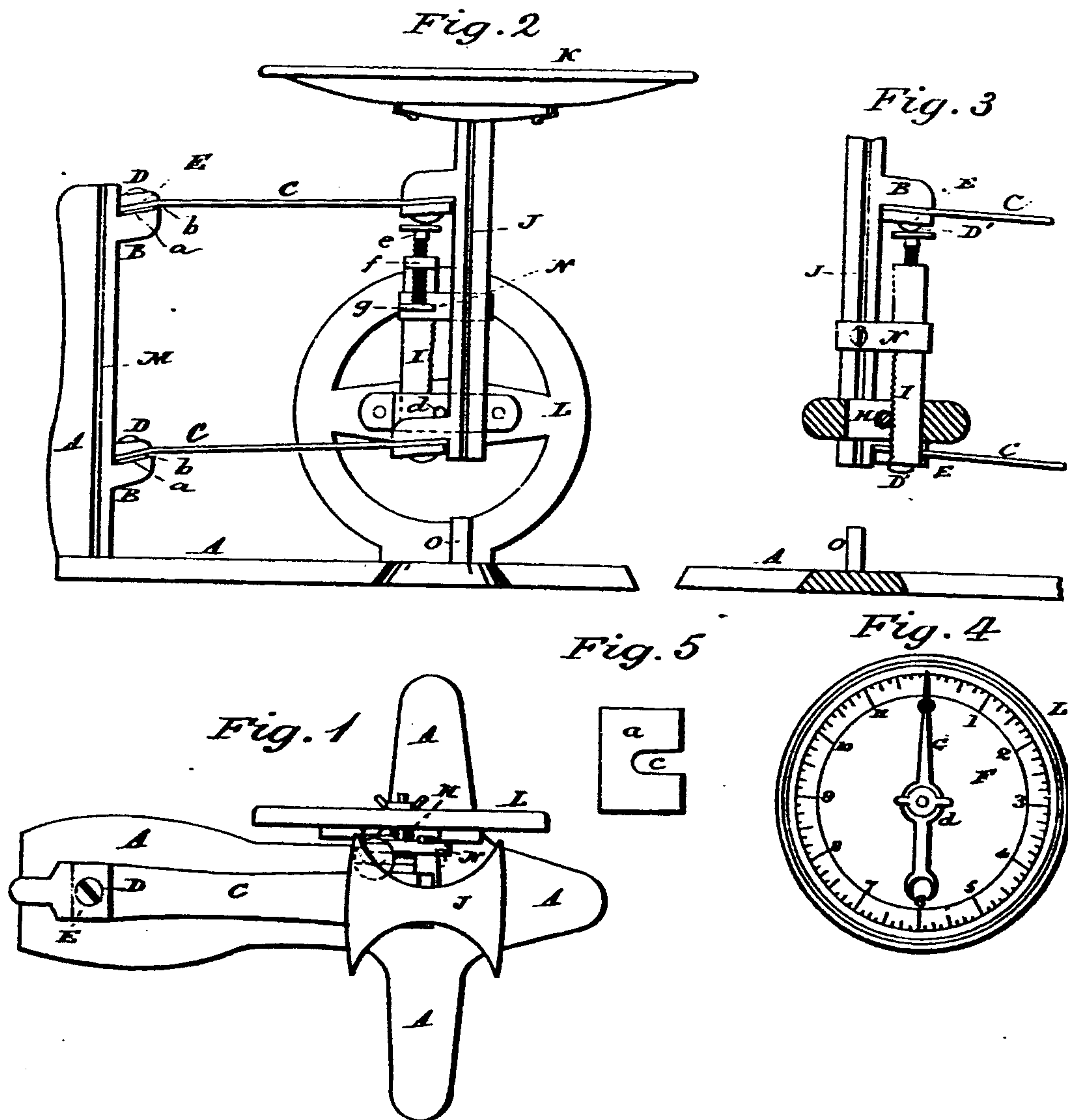


R. SHALER.
Weighing Scales.

No. 66,524.

Patented July 9, 1867.



Witnesses:
Ch. W. Hampton
R. H. Seaton

Inventor:
Reuben Shaler
By How & Weston
Attys

United States Patent Office

REUBEN SHALER, OF MADISON, CONNECTICUT.

Letters Patent No. 66,524, dated July 9, 1867.

IMPROVED WEIGHING-SCALE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, REUBEN SHALER, of Madison, in the county of New Haven, and State of Connecticut, have invented certain new and useful improvements in Weighing Scales; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to spring-scales suitable for use principally in kitchens, grocery stores, and other places where small articles or quantities of materials or goods are to be weighed, one or more flat springs being used, in connection with a dial, to measure the weight; and the object of the invention is to produce a cheap, accurate, and reliable scale for such and similar purposes.

It consists, first, in making the edges of the flat spring or springs concave or curved inwards, so that they shall gradually decrease in width from the ends towards the centre, thereby insuring the bending of the said springs in lengthened curves, and preventing their breaking off at the ends or points of suspension, substantially as set forth; second, in the combination, with the said flat spring or springs, of adjustable short pieces, for increasing and diminishing the length, and consequently the stiffness, of the spring or springs, to make their action conform to that of the pointer on the dial, so that the latter shall register correctly, as hereinafter set forth; third, in the combination, with the said flat springs and dial, of a set-screw, for adjusting the rack to set the pointer on said dial at the proper position, by which any slight variation in the position of the pointer, when at rest, may be corrected, substantially as hereinafter more fully set forth. In the accompanying drawings—

Figure 1 is a top view of my improved scale, with the tray or basin for holding the articles to be weighed removed.

Figure 2 is a back elevation of the scale complete.

Figure 3 is a vertical longitudinal section through the line *x x*, fig. 1, showing the parts below the said line.

Figure 4 is a front view of the dial and pointer.

Figure 5 is a view in detail of one of the adjustable pieces for varying the strength and stiffness of the spring.

A is a cast-iron frame, to which the other parts are secured. On projecting lugs or seats, B B, on a post, M, which rises from this frame, the flat springs C C are secured by screws D D passing through caps E E. Under the ends *b* of the springs C C the adjustable pieces *a a*, seen in fig. 2 and enlarged in fig. 5, are set, the screws D D passing through the slots *c* in the pieces *a*, (one of which is seen in fig. 5.) These slots permit the pieces *a* to be moved out, to strengthen or stiffen the springs, or moved in, to render them more pliable and weaker, so as to enable me to correct any slight variations in the quality of the springs made for the scales, and to use one uniform dial, making the springs conform thereto. In moving out the piece *a*, the spring, or that portion of it which is capable of motion, is shortened, by which more power is required to move it a given distance, and, in moving in the said piece, the spring is thereby lengthened, and the amount of power required to bend it reduced. The other ends of the springs C C are secured, in the movable piece J, on which the tray or basin K is secured, by similar means, but the piece *a* is not used at this end, as I consider it unnecessary to use it on both ends of the springs, using it at one end being sufficient. F is the dial, secured to a part, L, of the frame A, and G the pointer. The pointer turns on a pivot, *d*, passing through the dial F and supported in proper bearings. On this pivot or shaft *d* of the pointer G is the pinion H, which meshes into the rack I. The rack I passes through a slot in the support N, which is riveted to the movable piece J, and is held at a proper height in the said support N, so as to move with it and with the piece J by means of the adjusting-screw *e*, which works in a lug, *f*, on the rack I, and bears against the projection *g* on the piece M. By means of this rack I rising and falling with the tray K, and meshing into the pinion H, which turns the pointer G, the weight of the article in the tray K is registered on the dial, and the said pointer G is adjusted to the zero point in the dial, when there is no weight on the tray, by means of the adjusting-screw *e*. The springs C C are made concave on their edges, as shown, for the purpose of causing them to bend in lengthened curves, and to prevent their breaking off at their ends where they bear against the corner of the support or seat, to which they are attached. This object may be accomplished by making said springs thicker at their ends, but as it would be a more expensive construction, I prefer to make them as described. O is a post or projection cast on the frame A. The piece J

strikes against and rests on this projection O when the scale is loaded beyond its capacity, and thus prevents the springs from being injured by such overloading.

Having thus fully described my invention, I claim.

1. The combination, with flat springs C of a scale, of the pieces *a*, substantially as and for the purpose set forth.

2. Making the springs C of a weighing-scale, constructed substantially as described, concave on their edges, so that they shall gradually diminish in width from the ends to the centre, substantially as and for the purpose specified.

3. The combination, with the rack I and pointer G, of the set-screw *e*, operating substantially as described, for the purpose set forth.

REUBEN SHALER.

Witnesses:

HENRY B. WILCOX,

JOHN WILCOX.