No. 683,304. Patented Sept. 24, 1901.

J. T. LEMON.

AUTOMATIC GRAIN WEIGHING DEVICE.

(Application filed Oct. 20, 1899.

(No Model.)

Fig. 1

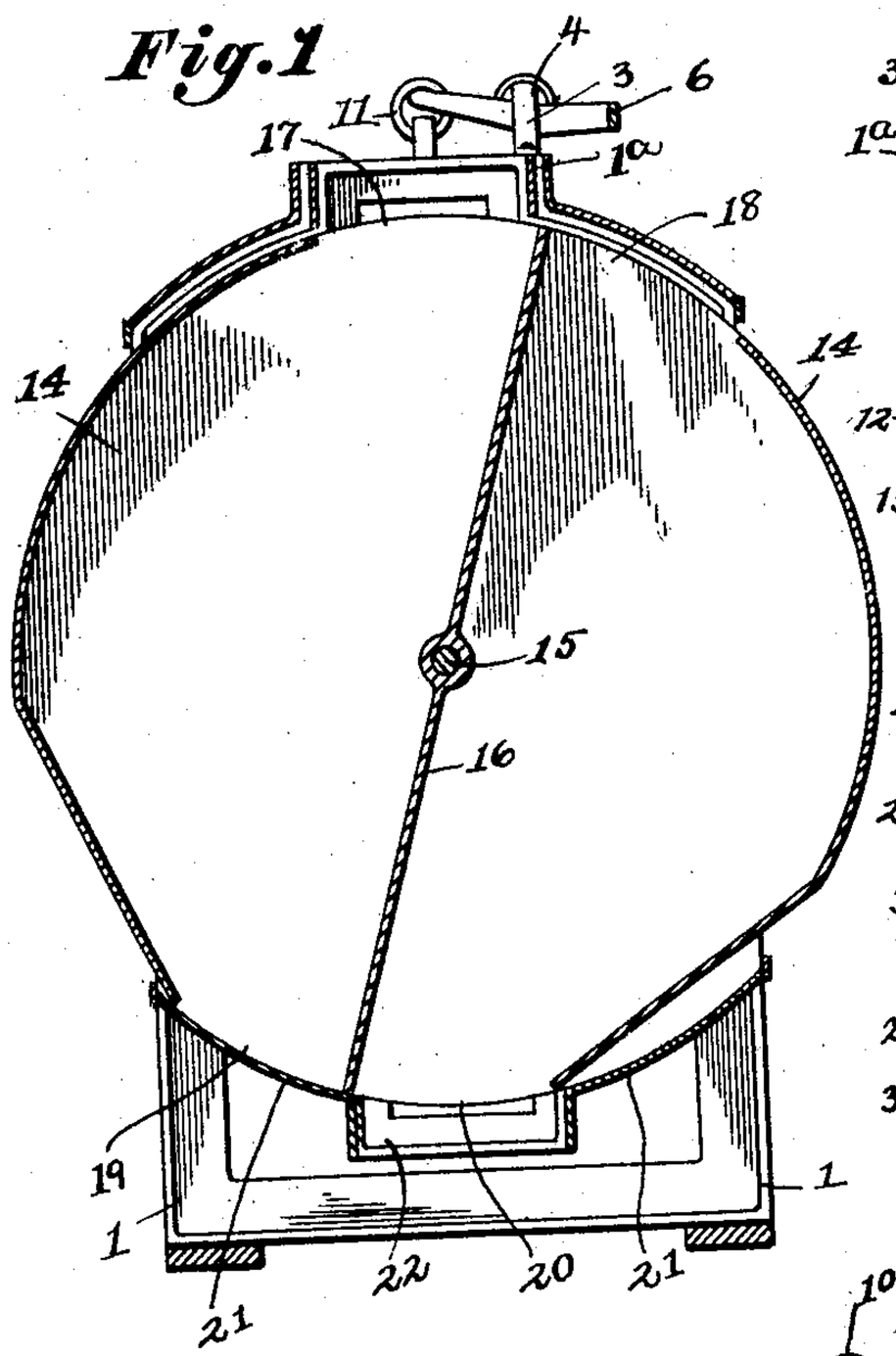


Fig. 2

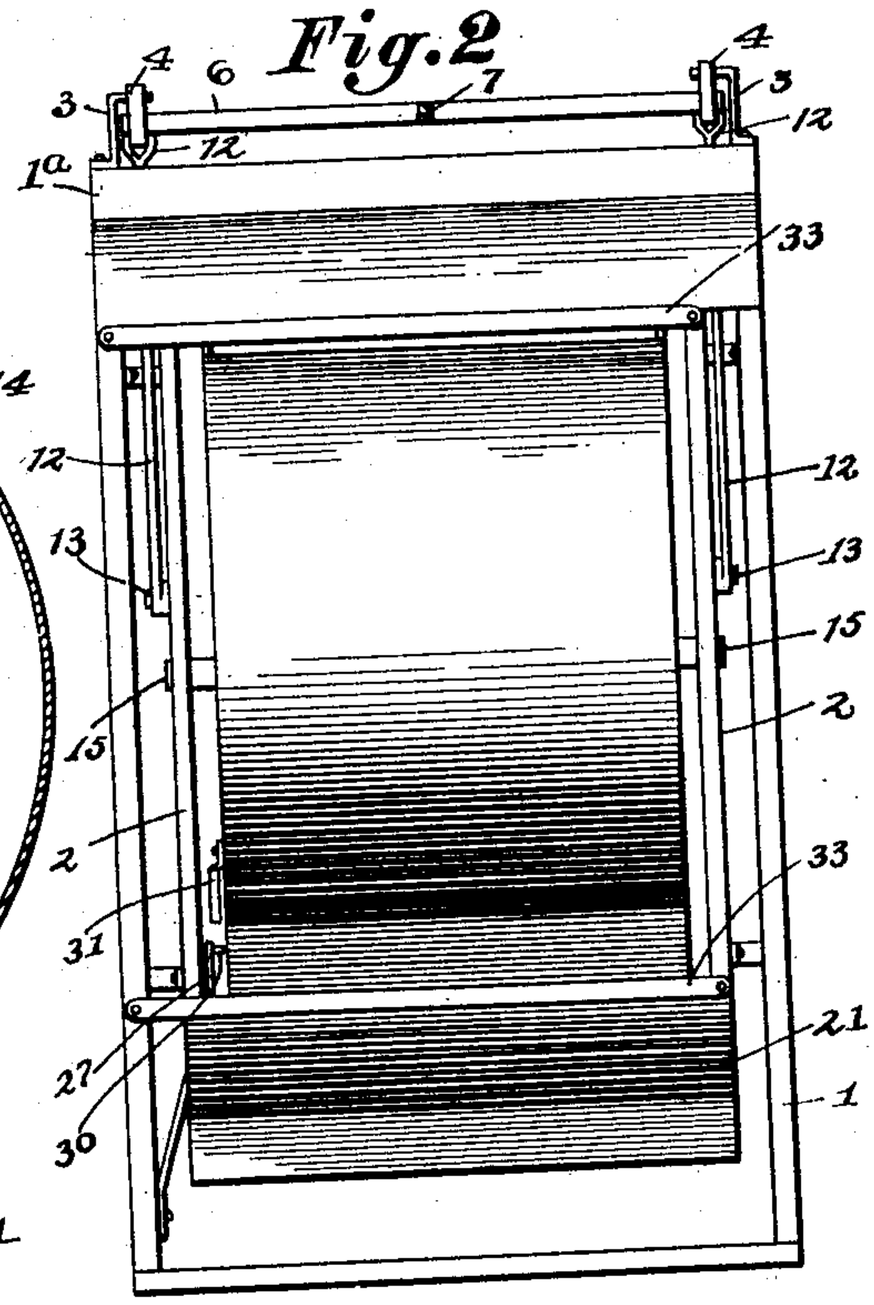
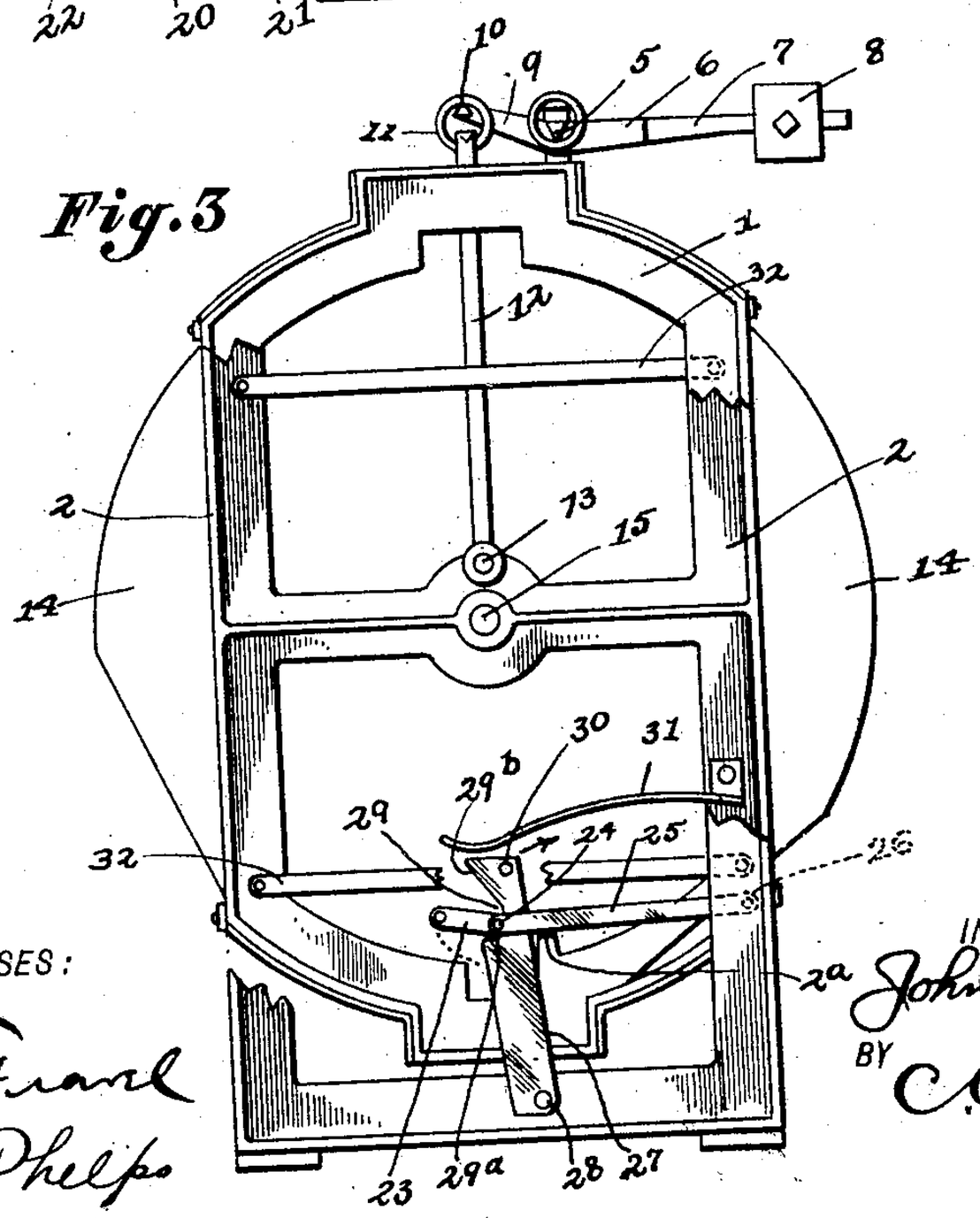


Fig. 3



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AUTOMATIC GRAIN-WEIGHING DEVICE.

SPECIFICATION forming part of Letters Patent No. 683,304, dated September 24, 1901.

Application filed October 20, 1899. Serial No. 734,163. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. LEMON, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Automatic Grain-Weighing Devices, of which the following is a specification.

My invention relates to the improvement of automatic grain-weighing machines of that class which are adapted to be used in conjunction with a threshing-machine or other source of grain-supply.

The objects of my invention are to provide a simple, reliable, and effective device of this character and to produce certain improvements in construction and arrangement of parts, which will be more fully pointed out hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a central transverse section of my improved grain-weighing machine. Fig. 2 is a side elevation of the same, and Fig. 3 is an end view showing portions of the framework broken away for the sake of clearness in illustration.

Similar numerals refer to similar parts throughout the several views.

In carrying out my invention I employ a stationary outside frame, which consists of end frame-standards 1, which are connected in their upper and lower end portions. On the inner side of each of the frame-standards 1 is arranged a vertical and movably-supported frame 2.

Rising from the upper side of the stationary frame 1, near each end thereof and adjacent to one side of the upwardly-projecting neck portions 1^a, are bearing-brackets 3, the inturned ends of each of which support a bearing-ring 4. In these rings bear the knife-blade projections 5 of a scale yoke or lever 6, the horizontal arm of which extends parallel with the top of the machine and is provided centrally with an outwardly-extending lever or weight-carrying arm 7, the latter being adapted to adjustably support a suitable weight 8. The side arms of the yoke or scale-lever, which are thus fulcrumed, are extended, as indicated at 9, these extensions being provided with knife-blade projections 10, which engage and support bearing-rings 11, from which are suspended downwardly-extending bars 12. These bars 12 extend between the inner and outer frame-standards 1 and 2 and are pivotally connected with said inner-frame standards, at points near the centers of the heights of the latter, as shown at 13.

As indicated at 14, I employ a grain-weighing reservoir or drum, the upper portion of which is in the form of a rounded casing, as shown, and the lower portions of the sides of which are inclined, as indicated more clearly in Figs. 1 and 3. This drum is journaled on a central horizontal shaft 15, which passes through the center thereof and through a central rigid partition 16, with which said drum is provided. The ends of the shaft 15 bear, as indicated in Figs. 2 and 3, in a central cross-bar of the frame 2. The upper and lower ends of the drum are provided, respectively, with inlet and outlet openings which extend substantially throughout the length of the drum. The drum is by the employment of the partition 16 divided into two equal-sized compartments, the said partition extending to the periphery of the drum and to the centers of the widths of said inlet and outlet openings, resulting in converting said inlet-opening into two openings 17 and 18 and in converting the outlet-opening at the bottom of the drum into two openings 19 and 20, thus providing an inlet and outlet opening for each compartment of the drum.

Extending between the lower ends of the frame-standards 2 is a curved bottom plate 21, the latter being provided with a central downwardly-extending open neck 22, which is adapted in the manner hereinafter described to register with the desired one of the openings 19 or 20, while the curved portion of said bottom plate is adapted, as indicated in Fig. 1, to close at the same time the remaining opening.

Pivotally connected with one end of the drum 14 and preferably in the lower portion thereof and at or near the center is a crank-arm 23, the outwardly-projecting pin 24 of which is pivotally connected with the inner end of a laterally-extending bar 25, the outer end of which is connected with the inner frame-standards 2, as indicated in dotted lines at 26.

27 represents a trip or latch bar, the lower end of which is pivoted at one side of the center of its width at 28 to the lower portion of one of the frame-standards 1. This trip-bar extends upwardly and is provided with a lateral recess 29, which is substantially of an angular form and which results in the formation of a lower square shoulder 29^a and an upper inclined contact-surface 29^b. The upper end of the trip-bar is provided with a short outwardly-projecting stop-pin 30. As indicated in the drawings, the shoulder 29^a, formed by said recess 29, is adapted to engage the pivot-pin 24, which connects the bars 23 and 25.

31 represents a spring-strip which is secured at one end to one of the frame-standards 2 and which is adapted when said frame-standard is lowered to contact with and exert a spring-pressure on the pin 30 of the trip-bar 27.

The inner and outer frame-standards 2 and 1 are jointedly connected at each end by upper and lower transverse bars 32, one end of each of these bars being pivotally connected with the inner side of the outer frame-standard and the remaining end thereof being similarly connected with the outer side of the inner frame. The sides of the frames are also connected in a similar manner through the medium of bars 33, which, as shown more clearly in Fig. 2 of the drawings, have their ends pivotally connected, respectively, with said inner and outer frames.

In order to illustrate the operation of my device, I will assume that the parts are in the position shown in the drawings—that is, that the drum is so turned as to cause the inlet-opening 17 to register with the upper neck portion of the outer frame and the outlet-opening 20 to register with the outlet-neck 22 of the inner frame and that said drum and inner frame are held in their elevated positions through the weight 8. The parts being in this position, it will be observed that the drum will be held from rotating through the fact that its crank-arm 23 is substantially in alinement and on a center with the bar 25, said crank-arm being prevented from dropping downward through contact of the bar 25 with a frame-lug 2^a. Now assuming that the inlet-opening 17 of the drum is in communication with a source of grain-supply, such as a chute from a conveyer, it is obvious that the grain will run into that side of the drum the outlet-opening of which is closed by the bottom plate 21 until the weight of the grain thus discharged into said drum-compartment is sufficient to overcome the weight 8, at which moment the scale-lever arm 7 will rise and the frame-standards 2 and drum be allowed to drop downward. In this dropping movement of the inner frame and drum it is obvious that the pin 24 will through contact with the shoulder 29^a be elevated until out of center with the bar 25 and the drum permitted to swing on its shaft 15 until the point of connection of the crank-arm 23 and drum is in rear of the bar 25. In the upward movement of the pin 24, above described, it is obvious that said pin will by contact with the inclined recessed surface 29^b of the trip-bar operate to throw the latter outward in the direction of the arrow indicated in Fig. 3, where it will be temporarily retained through contact of the spring-strip 31 with the pin 30. In the swinging action thus imparted to the drum it is obvious that that compartment thereof which has been filled or partially filled with grain has been moved until its outlet-opening 19 registers with the outlet-opening 22 of the inner frame, thereby permitting the grain to escape through said latter outlet. It will also be observed that the movement of the drum above described has resulted in bringing the inlet-opening 18 thereof into the position formerly occupied by the adjoining opening 17, with the result that the grain discharged from the chute or other source will be received by that compartment the outlet-opening 20 of which has been closed by moving over the bottom plate 21. One of the compartments of the drum having been relieved from the weight of the grain in the manner above described said drum and its frame are free to rise again to their normal positions through the action of the weight 8. In this upward movement it is obvious that the spring 31 will be moved off of the pin 30 and the trip-bar 27 allowed to drop back to the position shown in Fig. 3 of the drawings, in which position it will operate to return the crank-arm 23 to the position indicated in said figure at the next downward movement of the drum, which occurs when the drum-compartment which is being filled is sufficiently weighted to overcome the weight of the body 8.

As shown more clearly in Figs. 1 and 2 of the drawings, the lower portions of the drum sides are inclined inwardly, the lower edges thereof thus being adapted to meet the inner surface of the curved bottom plate 21 tangentially, thereby insuring a scraping of any grain or particles thereof from said curved bottom plate when the drum is rotated and preventing the grain becoming wedged between said bottom plate and the drum.

It will be observed that the pivoted bars 32 and 33 will serve to so connect the outer and inner frame-standards as to permit only the vertical movement of the latter, and thus retain said frames in their proper alinement.

From the construction shown and described it will be observed that a simple, reliable, and effective device is provided for weighing and discharging grain and that the same is of such construction as to admit of its being produced at a reasonable cost of manufacture.

I am aware that drums have been employed heretofore in connection with scales for weighing and discharging grain; but my construc-

tion differs from these former devices in points of construction and arrangement of parts herein set forth.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

In an automatic grain-weighing device, the combination with the inner and outer frame-standards 1 and 2, a drum journaled between said inner frame-standards and having a fixed central partition and upper and lower inlet and outlet openings on opposite sides of said partition and a bottom plate on said inner frame having a central outlet-opening, of a fulcrumed scale-yoke from which said inner frame is suspended, a crank-arm pivotally connected with one end of said drum, a bar 25 pivoted at one end to one of said inner frame-standards and at its remaining end to said crank-arm pin and a device connected with the stationary frame and adapted to contact with said crank-arm pin when the inner frame is lowered, substantially as specified.

JOHN T. LEMON.

In presence of—
C. C. SHEPHERD,
A. L. PHELPS.