(No Model.) 2 Sheets—Sheet 1.

C. FORSCHNER.

SPRING SCALE.

No. 406,518. Patented July 9, 1889.

Fig. 1.

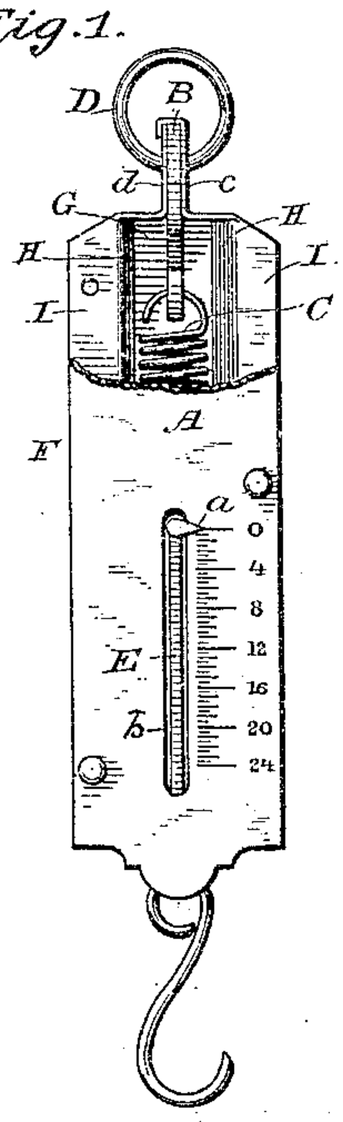


Fig. 2.

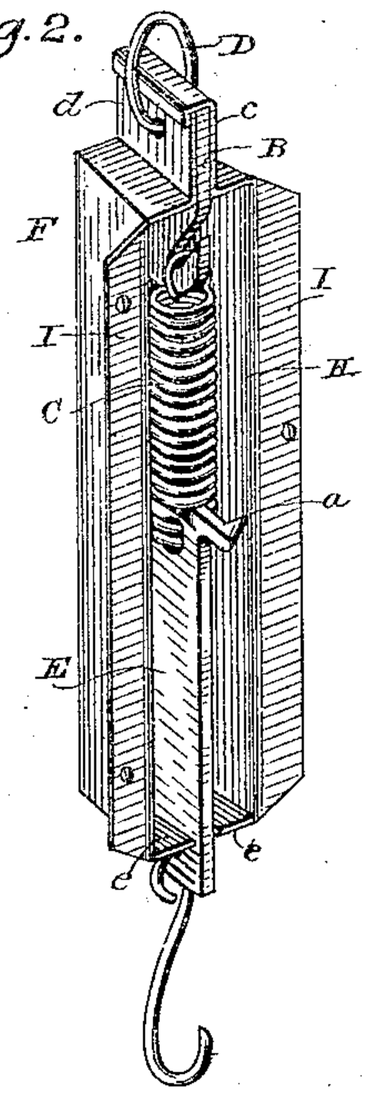


Fig. 3.

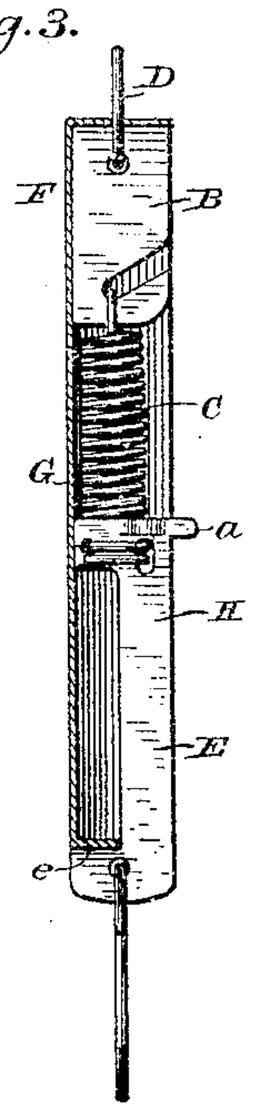


Fig. 4.

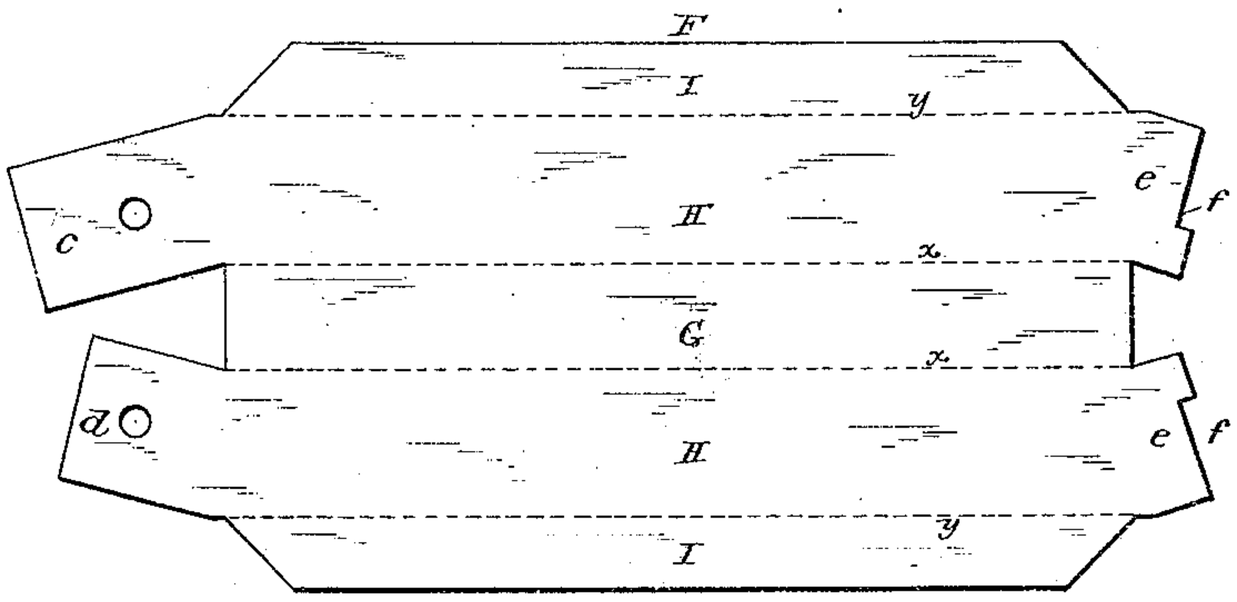


Fig. 5.

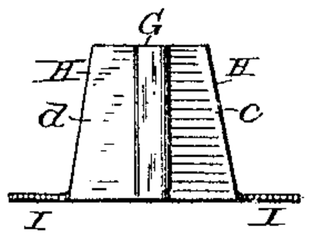


Fig. 6.

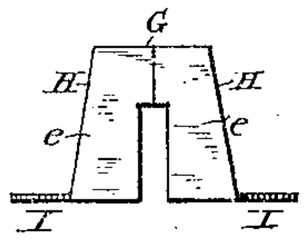
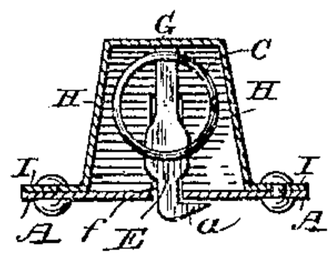


Fig. 7.



Witnesses
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M. M. Howlett.

Inventor
Charles Forschner
by Arthur O. Brown
his Attorney

(No Model.) 2 Sheets—Sheet 2.

C. FORSCHNER.

SPRING SCALE.

No. 406,518. Patented July 9, 1889.

Fig. 8.

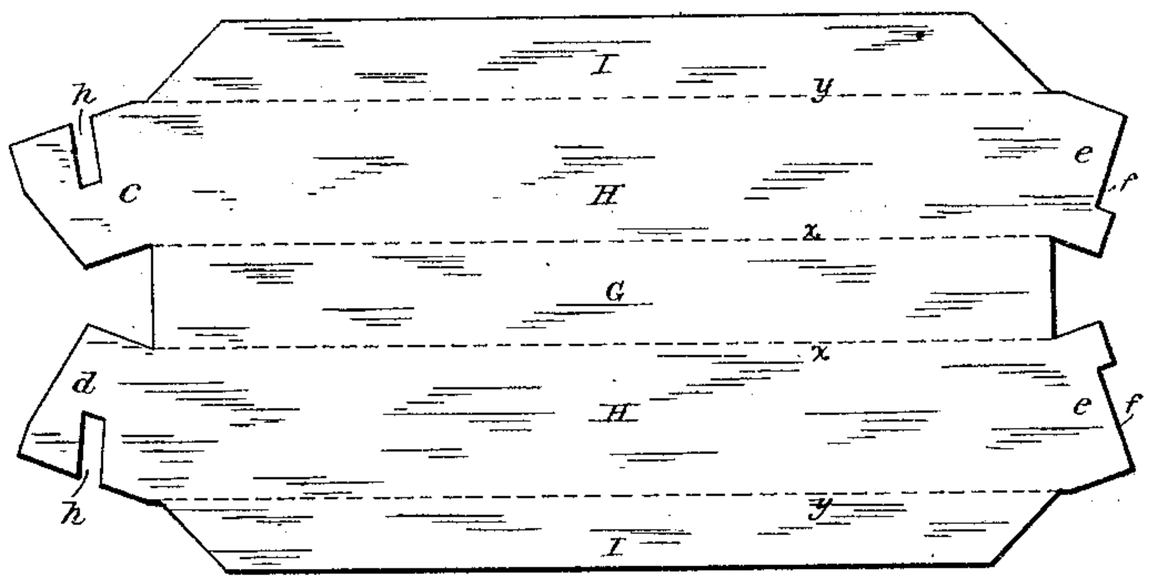


Fig. 9.

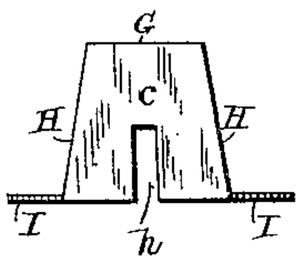
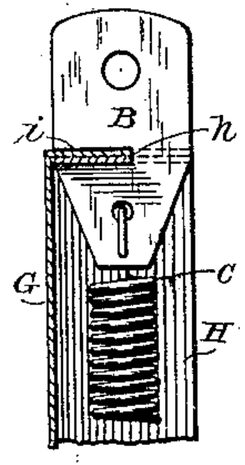


Fig. 10.



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UNITED STATES PATENT OFFICE.

CHARLES FORSCHNER, OF NEW YORK, N. Y.

SPRING-SCALE.

SPECIFICATION forming part of Letters Patent No. 406,518, dated July 9, 1889.

Application filed February 11, 1889. Serial No. 299,366. (No model.)

To all whom it may concern:

Be it known that I, CHARLES FORSCHNER, of the city, county, and State of New York, have invented certain new and useful Improvements in Spring-Scales, of which the following is a specification.

This invention relates to the construction of casings for spring-scales entirely of sheet metal; and the invention consists in the specific features of the improved sheet-metal casing, which will be hereinafter more specifically set forth.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the spring-scale, showing the operation of the dial-plate broken away. Fig. 2 is a perspective view of the spring-scale with the dial-plate removed. Fig. 3 is a longitudinal section of the spring-scale. Fig. 4 is a plan view of the sheet-metal blank from which the casing is formed. Fig. 5 is a top view of the sheet-metal casing when bent up in shape for use. Fig. 6 is a bottom view of the sheet-metal casing when bent up in condition for use. Fig. 7 is a cross-section of the scale. Fig. 8 is a plan view of a sheet-metal blank, showing a modified construction. Fig. 9 is a view of the top of the casing in the modified construction when the same is bent up in position for use; and Fig. 10 is a vertical section of the upper portion of the casing, showing the suspending-bar in position.

A is the dial-plate of the scale. B is the balance suspending-bar. C is the coiled spring connected to the balance-bar. D is the suspension-ring. E is the sliding rod from which the weight is suspended, and which is connected to the suspending-bar by means of the coiled spring, and which carries the pointer *a*, which extends through the slot *b* in the dial-plate. All of these parts are of the ordinary and usual construction.

F is the sheet-metal casing which incloses the spring, and which is secured in the usual manner to the dial-plate by being riveted thereto. This sheet-metal casing F is formed from a single piece of sheet metal, which is stamped out from a sheet of metal into a blank of the form which is shown in Fig. 4. This blank is divided longitudinally in the drawings by means of four longitudinally-extending parallel dotted lines, the inner two of these dotted lines being lettered *x x* and the outer dotted lines being lettered *y y*. These dotted lines divide the body of the blank into five parallel longitudinal sections G, H H, and I I. The blank is bent along the dotted lines into the shape shown in cross-section in Fig. 7, so that the section G constitutes the back of the casing, the sections H H constitute the inclined side walls of the casing, and the sections I I constitute the front flanges, by means of which the casing is riveted to the dial-plate. In addition to these body-sections the blank has at its upper portion two wings *c d*, projecting from the side sections H H of the blank. One of these wings *c* is slightly longer than the other, and both project in an inclined direction from the body of the blank, inclining toward each other. At the bottom of the blank are also two projecting wings *e e*, which project from the side sections H H of the blank, and which incline slightly toward each other. The bottom edges of the bottom wings *e e* are bent at right angles to the side sections H H of the casing, so as to constitute a bottom for the casing. The wings *e e* are of a length about one-half of the width of the back section G of the blank, so that when they are bent up their edges just meet. The outer recesses *f f* in these wings constitute an open slot in the bottom of the casing, through which the sliding rod E passes. The upper wings *c d* are first bent at right angles to the side sections H H, constituting the top of the casing. Since these wings are of a greater length than the width of the casing, they are more than sufficient to constitute a top for the casing. Both wings are therefore bent so as to extend in a vertical direction, and between the vertical portions of these wings the suspending-bar is located. The shorter of the wings *d* is of just sufficient length to extend upwardly as far as the suspending-bar reaches. The longer wing *c*, however, is first bent over the top of the suspending-bar, and is then bent downwardly outside of and against the upper edge of the wing *d*, as is shown in Fig. 3. The suspending-ring D passes through the vertical portions of the wings *c d*, and also through the suspending-bar, which is held between them. The wings *c d* thus not only

constitute a top for the casing, but they also inclose and protect the suspending-bar, strengthening the same, so that it is less likely to become injured. At the same time, owing to the suspension-ring passing through both the wings and the suspending-bar, there is no opportunity for an independent movement of the suspending-bar in relation to the wings *c d*. As a consequence, there is no strain upon the wings *c d* in case the scale is used without being held by the suspension-ring.

In the modified construction shown in Figs. 8, 9, and 10 the body of the blank and its bottom are formed exactly in the same manner as in the preferred construction shown in Figs. 1 to 7, inclusive. The upper wings of the blank are, however, of a modified construction. These upper wings project in the same manner as do the corresponding wings in the preferred construction; but each is made of only just sufficient length to extend entirely across the top of the casing when the same is ready for use. Both of the upper wings *c d*, being made of the same length, when bent one over the other, constitute a top of double thickness to the casing. In order to permit the attachment of the suspending-bar to the casing thus formed, each upper wing in this construction has an open slot or notch *h*, and the suspending-bar is also formed with an open slot or notch *i* on its rear edge. When the suspending-bar is put in place, this slot or notch embraces the rear portions of both wings constituting the top of the casing, and the front portion of the suspending-bar is itself embraced by and within the open slots or notches in the wings which constitute the top of the casing. In this modified construction a closed top is provided of double thickness, so that in case the scale is used without being supported by the suspending-loop greater strength is given to the same to sustain the weight applied to the scale.

I am aware that it is not new to make the casings of spring-scales entirely out of a single piece of sheet metal, and I therefore make no claim to such a casing.

What I claim as my invention is—

1. A casing for spring-scales, composed of a single piece of sheet metal which is bent up to form the back, side walls, and front flanges of the casing, and which is further formed with a closed top and with a closed bottom, substantially as set forth.

2. A casing for spring-scales, comprising in a single piece of sheet metal a back, side walls, front flanges, top wings, constituting the closed top of the casing, and bottom wings formed on the side walls of the casing and projecting at right angles thereto, said bottom wings being formed on their outer edges so as to constitute an open slot for the passage of the sliding rod of the spring-scale, substantially as set forth.

3. A casing for spring-scales, composed of a single piece of sheet metal and formed at its upper portion with wings projecting from the side walls of the casing, said wings being bent at right angles to the side walls so as to constitute a top for the casing, and said wings being further bent upwardly alongside of the suspending-bar of the scale, and one of said wings being bent over the top of said suspending-bar and down upon the other wing, substantially as set forth.

4. In a spring-scale, a suspending-bar, a sliding rod, and a coiled spring connecting said suspending-bar and said sliding rod, in combination with a casing inclosing said bar, rod, and spring, said casing being formed of a single piece of sheet metal bent to form the back, side walls, and front flanges of the casing, and being further bent to constitute a bottom for the casing, having a notch through which said sliding rod passes, and being formed at its upper portion with wings, which are bent to constitute the top of the casing, and which extend alongside the suspending-bar, one of the said upper wings being bent over the top of the suspending-bar and down against the other upwardly-extending wing, the dial-plate of the scale secured to the front flanges of the casing, and the suspending-loop passing through the upper wings of the casing and through the suspending-bar, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CHARLES FORSCHINER.

Witnesses:

JACOB FRED. HEUNHELE,

J. KOERBER.