No. 735,167. PATENTED AUG. 4, 1903.

I. STEINBERG.

AUTOMATIC FEEDER FOR STOCK.

APPLICATION FILED FEB. 19, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

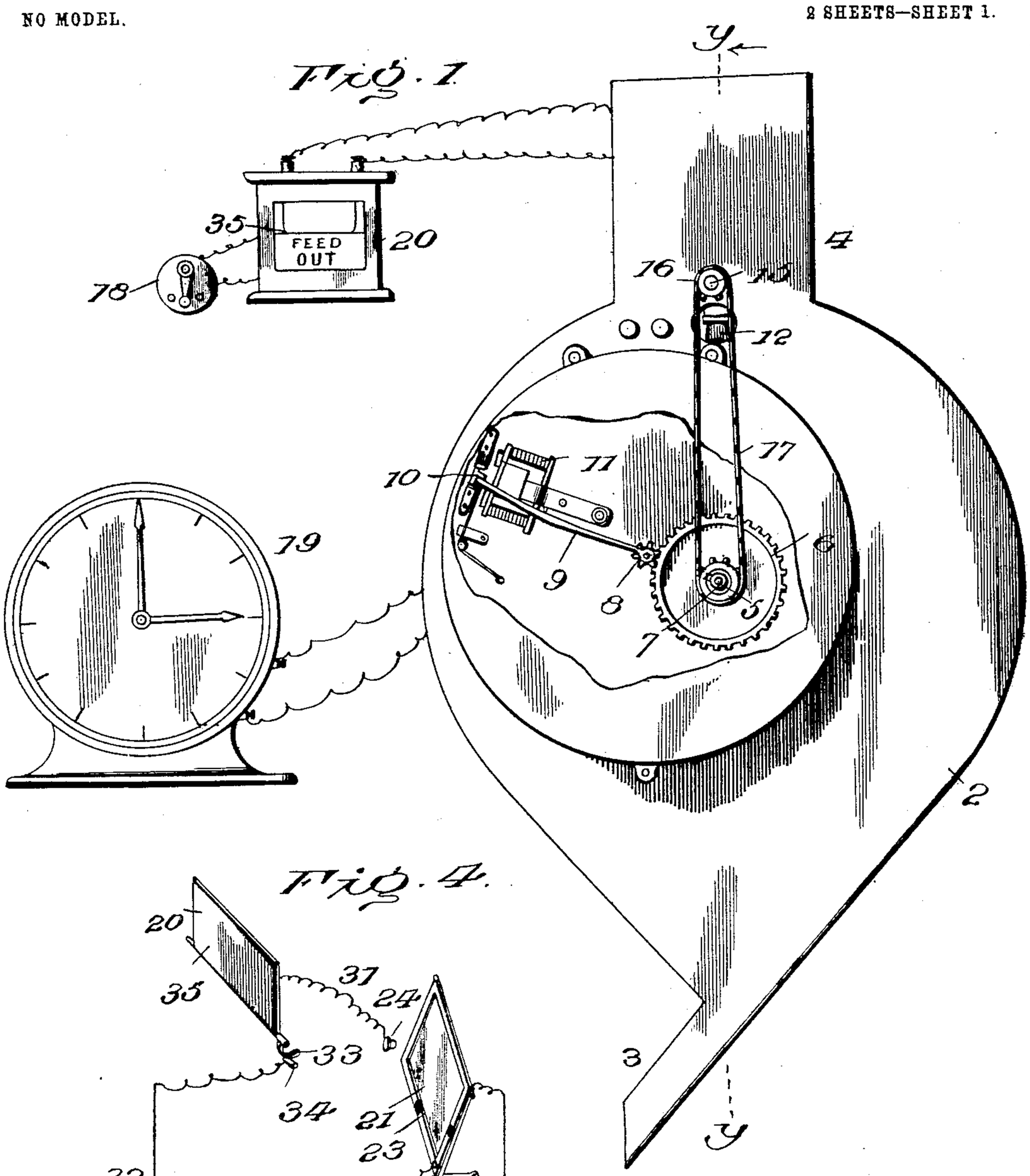
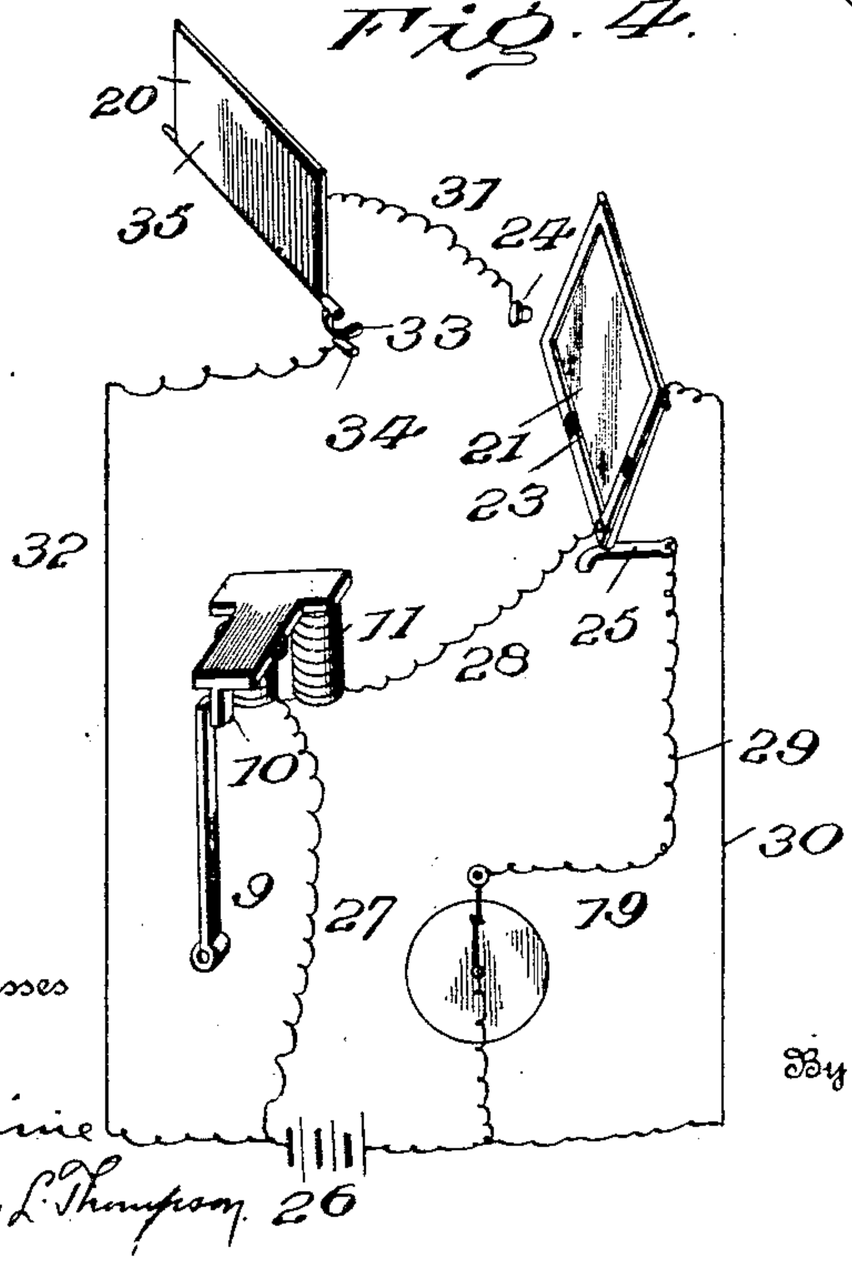


Fig. 4.



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NO MODEL. 2 SHEETS—SHEET 2.

FIG. 2.

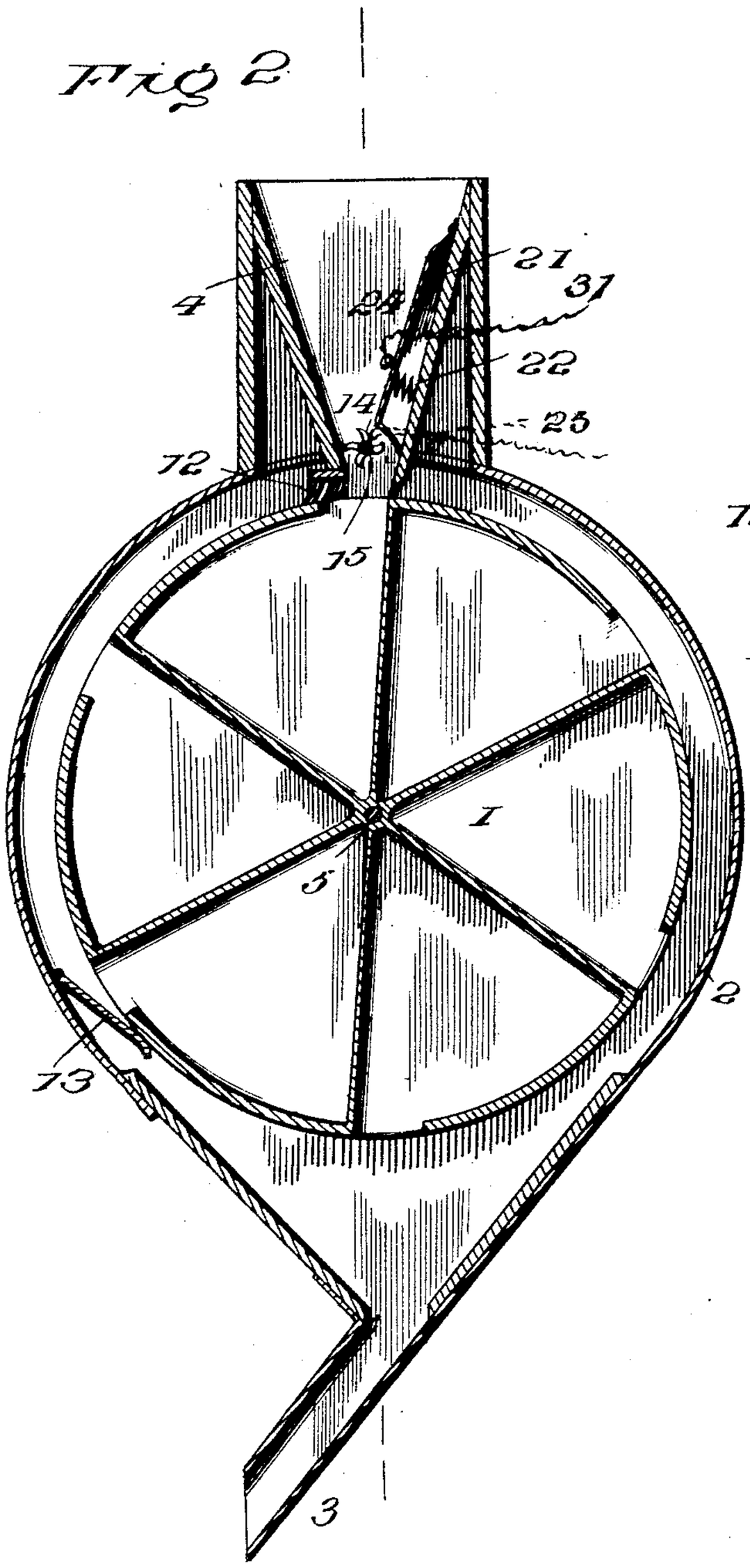
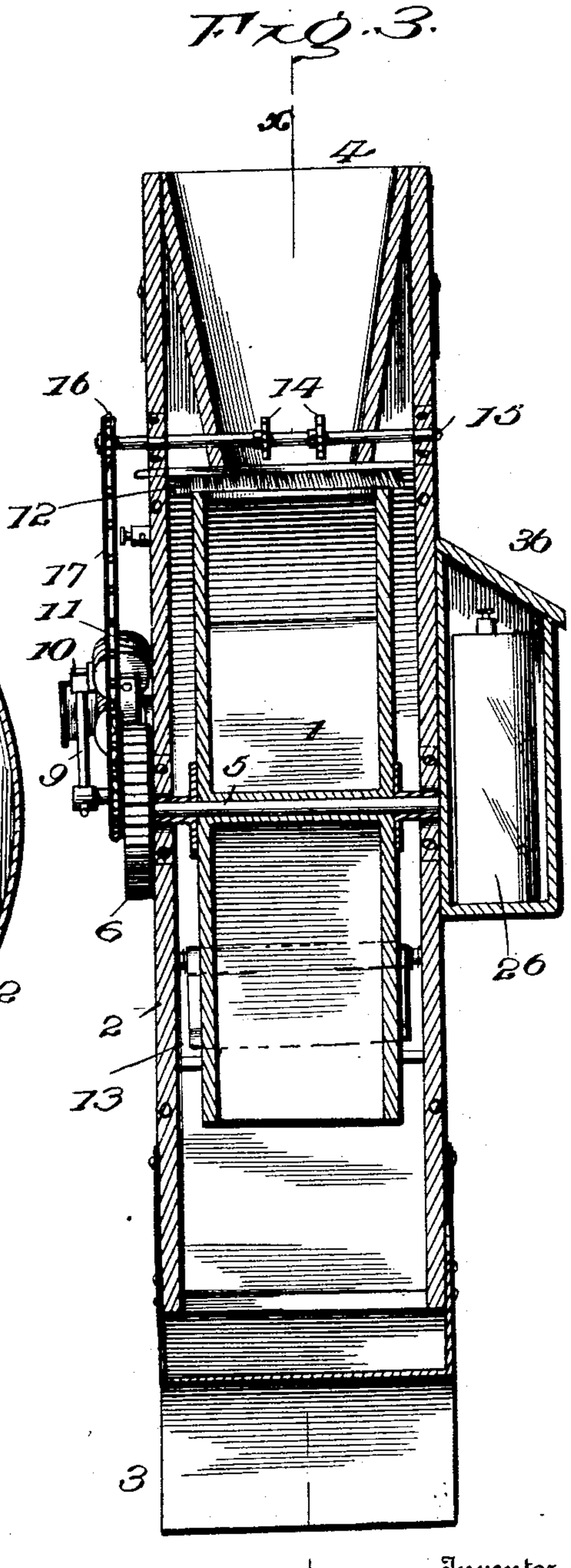


FIG. 3.



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No. 735,167. Patented August 4, 1903.

UNITED STATES PATENT OFFICE.

ISAAC STEINBERG, OF NASHVILLE, TENNESSEE.

AUTOMATIC FEEDER FOR STOCK.

SPECIFICATION forming part of Letters Patent No. 735,167, dated August 4, 1903.

Application filed February 19, 1903. Serial No. 144,128. (No model.)

To all whom it may concern:

Be it known that I, ISAAC STEINBERG, a citizen of the United States, residing at Nashville, in the county of Davidson and State of Tennessee, have invented certain new and useful Improvements in Automatic Feeders for Stock, of which the following is a specification.

While this invention aims to devise a mechanism having for its primary object to feed stock at stated periods a given quantity of grain or like feed, it is also adapted for measuring any commodity desired to be dealt out in determined quantity. In its general construction the mechanism comprises a hopper for holding the grain or other commodity in bulk, a pocket-wheel for delivering the grain or material in measured quantity, and controlling mechanism for the delivery or measuring wheel, same consisting of a restraining-arm, a stop therefor, and a trip for disengaging the stop from the restraining-arm, the trip being included in an electric circuit adapted to be closed either by hand or a time mechanism.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front view of a stock-feeding mechanism constructed in accordance with and embodying the vital features of the invention, a portion of the front of the casing being broken away to show the operating parts. Fig. 2 is a vertical section thereof about on the line X X of Fig. 3. Fig. 3 is a section on the line Y Y of Fig. 1 looking in the direction of the arrows. Fig. 4 is a diagrammatical view showing the direction of circuits.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The wheel, provided with pockets or compartments for delivering the grain, commodity, or material in measured quantity, is indicated at 1 and is located within a casing 2, the latter provided at its lower end with a delivery-spout 3 and at its upper end with a hopper 4 for receiving the grain or material from the source of supply, which may be a bin, room, or compartment containing the same in bulk. The delivery or measuring wheel 1 may be of any diameter and size, depending upon the number of pockets and the amount of grain or material to be delivered at each operation. The shaft 5 is provided with a gear-wheel 6 and pinion 7, gear-wheel 6 being in mesh with a pinion 8, secured to a shaft provided with restraining-arm 9, by means of which, in conjunction with an electrically-controlled stop, the measuring-wheel is held against rotation. The gear-wheel 6 and pinion 8 are of such relative diameter that when the measuring-wheel makes a partial revolution corresponding to the distance of a pocket or compartment the pinion 8 and restraining-arm 9 make a complete revolution, this being essential to the proper control of the machine. The stop 10, normally extended into the path of the restraining-arm 9, is electrically controlled and is connected with the armature of an electromagnet 11, which is included in an electric circuit, whereby upon establishing the circuit the electromagnet 11 is energized and attracting its armature withdraws stop 10 from the path of the restraining-arm 9 and permits automatic operation of the measuring-wheel to deliver the predetermined amount of grain or other commodity to be measured by the machine.

The measuring-wheel receives the grain or material at the highest point and delivers same at the lowest point. Hence a side or vertical half of the wheel is loaded, and upon releasing the wheel from the restraining means it turns under the weight of the load. A brush 12 is located at one side of the discharge-opening of the hopper and serves to sweep all loose grain or material into the compartments. A pivoted plate 13 subserves the same purpose and is located near the lower end of the casing and bears lightly against the periphery of the measuring-wheel. To

prevent the grain or material from banking in the hopper 4, an agitator or positive feeder is located within said hopper and consists of toothed wheels 14, secured to a shaft 15, the latter being provided at its outer end with a sprocket-pinion 16, which is connected, by means of a sprocket-chain 17, with sprocket-pinion 7, so as to transmit motion from the measuring-wheel to the agitator.

The electric circuit, including the electromagnet 11, may be closed either by means of a switch 18, time mechanism 19, or other circuit-closing contrivance, according as the machine is to be operated either by hand or automatically. A signal is included as a part of the mechanism to give warning when the grain or material has been exhausted from the bin or compartment holding the same in bulk, and this signal may be of any type, either audible or visual, and, as shown, the same consists of an annunciator 20 of any approved construction. Within the hopper and at one side thereof is located a plate 21, the same being yieldingly mounted and held outward at its lower end by means of a spring 22 and adapted to be pressed inward against the proximal wall of the hopper by the weight of the grain or material when the hopper is charged. The yielding plate 21 may be of metal or other material and when constructed of wood is provided with a metal strip 23, composed of electrically-insulated parts adapted to make electric contact with either one of the fixed electric contacts 24 or 25, according to the position of the plate. When the plate is repressed by the weight of the grain or material, the electric conducting-strip 23 is in electrical connection with the contact 25, thereby permitting the circuit to be established through the electromagnet 11, when same is closed either by hand or by the time mechanism 19. When the hopper becomes empty, the plate 21 moves outward or away from the proximal wall of the hopper, thereby interrupting the circuit including the parts 23 and 25 and establishing the circuit including the alarm mechanism, whereby the proper warning is sounded and notice given that the bin or other compartment needs replenishing.

The operating-circuit, including the electromagnet 11, includes the following elements, namely: battery 26, wire 27, electromagnet 11, wire 28, electric contacts 23 and 25, wire 29, and circuit-closing device, which, as shown in Fig. 4, consists of the time mechanism 19. The alarm-circuit is as follows: starting from battery 26, through wire 30, electric contacts 23 and 24, wire 31, annunciator 20 and wire 32, back to battery 26. The alarm-circuit includes electric contacts 33 and 34, the latter being fixed and the former movable with the drop 35 of the annunciator. When the alarm-circuit is closed and the annunciator operated to effect a release of drop 35, the same in falling moves contact 33 away from contact 34, thereby automatically breaking the alarm-circuit after the warning has been sounded, so as to prevent excessive wear of the battery.

It is essential that the wires or conductors 30 and 28 be electrically insulated from each other upon plate 21 in order to admit of the aforementioned results. As shown in Fig. 4, the metal strip 23, applied to plate 21, is composed of parts electrically insulated from each other, wire 30 being connected to one of the parts and wire 28 to the other part.

The casing 2 may be of any construction, so as to render the parts readily accessible for any desired purpose, and the battery 26 may be of any type and may be conveniently placed, and, as shown, is located in a box 36, applied to a side of the casing in any convenient position.

Having thus described the invention, what is claimed as new is—

1. In a measuring device of the character substantially as set forth, the combination of a measuring-wheel, an electrically-operated restraining mechanism normally holding said measuring-wheel against operation, an alarm-circuit, and a yielding device normally acted upon by the material to be measured to hold the alarm-circuit open and the restraining-circuit closed, substantially as set forth.

2. In a measuring device of the character substantially as specified, the combination of a measuring contrivance, a restraining mechanism for holding the measuring contrivance against operation, an electric circuit for releasing said restraining mechanism, an alarm-circuit, and a contact common to the alarm and releasing circuits and normally held repressed by the weight of the material to be measured to hold the alarm-circuit open and the releasing-circuit closed, substantially as set forth.

3. In a measuring mechanism, the combination of a measuring device, a restraining mechanism therefor, an electrically-controlled releasing-circuit for the restraining device, an alarm-circuit, an electric contact common to the alarm and releasing circuits and normally acted upon by the material to be weighed to hold the alarm-circuit open and the releasing-circuit closed, and means included in the alarm-circuit for opening same when the alarm has been sounded, substantially as specified.

4. In a measuring mechanism, the combination of a rotary measuring device, a restraining-arm, gearing connecting the measuring device with said restraining-arm, whereby the latter makes a complete revolution during a partial movement of the measuring device, a stop for coöperation with the restraining-arm to prevent operation of the measuring device, and means for effecting a release of said stop from the restraining-arm, substantially as described.

5. In a measuring mechanism, the combi-

nation of a hopper, a measuring device adapted to be automatically operated by the weight of the material to be measured, an agitator arranged within the hopper, means for operating said agitator directly from the measuring device, a restraining mechanism for holding the measuring device against operation, and means for effecting a release of said restraining mechanism, substantially as set forth.

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

ISAAC STEINBERG. [L. S.]

Witnesses:

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JNO. ROBB.