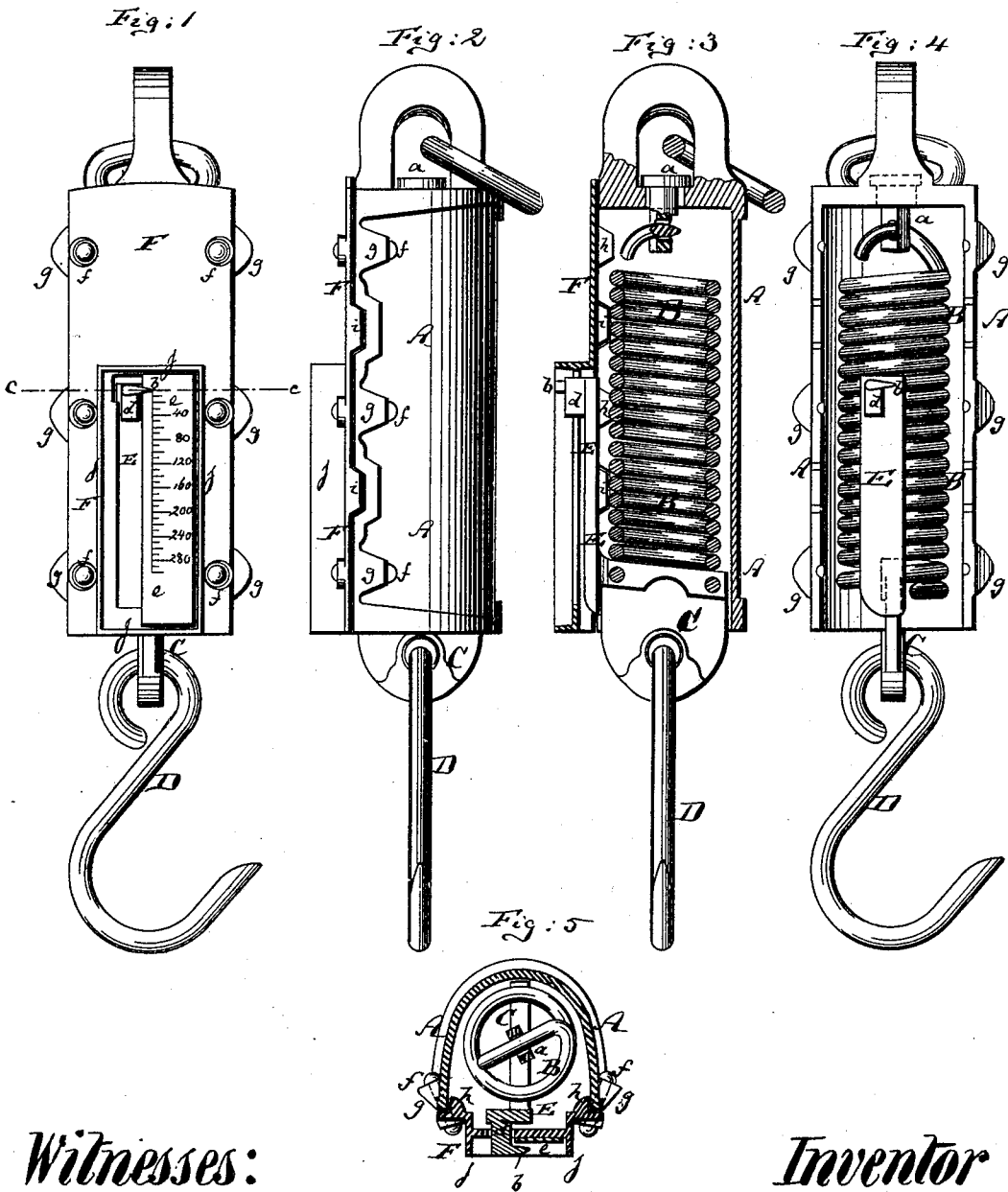


SPRING-BALANCE.

No. 171,650.

Patented Jan. 4, 1876.



Witnesses:

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Inventor

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UNITED STATES PATENT OFFICE.

JOHN P. CHATILLON, OF NEW YORK, N. Y., ASSIGNOR TO JOHN CHATILLON & SONS, OF SAME PLACE.

IMPROVEMENT IN SPRING-BALANCES.

Specification forming part of Letters Patent No. **171,650**, dated January 4, 1876; application filed November 10, 1875.

To all whom it may concern:

Be it known that I, JOHN P. CHATILLON, of New York city, in the county and State of New York, have invented a new and Improved Spring-Balance, of which the following is a specification:

Figure 1 is a front view of my improved spring-balance. Fig. 2 is a side view of the same; Fig. 3, a vertical central section of the same. Fig. 4 is a front view thereof without the front plate; and Fig. 5 is a horizontal section thereof on the line *c c*, Fig. 1.

Similar letters of reference indicate corresponding parts in all the figures.

The object of this invention is to reduce the size, and strengthen the frame, of a spring-balance adapted to heavy weights; and the invention consists, principally, in placing the index-bearing runner in front of the spring, so as thereby to allow the use of a short case, and in other details of improvement, hereinafter more fully pointed out.

In the accompanying drawing, the letter *A* represents the case or shell of my improved spring-balance. *B* is the spring, suspended from a bolt, *a*, that is fitted through the top of the case or shell. The lower end of the spring *B* connects with a plate or slide, *C*, to which the hook *D*, which receives the articles to be weighed, is secured. The length of the case exceeds but little that of the spring, as shown. This is made possible by attaching the lower end of the runner *E* to the plate *C*, so that the body of said runner will be in front of the spring, and behind the slotted face-plate *F* of the case or shell. The index *b* is fastened to the upper end of said runner. This arrangement is in contradistinction to the usual method of extending the runner downward from the slide *C*, which requires a corresponding downward extension of the case or shell. The face-plate *F* of the case or shell has a vertical slot, through which the shank *d* of the pointer *b* passes, and wherein the same is allowed to move up and down in conformity with the motions of the spring. The shank *d* of the pointer is made in form of a block, of nearly the same width as the slot, so it will serve as a proper guide to prevent the spring from twisting laterally during

operation. The lower end of the slot constitutes the stop for the downward motion, and the consequent limit of expansion of the spring.

In order to bring the body of the face-plate *F* as near as possible to the spring, I prefer to form a groove or recess in the back of said plate *F* for the reception of the runner. Were it not for this recess the shell *A* would have to be larger transversely, to admit the runner between the spring and the plate *F*. The recess formed in the plate *F* is open at the bottom, to permit the downward movement of the runner.

The graduated scale *e* is marked on the plate *F* along the slot, as shown in Fig. 1.

The plate *F* is fastened to the case *A* by obliquely-placed bolts *f f*. (Shown in Fig. 5.) These bolts, by their position, effect their purpose better than if placed at right angles, and I use, therefore, fewer bolts than would otherwise be necessary. For the reception of these bolts I form triangular lugs *g g* on the edges of the case *A*, as shown in Fig. 5, which lugs, by virtue of their form, are much stronger than the flanges heretofore formed on the shells of spring-balances. On the inner side of the plate *F* are a series of projecting blocks, *h h*, in such position that they will be in line transversely with the several lugs *g*, and bear against the inner faces of the shell *A*. They serve thus as inner braces and abutments for the shell, and, in part, also as guides for the bolts *f f*. *i i* are other blocks projecting from the inner side of the plate *F* into notches in the edges of the case *A*, as indicated in Fig. 2. They hold the plate *F* in proper position vertically, serving also as vertical braces for the entire case or shell. *j* is a ledge affixed to the face of the plate *F*, to surround the part bearing the slot for the pointer and the index-plate. This ledge is to protect the pointer and index-plate against injury.

I claim as my invention—

1. The combination of the case *A* with the spring *B*, upwardly-projecting runner *E*, slotted face-plate *F*, and pointer *b*, all arranged so that the runner *E* is between the spring and face-plate, and the pointer *b* on the outer face of the face-plate, substantially as specified.

2. The combination of the pointer *b* with the block and guide *d* and upwardly-projecting runner *E*, substantially as herein shown and described.

3. The combination of the face-plate *F*, which is slotted for the reception of the pointer *b*, and carries the index-plate *e*, with the

projecting ledge *j*, which embraces the slot and index-plate, substantially as herein shown and described.

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Witnesses:

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