(No Model.)

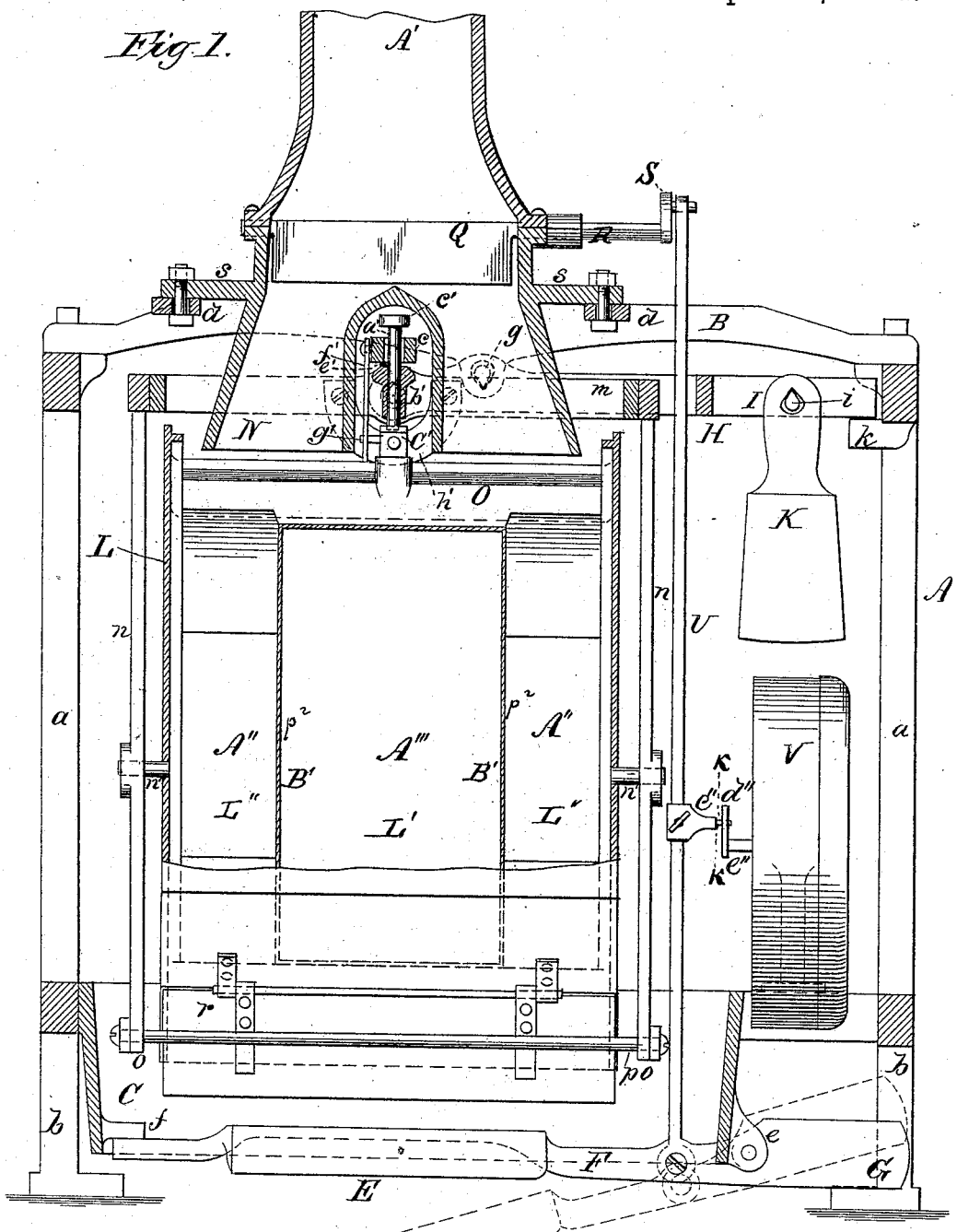
3 Sheets—Sheet 1.

J. T. BEDFORD.

AUTOMATIC SCALE.

No. 305,270. Patented Sept. 16, 1884.

Fig. 1.



WITNESSES

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John H. Speer.

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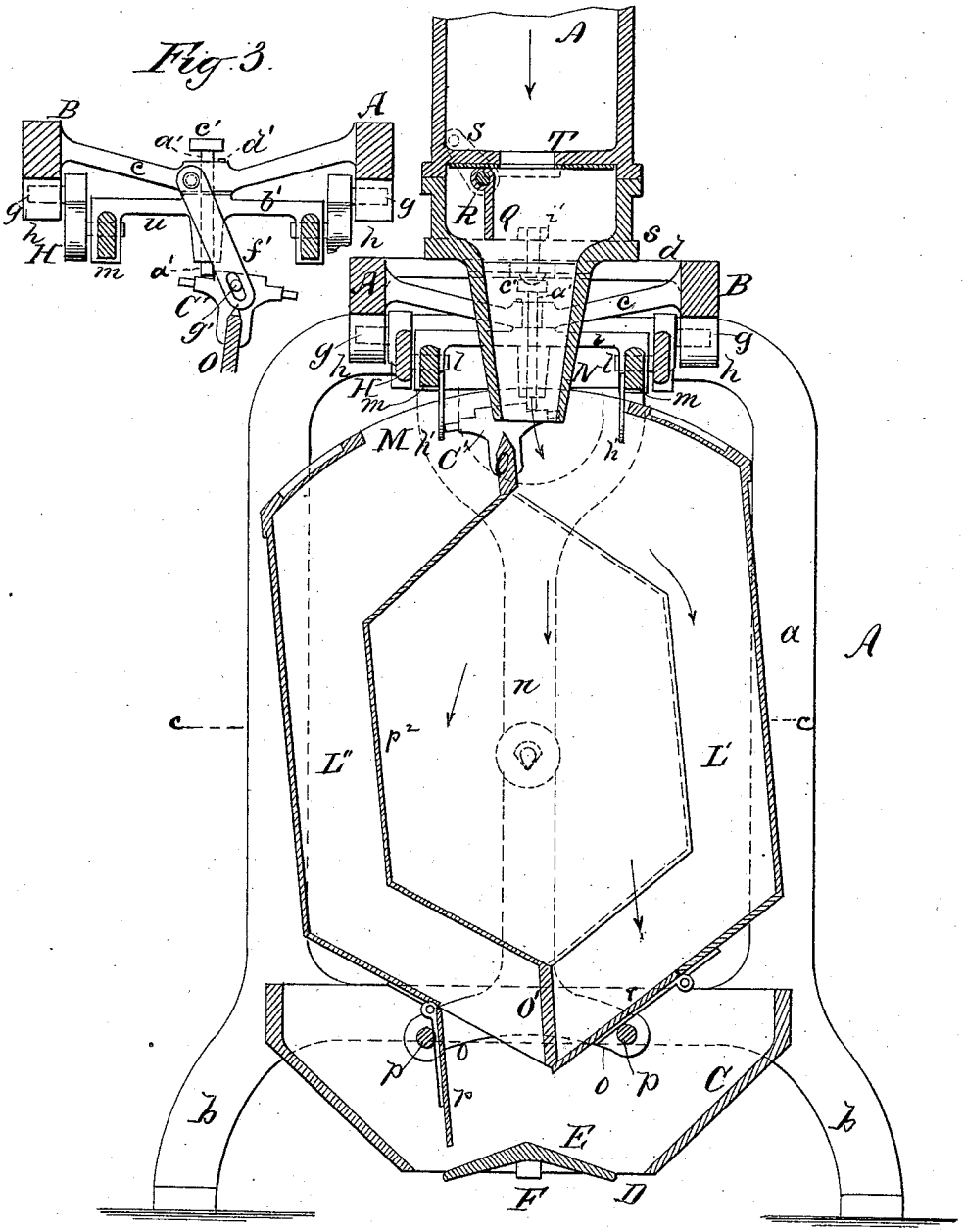
(No Model.) 3 Sheets—Sheet 2.

J. T. BEDFORD.

AUTOMATIC SCALE.

No. 305,270. Fig. 2. Patented Sept. 16, 1884.

Fig. 3.



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(No Model.) 3 Sheets—Sheet 3.

J. T. BEDFORD.

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Fig: 4

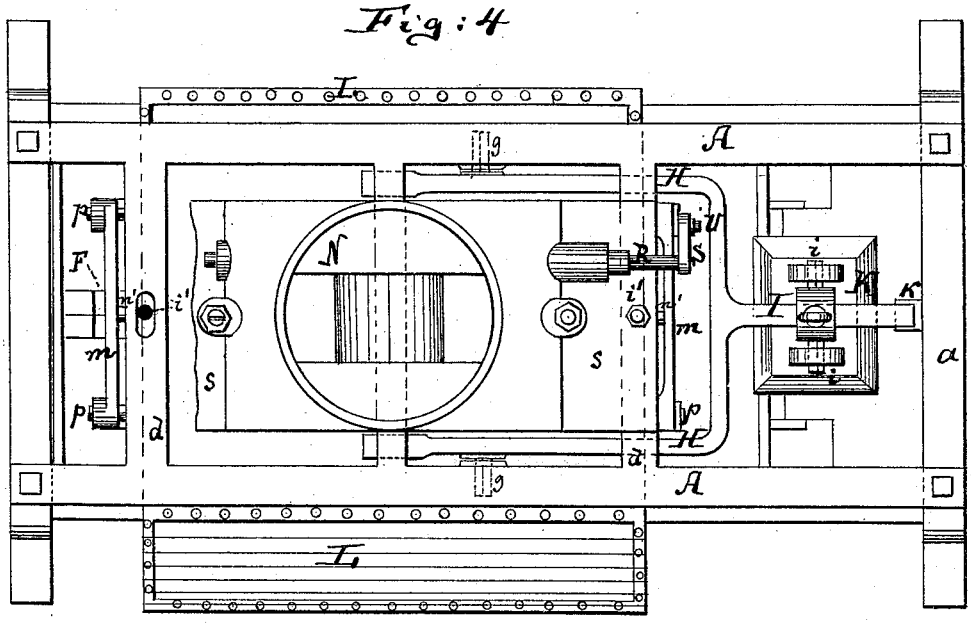


Fig: 5

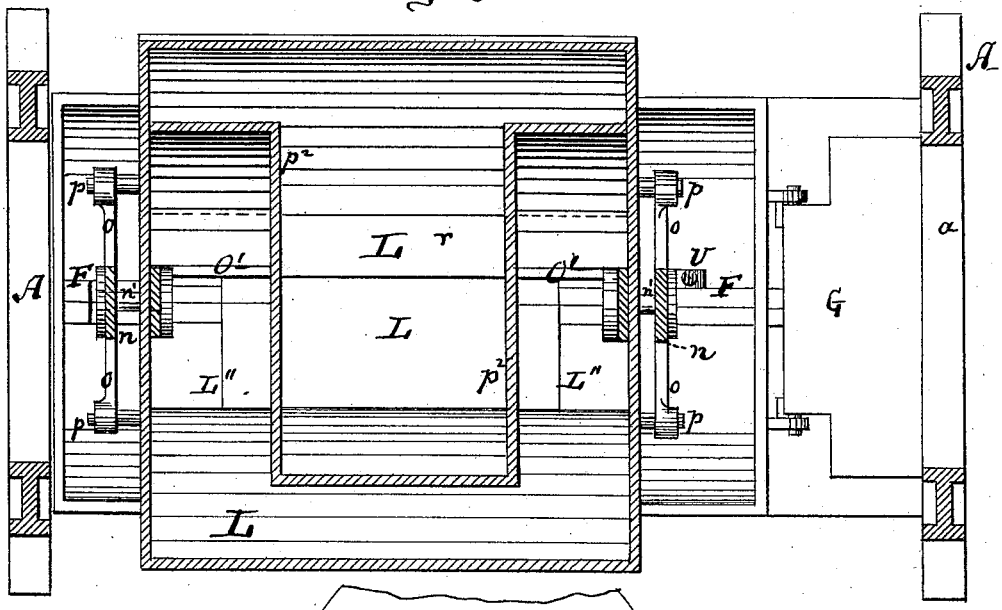
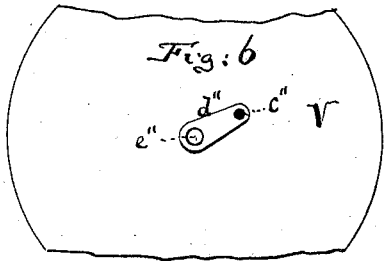


Fig: 6



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UNITED STATES PATENT OFFICE.

JOSEPH T. BEDFORD, OF NEW YORK, N. Y., ASSIGNOR TO MORRIS F. KOCH, OF SAME PLACE.

AUTOMATIC SCALE.

SPECIFICATION forming part of Letters Patent No. 305,270, dated September 16, 1884.

Application filed April 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH T. BEDFORD, of New York city, in the county and State of New York, have invented a new and useful Improvement in Automatic Scales, of which the following is a specification, reference being made to the annexed drawings.

My invention relates to the class of automatic scales in which the material to be weighed is fed through an oscillating box and discharged therefrom into a receptacle or chute.

The improvement consists, first, in an angular partition placed into the weighing-box, so as to divide the same into two compartments having equal capacity, but unequal form, so that the contents of either compartment will lie in line vertically with the knife-edge pivots of the oscillating box, and thus nearly balance the box; also, in the employment of a link which is pivoted on a fixed support above the oscillating box at one side of the center of the same, and connected by a slot and pin with said oscillating box, so as to prevent said box from maintaining a central position, the link serving to hold the box slightly tilted in case of accident, when the box fails to operate in a normal manner; also, in a detent for locking the oscillating box in either of the two positions in which it is to be filled; also, in making the grain-spout laterally adjustable to insure both compartments of the oscillating box being filled alike.

It further consists in other details of construction, which contribute to the perfection of the mechanism and the accuracy of its operation.

Figure 1 in the drawings is a sectional side elevation of the scale. Fig. 2 is a vertical transverse section of the same. Fig. 3 is a detail view of the detent mechanism. Fig. 4 is a partial top view of the same. Fig. 5 is a horizontal section on the line *c c*, Fig. 2. Fig. 6 is a detail vertical section on the line *k k*, Fig. 1.

Similar letters of reference indicate the same parts in all the figures of the drawings.

A bifurcated scale-beam, H, having an arm, I, extending therefrom and forming a part thereof, is provided with knife-edges *g*, which are received in bearings *h*, depending from the side bars of the top of the main supporting-frame A. The arm I is provided with knife-edges *i*, on which is suspended the weight K, and the extremity of the said arm I rests normally on the lug *k*, projecting inward from the end piece, *a*, of the frame A.

Upon the shorter arms of the scale-beam H is supported a rectangular frame, *m*, upon knife-edges *l*, projecting inward from the said arms of the scale-beam. Perpendicular bars *n*, secured to the ends of the frame *m* and hanging therefrom, are provided with bearings about midway of their length to receive the pivots *n'* of the oscillating box L. The lower ends of the perpendicular bars *n* are forked, as shown at *o*, and are connected by rods *p*, which engage the gates *r*, that are pivoted to and form a part of the angular bottom of the oscillating box L. The gates *r* ride upon the rods *p*, and are closed in alternation as the box L is oscillated. The oscillating box L is partly closed at the top, but is provided with a central opening, M, into which the material to be weighed is delivered by the bifurcated spout N. A knife-edged bar, O, extends longitudinally through the center of the oscillating box near the top thereof, and a bar, O', extends longitudinally through the box at the bottom and forms a seat for the free edges of the gates *r*. The oscillating box L is, by an angular partition, p^2, divided into two compartments, L' L'', of like capacity, but dissimilar in form, and disposed so as to place nearly the same amount of the material being weighed in vertical alignment with the pivot *n'*, so that the oscillating box will at all times be nearly balanced on its pivots, only a slight preponderance of weight being thrown upon the side being filled, so that it will be enabled to discharge itself by its own gravity. The object of this distribution of the weight is to relieve side strain, and to diminish as much as possible the friction of the releasing mechanism, and thereby contribute to the accuracy of the operation of the machine.

To the upper part of the bar O is secured a segment, C', (see Fig. 3,) having on its upper edge notches for engaging a detent-pin, *a'*, which projects through a cross-bar, *b'*, of the frame *m*, and also through a cross-bar, *c*, of

the main frame A B. The detent-pin *a'* is provided on top with a head, *c'*, and a stud, *d'*, projects upward from the cross-bar *c* at the side of the pin *a'*, in position to be touched by the head *c'* whenever the pin *a'* descends. The detent-pin *a'* is provided with a stud, *e'*, (see Fig. 1,) which rests normally on the cross-bar *b'* of the frame *m*, and sustains the pin on said frame *m*. A link, *f'*, pivoted to the cross-bar *c* at one side of the center thereof, is provided with a slot in its lower end for receiving a pin, *g'*, which projects from the side of the segment C'. In case of stoppage or accident the pin *g'* strikes at the upper end of the slot, when the box L ascends and oscillates, and the link rides lightly on the pin and prevents the box L from stopping on the center. The ends of the segment C' are prolonged, and to the inner sides of the frame *m* are secured semicircular buffer-springs *h'*, (see Fig. 2,) against which the ends of the segment strike at the end of each excursion of the oscillating box L.

The bifurcated spout N is provided with flanges *s*, which rest upon cross-bars *d* of the top frame, A, and are secured by bolts *i'*, which pass through slots in the cross-bars, as in Fig. 4, and admit of adjusting the spout N to one side or the other of the central line of the machine, to equalize the amount of material supplied to either of the compartments of the oscillating box L. A valve, Q, placed in the spout N on the spindle R, is capable of seating on the valve-seat T, and is operated by a rod, U, connected with a crank, S, on the end of the spindle R. The rod U takes its motion from the lever F, which is placed in the opening D of the hopper C at the bottom of the machine. The lever F is provided with a plate, E, inclined each way from the center, which is depressed by the material discharged from the oscillating box L, so that whenever one of the compartments of the said oscillating box is emptied the lever F is depressed, closing the valve Q until after the matter discharged from the oscillating box no longer weighs down said lever. The lever F is returned to its normal position by the counter-weight G.

A register, V, of ordinary construction, is mounted on the frame A. Its actuating-spindle *e''* is provided with a perforated arm, *d''*, which receives a finger, *c''*, carried by the rod U. (See Figs. 1 and 6.) Whenever the lever F is moved by the discharge of weighed materials from the oscillating box the register is operated by the rod U to make one tally.

The operation of my improved automatic scale is as follows: The material to be weighed flows through the spout N into one of the compartments of the oscillating box L. When the box is filled so as to move the weight K, the shorter arm of the scale-beam descends, and the frame *m* moves down with it, carrying the detent-pin *a'* with it, and holding all of the parts supported by the frame *m* relatively in the same position as when the filling of the compartment began, until the head *c'* of the detent-pin strikes the stud *d'*, projecting from the cross-bar *c*, when the said pin is arrested, and the segment *c'* disengages itself from the pin, and the oscillating box L tips, opening the gate *r* in the lower part of the filled compartment thereof, which allows the contents of the filled compartment to escape, at the same time closing the gate *r* of the other compartment and bringing the upper part of the said other compartment under the supply-spout N. In this new position the detent-pin *a'* engages the opposite side of the segment C' and holds the oscillating box in position until the second compartment is filled, when the operation above described is repeated.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In automatic scales, an oscillating weighing-box provided with oppositely-arranged compartments L' L'', each extending from the outer portion of the box inward beyond the center of oscillation of the box, as herein described, whereby the body of material being weighed is aligned vertically with the pivots of the oscillating box, substantially as herein shown and described.

2. In automatic scales, the oscillating weighing-box L, provided with the angular partition *p*² and bars O O', substantially as herein shown and described.

3. The combination, with an oscillating weighing-box, of the slotted link *f'*, pivoted to a fixed support above said box, and a pin, *g'*, carried by the oscillating weighing-box, and passing through the slot of said link, substantially as herein shown and described.

4. In automatic weighing-scales, the combination, with the oscillating weighing-box L, of a notched segment, C', and a sliding detent-pin, *a'*, carried by the weighing mechanism, and a fixed arm, *c*, capable of engaging the head of the detent-pin after a partial descent of the weighing-box, as herein described.

5. The combination of the lever F, ridge-plate E, weight G, rod U, and valve Q with the finger *c''*, crank *d''*, and shaft *e''* of the register V, substantially as herein shown and described.

6. The spout N, having flanges *s*, in combination with the frame A, having slotted bars *d*, and with the oscillating weighing-box L, above which the spout can be laterally adjusted, as specified.

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