

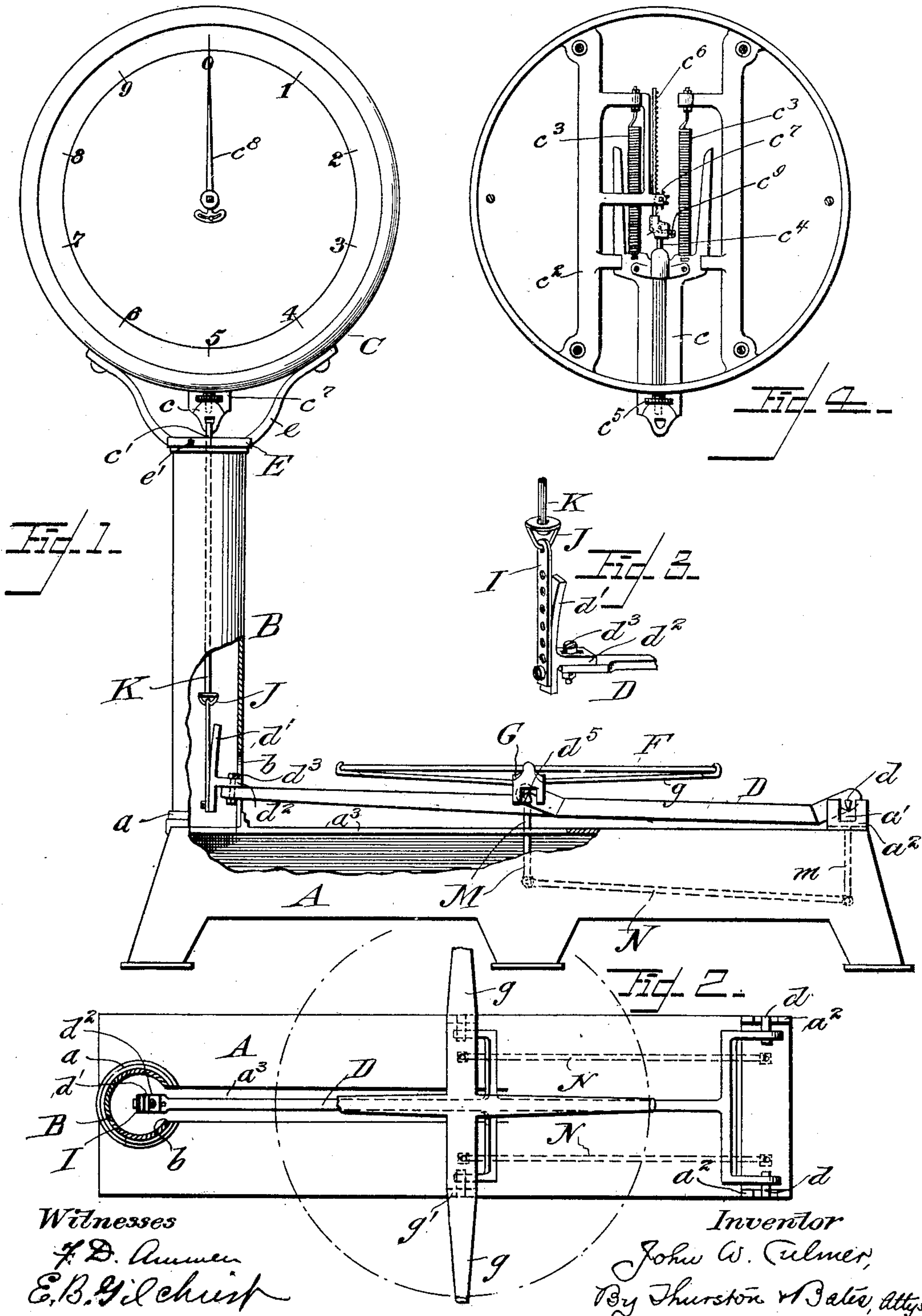
No. 659,292.

Patented Oct. 9, 1900.

J. W. CULMER.  
PLATFORM SPRING BALANCE SCALE.

(Application filed Nov. 28, 1898.)

(No Model.)



Witnesses  
J. D. Ammer  
E. B. Gilchrist

Inventor  
John W. Culmer,  
By Thurston & Bates, Attys



# UNITED STATES PATENT OFFICE.

JOHN W. CULMER, OF CLEVELAND, OHIO, ASSIGNOR TO THE NATIONAL  
COMPUTING SCALE COMPANY, OF SAME PLACE.

## PLATFORM SPRING-BALANCE SCALE.

SPECIFICATION forming part of Letters Patent No. 659,292, dated October 9, 1900.

Application filed November 28, 1898. Serial No. 697,618. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. CULMER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Platform Spring-Balance Scales, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My invention relates to an improved platform spring-balance scale; and it consists in the simple and novel construction and combination of parts hereinafter described, and definitely pointed out in the claims.

The object of my invention is to provide a simple scale of this class which will be adapted to be used in the ordinary manner, which will permit the dials to be turned to any desired position relative to the base and load-supporting plate, and which will have its draft in the same vertical line at all times.

In the drawings, Figure 1 is a side elevation, partly in section, of my improved scale. Fig. 2 is a sectional plan view, the upper portion of the standard being cut off. Fig. 3 is a perspective view of the outer end of the lever and parts immediately associated therewith, and Fig. 4 is a side elevation of the spring-balance with the face-plate removed.

Referring to the parts by letters, A represents the hollow base of the scale. At one end is a hollow socket  $a$ , to which the vertical hollow standard B is secured. At the other end of the base are the lugs  $a^2 a^3$ , which form the bearings  $a'$  for the lever D. The lever D is provided with knife-edge pivots  $d$ , which rest in said bearings, and the lever extends therefrom toward the hollow standard, which it enters through the slot  $b$ . The base of the scale between the bearings and the hollow standard is provided with a slot  $a^3$ , which permits the lever in its vibrations to swing from above to below the top of the base.

C represents a spring-balance, the frame of which is made fast to the arms  $e$ . These arms are rigid parts of a collar E, which embraces and may turn upon the upper end of the hollow standard B, whereby the scale may be turned so as to present its dial in any direction relative to the base. The collar E may be made fast to the standard by a set-screw  $e'$ .

Any suitable form of spring-balance may be used. That shown includes a suitable framework  $c^2$  and a longitudinally-movable runner  $c$ , guided therein and suspended by the two adjustable springs  $c^3$ . The runner carries a rod  $c^4$ , adjustable by a nut  $c^5$ , and secured to the upper end of this rod is a rack  $c^6$ , engaging with a pinion  $c^7$ , on the shaft of which the pointer  $c^8$  is secured. The connection between the rack  $c^6$  and the rod  $c^4$  is pivotal, and a spring  $c^9$  holds the rack in engagement with the pinion, whereby free play of the runner is allowed without disengagement between the rack and pinion.

On the end of the lever D, within the hollow standard, a nosepiece  $d'$  is secured. The outer face of this nosepiece is curved approximately in the arc of a circle, the center of which is the pivot of the lever. On the back side of this nosepiece is a slotted arm  $d^2$ , through which the screw  $d^3$  passes, by means of which the nosepiece may be attached to the lever and adjusted toward and from its pivot.

To the lower end of the runner  $c$  of the spring-balance a rod K is hooked, as at  $c'$ , and it extends downwardly within the standard B. The lower end of the rod K is attached to a swivel J, which swivel is attached to the upper end of a flexible device, as a cord, ribbon, or chain I. The lower end of the flexible device is attached to the lower end of the front side of the nosepiece. Preferably this flexible device is a steel ribbon, the lower end of which is made fast to the lower end of the curved face of the nosepiece. The nosepiece should be so adjusted upon the lever that a vertical tangent to its curved face extends to the point  $c'$ , at which the rod K is attached to the runner.

A spider G, having arms  $g$ , which form a support for the load plate or platform F, has also the downwardly-extended lugs  $g'$ , which form a crotch-bearing, which is supported upon the aligned knife-edge pivots  $d$ , which are secured to the lever about midway between its ends. From the body of the spider G parallel stems M M extend downward through slots in the base, A and corresponding stems  $m m$  extend downward from the base below the pivots of the lever, and the check-



rods N have their opposite ends pivotally connected to the lower ends, respectively, of the stems M and m, whereby they maintain the load-plate F in a horizontal position at all points of the vibration of the lever.

In the structure thus described it is evident that the base may be placed upon the counter in any position to suit the operator and give easy access to the load-plate F, while the spring-balance may be turned so that its dial shall face in any desired direction.

Having described my invention, I claim—

1. In a scale, the combination of a base having two bearing-lugs at one end and a hollow standard at the other end, said standard having a vertical slot, with a lever pivotally supported on said lugs and extended through the slot into the standard, a load-plate pivotally supported on the lever between its ends, means for holding this load-plate in a horizontal position, a spring-balance supported upon the standard, and having a spring-suspended runner, a curved nosepiece on the end of the lever within the standard, and a flexible strap connecting said nosepiece with the runner of the spring-balance, substantially as specified.

2. In a scale, the combination of a base having a hollow standard, a spring-balance secured to the standard and having a spring-supported runner, with a lever pivoted to the base and extending into said standard, a nosepiece for said lever having curved outer face and having a rearwardly-extended slotted

arm by which the nosepiece is adjustably secured to the end of the lever, a flexible device secured to the lower front side of said nosepiece and extending therefrom upward, means connecting the upper ends of said flexible device with the runner of the spring-balance, a load-plate supported by said lever between its ends, and means for holding said load-plate in a substantially-horizontal position, substantially as specified.

3. In a scale, the combination of a base having at one end two bearing-lugs, and a hollow standard at the other end, and a slot which extends into said standard, and a spring-balance supported on said standard, with a lever pivoted on said bearing-lugs and extended therefrom in the line of said slot into said standard and having the two aligned knife-edges, a flexible connection in said standard, between the runner of the spring-balance and the end of said lever, a spider having downwardly-extended bearing-lugs which rest upon said knife-edges, the stems M m, secured to and projecting downward from the spider and base, the check-rods pivotally connected with said stems and a load-plate on said spider, substantially as specified.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

JOHN W. CULMER.

Witnesses:

PHILIP E. KNOWLTON,  
OLIVE GILL.