(No Model.)

R. TORRAS.

PENDULUM SCALES.

No. 256,768. Patented Apr. 18, 1882.

Fig. 2.

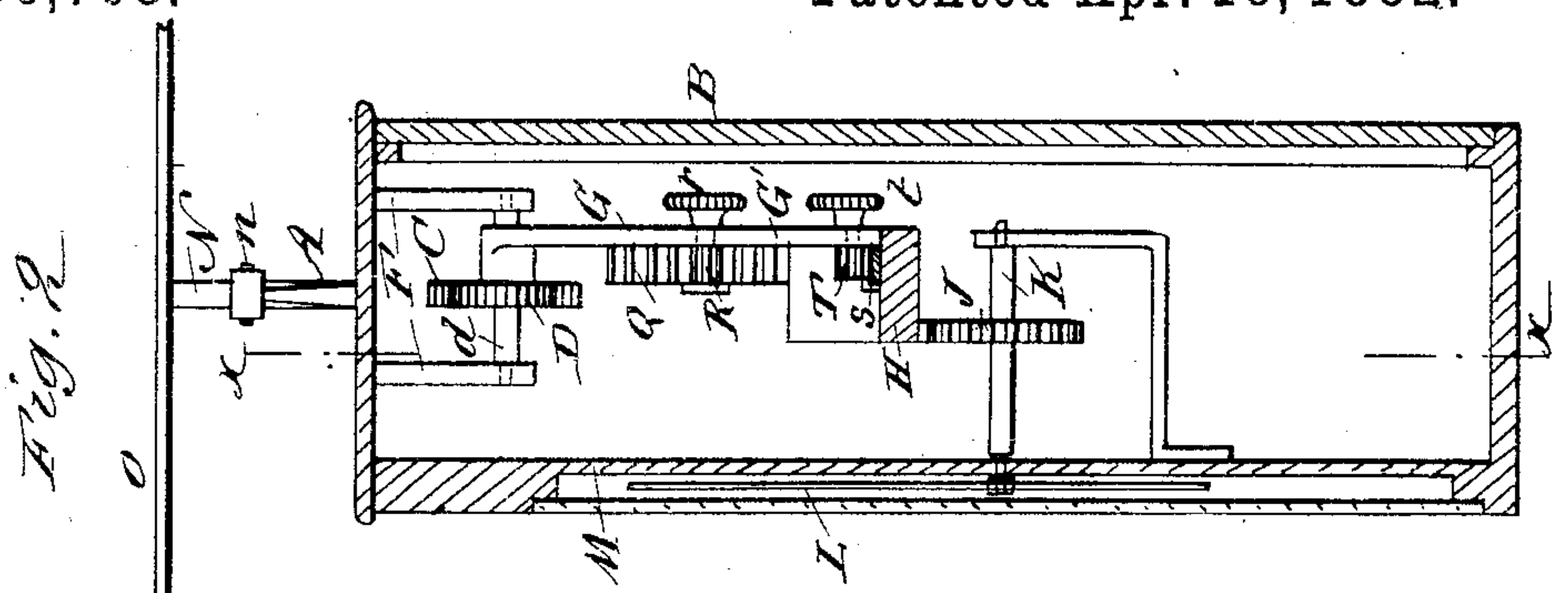


Fig. 3.

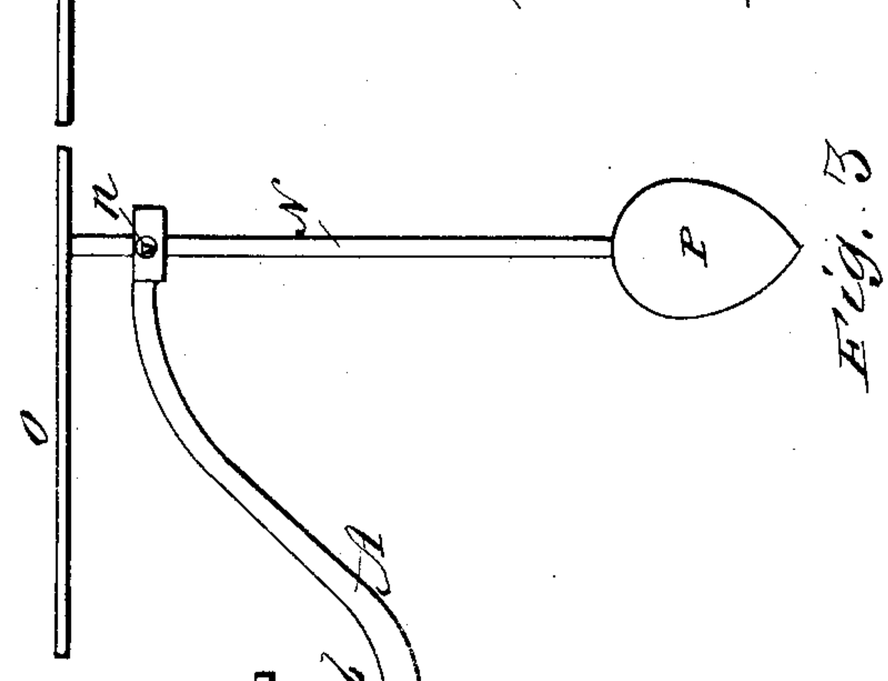


Fig. 4.

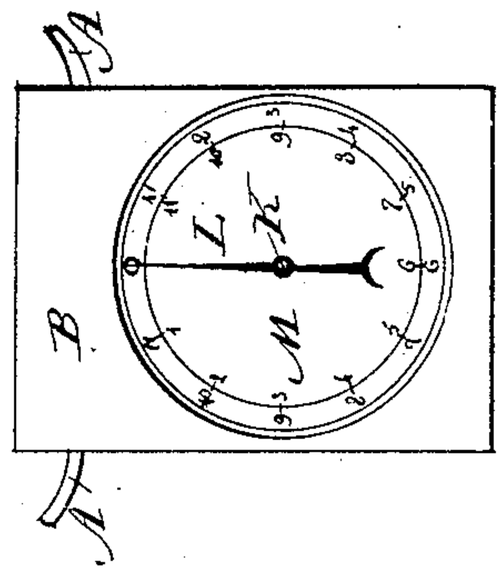
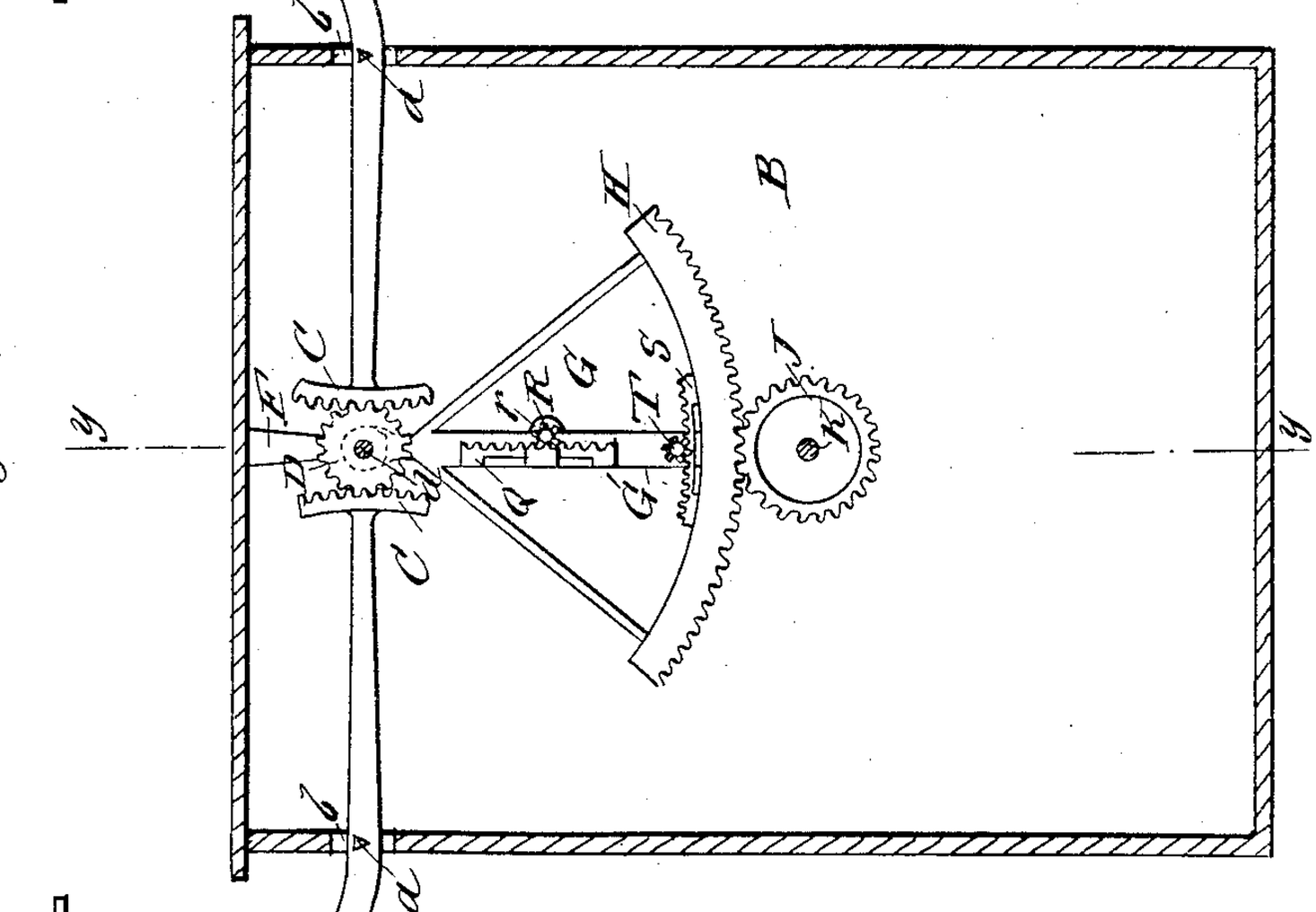


Fig. 1.



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ROSENDO TORRAS, OF BRUNSWICK, GEORGIA.

PENDULUM-SCALES.

SPECIFICATION forming part of Letters Patent No. 256,768, dated April 18, 1882.

Application filed December 28, 1881. (No model.)

To all whom it may concern:

Be it known that I, ROSENDO TORRAS, of Brunswick, in the county of Glynn and State of Georgia, have invented a new and Improved Scales, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved adjustable scale specially adapted to weigh light articles, such as letters, &c.

The invention consists in a scale constructed with levers carrying receiving-plates at the outer ends, and provided at the inner ends with segmental racks engaging with a pinion attached to a swinging frame provided with a segmental rack engaging with a pinion on a shaft carrying the pointer on a dial provided with two graduated scales, one running from left to right and one from right to left.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal sectional elevation of my improved scale on the line *x x*, Fig. 2. Fig. 2 is a cross-sectional elevation of the same on the line *y y*, Fig. 1. Fig. 3 is a front elevation of the dial-plate of the scale.

Two scale-beams or levers, A, provided with knife-edges *a*, pass through apertures *b* of a casing or box, B, the knife-edges resting on suitable bearings, as is customary in scales. At the inner end each lever A is provided with a short segmental or convex rack, C, engaging with a pinion, D, mounted rigidly on a shaft, *d*, journaled in suspending bars or blocks F, hanging from the lower side of the top of the box or casing B. A sector-shaped frame, G, the curved side of which is formed by a segmental rack, H, is also rigidly mounted on the shaft *d* and connected with the pinion D. The segmental rack H engages with a pinion, J, rigidly mounted on a shaft, K, provided with a hand or pointer, L, on a dial-plate, M, fastened on the front of the casing B, and provided with graduated subdivisions from right to left and from left to right. On the other end of each lever A a rod, N, provided with knife-edges *n*, is supported, and these rods each carry a receiving-plate, O, and have a weight, P, to keep them in a vertical position at the lower end. A sliding rack, Q, fits on the edge of the vertical center bar, G′, of the frame G and engages with a pinion, R, provided with a button, *r*, whereby the rack Q can be adjusted higher or lower on the bar G′ by turning the button *r*, thus permitting the center of gravity of the frame G to be adjusted higher or lower. A sliding rack, S, fits on the upper edge of the segmental rack H and engages with a pinion, T, provided with a button, *t*, whereby the rack S can be moved sidewise by turning the button *t*, thus permitting the center of gravity of the frame G to be adjusted sidewise.

It is evident that the parts on each side of the vertical central line of the casing B must counterbalance each other, the pointer or hand L then pointing to O. The rack H must be of such weight as to hold the center bar, G′, of the frame G in a vertical position when the scale is at rest.

The operation is as follows: When at rest the several parts of the scale are in the position shown in the drawings. For instance, if the article, letter, &c., to be weighed is placed on the right-hand receiving-plate O the inner end of the corresponding lever A will rise, the pinion D will be rotated from right to left, the frame G will swing toward the right, the pinion J will be rotated from left to right, and the pointer or hand L will be moved in the same direction, indicating the weight of the article on that graduated scale on the dial-plate M running from left to right. The operation of the corresponding parts in the left-hand part of the casing will be corresponding if the article to be weighed is placed on the left-hand receiving-plate O, and the hand will then rotate toward the left, as is very evident.

As stated, the center of gravity can be regulated very conveniently by means of the devices described. The vertical position of the bar G′ of the frame G is adjusted by means of the rack S, and the frame G can be adjusted to counterbalance the fixed weights at the ends of the levers A by means of the rack Q.

A scale with a single lever can be constructd in the same manner by properly weighing one end of the rack H or frame G, and I do not limit myself to the construction with two levers, A, and corresponding parts.

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

1. A double weighing-scale made substantially as herein shown and described, consisting of a pair of balanced levers provided at their inner ends with toothed racks that engage the toothed wheel of a swinging sector-rack, the teeth of which latter operate a pointer-wheel that carries a pointer in front of a double-figured dial, whereby when an article to be weighed is placed on one end of the levers the pointer will move correspondingly to indicate on the dial the weight of the article, and if the article is placed on the opposite scale the pointer will move in the opposite direction and indicate the weight, as set forth.

2. In a scale, the combination, with the box or casing B, of the levers A, the racks C, the pinion D, the swinging frame G, the rack H, the pinion J, the hand L, and the dial M, substantially as herein shown and described.

3. In a scale, the combination, with the sector-frame G, of the sliding rack Q and the pinion R, substantially as herein shown and described.

4. In a scale, the combination, with the sector-frame G, of the sliding rack S and the pinion T, substantially as herein shown and described.

5. In a scale, the combination, with the box or casing B, of the levers A, the rods N, the receiving-plates O, the weights P, the racks C, the pinion D, the swinging frame G, the rack H, the pinion J, and the hand L, substantially as herein shown and described, and for the purpose set forth.

ROSENDO TORRAS.

Witnesses:
J. E. MOORE,
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