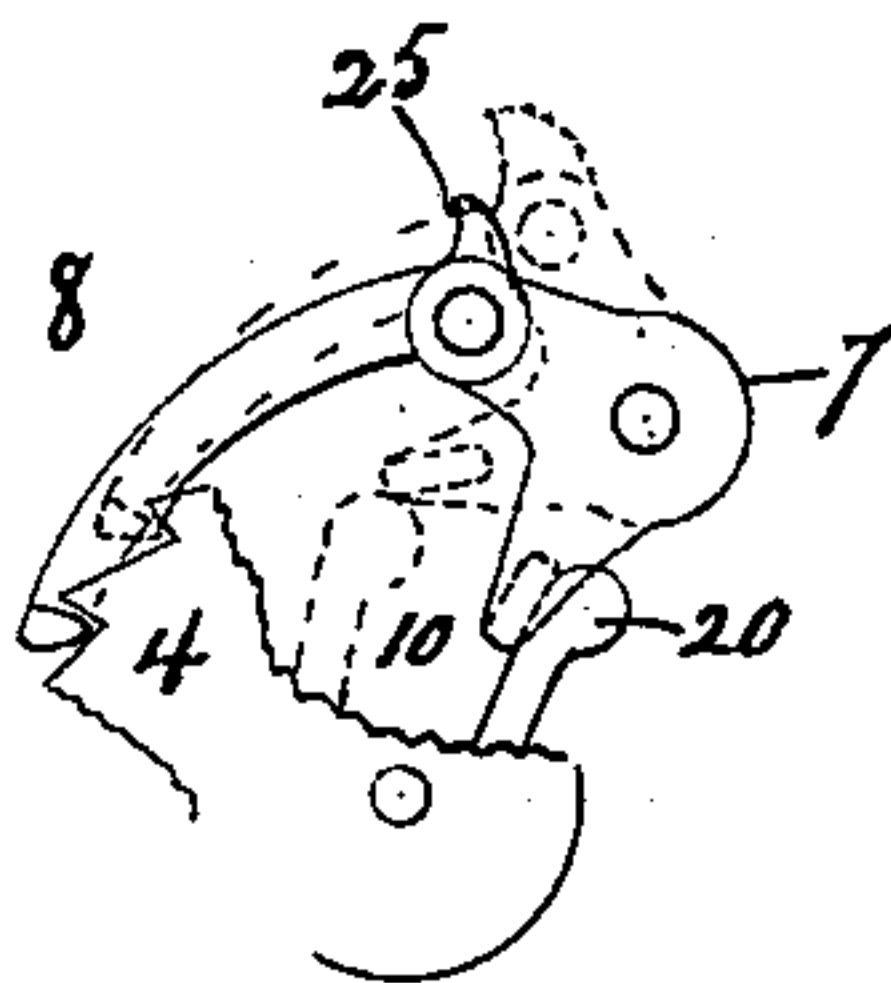


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

ROBERT R. HOWELL, OF MINNEAPOLIS, MINNESOTA.

GRAIN-TALLY.

SPECIFICATION forming part of Letters Patent No. 377,158, dated January 31, 1888.

Application filed October 26, 1885. Serial No. 180,920. (No model.)

To all whom it may concern:

Be it known that I, ROBERT R. HOWELL, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Grain-Registers, of which the following is a specification.

My invention relates to improvements in registering devices for use particularly with thrashing-machines to register the number of times that a half-bushel or other measure is filled with grain.

My invention consists, generally, in the construction and combination of devices herein-after described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan of a grain-box with my device applied thereto. Fig. 2 is a side elevation of the same. Fig. 3 is a plan of the tallying device with the cover removed. Fig. 4 is a vertical section of the same. Fig. 5 is a detail.

In the drawings, 2 represents the grain box in which the measure is placed to receive the grain. To one side of this box the tallying device is secured, so that by drawing the filled measure from one end of the box to the other the register is operated.

In fast thrashing a large amount of grain falls off the measure and accumulates in the grain-box. As usually constructed these boxes are closed at both ends, and they soon become filled with the grain that falls from the measure, and it then becomes necessary to stop and remove this grain. In order to save the time and labor required for this purpose, I provide the grain-box 2 with one open end, so that when the measure is drawn along in the box it pushes before it and out of the box, through the open end, a part of the grain that has fallen off the measure. By this means the grain-box is kept substantially free from grain, so that there can be no accumulation of grain to clog the free working of the measure.

The tallying or registering device is contained in a box, 3, that is attached to the side of the grain-box 2. Within this box are the three wheels 4, 5, and 6, which register units, tens, and hundreds, respectively. Each of these wheels is provided with a spring-pawl

that prevents back movement of the wheel. A bell-crank lever, 7, is pivoted within the box 3, near the edge of the wheel 4. Upon one arm of this lever is pivoted a hook-dog, 8, that engages the ratchet of the wheel 4. The end of the pawl 8 is provided, in the rear of the pivot, with the projecting lug 25, as shown in Fig. 3. A spring, 9, bears against the lug 25, and serves to hold the hook of the pawl against the ratchet and to turn the bell-crank lever on its pivot to throw the pawl forward to engage the next tooth of the ratchet. The opposite end of the spring 9 preferably forms the holding-pawl for the wheel 4, as shown, though an independent pawl might be used instead. The opposite end of the bell-crank lever has a projection, 10, that extends through a slot in the bottom of the box 3. The wheels 5 and 6 are each preferably placed obliquely, as shown, so that the edge of the wheel 5 overlaps the edge of the wheel 4, and the edge of the wheel 6 overlaps the edge of the wheel 5. The wheel 4 is provided with a projecting lug, 13, that operates the wheel 5, and the wheel 5 is provided with the lug 15, that operates the wheel 6.

Beneath the box 3 is a plate, 21, having a number of arms, 20 20 20, radiating therefrom. The plate is pivoted and provided with a ratchet and pawl to prevent back movement, as indicated by dotted lines in Figs. 1 and 3. The arms 20 are therefore free to revolve in one direction, but cannot move in the other. As the half-bushel is drawn along in the grain-box it encounters one of the arms 20, and turns it under the box 3, at the same time bringing another arm from under the box to a position extending across the grain-box, where it is operated upon by the next half-bushel that is moved across the grain-box. The other arm under the box encounters the projection on the bell-crank lever 7 and turns the lever, thereby operating the pawl 8 and turning the wheel 4 one notch. As soon as the arm 20 passes the projection, the spring 9 returns the pawl and the bell-crank to its former position, ready for the next movement of the arms 20.

The wheel 4 is preferably provided with twenty ratchet-teeth and with the figures from 1 to 0, placed opposite the alternate teeth. Where a half-bushel measure is used for re-

ceiving the grain, two movements of the wheel 4 will indicate the passage of one bushel of grain. The tens and hundreds wheels are each provided with ten ratchet-teeth and with corresponding numbers.

The wheels 4, 5, and 6 are preferably arranged, as shown in Fig. 3, with their axes at the points of a triangle, whose altitude is substantially equal to the radius of the wheel 5. The wheels 4 and 6 turn in the same direction, while the wheel 5 turns in the opposite direction. The figures on the center wheel are arranged lengthwise of the radii of the wheel, while the figures on the other wheels are arranged across the radii. This arrangement brings the inner figures of the outside wheels and the figure on the central wheel that is midway between the other wheels into a straight line and all in the same position, as the 2 9 0 in Fig. 3.

The box 3 is provided with a suitable cover and means for locking it, and with openings 24, (see Fig. 1,) through which the numbers on the register can be read. A pin-hole, 27, is made in the inside of the bottom of the box 3, as shown in Fig. 3, and into this hole a pin, 29, may be dropped, so that when desired the device cannot be operated. This pin when not in use may be placed in a hole in the edge of the box, as shown at the left hand in Fig. 3.

In some instances other means may be used between the revolving arms and the tallying mechanism for registering the movement of said arms.

I do not limit myself to the use of the tallying device on a grain-box having an open end, as it may be applied to any ordinary grain-box. The grain-box is provided with the bar 23, arranged on the side of the grain-box opposite that on which the tallying mechanism is secured, but a little nearer the end of the grain-box at which the measure is removed. By this means the measure is directed toward the tallying device as it is drawn along in the box, which insures the turning of the revolving arms and the operation of the tallying mechanism.

I prefer to provide the plate 21 with three arms, 20, projecting at equidistant points from its circumference. With this number of arms the angle between them is large enough to permit the half-bushel measure to pass into the space close up to the plate and the edge of the tallying-box, whereby a narrow grain-box may be used and the half-bushel in passing throws the arm with which it is in engagement close to the edge of the tallying-box.

Three arms, and only three, are necessary to the operation of the device, one being operated by the measure while the second is operating the tallying device and the third is turning into position across the box.

I am aware that a passenger-register has been provided with revolving arms which are

actuated by the persons entering a car and operate a registering device, as shown in the patent to French, granted August 28, 1860, No. 29,778, and I therefore restrict myself to the constructions set forth in the following claims.

I claim as my invention—

1. The combination, in a grain-register, with the grain-box 2 and the tallying-box 3, secured to its side, of the registering mechanism arranged within the box 3 and having an operating-lug projecting through a slot in said box, a plate pivoted to said box and carrying the radiating arms 20, extending within the grain-box, said operating-lug being arranged in the field of said arms, and means for preventing a back movement of said arms, all substantially as described.

2. The combination, with the box 3, of the series of registering-wheels 4 5 6, the bell-crank lever 7, the pawl 8, pivoted upon one arm of said lever, the projection 10, extending through a slot in said box, and the pivoted plate carrying the radiating arms 20, all substantially as described, and for the purpose set forth.

3. The combination, with the grain-box 2 and the tallying-box 3, secured to its side, of the registering mechanism arranged within said box 3, the revolving arms 20, in a plane beneath said tallying-box and extending within the grain-box, and the operating-lug connected with said mechanism and projecting through the bottom of said box in the field of the arms 20, whereby said mechanism is operated at each movement of said arms, all substantially as described, and for the purpose set forth.

4. In a tallying mechanism, the combination of the wheels 4 5 6, arranged as described, with the bell-crank lever 7, hook-dog 8, spring 9, projection 10, and revolving arms 20, all substantially as described, and for the purpose set forth.

5. The combination, in a grain-register, with the grain-box 2 and the tallying-box 3, secured to its side, of the registering mechanism arranged within the box 3, the plate 21, pivoted to the box, the three arms 20, projecting at equidistant points from the circumference of said plate and extending within the grain-box, means for preventing a back movement of said arms, and connecting means between said arms and said registering mechanism, whereby said mechanism is operated at each movement of said arms, all substantially as described.

In testimony whereof I have hereunto set my hand this 5th day of October, 1885.

ROBERT R. HOWELL.

In presence of—

C. M. CANNON,
JENNIE CANNON.