

(No Model.)

H. HAERTER.  
SPRING BALANCE.

No. 345,049.

Patented July 6, 1886.

Fig: 1.

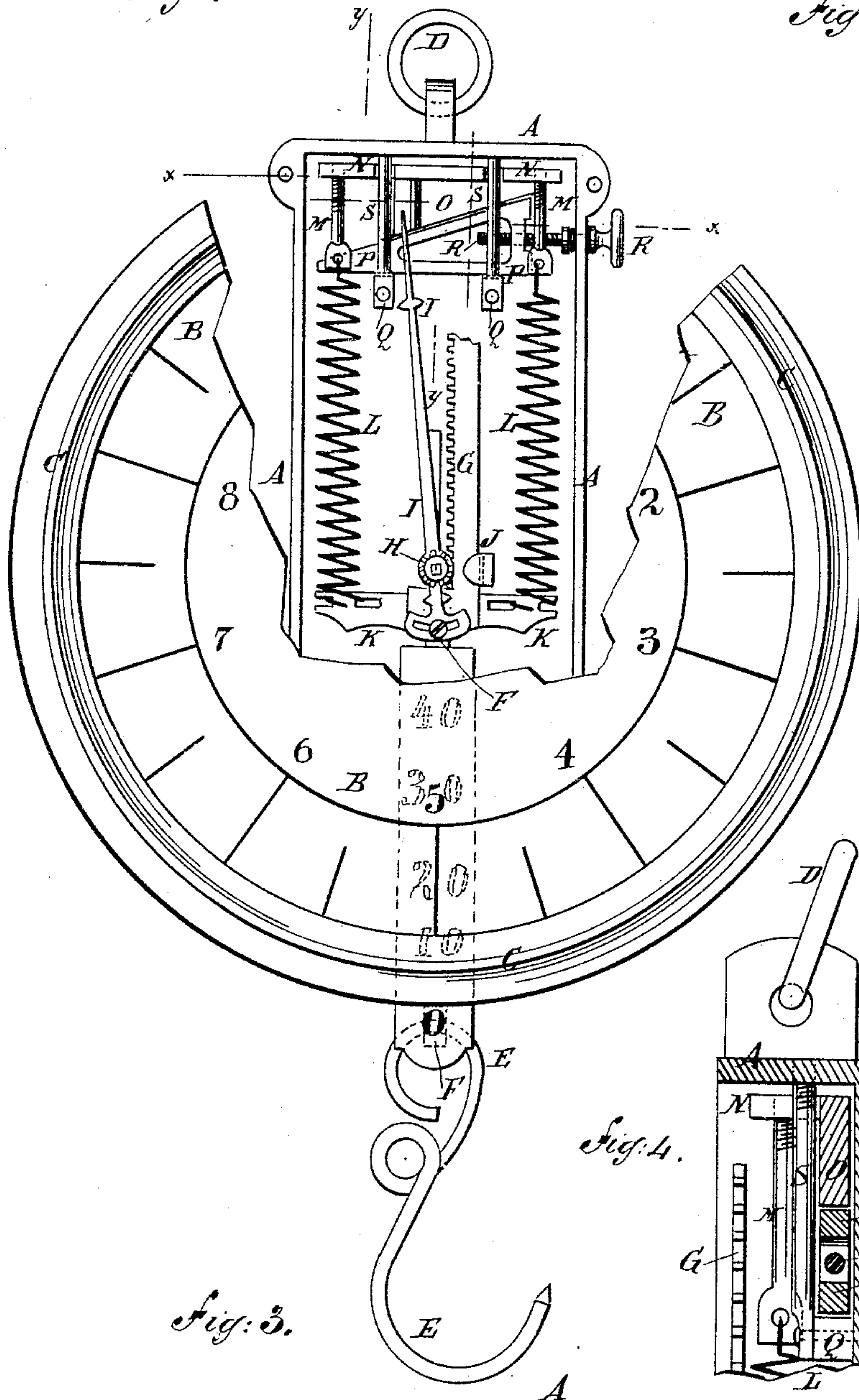


Fig: 2.

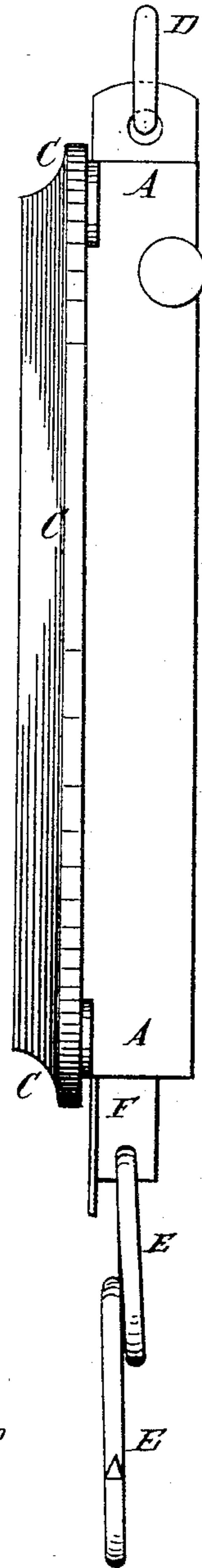


Fig: 4.

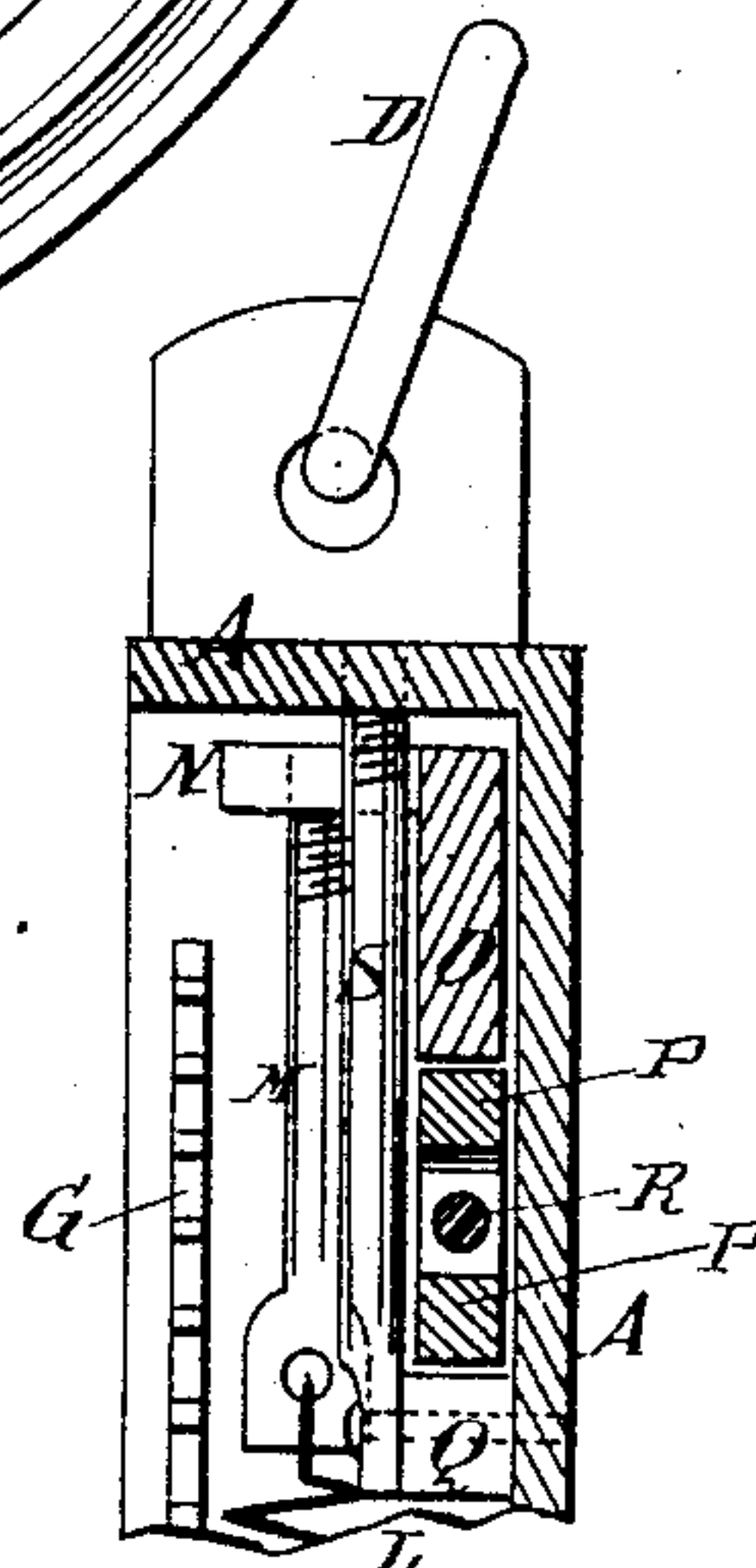
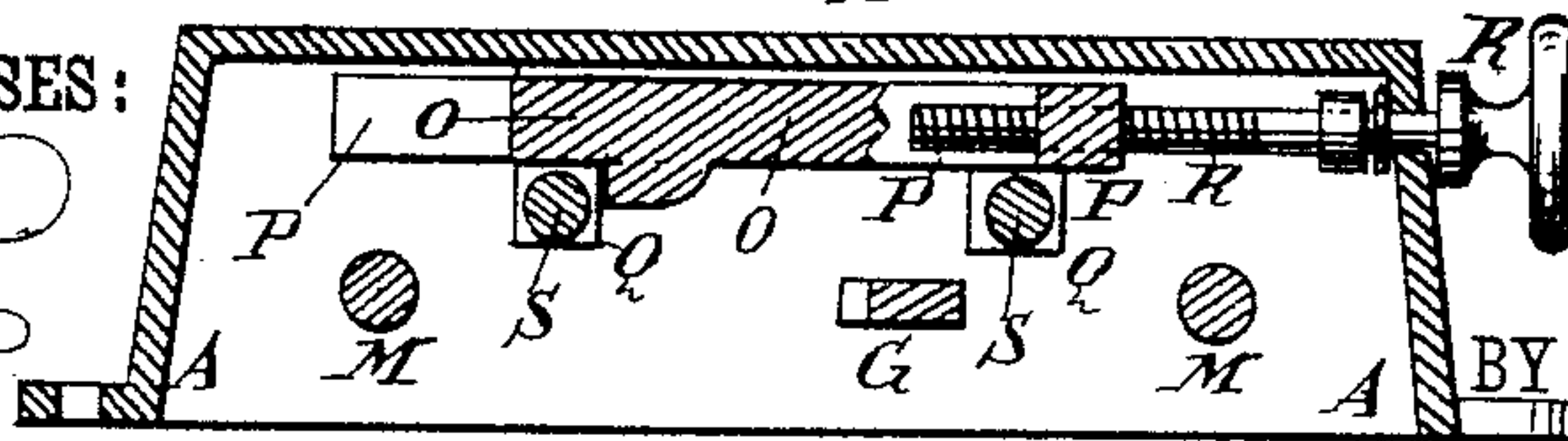


Fig: 3.

WITNESSES:  
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# UNITED STATES PATENT OFFICE.

HUGO HAERTER, OF NEW YORK, N. Y.

## SPRING-BALANCE.

SPECIFICATION forming part of Letters Patent No. 345,049, dated July 6, 1886.

Application filed October 12, 1885. Serial No. 179,655. (No model.)

*To all whom it may concern:*

Be it known that I, HUGO HAERTER, of the city, county, and State of New York, have invented a new and useful Improvement in  
5 Spring-Balances, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate  
10 corresponding parts in all the figures.

Figure 1 is a front elevation of a spring-balance to which my improvement has been applied, parts being broken away. Fig. 2 is a side elevation of the same. Fig. 3 is a sectional plan view of a part of the same, taken  
15 through the broken line *x x*, Fig. 1. Fig. 4 is a sectional side elevation of a part of the same, taken through the broken line *y y*, Fig. 1.

The object of this invention is to provide  
20 spring-balances constructed in such a manner that the pointer can be readily brought to the zero-point should the scale-pan be removed or changed for a heavier or a lighter one, or should a plate or other vessel be placed on the  
25 pan to receive the substance to be weighed.

The invention consists in the combination of the adjusting mechanism with the parts of an ordinary spring-balance, as will be hereinafter fully described, and then claimed.

30 A represents the case or box that incloses the mechanism, and to which is secured the dial B, and the frame C, that carries the glass plate covering the said dial B. Upon the upper end of the case A is formed a lug, to  
35 which is secured a ring, D, for convenience in holding or suspending the spring-balance while being used. At the lower end of the case A is a hook, E, from which is suspended the scale-pan, or the article to be weighed, and  
40 which is secured to the lower end of a bar, F, passing through an aperture in the lower end of the said case A.

To the upper end of the bar F is hinged the lower end of the rack-bar G, the teeth of which  
45 engage with the teeth of the small pinion-wheel H, journaled to the case A. To the forward journal of the pinion-wheel H is attached the pointer I. The rack-bar G is kept in gear with the pinion-wheel H by a guard,  
50 J, attached to or formed upon the case A.

To the upper end of the bar F is also hinged the center of the cross-bar K, to the ends of which are attached the lower ends of the springs L.

The springs L are graduated, so that their  
55 length will increase regularly as the weight suspended from them is increased, and in the same ratio.

The upper ends of the graduated springs L are attached to eye screws M, which are  
60 screwed into the ends of a cross-bar, N; or the said springs can be attached directly to the said cross-bar. Upon the lower side of the cross-bar N is formed, or to it is rigidly attached, a projection or block, O, having an inclined  
65 lower side, which rests upon the inclined upper side of the block P. The lower side of the inclined block P is horizontal, and rests and slides upon supports Q, rigidly secured to the  
70 case A.

In the end of the sliding block P is formed  
70 a screw-hole to receive the screw R, which passes through and is swiveled to the side of the case A, and has a button formed upon or  
75 attached to its outer end, so that it can be readily operated to give a horizontal movement to the inclined sliding block P.

The block O and cross-bar N are held from having a longitudinal movement, and are made  
80 to move up and down vertically by guide-rods S, attached to the top of the case A and to the supports Q, and which enter recesses in the side of the cross-bar N.

With this construction, when the scale-pan is removed or changed, or a vessel is placed  
85 upon the scale-pan, the pointer can be brought to the zero-point by operating the screw R, which moves the inclined block P horizontally and the block O and cross-bar N vertically raising or lowering the springs L, cross-  
90 bar K, and rack-bar G, and turning the pinion H and pointer I until the said pointer is brought to the zero-point and the spring-balance is ready to receive the substance to be  
95 weighed.

Having thus described my invention, I claim  
as new and desire to secure by Letters Patent—

In a spring-balance, the combination, with the case A, the graduated springs L, the cross-  
100 bar K, attached to the said springs, and carry-

ing the suspending-bar F, the rack-bar G, connected with the said cross-bar, the pinion-wheel H, engaging with the said rack-bar, and the pointer I, of the vertically-moving cross-  
5 bar N, the inclined block O, attached thereto, the horizontally-moving inclined block P, the swiveled screw R, for adjusting the said inclined blocks, and the supports Q and guards

S, for keeping the said inclined blocks in place, substantially as herein shown and described, whereby the said pointer can be readily brought to the zero-mark, as set forth.

HUGO HAERTER.

Witnesses:

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C. SEDGWICK.