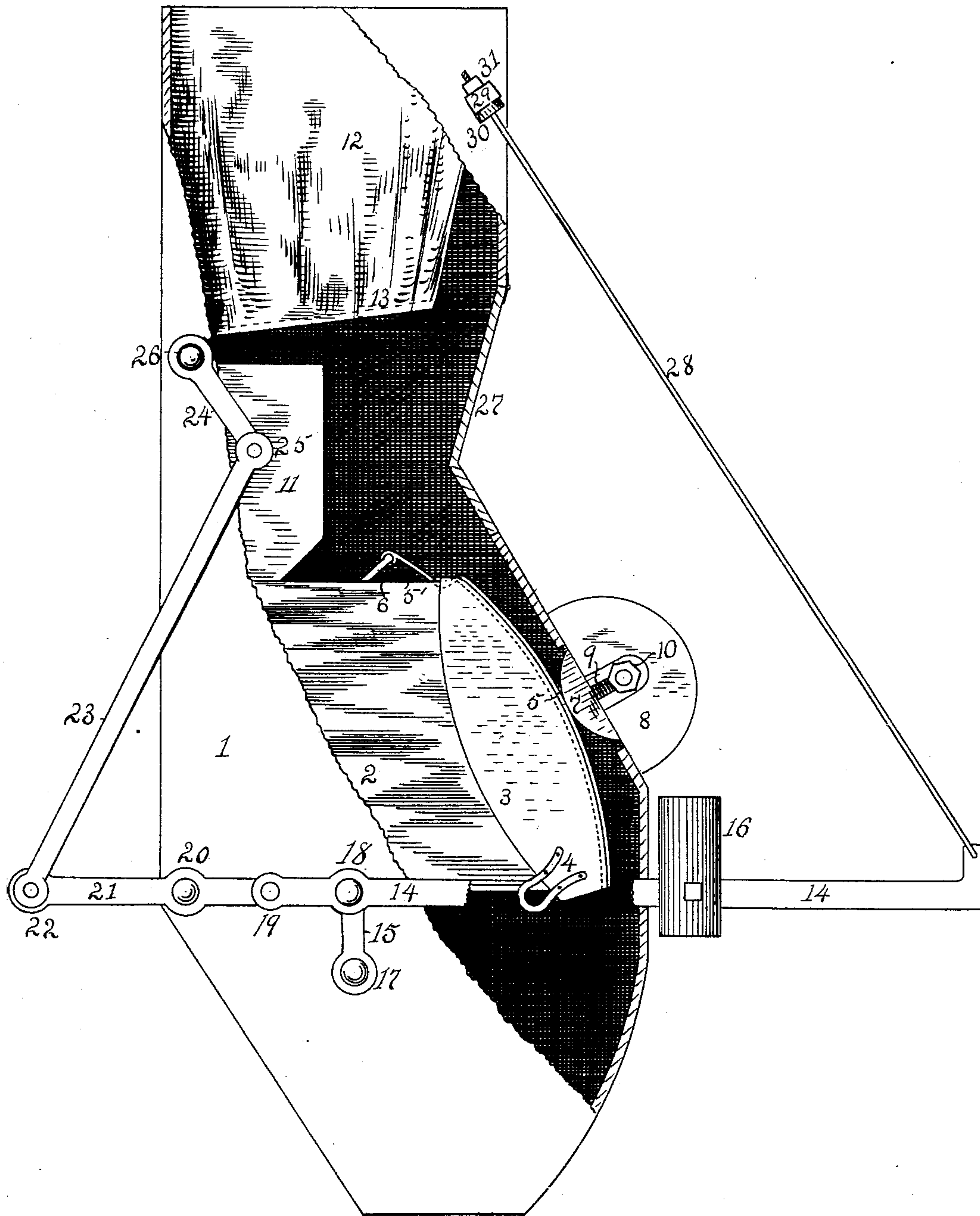


(No Model.)

T. J. UNDERWOOD.  
AUTOMATIC GRAIN SCALE.

No. 389,864.

Patented Sept. 18, 1888.



ATTEST  
*Belia Graham.*  
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# UNITED STATES PATENT OFFICE.

THOMAS J. UNDERWOOD, OF DECATUR, ILLINOIS.

## AUTOMATIC GRAIN-SCALE.

SPECIFICATION forming part of Letters Patent No. 389,864, dated September 18, 1888.

Application filed July 18, 1887. Serial No. 244,608. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS J. UNDERWOOD, of the city of Decatur, county of Macon, and State of Illinois, have invented certain new and useful Improvements in Automatic Grain-Scales, of which the following is a specification.

My invention comprises a single weighing-receptacle and a single cut-off valve, having peculiarities of construction and operation, both generally and specifically, as hereinafter set forth in detail and definitely claimed.

In the drawing a side elevation of my device is shown with the casing broken.

The casing 1 maintains a vertical position and is open at both top and bottom. The weighing-receptacle 2 is pivoted at 20, and comprises a bottom and two sides. The swinging end of the weighing-receptacle is provided with the swinging cap 3, which ordinarily closes the end of the receptacle. A metallic strip, 5, concentric with the pivot of the weighing-receptacle, traverses the center of the swinging cap in an upward direction, and terminates in projection 5', which pivots on cross-bar 6 of the weighing-receptacle. An anti-friction roller, 7, has an adjustable bearing in a frame, 8, attached to the casing 1 at a point contiguous to strip 5, and presses the cap in close contact with the weighing-receptacle. Lugs 4 on the lower end of cap 3 strike against the casing when the weighing-receptacle terminates its downward motion and forces the cap from the weighing-receptacle. The cut-off valve 11 comprises a bottom and sides, and is pivoted at 26. Coacting with the cut-off valve is the bottomless sack or flexible chute 12, provided at its lower termination with an encircling iron bar or other suitable weight to insure a proper suspension. This bar is indicated by dotted lines at 13, and is in position to rest on the cut-off valve when said valve is in horizontal position. An arm, 21, is secured to the shaft of the weighing-receptacle and extends on opposite sides thereof. The arm 24 is secured to the shaft of the cut-off valve. Bar 23 connects pivotally with arm 24 at 25 and with arm 21 at 22. The scale-beam 14 connects with arm 21 at 19, and has its fulcrum at 18 on vertical bar 15, which is pivotally supported at 17. The sliding weight 16 may be adjusted at any desired position on

the scale-beam. Connected with the outer end of the scale-beam is a rod, 28, that has free motion longitudinally in a bracket, 30, on the upper end of the casing. Secured by nut 31 on the upper end of rod 28 is an elastic block or other spring, 29. That portion of the casing indicated by 27 is hinged or otherwise detachable, in order to obtain access to the interior of the device at that point. The adjustment of roller 7 is provided for in slot 9, which permits adjustment, and in the threaded axle and adjustable nut 10, which enable a position of adjustment to be maintained.

In the position shown in the drawing grain will fall onto the weighing-receptacle until the weight is overbalanced, when said receptacle will swing downward, carrying the cap clear of the roller, and discharge the grain by permitting or, if necessary, forcing the cap to swing from contact with the outer termination of the receptacle. Simultaneous with the descent of the weighing-receptacle the cut-off valve is swung upward in close contact with the flexible chute, which combines with the valve to insure complete retention of the grain.

The receptacle and valve are both comparatively free from friction, the weighing is effected always in the one receptacle, which may be adjusted with great accuracy, and an injurious degree of jar in the parts is neutralized by the spring 29.

The relative arrangement of parts is such that the cut-off valve will maintain a horizontal position until a considerable weight of grain has accumulated—say four pounds, or a quantity sufficient to insure ample time for the weighing-receptacle to discharge—when the parts will reassume the relative positions shown, and the operation continue, as described.

The system of arms and levers shown on one side of the casing may be duplicated on the opposite side, and a tally-box of any suitable construction should be connected with the moving parts of the device in a manner to register the number of operations and the consequent amount of grain weighed.

I claim as new and desire to secure by Letters Patent—

1. In automatic scales, in combination, the pivotal weighing-receptacle, the hinged cap,

the roller to hold the cap normally in contact with the outer end of the receptacle, and the projections on the cap adapted to strike the casing prior to the termination of the discharge swing of the receptacle.

2. In automatic scales, in combination, the weighing-receptacle pivoted on shaft 20, the cut-off valve pivoted on shaft 26, arm 21 on shaft 20, arm 24 on shaft 26, connecting-bar 10 23, and the weighted scale-beam connected with arm 21, and having its fulcrum on the pivoting-bar 15.

3. In grain scales, in combination, the weighing-receptacle, the scale-beam, the bracket on the scale-frame, the rod extending from the outer end of the scale-beam through a hole in the bracket, and a spring on the rod in position to strike the bracket as the scale-beam terminates its stroke.

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Attest:

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