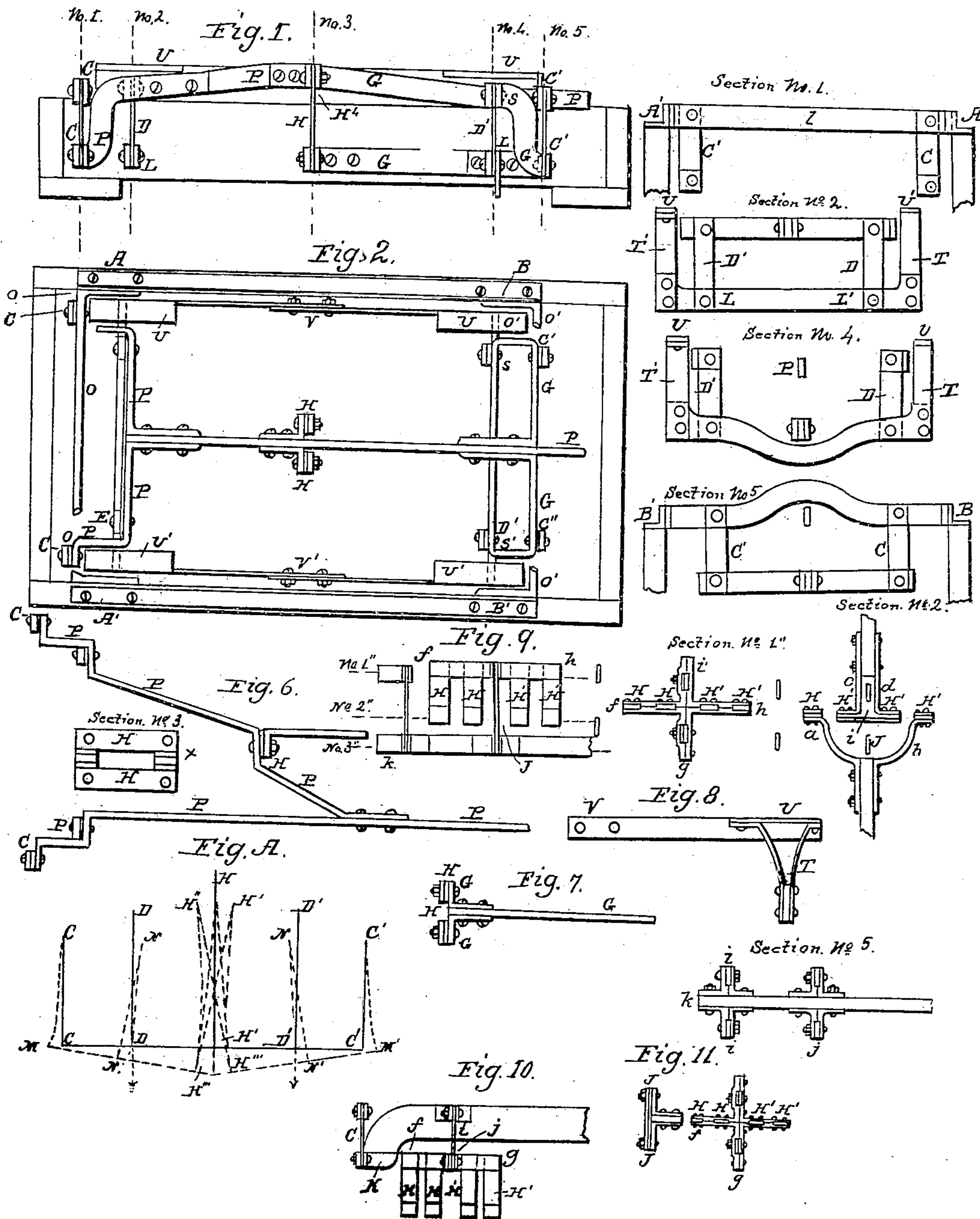


J. M. H. A. TAURINES.

Balances.

No. 36,867.

Patented Nov. 4, 1862.



Witnesses:
 Wm. H. Harrison
 Benn L. Bisset

Inventor:
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UNITED STATES PATENT OFFICE.

J. M. H. A. TAURINES, OF PARIS, FRANCE.

IMPROVEMENT IN SPRING-BALANCES.

Specification forming part of Letters Patent No. 36,867, dated November 4, 1862.

To all whom it may concern:

Be it known that I, JEAN MARIE HOSPICE AUGUSTE TAURINES, of Paris, in the French Empire, constructor, have invented certain new and Improved Modes of Constructing Balances, Weigh-Bridges, and other Weighing-Machines; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the drawings hereunto annexed—that is to say—

My invention will be best understood by reference to the accompanying drawings.

Nos. 1, 2, 3, 4, and 5 are sections, taken through the corresponding lines in Figure 1, of a weighing-machine.

A B A' B' are longitudinal iron pieces, and O O' are cross-pieces, (shown in the sections Nos. 1 and 5,) forming a frame for the machine, supported by a wooden frame or by a foot connected to each angle of the frame.

C C' are vertical springs fixed to the cross-pieces O O'. On that side shown at No. 1 the lower ends of these springs are connected with the arms of a lever, P. (Shown at Figs. 1, 2, and 6.) The arms of this lever receive at their upper part two springs, D D', parallel to the first springs, and carrying at bottom a cross-piece, L, as shown in the section No. 2, the ends of which serve as supports for the table of the machine through the medium of the stays T T', united at top by pieces U U', which are prolonged to V V', somewhat beyond the middle of the machine, as shown in Figs. 2 and 8. On the side No. 5 the lower ends of the springs C C' are united to the arms of a second lever, G, below the first, as seen in Figs. 1, 2, and 7. To the ends S S' of these arms the springs D D', section No. 4, are attached. These springs D D' carry at bottom a cross-piece with supports for the table, as in the section No. 2. In the middle of the frame the two levers are united through bolts by two vertical springs, H H'. A platform is laid on the supports to receive the load.

Figure A (drawn in red and black ink) illustrates the action of the springs.

The springs C C' and D D' and the springs H H' in the centre, when under the action of a load, assume the positions C M C' M' N N' H'' H'''.

The end of the lever P has to move vertically, and for this purpose when the machine

is not at work it lies above the level of the lower ends of the springs C C' to an extent equal to half the length of one of them plus the half the descent that it makes under the maximum load.

To construct a weighing-machine with a dial-plate, the end of the lever P is connected to a vertical rod furnished with a rack, which, through the agency of a pinion, takes the needle of the dial-plate over or round the scale.

For a steelyard I adapt the arrangement first described and apply to the end of the lever P a vertical rod to connect it thereto.

For weighing machines or bridges fitted with a dial-plate and steelyard I employ similar springs to those before described.

When it is necessary that the indicating mechanism be placed laterally, the center springs are modified in the following manner, and as shown at Fig. 9, as well as by the sections Nos. 1 2 3, which correspond with the sectional lines 1 2 3 of Fig. 9. (See, also, Figs. 10 and 11 for the steelyard arrangement.) The levers P and G, connected to the springs, are both of the shape of the lower lever, G, with this difference, that they terminate in the center—one in a forked piece, *a b*, No. 2, and the other in the pieces *c d*. To each of these levers springs H H' are fixed, and the four springs are in the same plane, and are united at top, as seen in the section No. 1, in a cross-piece, *e f g h*. The two other arms of this piece carry two springs, *i j*, fixed at the bottom (see section No. 3) to a lever, *k*, the short arm of which receives two springs, *m n*, parallel to the preceding, and which are inserted at top in fixed pieces. The extremity of the long arm of the lever works, by means of a vertical rod, by toothed gearing or other mechanism, the needle over the dial for indicating the weight.

In applying the steelyard to my method of constructing weigh-bridges the arrangements just described are the same as those shown at Figs. 10 and 11 with this difference, that the long lever of the transmission-springs is placed above, and that these springs act by tension, while those in the middle in the preceding example act by compression; and,

Having now described the nature of my said invention, and in what manner the same is to be performed, I declare that I claim—

1. The arrangement and method of constructing balance and weigh bridges with elastic or spring-like connections, substantially in manner hereinbefore described, and illustrated in the accompanying drawings.

2. The employment of suspension-springs in pairs, in manner and for the purposes hereinbefore described, and illustrated in the accompanying drawings.

3. The employment of central springs (marked H) for the purpose of enabling the platform to be loaded at any part for increasing its strength and acting as a regulator, all as hereinbefore described, and illustrated in the accompanying drawings.

4. The employment of a lever, (marked P,) the end of which is free to move in a vertical direction, substantially in manner and for the purposes hereinbefore described, and illustrated in the accompanying drawings.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

J. M. H. A. TAURINES.

Witnesses:

GEO. HUTTON,
L. CLAËZ.