H. WILLARD.

WEIGHING SCALES.

No. 180,298. Patented July 25, 1876.

Fig. 1

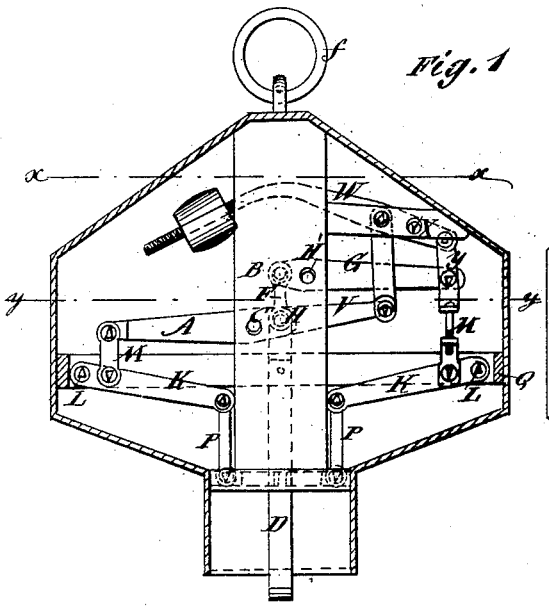


Fig. 2

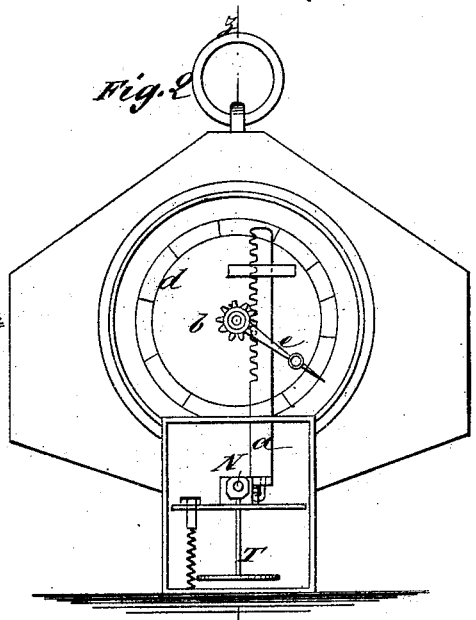


Fig. 3

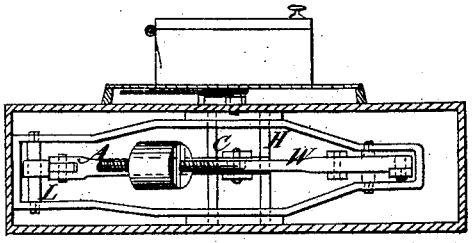


Fig. 4

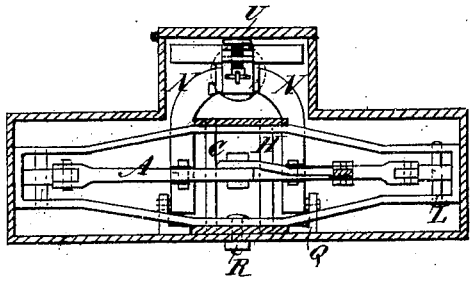
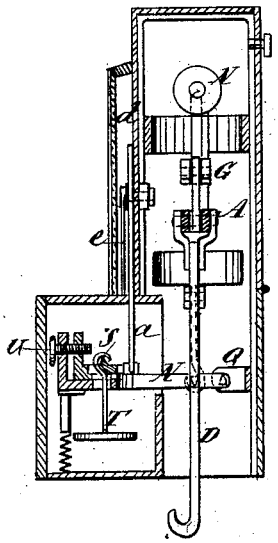


Fig. 5



WITNESSES:

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UNITED STATES PATENT OFFICE.

HOSEA WILLARD, OF VERGENNES, VERMONT.

IMPROVEMENT IN WEIGHING-SCALES.

Specification forming part of Letters Patent No. **180,298**, dated July 25, 1876; application filed May 9, 1876.

To all whom it may concern:

Be it known that I, HOSEA WILLARD, of Vergennes, in the county of Addison and State of Vermont, have invented a new and Improved Weighing-Scale, of which the following is a specification:

The object of my invention is to contrive a lever-and-beam scale in a simple way that will allow of being suspended for use, and at the same time will be efficient in operation.

Figure 1 is a sectional elevation of the case and side elevation of the lever contrivance. Fig. 2 is a front elevation of the scale. Fig. 3 is a horizontal section taken on line *x x*, Fig. 1. Fig. 4 is a horizontal section on line *y y*, Fig. 1. Fig. 5 is a sectional elevation taken on line *z z*, Fig. 2.

A is the main beam, which is pivoted to the frame B at C, and has the load-suspending rod D suspended from it at H, and at the same point is connected, by link F, with a second lever, G, pivoted to the frame at H′, and arranged reversely to lever A. K represents intermediate levers pivoted to the frame at L, and suspended from levers A and G, respectively, by links M, one of which has a swivel-joint by which to adjust the levers. From levers K the forked beam-lever N, to which the weights are applied, is suspended by links P, said beam-lever being pivoted to a bar, Q, by a center bolt, R, on which it is free to shift, to allow both forks of the beam-lever to act alike on levers K. The pivot S, by which the weight-hook T is suspended from the beam-lever, is adjustable along said lever by adjusting-screw U, to set the weights for weighing gross or net weight. The main lever A has an arm, V, to which an adjustable counterbalance lever, W, is connected, said lever being pivoted to the frame at X, and also connected to lever G by link Y. A toothed rod, *a*, is connected to beam-lever N, and geared with a pinion, *b*, in the center of a dial, *d*, around which it moves a pointer, *e*, for recording fine weights. *f* is a ring by which the scale is suspended for use.

In practice, the lever will be made in one piece, of cast-iron, with a door at one side, affording access for adjusting the levers.

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

1. The levers A G, connected with adjusting-lever W on opposite sides of its fulcrum, substantially as and for the purpose specified.

2. The forked beam-lever N, pivoted to the adjusting-bar Q, as described, in combination with intermediate levers K, substantially as specified.

3. The weight-hook pivot S, connected adjustably to the beam-lever, and provided with a shifting-screw to set the scale for net or gross weight, substantially as specified.

HOSEA WILLARD.

Witnesses:

G. W. GRANDEY,

G. R. CHAPMAN.