(No Model.)

C. R. DAY.

SPRING SCALE.

No. 465,246. Patented Dec. 15, 1891.

Fig. 1

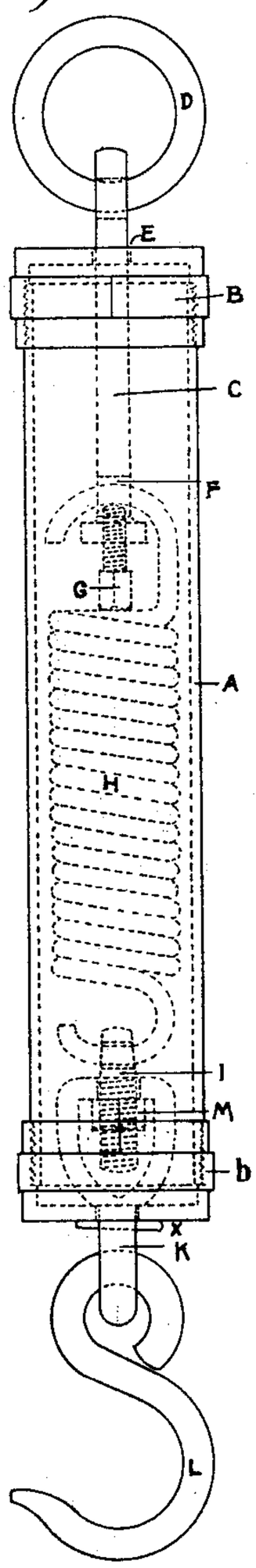


Fig. 2

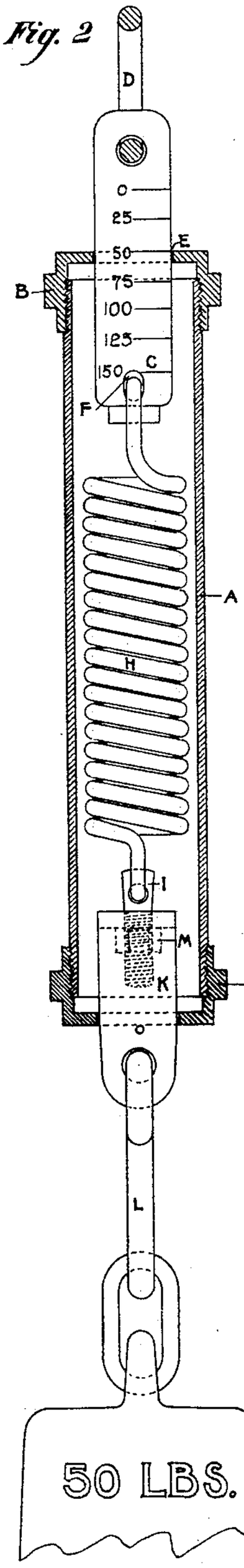


Fig. 3

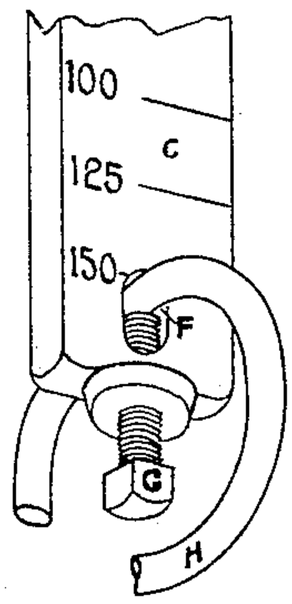
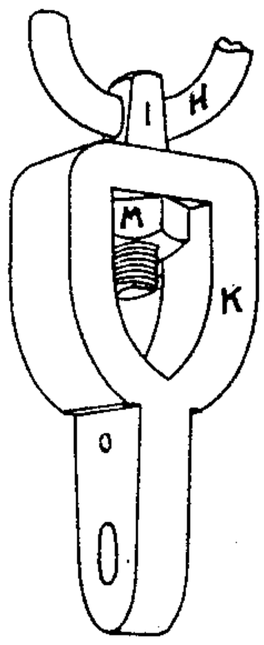


Fig. 4



WITNESSES:

Thomas Lee.

Charles P Fleming

INVENTOR

Cornelius R Day.

UNITED STATES PATENT OFFICE.

CORNELIUS R. DAY, OF BLACKSTONE, MASSACHUSETTS.

SPRING-SCALE.

SPECIFICATION forming part of Letters Patent No. 465,246, dated December 15, 1891.

Application filed September 3, 1891. Serial No. 404,581. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS R. DAY, of the town of Blackstone, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Spring-Scales, of which the following is a specification.

My invention relates to a new and useful improvement in the construction of spring-scales, the object being to provide a new and useful means of regulating and adjusting the scales; and it consists in so connecting the upper end of the spring to the lower end of the scale-bar that by means of a set-screw the position of the scale-bar in the shell may be altered and adjusted to compensate for the weakening of the spring and the wear of the parts by use, and also in connection therewith and as an aid in accomplishing the same object so connecting the lower end of the spring to a stirrup attached to the lower cap of the shell that by means of a connecting-bolt and an adjusting-nut the position of the scale-bar in the shell may be still further altered and adjusted, and also in making the said connecting-bolt a swivel-bolt revolving in the stirrup so as to enable the scale-bar to revolve with the threaded cap in working the cap off and on to the shell, thus permitting the removal of the working parts from the shell for repairs or adjustment.

The accompanying drawings illustrate my invention, in which—

Figure 1 is a side elevation of my improved spring-scales when at rest. Fig. 2 is a longitudinal sectional elevation of the same, showing the scales in the operation of weighing. Fig. 3 is a perspective view of the lower part of the scale-bar, the set-screw, and upper end of the spring. Fig. 4 is a perspective view of the lug and swivel-bolt provided with its adjusting-nut.

Like letters of reference indicate corresponding parts throughout the several views.

A is a cylindrical metallic shell having its two ends threaded and provided with screw-threaded caps B and *b*, adapted to work onto the ends of the shell, respectively.

C is a flattened scale-bar graduated to indicate degrees of weight, but may be of any suitable and desirable form and length. It is provided at its upper end with a ring D, adapted for hanging the scales upon its proper support. The scale-bar is inclosed within the shell A, its upper end extending through a slot or opening E in the cap B, and is provided near its lower end with a longitudinal slot F, extending transversely through the bar. The lower termination of the scale-bar is enlarged in a cylindrical form, through which a hole is drilled longitudinally upward into the lower end of slot F, which hole is threaded and adapted to receive a set-screw to work therein.

G is a set-screw adapted to work upward through the said hole in the lower end of the scale-bar into the slot F.

H is a close-coiled spring inclosed within the shell A, having its upper end hooked to the scale-bar through the slot F, the hooked end resting in said slot upon the end of set-screw G. By use the spring will lose something of its elasticity, and the various parts will wear at the several points of connection, which will render the scales inaccurate in weighing. When this occurs, a proper readjustment is readily secured by simply turning the set-screw G, whereby the position of the scale-bar in the shell may be altered and properly readjusted, thus compensating for any loss of elasticity or weakening of the spring that may ensue and the wear of the parts.

I is a swivel-bolt having its lower end threaded, and through a hole in the head of which the lower end of the spring is hooked.

K is a metallic stirrup, the lower end of which is made to pass down through a slot in the cap *b* and held firmly in position by a removable pin *x*, tightly driven through a hole in the lower end of the stirrup at the lower surface of cap *b*. To the lower end of stirrup K the ordinary hook L is attached in the usual way for the support of the article to be weighed. Stirrup K is so constructed as to form near its upper end an open chamber or loop by means of its inclosing sides. Through the upper end of the stirrup a hole is drilled into this chamber for the reception of the swivel-bolt I, the lower end of which bolt is threaded. The bolt turns easily in the stirrup, thus enabling the spring and scale-bar to revolve with cap B in working the cap off

and on to the shell, for the purpose of removing the working parts for repairs or adjustment. This swiveling feature of the bolt I becomes useful only when the flattened form of scale-bar is used, or such other form as must necessarily revolve with cap B. When the cylindrical form or such other form of the scale-bar is used that the cap B can be unscrewed without revolving the scale-bar, the bolt I need not be made so as to revolve in the stirrup. I regard the flattened form as best, because it affords the largest surface for the graduated scale.

M is an adjusting-nut adapted to work upon the end of bolt I. By simply turning adjusting-nut M the position of the scale-bar in the shell may be still further altered and adjusted to more fully compensate for any loss of elasticity or weakening of the spring or wear of the parts.

The two modes of regulating the scales above described may be used together in aid of each other or singly, as the exigency of the case may require. To adjust or regulate the scales it is only necessary to remove pin *x* and unscrew cap B, when the scale-bar, spring, and stirrup, connected together as described, can be readily removed from the shell and the proper adjustment made, as described.

What I claim as my invention is—

1. The combination of shell A, cap B, having therein slot E, graduated scale-bar C, having therein slot F and provided with ring D, set-screw G, spring H, bolt I, adjusting-nut M, and stirrup K, substantially as described.

2. The combination of scale-bar C, having therein slot F, set-screw G, and spring H, substantially as described.

3. The combination of the scale-bar C, having therein slot F, set-screw G, spring H, bolt I, adjusting-nut M, and stirrup K, substantially as described.

4. The combination of shell A, cap B, having therein slot E, graduated scale-bar C, spring H, swivel-bolt I, adjusting-nut M, and stirrup K, substantially as described.

CORNELIUS R. DAY.

Witnesses:
THOMAS Z. LEE,
CHARLES P. FLEMING.