(No Model.)

T. H. HERNDON.

WEIGHING SCALES.

No. 411,336. Patented Sept. 17, 1889.

Fig. 1.

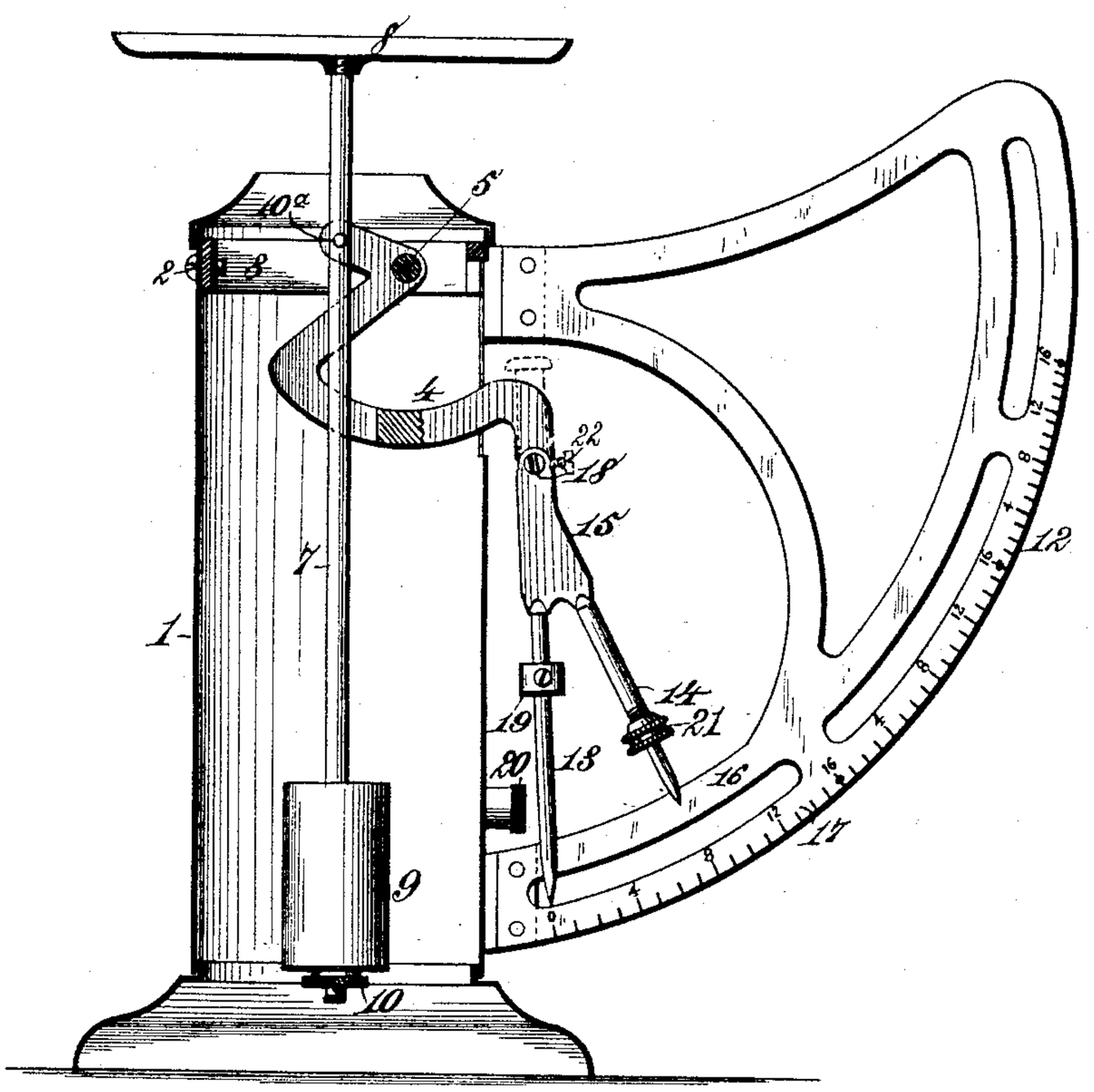
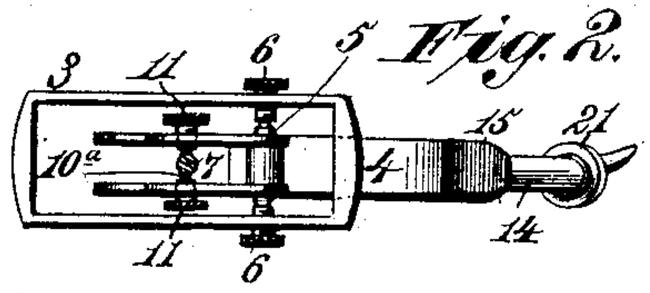


Fig. 2.



Witnesses.
Robert Everett.
J. A. Rutherford.

Inventor.
Thomas H. Herndon.
By James L. Norris
Atty.

UNITED STATES PATENT OFFICE.

THOMAS H. HERNDON, OF BIRMINGHAM, ALABAMA.

WEIGHING-SCALE.

SPECIFICATION forming part of Letters Patent No. 411,336, dated September 17, 1889.

Application filed April 19, 1889. Serial No. 307,817. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. HERNDON, a citizen of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented new and useful Improvements in Weighing-Scales, of which the following is a specification.

This invention relates to letter and similar weighing scales of the type disclosed by Letters Patent No. 396,569, issued to me January 22, 1889, and the present improvements have for their objects to simplify the construction of the scale; to provide a novel arrangement and construction whereby the pivotal support of the index-carrying lever and its pivot attachment to the weighted pan-carrying spindle are housed and concealed in the metallic casing in such manner as to not only protect them, but secure a more delicate poise and smooth, uniform, and quick movement of the parts; to provide a novel construction of index-carrying lever and its support and connection with the vertical pan-carrying spindle; to provide a novel construction whereby the duplex index-hands are rigid on a head or carrier common to both and are adapted to be simultaneously adjusted by the head or carrier in the arc of a circle relative to the curved graduated plate, as occasion may demand, in contradistinction to one of the index-hands being pivoted to the other and adjusted independently; and, finally, to provide means whereby the main index-hand is cushioned in its rebound and prevented from striking the metallic casing when the weighted article is suddenly removed from the scale-pan.

The objects of the invention are accomplished by the features of construction and the arrangement and combination of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a vertical sectional view of the weighing-scale, and Fig. 2 a detail top plan view showing the pan-carrying spindle in section.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, where the numeral 1 indicates a cylindrical casing or frame, in the upper end of which is secured by screws 2 or otherwise a yoke-frame 3, which, as shown in Fig. 2, comprises parallel side bars and connecting end bars curved on their exterior to fit inside of the casing.

The index-hand-carrying lever 4 is of the bell-crank order, and between its extremities it is furnished with a lateral pivot-pin 5, having conical ends supported by set-screws 6, tapped through the side bars of the yoke-frame inside the casing. The lever is bifurcated at one end, and between the bifurcations extends the vertical spindle 7, having at its upper end a suitable scale-pan 8 and at its lower end a weight 9, which is adjustable vertically by a screw-nut 10. The spindle is provided with lateral oppositely-projecting pivot-pins 10^a, which are tapering or conical and seat in set-screws 11, tapped through the arms comprising the bifurcated end of the lever. By this construction the pivotal support of the lever and its pivotal attachment to the spindle are on a yoke-frame and are housed and concealed inside of the casing in such manner as to protect the pivots and secure a delicate poise and smooth, uniform, and quick movement of the parts. It will also be observed that the greater portion of the lever is also housed and the parts brought into a more compact and desirable structure than in my Letters Patent before mentioned.

To the casing is secured the curved or arc-shaped graduated plate 12, which in all essential respects is the same as in my patent. The duplex index-hands 13 and 14 are rigid on a head or carrier 15, and I prefer to form such head or carrier integral with the body of the hands, although the actual pointing end of the secondary hand 14 can be lengthwise adjustable by a thumb-nut 21 to indicate the weight on either of the two parallel graduated plates 16 and 17. The head or carrier is pivotally secured to the outer end of the bell-crank lever by a set-screw 18, through the medium of which the head, with its two index-hands, can be adjusted in the arc of a circle, and held in the position to which adjusted by tightening up the set-screw. This enables both index-hands to be simultaneously adjusted to the correct graduations in adjusting the scale for the market, and is further of advantage if by accident or other-

wise the attaching-screw of the head is loosened, as the hands can be quickly reset, and the setting of one sets the other.

The main index-hand 13 is provided with a counterbalance-weight 19, which can be adjusted along the hand, as required, when the point of the secondary hand 14 is extended or shortened, as in my former patent. By placing the counterbalance-weight directly on the index-hand the construction of the scale is simplified.

To cushion the main index-hand 13 in its rebound and prevent it from striking a metallic casing when a weighed article is suddenly removed from the scale-pan, a rubber or other elastic buffer or cushion 20 is secured to the casing in the path of the main index-hand.

I may employ an additional set-screw, as indicated by dotted lines 22, Fig. 1, to aid in holding the pivoted head 15 in its adjusted position, and I may also bifurcate said head and extend it above the screw 18, as represented by dotted lines, Fig. 1, to counteract any loss or gain of leverage that might arise by adjusting the index-hands.

Having thus described my invention, what I claim is—

1. In a weighing-scale, the combination, with the hollow casing, the spindle having a weight at its lower and a scale-pan at its upper end, and the curved graduated plate, of the index-hand-carrying lever pivoted intermediate its ends at a point inside of the wall of the casing and having the upper end portion, which extends beyond the lever-pivot, connected to the spindle, also within the casing, substantially as described.

2. In a weighing-scale, the combination, with the hollow casing, the spindle having a weight at its lower and a scale-pan at its upper end, and the curved graduated plate, of the bell-crank lever pivoted inside the hollow casing and connected at one end with the spindle, and a head formed with two index-hands and adjustably secured to the other arm of the lever to simultaneously adjust both index-hands in the arc of a circle, substantially as described.

3. The combination, in a weighing-scale, of a casing or frame, a weighted spindle carrying a scale-pan, a curved graduated plate, a lever pivoted between its ends and connected at one extremity with the spindle, and a head having two index-hands and adjustably pivoted to the other extremity of the lever, substantially as described.

4. The combination, in a weighing-scale, of the casing or frame, the weighted spindle having a scale-pan, the curved graduated plate, the bifurcated lever pivoted inside the casing or frame and having its bifurcated end embracing and connected to the spindle, and two index-hands carried by the other end of the lever, substantially as described.

5. The combination, in a weighing-machine, of the casing or frame, the weighted spindle having a scale-pan, the curved graduated plate, the bifurcated lever pivoted inside the casing and having its bifurcated end embracing and connected to the spindle, and a head having two index-hands and adjustably pivoted to the other end of the lever to simultaneously adjust the two hands, substantially as described.

6. The combination, with a casing or frame, a weighted spindle carrying a scale-pan, a curved graduated plate, and a lever pivoted between its ends and connected at its upper end to the spindle, of a head having two index-hands and a set-screw pivotally and adjustably securing the head to the lever to simultaneously adjust both hands in the arc of a circle, substantially as described.

7. The combination, in a weighing-scale, of the hollow casing, a yoke-frame secured in the upper end of the casing, the weighted spindle carrying a scale-pan, the curved graduated plate, and the lever pivotally carried by the yoke-frame inside the casing and connected at one end to the spindle, and two index-hands on the other end of the lever, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

THOMAS H. HERNDON.

Witnesses:

GEO. P. HERNDON,

E. C. HERNDON.