

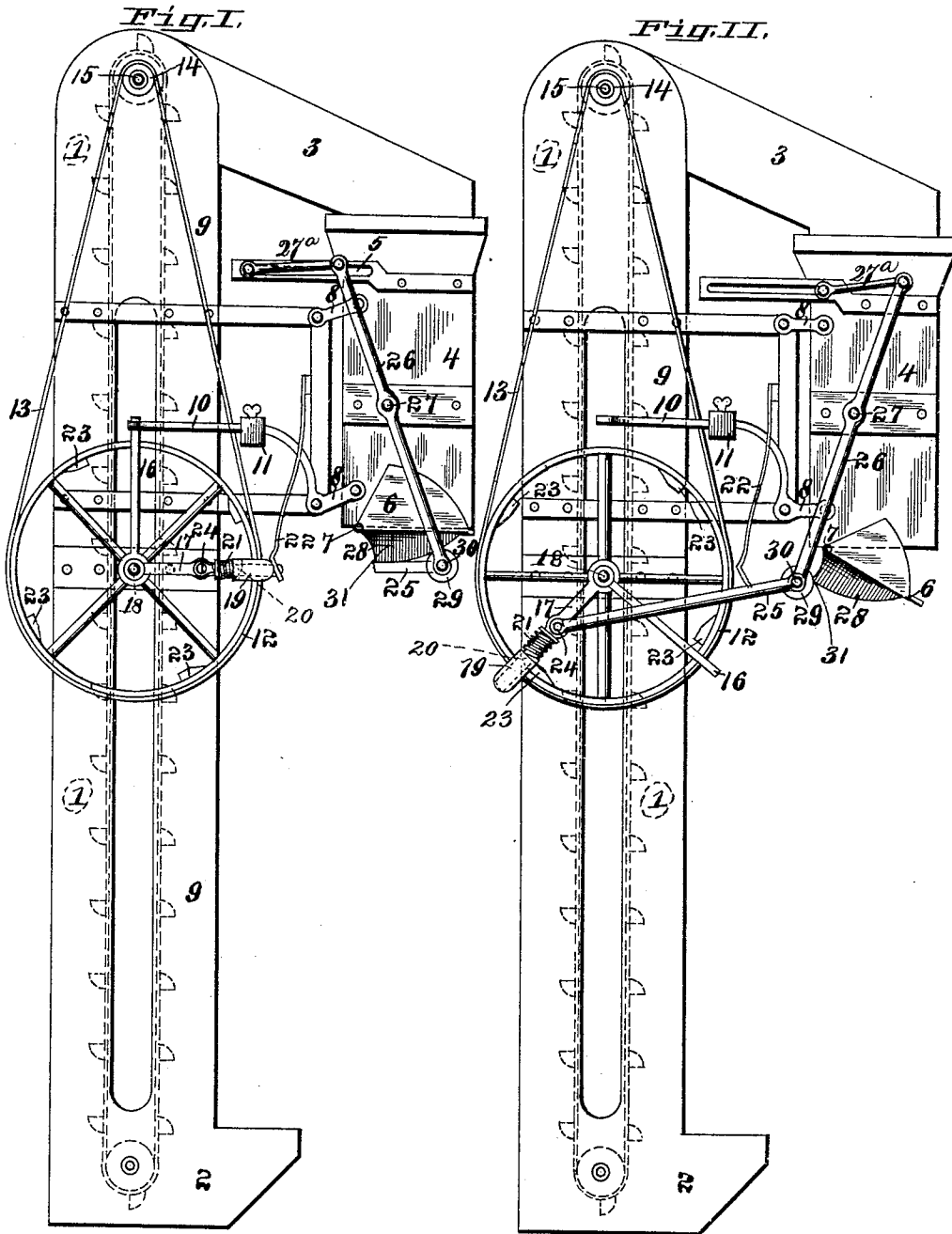
(No Model.)

2 Sheets—Sheet 1.

W. BUTLER.
AUTOMATIC GRAIN WEIGHER.

No. 477,508.

Patented June 21, 1892.



Attest

George E. Crane
Harry D. Rohrer.

Inventor:

Wesley Butler.
By *Thurmont B. B.*
Atty.

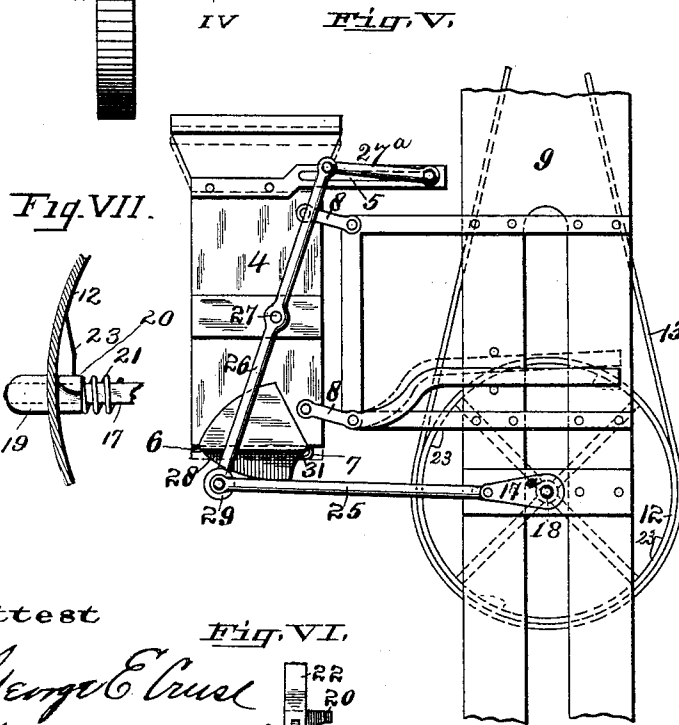
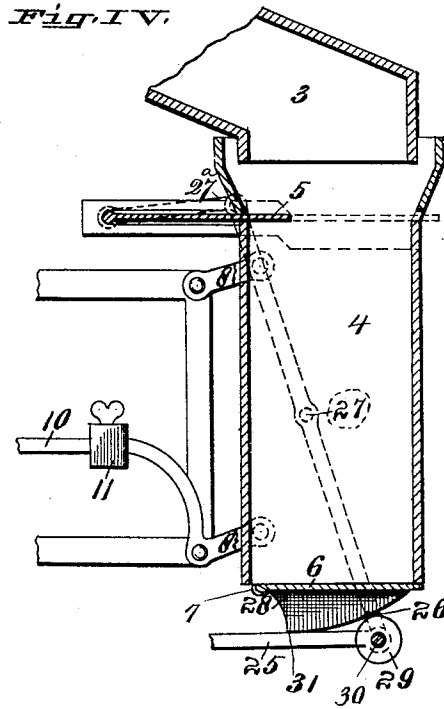
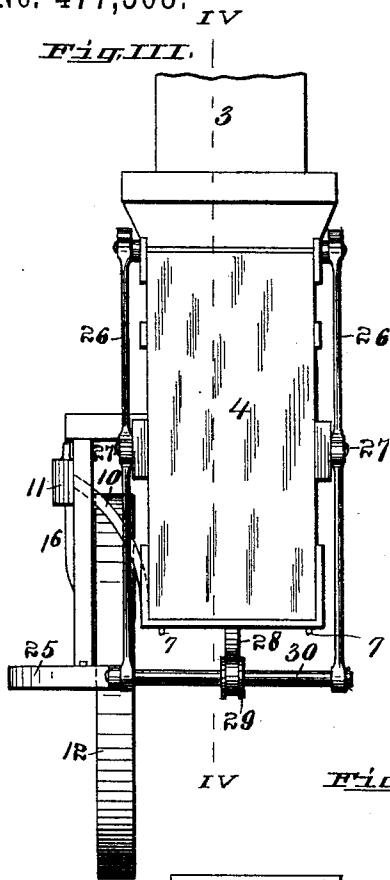
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2 Sheets—Sheet 2.

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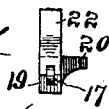
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Attest

George C. Cruse
Wm. E. Rohrer

Fig. VI.



Inventor!
Wesley Butler.
By Knight Bros
Atty.

UNITED STATES PATENT OFFICE.

WESLEY BUTLER, OF LITCHFIELD, ILLINOIS.

AUTOMATIC GRAIN-WEIGHER.

SPECIFICATION forming part of Letters Patent No. 477,508, dated June 21, 1892.

Application filed November 24, 1891. Serial No. 412,903. (No model.)

To all whom it may concern:

Be it known that I, WESLEY BUTLER, of Litchfield, in the county of Montgomery and State of Illinois, have invented a certain new and useful Improvement in Automatic Grain-Weighers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention belongs to that class of grain-weighers, in which a vessel is suspended on a scale-beam and by its descent, when containing the given amount, opens the bottom for discharge of the contents.

The features for which novelty is claimed are set forth in the claims.

Figure I is a side elevation showing the grain vessel or hopper up and its bottom closed, part of the lower connecting-rod being omitted, so as to exhibit the sliding block. Fig. II is a side elevation showing the hopper down and its bottom open, the bell-crank being moved forward by the wheel or pulley. Fig. III is a front view of the hopper with proximate parts, showing the hopper up and its bottom closed. Fig. IV is a vertical longitudinal section taken at IV IV, Fig. III. Fig. V is a detail side elevation showing the opposite side to that shown in Fig. I, and the parts in the same position as therein shown. Fig. VI is a detail front view of the spring-block on which the wheel acts, as will be hereinafter explained. Fig. VII is a detail side view of the spring-block unlocked. Fig. VIII is a detail rear view of the upper end of the vertical arm of the bell-crank and the outer end of the scale-beam, showing these parts engaged.

1 is an elevator taking grain from box 2, that receives the grain from a thrashing-machine or other source. The elevator drops the grain into a chute 3, that discharges it into the weighing vessel or hopper 4. The hopper is closed by a slide 5 at top and a bottom 6, turning on a hinge 7. The hopper is supported on four radius-links 8, one at each corner, that are pivoted to the case 9 of the elevator, so that the movements of the hopper are limited to a straight up-and-down motion. Any one of the links is carried beyond the pivot-point in a scale-beam 10, upon which is a weight 11, arranged to counterbalance the hopper when

filled with grain, so that when the hopper is filled—that is, contains the stated measure of grain—it descends, when the lid closes and the bottom opens and the grain runs out, and the weight 11 restores the hopper to its upper and receiving position.

12 is a wheel or pulley turned by a belt 13 from a pulley 14 on the elevator-shaft 15.

16 17 is a bell-crank fixed to the shaft 18, on which the wheel 12 turns loose. The vertical arm 16 of the bell-crank normally rests against the end of the scale-beam, so as to hold the arm in its normal upright position. When, however, the hopper descends and carries up the free end of the scale-beam, the arm 16 is released and is at liberty to move toward the hopper or forwardly. The normally-horizontal arm 17 of the bell-crank carries a sliding block 19, having upon its side a tooth 20. The block is pushed outward by a spring 21, and in its normal position is pushed in by a stronger spring 22. The spring 21 is upon the arm 17 while the spring 22 is fixed to the frame 9. In the normal position, as seen in Fig. I the end of the arm 17 projects beyond the block and through an open slot or mortise in the lower end of the spring 22, the spring at the sides and top of the slot resting against the sliding block and pressing it backward on the arm 17. The part of the spring 22 bearing against the block is preferably inclined, as shown, so that it tends to push the arm 17 downward. Upon the inside of the rim of the wheel 12 are teeth 23, any one of which may engage the tooth 20 of the sliding block as soon as the block moves outward on its escape from the spring 22. When the arm 17 is in its normal position and the sliding block pushed backward, the tooth 20 is out of the course of the teeth 23 of the wheel 12, so that the wheel continues to turn while the hopper is filling without moving the bell-crank. When, however, the descent of the hopper causes the bell-crank arm 16 to escape from the scale-beam, the wheel carries the bell-crank around a full revolution until the arm 16 comes in contact with the scale-beam and arrests the motion of the bell-crank. Just before the bell-crank comes to its normal position the spring 22 engages the sliding block 19 and forces it backward on the arm 17, so that the tooth 20

is carried out of engagement with the tooth 23, and the wheel 12 turns without any action on the bell-crank. The arm 17 of the bell-crank has a pin 24, connected by a rod 25 with the lower end of a lever 26 fulcrumed at 27 to the side of the hopper. The other end of the shaft 18 carries a crank 17^a, connected by a rod 25 to a lever 26 upon the other side of the hopper, (the rods 25 and levers 26 being duplicated upon the sides of the hopper.) The upper ends of the two levers 26 are connected by links 27^a to the sliding cover 5. The construction is such that as the hopper descends the cover closes, and any grain dropping from the chute 3 at this time collects in the top of the hopper above the sliding cover, and on the opening of the cover falls into the hopper and is measured with the next charge. The bottom 6 of the hopper has an incline or cam 28, beneath which plays an anti-friction roller 29, journaled on a bar 30, connecting the levers 26 at their lower ends. The construction is such that the bottom is held up by the roller until the hopper is about to reach its lower position when the roller leaves the heel 31 of the incline and allows the bottom to drop open. As the bell-crank turns forward it again pushes the levers 26 into their normal position, and the bottom is again closed by the roller 29.

I claim as new and of my invention—

1. In a grain-weigher, the combination of a sliding lid 5, hinged bottom 6, provided with an incline 28, and levers fulcrumed to the side

of the hopper and connected with the lid, carrying a shaft having a roller 29, adapted to act on the incline, substantially as and for the purpose set forth.

2. The combination, in a grain-weigher, of the hopper supported on links 8, the scale-beam 10, the shaft 18, the loose wheel 12, provided with teeth 23, the bell-crank 16 17 on the shaft, having a sliding-toothed block 19 and spring 21, bearing against the block, the spring 22, bearing against the block when in normal position, crank 17^a, rods 25, levers 26, rods 27^a, lid 5, bottom 6, provided with incline 28, bar 30, and roller 29, all constructed and adapted to operate substantially as set forth.

3. The combination, in a grain-weigher, of a shaft 18, having a crank 17^a, a constantly-rotating wheel having teeth, a scale-beam, a hopper supported on the scale-beam having a lid and bottom, a bell-crank having an arm 16, bearing against the scale-beam when in normal position, and an arm 17, carrying a sliding block 19, provided with tooth 20, adapted to engage the teeth of the wheel when the arm 16 is released by the ascent of the scale-beam, levers 26, actuating the lid and bottom of the hopper, and rods 25 connecting the levers 26 to the arm 17 and to the crank 17^a upon the shaft 18, substantially as and for the purpose set forth.

WESLEY BUTLER.

In presence of—

J. H. HOOD,

A. F. MCEWEN.