No. 832,340. PATENTED OCT. 2, 1906.

J. RENZ.

AUTOMATIC WEIGHING DEVICE.

APPLICATION FILED SEPT. 25, 1905. RENEWED SEPT. 4, 1906.

2 SHEETS—SHEET 1.

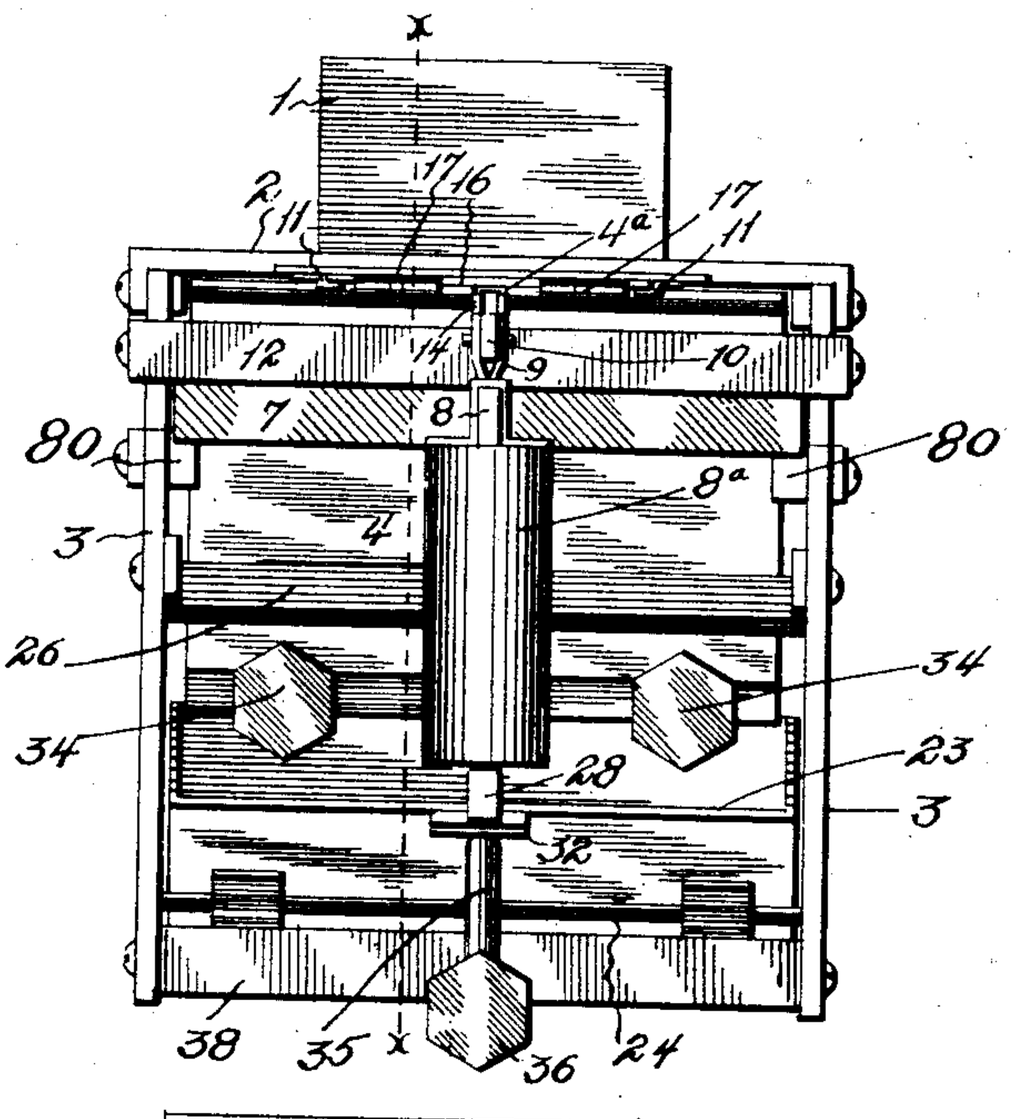

Fig. 1.

Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

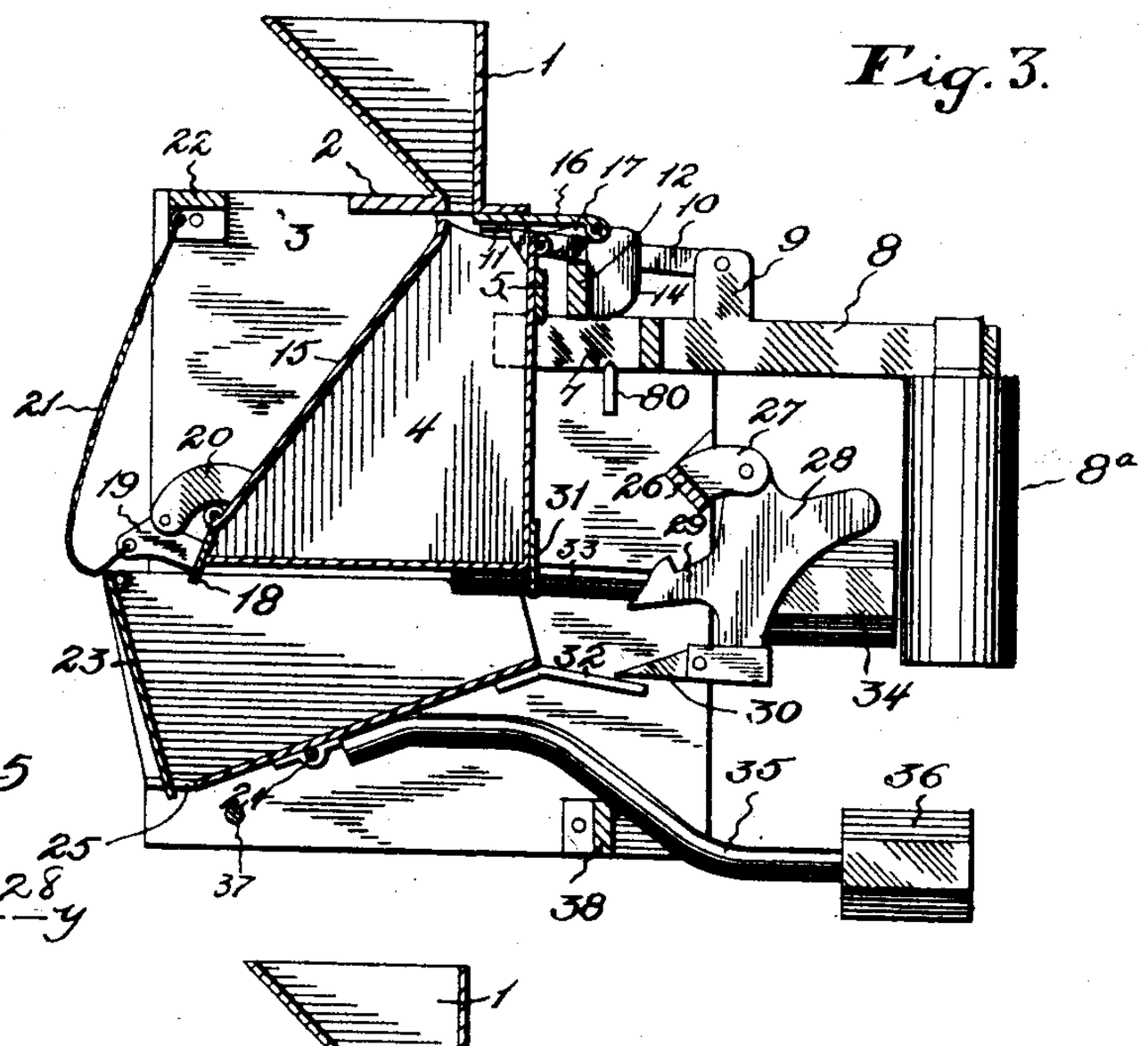

Fig. 5

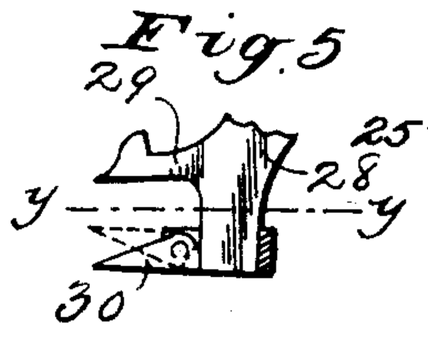

Fig. 6.

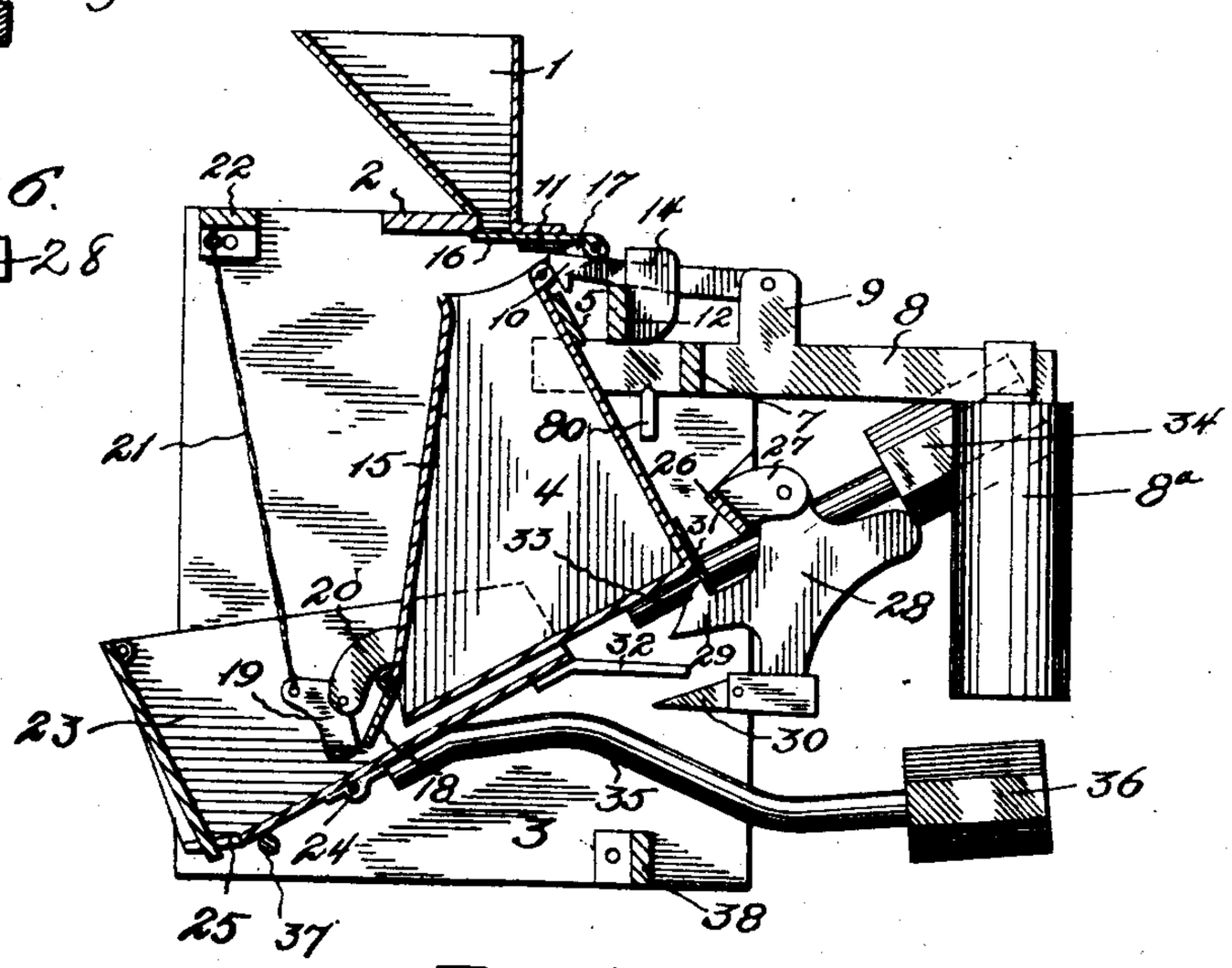

Fig. 4.

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UNITED STATES PATENT OFFICE.

JACOB RENZ, OF COLUMBUS, OHIO, ASSIGNOR OF ONE-HALF TO A. KESSLER, OF COLUMBUS, OHIO.

AUTOMATIC WEIGHING DEVICE.

No. 832,340. Specification of Letters Patent. Patented Oct. 2, 1906.

Application filed September 25, 1905. Renewed September 4, 1906. Serial No. 333,098.

To all whom it may concern:

Be it known that I, JACOB RENZ, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Automatic Weighing Devices, of which the following is a specification.

My invention relates to new and useful improvements in automatic weighing devices.

The object of the invention is to provide a grain-weighing device or meter which is entirely automatic in its operation, the parts being so arranged as to discharge the load from the bucket into the discharge-spout and cut off the supply from the hopper and to return the bucket and withdraw the supply-cut-off means from the hopper automatically.

Finally, the object of the invention is to provide a device of the character described that will be strong, durable, and efficient, simple and comparatively inexpensive to construct, and one in which the several parts will not be liable to get out of working order.

With the above and other objects in view the invention consists of the novel details of construction and operation, a preferable embodiment of which is described in the specification and illustrated in the accompanying drawings, wherein—

Figure 1 is an end elevation of the weighing device. Fig. 2 is a plan view. Fig. 3 is a longitudinal vertical sectional view taken on the line *x x* of Fig. 1 and showing the parts in the loading position. Fig. 4 is a similar view showing the parts in the unloading position. Fig. 5 is an elevation of the lower portion of the bucket-latch, a portion being shown in section to illustrate the trigger 30; and Fig. 6 is a cross-sectional view taken on the line *y y* of Fig. 5, showing the parts lying beneath in plan.

In the drawings, the numeral 1 designates a feed or supply hopper, which is supported on a slotted plate 2, extending transversely of the device, and supported on the upper edges of side plates 3. Beneath the hopper a bucket 4 is arranged, against the outer side of the straight wall of which is secured an elongated strip 5. The strip 5 is pivotally supported at its ends on the yoke-shaped portion 7 of a scale-beam 8, the said scale-beam having arranged on its outer end a suitable weight 8[a] and being fulcrumed or pivotally supported on short lugs 80, projecting inwardly from the side plates 3 and engaging with the yoke-shaped portion 7 between the strip 5 and the weight 8[a], as will be apparent. Opposed ears 9 extend upwardly from the scale-beam 8 and pivotally support the end of a hook 10, the latter at its forward end engaging with the vertical wall of the bucket 4 through a notch 4[a]. (See Fig. 1.) The hook 10 rests on the upper edge of a U-shaped bar 12, secured to the side plates 3 at its end. This bar is impinged on its under side by the yoke-shaped portion 7 of the scale-beam and acts as a stop to limit the upward swinging movement thereof, thus holding the bucket in the proper position to receive the load. Guide-lugs 14 project upwardly from the side of the bar 12 on each side of the hook to form a guide for the same and prevent lateral displacement. A cut-off slide or valve plate 16 is supported from the under side of the plate 2 in brackets 11. To the outer edge of this slide-plate links 17 are pivotally secured, while at their opposite ends the said links are pivotally secured to the upper edge of the vertical wall of the bucket. By this arrangement when the bucket is swung down, as shown in Fig. 4, the slide-plate 16 will be forced by the links 17 under the slotted portion of the plate 2, and thus cut off the supply from the bucket, the said plate 16 being returned to its original position, as shown in Fig. 3, when the bucket is returned to its loading position. The bucket 4 is provided with an inclined wall 15, which terminates short of its bottom, so as to provide a discharge-opening which is covered by a transverse door 18, the said door being hinged to the lower end of the inclined wall 15. For locking the door in its closed position when the bucket is being loaded I provide a latch 19, weighted at its outer end and pivotally supported from a bifurcated bracket 20, mounted on the inclined wall 15 above the door. A suitable cord or chain 21 is attached to the outer end of the latch and connected at its upper end to a transverse bar 22, extending between the side walls 3. The weighted end of the latch will automatically swing the same into contact with the door to lock the same when the bucket is in its loading position, as shown in Fig. 3. The cord or chain 21 is of such length as to swing the latch out of engagement with the door 18 when the bucket is swung downward, thus

allowing the door to open and the load to discharge from the bucket, as will be apparent from Fig. 4. Beneath the bucket and projecting beyond the discharge end thereof I arrange a regulator 23, pivotally mounted on a shaft 24, the said shaft being secured to the bottom or inner side of the regulator and having its ends supported in the side plates 3. The walls of the spout converge downwardly, so as to provide a contracted transverse discharge-opening 25.

Disposed at an angle and extending between the side plates 3 is a transverse bar 26. A pair of ears 27 project from the bar and pivotally support the upper end of an irregular-shaped latch 28. The latch is formed adjacent its central portion with an inclined hook 29 and carries at its lower end a trigger 30, said trigger being so arranged as to move upward without swinging the latch, but to swing the latch when engaged by a downwardly-moving part. The lower end of the latch may be weighted, if desired. A short plate 31 is secured to the vertical wall of the bucket 4 and projects a short distance beneath the said bucket, so as to engage with the hook 29 when the bucket is swung. A tripping-piece 32 is secured to the regulator 23 and projects under the trigger 30, but normally out of engagement therewith. Rods 33 extend horizontally from the bucket 4 on each side of the latch 28 and carry weights 34 on their free ends, while a curved rod 35 projects from the regulator 23 and carries a weight 36 at its outer end. These weights serve to return the bucket and the spout to their normal or loading positions, and a stop-strip 38, extending transversely between the plates 3, is abutted by the rod 35 to limit the swinging movement of the regulator when the latter is returned to its normal or loading position.

In utilizing my invention the parts are brought to the position shown in Fig. 3, and the grain is fed into the hopper 1, from which it passes into the bucket 4. When the grain in the bucket attains a weight greater than that of the weight 8^a, the bucket will be swung downward. During the initial movement of the bucket the latch 10 is in engagement therewith, so that the bucket is caused to swing with the scale-beam, the lugs 80 acting as the fulcrum-points. After the bucket has moved downward a short distance the transverse bar 12 acts as a stop, against the upper edge of which the hook 10 rests, so that it is disengaged with the notch 4^a of the bucket, and the latter is allowed to swing on the strip 5, permitting the scale-beam to return to its normal position, in which it is held by the bar 12. The downward movement of the bucket also causes the links 17 to force the cut-off slide-valve 16 forward beneath the hopper, and thus cut off the supply of grain, while the cord or chain 21 is drawn taut and the latch 19 swung out of engagement with the door 18, permitting the latter to open, thereby allowing the grain to discharge from the bucket into the regulator 23. As the bucket nears the end of its downward swinging motion the plate 31 rides along and engages over the inclined hook 29, the bucket thus being secured in its unloading or downward position. The grain rushing into the regulator 23 tilts the same, so that its end carrying the tripping-piece 32 is swung upward, the said piece passing the trigger, which is pivoted so as to permit such passage and not displace the latch 28. The parts will thus occupy the unloading position, as shown in Fig. 4. When the grain is finally discharged from the regulator 23, the weight 36 will swing the regulator to its normal position, the rod 35 abutting the stop-strip 38 and arresting further movement of the parts. As the regulator is returned to its normal position the tripping-piece 32 engages with the trigger 30 and riding along the same swings the irregular latch 28, so that the hook 29 is swung out of engagement with the plate 31 and the bucket 4 permitted to be swung to its normal position, which is accomplished by the weights 34. As the bucket is swung into its normal position the hook 10 is again engaged in the notch 4^a and the latch 19, by reason of its weighted end, swung into engagement with the door 18, thus locking the same closed and the parts thereby being brought to the loading position, as shown in Fig. 3.

It will be noted that the rods 33 engage with the under edge of the transverse bar 26, thus limiting the downward movement of the bucket 4, while a stud 37 performs the same function in connection with the regulator 23.

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

1. In a weighing device, a feed-hopper, a scale-beam, a bucket mounted on the scale-beam adapted to swing to unload, means for retaining the bucket in its unloading position, and a regulator pivoted beneath the bucket to receive the load therefrom carrying a fixed projection adapted to engage the retaining means to release the bucket.

2. In a weighing device, a feed-hopper, a scale-beam, a bucket mounted on the scale-beam adapted to swing to unload, means for retaining the bucket in its unloading position, a regulator pivoted beneath the bucket to receive the load therefrom carrying a fixed projection adapted to engage the retaining means to release the bucket, and means for returning the bucket to its loading position.

3. In a weighing device, a feed-hopper, a scale-beam, a bucket mounted on the scale-beam adapted to swing to unload, cut-off means associated with the hopper and controlled by the bucket, means for retaining the bucket in its unloading position, and a

regulator pivoted beneath the bucket to receive the load therefrom carrying a fixed projection adapted to engage the retaining means to release the bucket.

4. In a weighing device, a feed-hopper, a scale-beam, a bucket mounted on said beam adapted to swing downward when loaded to discharge its contents, a swinging latch adapted to be engaged by said bucket when the same swings downward, a regulator pivoted beneath the bucket arranged to tilt when loaded from the bucket, means for returning the regulator to its normal position, and a fixed projection carried by the regulator adapted to swing the latch out of engagement with the bucket to permit the same to return to its normal position.

5. In a weighing device, a feed-hopper, a scale-beam, a bucket mounted on the scale adapted to swing downward when loaded, a closure for said bucket, a pivoted device normally having one end in engagement with the closure, and means for swinging said device out of engagement with the closure to permit the same to open.

6. In a weighing device, a feed-hopper, a scale-beam, a bucket mounted on the scale-beam adapted to swing downward when loaded, a gravity-closure for said bucket, a pivoted device normally having one end in engagement with the closure, and means having connection with the opposite end of the device for swinging the same out of engagement with the closure to permit the same to open when the bucket is swung downward.

7. In a weighing device, a feed-hopper, a cut-off device arranged beneath the hopper, a scale-beam, a bucket mounted on the scale-beam adapted to swing downward when loaded, means for connecting the bucket and the cut-off device whereby the latter is operated, a device connected to the scale-beam and the bucket for causing the same to move together, but arranged to release the bucket so as to permit the same to swing independently of the scale-beam, a pivoted latch adapted to be engaged by the bucket to hold the same in position when it is swung downward, a regulator disposed beneath the bucket adapted to tilt when loaded, the said regulator carrying a fixed projection adapted to engage the latch to swing the same out of engagement with the bucket to allow the latter to return to its normal position when the regulator is returned to its normal position, means for returning the regulator to its normal position, and means for swinging the bucket to its loading position.

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

JACOB RENZ.

Witnesses:
A. L. PHELPS,
M. B. SCHLEY.