(No Model.)

J. O. WYMAN.

GRAIN METER.

No. 453,305. Patented June 2, 1891.

Fig. 1.

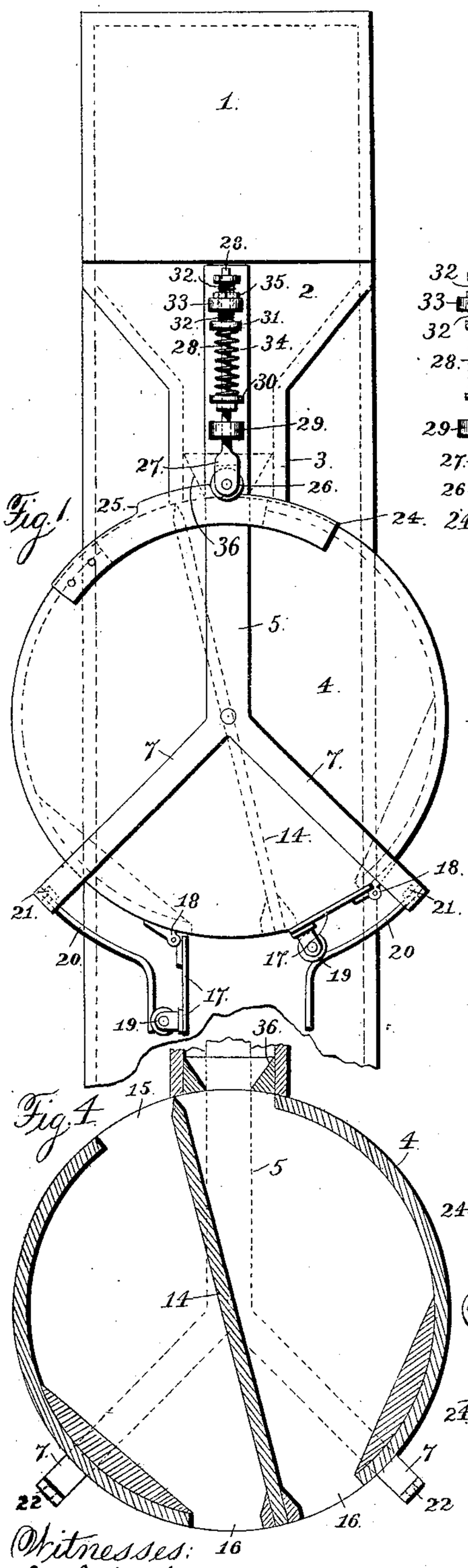


Fig. 2.

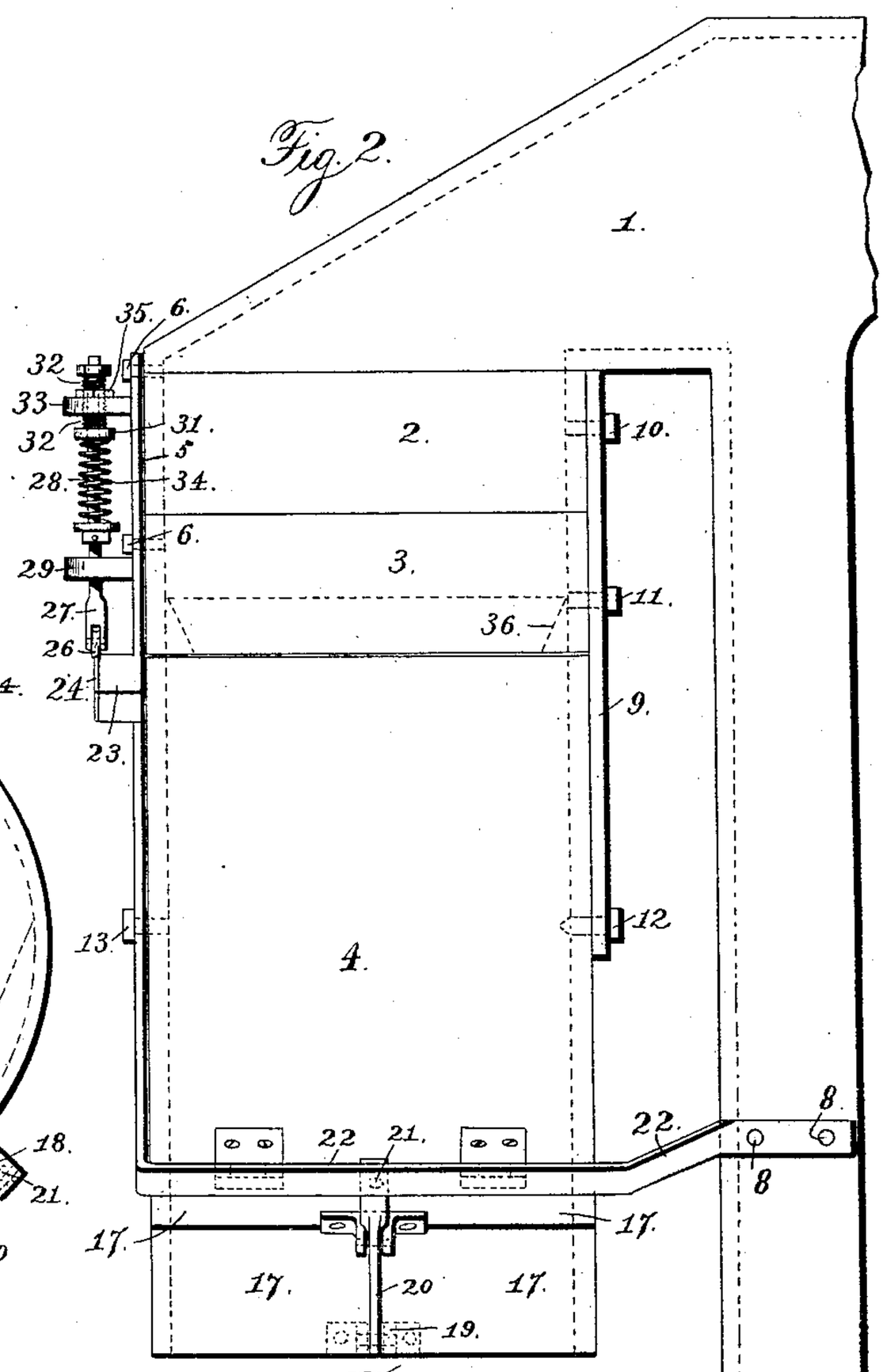
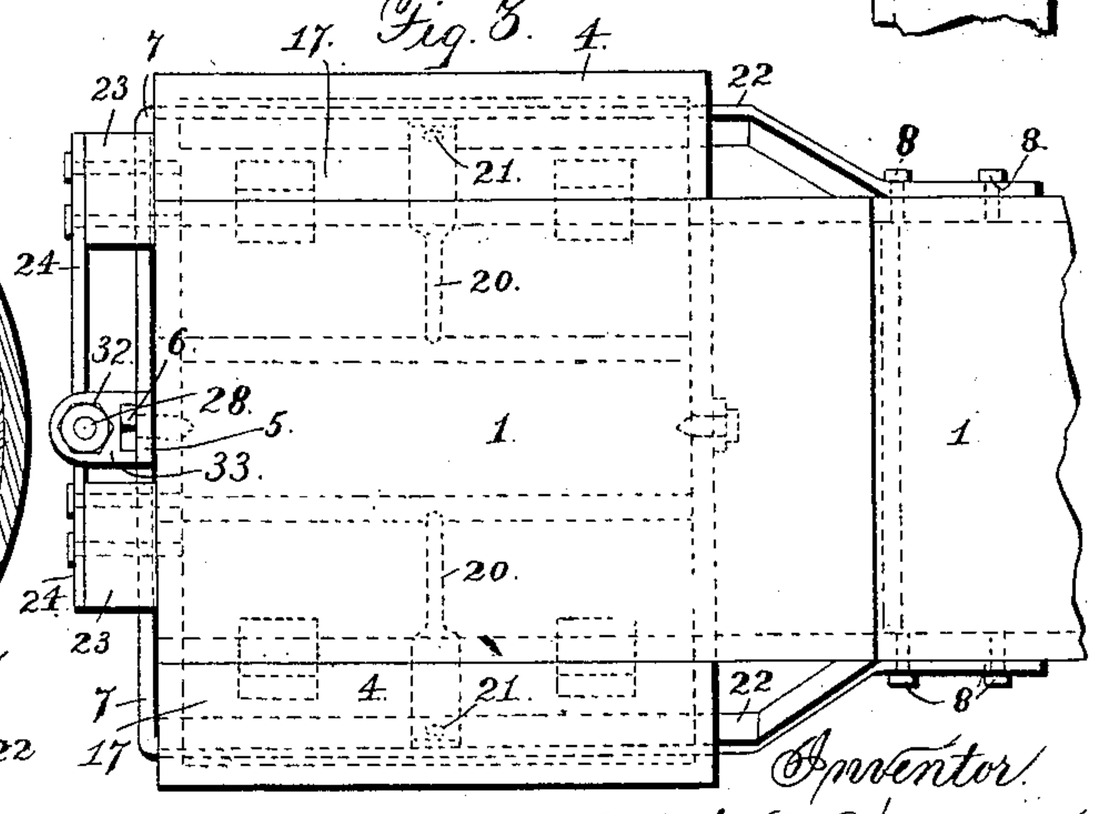


Fig. 4.

Fig. 3.



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UNITED STATES PATENT OFFICE.

JACOB O. WYMAN, OF FARGO, NORTH DAKOTA.

GRAIN-METER.

SPECIFICATION forming part of Letters Patent No. 453,305, dated June 2, 1891.

Application filed July 19, 1890. Serial No. 359,309. (No model.)

To all whom it may concern:

Be it known that I, JACOB O. WYMAN, a citizen of the United States, residing at Fargo, in the county of Cass and State of North Dakota, have invented new and useful Improvements in Grain-Meters, of which the following is a specification.

This invention has for its object to provide a novel, simple, efficient, and economical grain-meter and sacker attachment for grain-elevators, and to provide novel means for governing the oscillations of the meter bucket or wheel according to the quantity or weight of grain which it is desired to discharge from the bucket or wheel at each movement thereof.

To accomplish this object my invention involves the features of construction, the combination and arrangement of devices, and the principles of operation hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a detail front elevation showing a portion of a grain-elevator with my improved grain meter and sacker applied thereto. Fig. 2 is a side elevation of the same. Fig. 3 is a top plan view of the same. Fig. 4 is a detail vertical sectional view of the bucket-cylinder, showing the lower end portion of the hopper to exhibit the reducing-block which contracts the hopper-throat.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the accompanying drawings, wherein—

The numeral 1 indicates the upper end portion of a grain-elevator of the ordinary type, which, being well known, is not more fully illustrated or described. The elevator discharges into the pendant hopper 2, having the discharge-throat 3, the lower extremity of which is struck from a circle concentric with the center of the oscillating bucket-cylinder 4.

The numeral 5 indicates a vertically-arranged bar secured at its upper end to the hopper by bolts 6, and having its lower end portion bifurcated to constitute two divergent arms 7, which are bent at right angles under the bucket-cylinder and have their extremities secured by bolts or otherwise to the framing of the elevator, as at 8.

The rear side of the hopper is provided with a vertically-arranged bar 9, secured by bolts 10 and carrying at its lower extremity the knife-edge pivot-bearing tapped through the bar 9 and supporting the bucket-cylinder, the other knife-edge pivot-bearing 13 being supported by the vertically-arranged bar 8. These knife-edge pivot-bearings are preferably in the form of screws, which are tapped through the respective bars 5 and 9 and so support the bucket-cylinder that it is free to oscillate when released, as hereinafter explained. The interior of the bucket-cylinder is divided into two chambers by the diametrical plate or partition 14, and such bucket-cylinder is provided with two inlet ports or orifices 15 at its top portion and the two outlet ports or orifices 16 at its bottom portion, and each of the outlet-ports is opened and closed by a gate 17, hinged at 18 on the bucket-cylinder, and provided at its outer end with a friction-roll 19, adapted to ride on the curved track 20. The curved tracks 20 are secured by bolts or otherwise to the horizontal portions 22 of the divergent arms 7, and these tracks for a portion of their length are concentric with the bucket-cylinder and then depend or extend downwardly in right lines in such manner that as the bucket-cylinder turns in one direction the friction-roll 19 of one of the gates 17 will move on the concentric part of the track and then down the pendent part thereof, whereby such gate will swing open and permit the flow of the grain from the bucket-cylinder, while the friction-roller 19 on the other gate 17 will ride up the pendent part of the track and then move along the concentric portion thereof, thereby closing such gate.

The upper portion of the bucket-cylinder is provided with offsets or projections 23, by which is carried a segmental or quadrant shaped plate 24, having at the center portion of its upper edge the projecting cam-lug 25, adapted to engage the friction-wheel 26, journaled in the bifurcated or forked lower end 27 of the vertically-movable spring-impelled rod 28. This rod is guided vertically in the bracket or arm 29, provided on the vertically-arranged bar 5, and on the rod is a rigidly-attached collar 30. The upper end portion of the rod 28 is movable within a tubular set-screw 32, which is tapped through the arm or bracket 33 on the vertically-arranged bar 5,

and the lower end of the set-screw is provided with a disk 31, bearing against the upper end of the spiral or other spring 34. The set-screw is securely held in its adjusted position by means of the lock-nut 35. The spring 34 is located on the rod 28, between the collar 30 and the disk 31, in such a manner that the spring tends to throw the rod downward and causes the friction-wheel 26 to engage the upper edge of the segmental or quadrant shaped plate 24. The tension of the spring is increased or diminished by properly adjusting the tubular set-screw 32, and consequently the friction-wheel 26 can be made to bear with more or less force upon the segmental or quadrant shaped plate 24.

In practice, if the bucket-cylinder be in the position shown in Fig. 1, when the required weight of grain is received thereinto, the bucket-cylinder will swing on its pivot-bearings and thereby discharge its contents into a suitable bag properly suspended to receive the grain. This movement of the bucket-cylinder causes the cam-lug 25 to ride under and lift the friction-wheel 26, so that such cam-lug moves from one side of such friction-wheel to the opposite side thereof, and consequently the gate which was previously opened will be closed by the action of the track 20. The grain will now flow into the other chamber of the bucket-cylinder, and when the grain accumulates in the bucket to such an extent as to overcome the tension of the spring the cam-lug will again ride under the friction-wheel 26, lift the spring-impelled rod 28, and move to the opposite side of the friction-wheel to the position shown in Fig. 1. This operation is repeated so long as the elevator is operating. The tubular set-screw 32 effects the adjustment of the coil-spring 34, for the purpose of varying the tension thereof. By this means the spring is tightened or loosened and the movements of the bucket-cylinder are thereby governed according to the quantity or weight of the grain desired to flow from the bucket-cylinder at each movement thereof.

The tracks 20, herein described, which operate on the friction-rolls 19 of the gates 17, are constructed of elastic material, or are otherwise made elastic, in such manner as to accurately open and close the gates, and when the latter are closed to securely hold them in their closed position. The lower end of the hopper-throat is provided with a reducing-block 36, which contracts the delivery end of the throat to secure accurate working of the meter.

The invention provides a simple, efficient, and economical grain meter and sacker attachment for grain-elevators, which may be used with or without registering mechanism, for indicating the number of oscillations made by the bucket-cylinder.

Having thus described my invention, what I claim is—

1. The combination, with an oscillating bucket having inlet and outlet ports or orifices, and automatically-operated gates governing the discharge from the outlet ports or orifices, of a quadrant or segmental shaped plate fixed to the bucket and provided with a cam or projection and a sliding spring-impelled rod having a friction-wheel at one end which travels on the segmental or quadrant shaped plate and engages the cam or projection to hold the bucket stationary until the required quantity of weight or grain is received thereinto.

2. The combination of a bucket having inlet and outlet ports or orifices and gates which govern the flow of grain through the outlet ports or orifices, of a segmental or quadrant shaped plate secured to the bucket and provided with a cam or projection, the lengthwise-sliding rod having a lower portion engaged by the cam or projection, a spring arranged on said rod, and a set-screw for adjusting the tension of the spring, substantially as described.

3. The combination, with an oscillating vessel having a segmental or quadrant shaped plate provided with a cam or projection and a lengthwise-sliding rod having an end portion engaging the cam or projection, a spring located on the rod, and a tubular set-screw serving as a guide for the rod, and also to vary the tension of the springs, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

JACOB O. WYMAN.

Witnesses:
H. P. LOUGH,
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