(No Model.)

W. H. GROVE.

GRAIN WEIGHING, BAGGING, AND REGISTERING DEVICE.

No. 377,428. Patented Feb. 7, 1888.

Fig. 1.

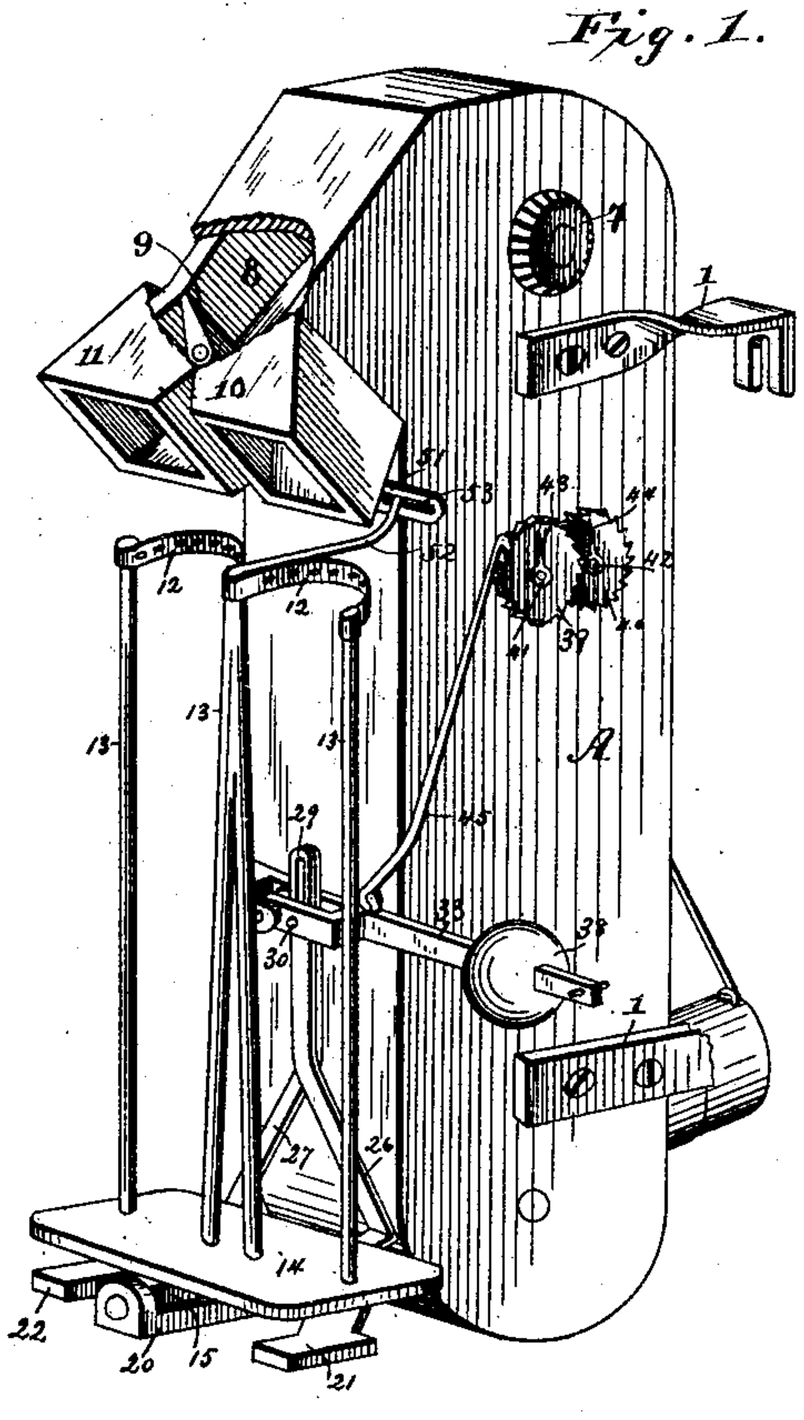


Fig. 2.

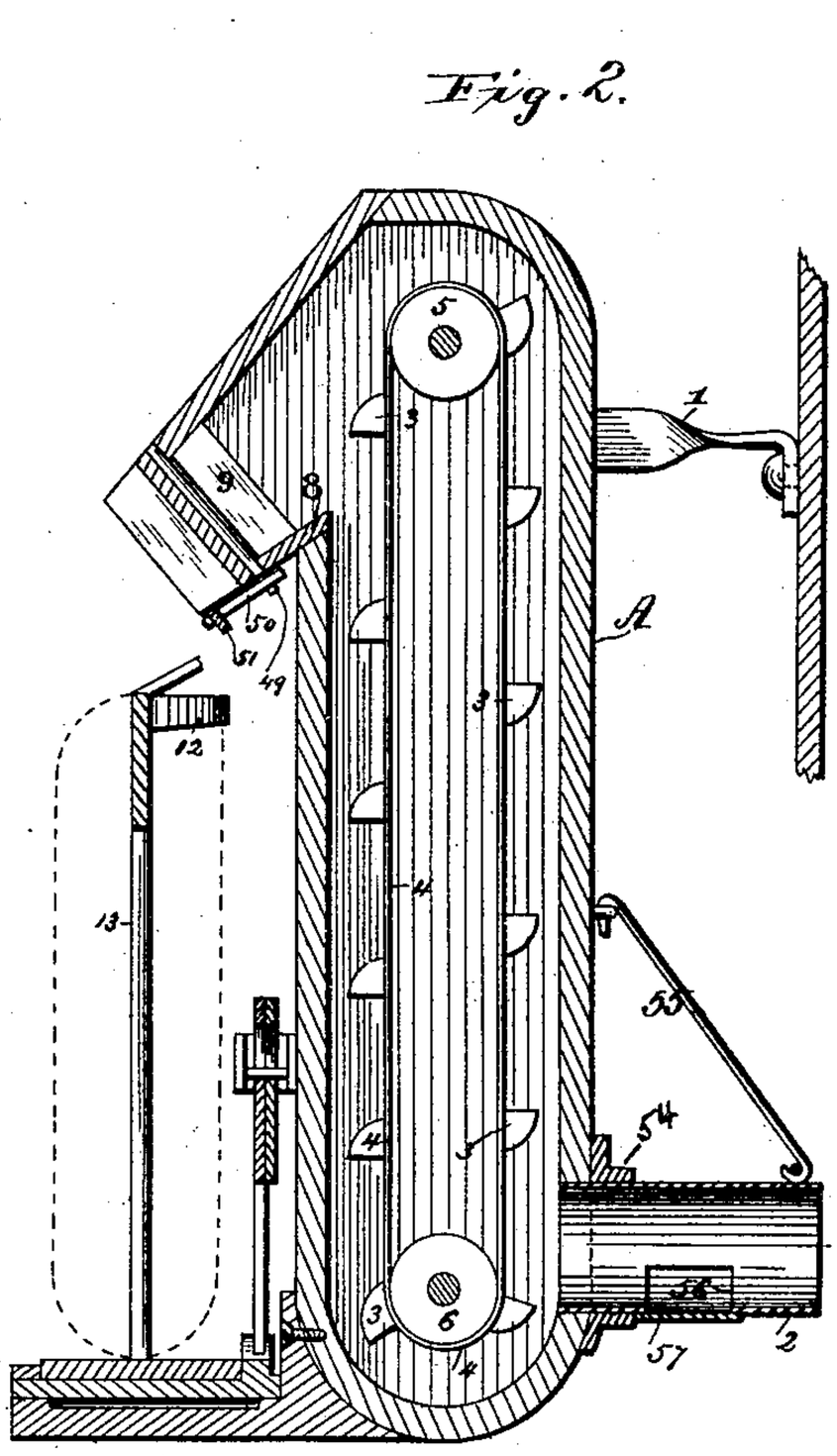


Fig. 3.

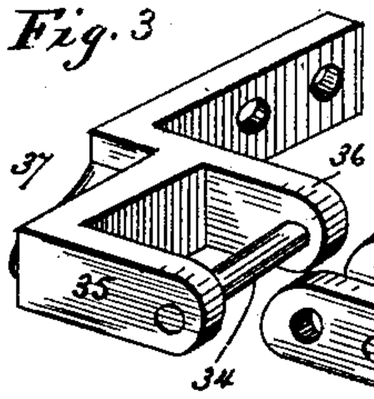


Fig. 4.

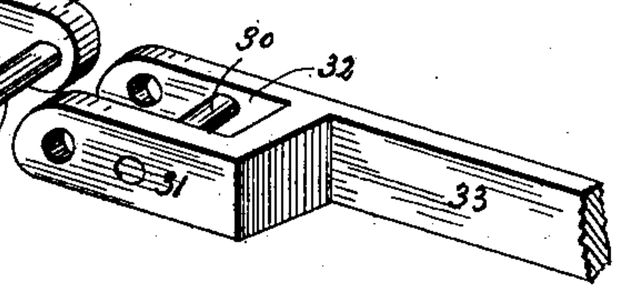


Fig. 5.

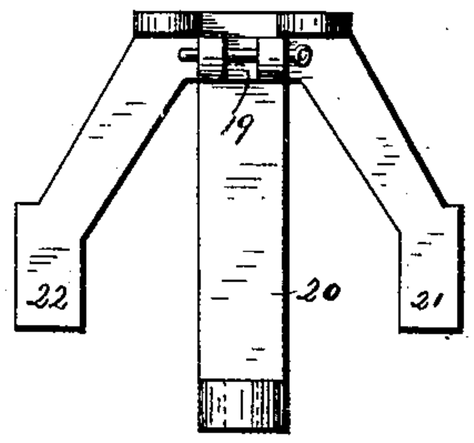


Fig. 7.

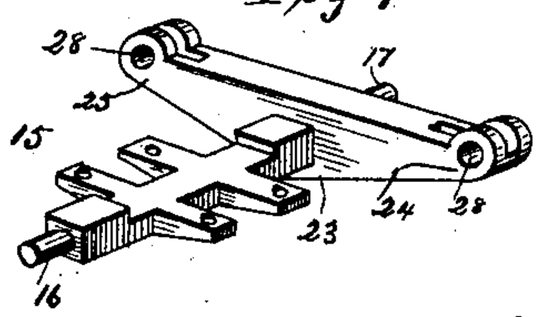


Fig. 6.

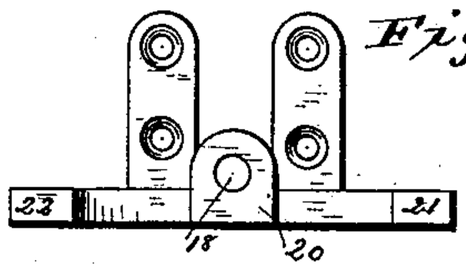
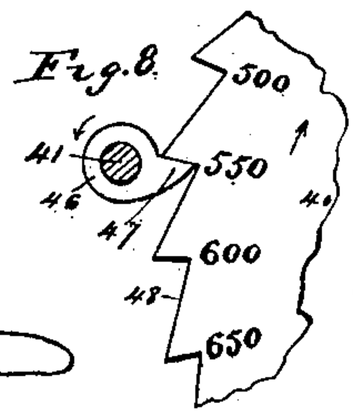


Fig. 8.



Witnesses.
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Wm. H. Grove,
By Foster & Freeman,
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UNITED STATES PATENT OFFICE.

WILLIAM H. GROVE, OF CIRCLEVILLE, OHIO, ASSIGNOR OF ONE-HALF TO CLIFFORD R. DRESBACK, OF SAME PLACE.

GRAIN WEIGHING, BAGGING, AND REGISTERING DEVICE.

SPECIFICATION forming part of Letters Patent No. 377,428, dated February 7, 1888.

Application filed March 25, 1887. Serial No. 232,412. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. GROVE, a citizen of the United States, residing at Circleville, Pickaway county, Ohio, have invented certain new and useful Improvements in Grain Measuring and Registering Devices, of which the following is a specification.

My invention relates to improvements in grain measuring and registering devices; and it consists, essentially, in a device of the class named, which, while particularly designed for use in connection with a thrashing-machine, is yet applicable for use in connection with the delivery-spouts of grain-elevators to automatically weigh or measure the grain, conduct the same to and into bags or other receptacles, and correctly register the quantity of grain so weighed or measured, substantially as hereinafter described, and illustrated in the accompanying drawings, wherein—

Figure 1 is a perspective view of a combined grain measuring and registering device embodying my invention. Fig. 2 is a central vertical section thereof; and Figs. 3 to 8, both inclusive, illustrate in detail detached parts of the device.

Referring to the drawings, wherein similar letters of reference denote similar parts in the several figures, A designates an oblong casing adapted to be secured by brackets 1, having downwardly-turned bifurcated outer ends that engage studs which project from the sides of a thrashing-machine or from the delivery-spout of a grain-elevator, and to receive grain from such machine or elevator through a spout, 2, which opens into said casing near the lower end thereof and discharges the material into buckets 3, which are secured to a belt, 4, that passes over pulleys 5 and 6, arranged, respectively, at the casing, and which receive motion through a bevel gear-wheel, 7, (or its equivalent,) secured on the shaft of the upper roller, 5, from a motor not shown herein.

The grain is discharged from the buckets 3 onto an inclined shelf, 8, near the top of the casing, and thence is directed by a hinged flap or valve, 9, through one or the other of two delivery-spouts, 10 and 11, to receptacles, which in the present instance consist of bags the mouths of which are held open below said spouts by curved straps 12, which are provided with bag-hooks, and are supported upon rods 13, that extend from a rocking or tilting table, 14, near the bottom of the casing.

The table 14 is supported upon a frame, 15, the opposite ends of which are provided with gudgeons 16 and 17, that rest in bearings 18 and 19 upon the upper surface of a frame, 20, which is secured to the casing A. The tilting movement of the table or platform 14 is limited by arms 21 and 22, which project from the opposite sides of the frame 20.

From the above description it will be apparent that an excess of weight upon either end of the platform 14 will cause the same to tilt downward upon the side having such excess of weight.

I utilize the rocking or tilting action of the platform in weighing or measuring grain; and to this end I provide the frame 15 of said platform with a transversely-extending beam, 23, having bifurcated outer ends, 24 and 25, that receive the lower ends of connecting-bars 26 and 27, which are pivoted to said beam by pins 28. The bars 26 and 27, which extend upwardly for a short distance in inclined directions and intersect above the platform, are bent at such intersecting point, and extend thence in contact with each other, are each provided at their tops with a slot, 29, to receive a pin, 30, which extends between lugs 31 and 32, formed upon one end of a scale-beam, 33. The outer ends of the lugs 31 and 32 are apertured to receive a pivotal pin, 34, which extends between lugs 35 and 36, projecting from a frame, 37, that is secured to the casing A.

In practice the slots 29 of the bars 26 and 27 register with each other when the platform 14 is in horizontal position; hence the pin 30 of the scale-beam 33 bears with equal pressure upon the bottom of the slot 29 of each of said bars and operates to maintain said platform in a horizontal position until a sufficient quantity of grain or other material has been placed upon one end of said platform to tilt the platform and raise (through the connecting-bar attached to the opposite end of the platform) the scale-beam 33 and its connected weight or pea 38.

I am aware that it has been proposed to pro-

vide a grain weighing and registering machine with two spouts, an oscillating cut-off, a tilting or vibrating platform adapted to receive sacks, a vibrating scale-bar on which is to travel as the bar vibrates a weight, and rods connecting the platform with the scale-bar, the platform and scale-bar being maintained normally in an inclined position by the weight, which shifts its position on the bar each time a sack is filled and weighed, it being essential that both platform and scale-bar be in an inclined position in order that the cut-offs operate. In my construction, however, while employing a tilting platform, in contradistinction to one which vibrates or moves as a whole about a center or in one direction, I employ a weight, which after adjustment remains stationary on the scale-bar and operates to keep the platform normally in a horizontal position and to return it to such position after the filled sack has been removed. I thus avoid the inconveniences and objections incident to a rolling, sliding, or otherwise traveling weight, which if the least obstructed becomes unreliable. While my arrangement or connection between the platform and the scale-beam insures that like amounts shall be weighed on each side of the platform, and that the weight shall after each vibration return the platform to normal horizontal position, this construction further enables me to use it in connection with an elevator having but a single spout, as the platform is after each vibration returned to a horizontal position, so that sacks may be secured to the same side thereof two or more times in succession, if desired, instead of alternately on opposite sides thereof.

I provide the device with mechanism to automatically register the quantity of grain or other material measured, the said mechanism consisting of disks 39 and 40, which are mounted upon fixed studs 41 and 42, projecting from the casing, and are each provided upon their outer surfaces with a series of indicating marks or lines placed equidistant from each other and properly numbered, that are successively moved under pointers 43 and 44, rigidly secured to the studs 41 and 42, respectively.

I provide the disk 39 with peripheral teeth that are successively engaged by a pawl or arm, 45, that is hinged to the scale-beam 33 and provided with a hooked end, whereby the said disk is drawn forward a distance corresponding to the distance between two of the indicating marks or lines each time the beam 33 is lowered.

I provide the disk 39 upon its inner surface with a central boss, 46, having an arm or tooth, 47, which is brought into engagement with teeth 48 upon the periphery of the disk 40 once in each full revolution of said disk 39, and operates to move the disk 40 forward one point or tooth to each full revolution of the disk 39. To avoid computation I provide the indicating marks or spaces of the disk 40 with numbers which are equal to or multiples of the full number of marks or lines upon the disk 39. Thus if there be fifty marks or spaces upon the disk 39 then the number upon the first line or space of the disk 40 will be 50, the number upon the second 100, &c.

To automatically change the flow of material from one to the other of the spouts 10 and 11 when a certain quantity of grain has passed through either of said spouts, I provide one of the journals 49 of the valve 9, outside the spout-casing, with a crank-arm, 50, and connect said arm by a rod, 51, to an arm, 52, which extends from the central upright, 13, of the platform 14.

To permit the return of the platform 14 to its normal horizontal position when the grain that has been last weighed has been removed therefrom, and without moving the valve 9, I extend the arm 52 into a slot, 53, in the arm 51, as shown in Fig. 1.

Grain is conveyed to the casing A through a spout, 2, which, for purposes of adjustment, is loosely connected to or slipped into a collar, 54, secured to the casing. A rod, 55, hinged at one end to said casing, serves to support the outer end of said spout. I provide this spout in its lower surface with an aperture, 56, closing the same by a flap, 57, which is hinged or otherwise removably connected to the spout.

In operation a bag is secured upon the hooks of each of the straps 12 of the platform 14, which is now held by the scale-beam 33 in horizontal position, as hereinbefore described. Motion being imparted to the belt 4 and buckets 3, will elevate the material from the lower end of the casing A and spout 2 and discharge the same upon the table 8, leading to the spouts 10 and 11, through the open end of one of which such grain will pass to one of the bags below, which, after receiving the desired quantity of material, will cause the platform 14 to tilt, and thus, through one or the other of the rods 26 and 27, elevate the scale-beam 33, and simultaneously therewith turn the valve 9, to change the flow of material through the remaining of the spouts 10 or 11 to the empty bag upon the platform and move the pawl or arm 45 over the teeth on disk 39, so that as the platform comes to its horizontal position the disk shall be advanced. The aperture 56 of the spout 2 forms a convenient exit for uncleaned grain or tailings, which would, were the spout not provided with such aperture, find its way to the elevator within the casing A on starting the machine.

While I have herein described the device in its application to the measurement of grain, it will be understood that it is equally applicable to the measurement of material other than grain—as, for instance, peas, beans, or vegetables of analogous nature, &c.

By reference to the drawings it will be apparent that the casing A may be readily moved from one to the other of the sides of a thrashing-machine, the bifurcated outer end of the brackets 1 facilitating such change.

Modifications in detail of construction may be made in the within-described invention without departing from the spirit or sacrificing the advantages thereof. I therefore do not limit myself to the exact construction shown.

I claim—

1. The combination of a casing, an elevator therein, a tilting platform adapted to receive bags to be filled by the elevator, a scale-beam, two rods connecting the opposite ends of the platform and the scale-beam, and a weight adjustably secured thereon, which after adjustment remains stationary relative thereto, and which after the platform has been tilted by the weight of the filled bag and the same has been removed returns the platform to a horizontal position, substantially as described.

2. The combination of a casing, two discharge-spouts connected therewith, a valve which intermittently closes passage through one of said spouts, a tilting platform adapted to receive the bags, a weighted scale-beam which returns the platform to a horizontal position after each bag has been weighed and removed from the platform, and two rods each connected to said platform on one side of its fulcral line and both connected to the scale-beam on the same line, whereby equal amounts are weighed on both ends of the platform, substantially as described.

3. The combination of a casing, two discharge-spouts connected therewith, a valve which intermittently closes passage through one of said spouts, a tilting platform adapted to receive the bags, a weighted scale-beam, and two rods each connected to said platform on one side of its fulcral line and both pivotally connected to the scale-beam, the ends of the rods being slotted where connected with the beam to permit either rod by the tilting of the platform to move the beam independently of the other rod, substantially as described.

4. A casing having inlet and outlet spouts, a support, 20, rigidly connected to said casing, and a tilting frame mounted upon said support and provided with laterally-projecting arms, in combination with a scale-beam having a bifurcated rear end and adjustable weight, and slotted connecting-rods extending between said beam and laterally-projecting arms, substantially as described.

5. The combination of a casing, two discharge-spouts connected therewith, a support, 20, rigidly secured relatively to the casing, having bearings 18 and 19 and stop-arms 21 22, a tilting frame having gudgeons mounted in the bearings in said support and laterally-projecting arms 24 25, a weighted scale-beam, and rods connected, respectively, with said arms and with the scale-beam by a single pivot, 30, which unites them both thereto, substantially as described.

6. The combination of a casing having two discharge-spouts, a valve-controlling exit through said spouts, a centrally-pivoted tilting platform, a weighted device connected with the platform, operating after each time either end of the platform is depressed and the weight which depressed it is removed to return it to a substantially horizontal position, and connections between the platform and valve, including a slotted bar, and an arm working in the slot in said bar in substantially the direction of the length thereof, whereby when the platform is returned to a horizontal position the valve shall not be moved, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. GROVE.

Witnesses:

P. G. BOSTWICK,

ALF. C. LE BARON.