

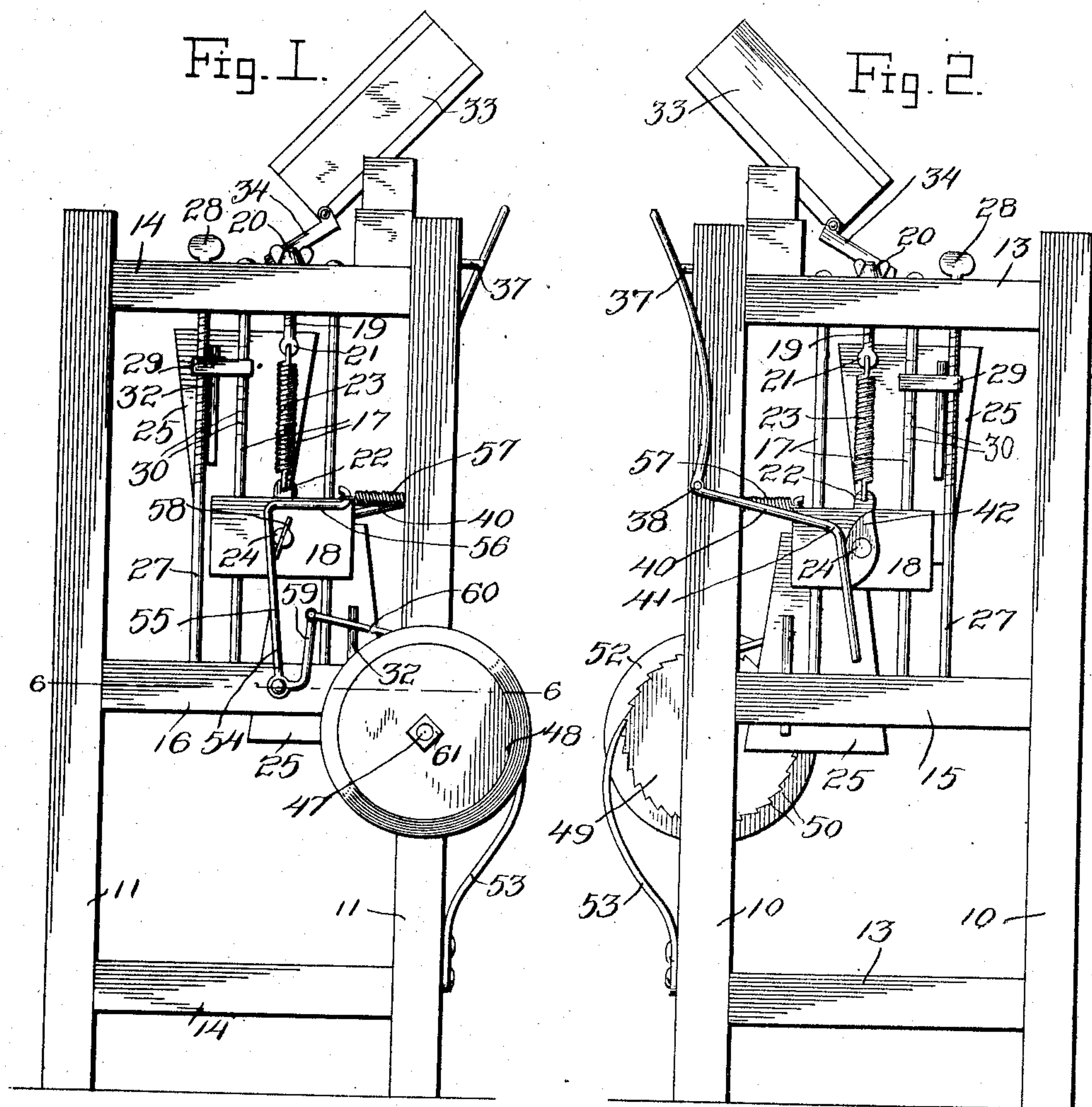
No. 875,402.

PATENTED DEC. 31, 1907.

T. J. YOUNG.
AUTOMATIC GRAIN SCALE.

APPLICATION FILED MAR. 28, 1906.

3 SHEETS—SHEET 1.



Witnesses

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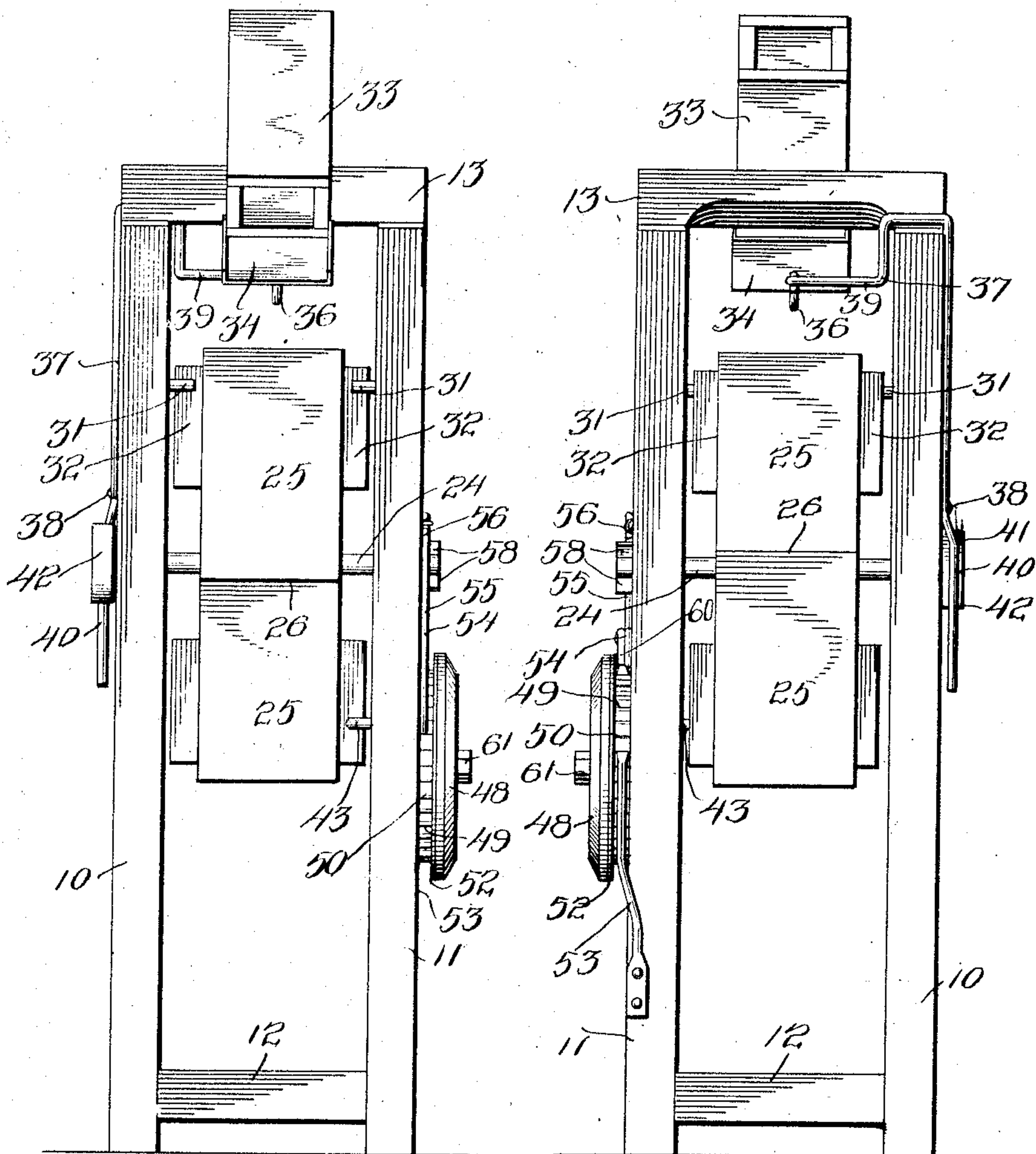
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Fig. 3.

Fig. 4.



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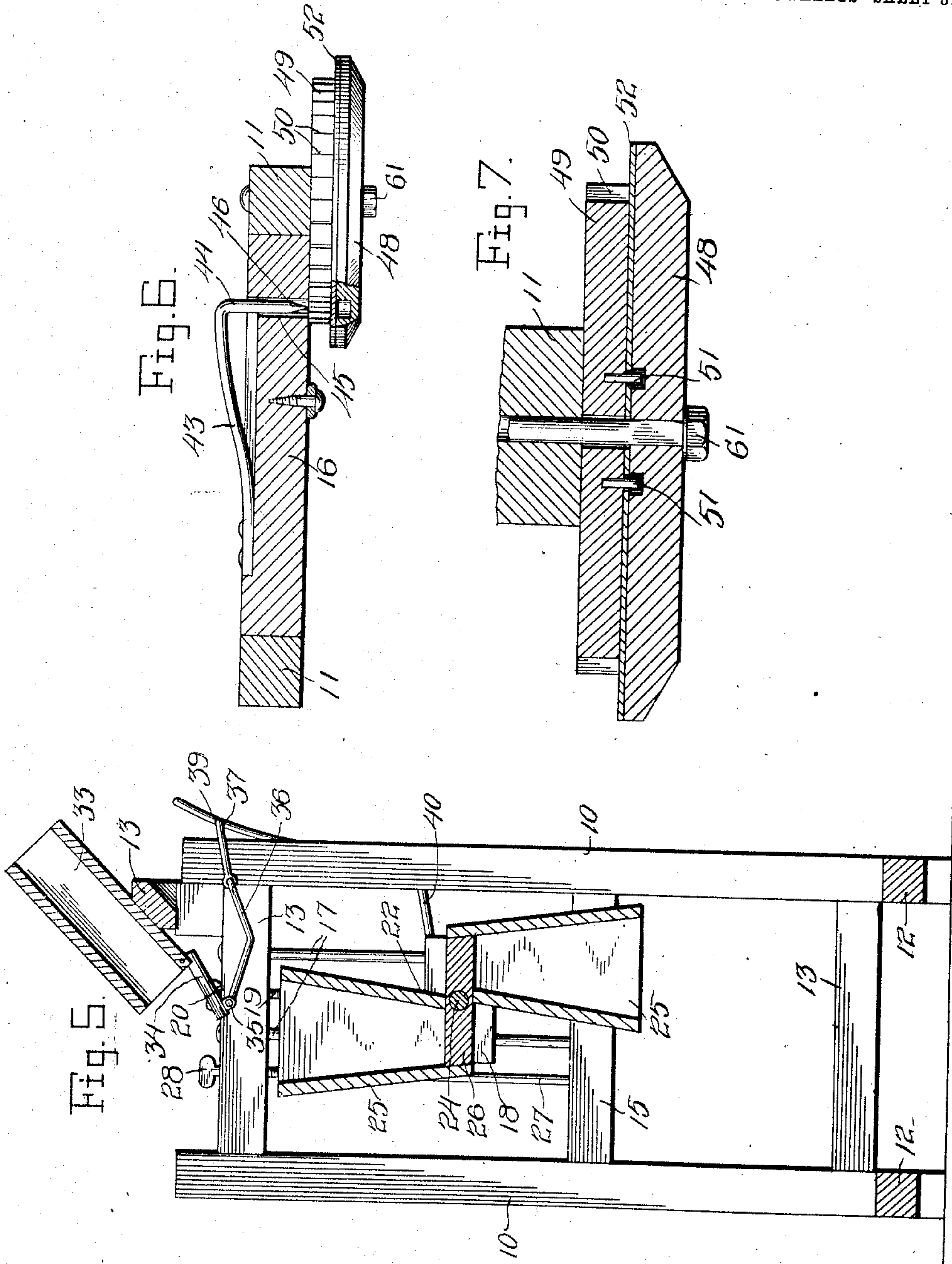
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UNITED STATES PATENT OFFICE.

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AUTOMATIC GRAIN-SCALE.

No. 875,402.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed March 28, 1906. Serial No. 308,604.

To all whom it may concern:

Be it known that I, THOMAS J. YOUNG, a citizen of the United States, residing at Martin, in the county of Stephens, State of Georgia, have invented certain new and useful Improvements in Automatic Grain-Scales; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to automatic grain scales and has for its object to provide a device of this character including a discharge chute and revolving hoppers into which the chute is arranged to successively discharge and to provide novel means for adjusting the device to cause the hoppers to discharge when they have received any desired predetermined weight of grain.

A further object of the invention is to provide a simple but reliable recording mechanism which will record each revolution of the hopper.

A still further object of the invention is to provide an automatically operated closure for the discharge chute of the device which, together with a portion of the recording mechanism, will be operated from the shaft upon which the hoppers are mounted.

In the accompanying drawings: Figure 1 is a side elevation of one side of the device. Fig. 2 is a similar view of the opposite side thereof. Fig. 3 is a front elevation of the device. Fig. 4 is a rear elevation thereof. Fig. 5 is a vertical longitudinal sectional view taken centrally through the same. Fig. 6 is a detail horizontal sectional view taken through one of the intermediate cross pieces on the line 6—6 of Fig. 1. Fig. 7 is a detail view of the inner disk of the recording device.

In the drawings, there is shown a framework comprising two pairs of uprights 10 and 11 which are connected adjacent their lower end by means of cross-pieces 12 and at their upper end by means of a cross-piece 13. The uprights of each pair are connected by means of upper and lower cross-pieces 13 and 14 and intermediate cross-pieces 15 and 16 respectively.

Connected at their ends to the upper and intermediate cross pieces of each pair of uprights is a pair of rods 17 which are in parallel relation with respect to each other. Slidably mounted upon each pair of rods 17 is a bearing block 18 and engaged through an

opening formed through each of the upper cross-pieces 13 and 14 is a threaded rod 19 upon which is engaged a nut 20, the said nut being arranged to rest upon the upper face of its respective cross-piece, it being understood that by turning the nuts 20 their respective rods 19 will be raised or lowered through the said opening in the cross-pieces. An eye 21 is formed in the lower end of each of the rods 19 and an apertured ear 22 is formed upon the upper face of each of the blocks 18. Engaged through the eyes 21 and the openings in the ears 22 are the upper and lower ends respectively of helical springs 23, the said springs serving to normally support the block at a predetermined point, but permitting downward movement thereof at certain times as will be hereinafter set forth.

Mounted in the blocks 18 with its ends extending therebeyond is a shaft 24 upon which is mounted intermediate the pairs of uprights, a pair of revolving hoppers 25. These hoppers have a common floor 26 through which the shaft 24 passes in order to support the hoppers and have their open ends presented in directly opposite directions. In order to cause the hoppers to revolve when material is deposited in the upper hopper and to bring the lower hopper into position to receive a deposit, I mount the hoppers upon opposite sides of the common floor 26 and upon opposite sides of the shaft 24, the said shaft being engaged through the said floor, as stated, and intermediate the hoppers.

In order that the hoppers may be held stationary until a predetermined weight of grain has been delivered, I provide an adjustable detent mechanism including a threaded rod 27 which is rotatably mounted in the upper and intermediate cross-pieces of each of the pairs of uprights, the said rods being provided at their upper ends with finger-pieces or hand cranks 28 as occasion may require and by means of which the said rod may be turned. Engaged upon each of the rods 27 is a detent block 29, it being understood that the threaded rod 27 is engaged through a threaded aperture formed through one end of the block. At their opposite ends, each of the blocks is provided with an aperture through which is engaged the adjacent one of the rods 17, the said rod serving to hold the block against rotation when the rod 27 is turned and to guide the same during its vertical movement. The rods 17

which are engaged through the blocks 29 are provided with a series of scale marks 30 which indicate the weight of grain or the like necessary to release the hoppers. Each of the blocks is provided at one of its ends with an inwardly extending arm 31 arranged for engagement with strips 32 secured to opposite sides of each of the hoppers 25.

From the foregoing, it will be understood that the detent block 29 having been set at a predetermined point, the hopper will be held stationary until the indicated weight of grain or the like has been deposited in one of the hoppers when the hoppers, together with the shaft upon which they are mounted and its bearings will descend until the strips 32 are out of engagement with the arms of the detent blocks. The upper hopper will then be dumped and the lower hopper presented to receive its deposit.

Mounted upon the cross-piece 13 is an inclined discharge chute 33 to the lower end of which is hinged a closure 34 provided with an apertured ear 35 to which is pivoted one end of a rod 36. The rod 36 is pivotally connected at its opposite end to one arm of a bell crank lever 37, the said lever being pivoted to one of the uprights 10 as at 38. The arm of the bell-crank lever 37 to which the rod 36 is pivoted is bent laterally and thence downwardly to clear the upper end of the upright 10 and thence laterally as at 39 and thence forwardly for connection with the rod 36 in a line with the middle of the hinged closure 34. The other arm 40 of the bell crank lever 37 is bent intermediate its ends as at 41 in such a manner that its lower end portion will extend downwardly and forwardly toward the adjacent end of the shaft 24. Secured to this end of the shaft and exterior to the block 18 is a cam block 42 which has its cam faces arranged to contact with the downwardly extending end of the arm 40 of the bell crank lever 37 when the hoppers are revolved. It will thus be seen, that, as the hoppers are revolved, the cam block 42 will contact with the arm 40 of the bell-crank lever to rock the lever and move the closure 34 to close the discharge end of the chute 33 and that when the empty hopper is presented below the chute, the closure will again swing to an open position by reason of the weight of material in the discharge chute 33.

The intermediate cross-piece 16 has its inner face recessed longitudinally for the reception of a bar 43 of spring metal which is secured at its forward end to the said cross-piece and which has its rear end bent outwardly at right angles as at 44 and engaged through an opening 45 formed through the said cross-piece. The extreme outer end of the portion 44 of the bar 43 is pointed as at 46 and the rear end portion of the said bar extends slightly inwardly in the path of

movement of the adjacent strips 32 for a purpose to be hereinafter described.

Fixedly mounted upon a stub shaft 47 carried by one of the uprights 11 is a disk 48 and rotatably mounted upon the said shaft intermediate the disk 48 and the upright 11 is an inner disk 49 provided upon its periphery with a series of ratchet teeth 50. The disk 49 is provided upon its outer face with a pair of pins 51, which when the disk revolves, move in an annular groove formed in the outer disk 48. A disk of sheet metal or other suitable material 52 is disposed between the disks 48 and 49 with the pins 51 engaged through openings in the said disk 52 whereby the same will be rotated together with the disk 49. The disks 48 and 52 are of the same size and of greater diameter than the disk 49 in order that the pointed end 46 of the portion 44 of the bar 43 may contact with the outer portion of the disk 52 without interfering with the rotation of the disk 49. A spring pawl 53 is secured at its lower end to the upright 11 to which the stub shaft 47 is secured and has its upper end flattened and disposed in engagement with the periphery of the disk 49 to prevent backward rotation of the said disk.

Pivoted to the intermediate cross-piece 16 is a bell crank lever 54 which has one of its arms 55 extending upwardly and thence rearwardly as at 56 and connected to the extreme end of the said arm is a helical spring 57 which is secured at its opposite end to the adjacent upright 11. The end of the shaft 24 adjacent the arm 55 of the bell crank lever is provided with a pair of radial wings 58 which contact with the upwardly extending portion of the arm 55 when the shaft 24 revolves to rock the bell crank lever for a purpose to be hereinafter described. The other arm of the bell crank lever extends rearwardly and thence upwardly as at 59 and pivoted to the extreme end of the said arm is one end of a rod 60 which is provided at its other end with a down-turned tooth which lies in engagement with the periphery of the disk 49.

From the foregoing, it will be seen that at each revolution of the shaft 24, the bell crank lever 54 is rocked forwardly, moving the disk 49 the distance of one tooth and that the spring 57 will cause the bell crank lever to assume its original position and permit the tooth at the end of the rod 60 to engage the next ratchet tooth upon the disk 49. It will also be noted that the pointed end of the spring bar 43 will be pressed into engagement with the disk 52 thereby making an indentation in the said disk, the said indentation serving to register the number of revolutions of the hopper and consequently the number of measures of predetermined weights of grain or other material deposited in the said hoppers.

In order that the outer disk of the registering mechanism may be removed for the insertion of a new record disk, I provide a nut 61 which is engaged upon the outer end of the stub-shaft upon which the disks are mounted and which serves to hold the said disks upon the shaft.

What is claimed is:

1. A mechanism of the class described comprising a rotatable hopper, a toothed disk, said disk being designed for the support of a record disk, means connected with said toothed disk for moving the said disk at each revolution of the hopper, and an indenting device for indenting the record disk, said indenting device being actuated by the movement of said hopper at each cycle of each revolution of the hopper.

2. A mechanism of the class described comprising a rotatable hopper, a toothed disk designed for the support of a record disk, an angle lever mounted for rocking movement adjacent said disk, a trip actuated by the rotation of the hopper to engage and rock said angle lever, a spring for holding the lever normally in engagement with the trip, a rod connected with the lever and resting in engagement at one of its ends with the toothed disk whereby when the angle lever

is rocked, a step by step movement will be imparted to the disk, and a spring controlled indenting device designed to indent the record disk, said device being arranged for actuation at each revolution of the hopper.

3. A mechanism of the class described comprising a rotatable hopper, a toothed disk designed for the support of a record disk, an angle lever mounted for rocking movement adjacent said disk, a trip actuated by the rotation of the hopper to engage and rock said angle lever, a spring for holding the lever normally in engagement with the trip, a rod connected with the lever and resting in engagement at one of its ends with the toothed disk whereby when the angle lever is rocked, a step by step movement will be imparted to the disk, and a spring controlled indenting device arranged in the path of movement of the hoppers and arranged to be forced, by the passage of the hopper thereover, against the record disk carried by the toothed disk.

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

THOMAS J. YOUNG.

Witnesses:

J. C. WATKINS,
T. H. STOVALL.