

UNITED STATES PATENT OFFICE.

CHARLES W. ALLEN, OF PHILADELPHIA, PENNSYLVANIA.

LEVER-BALANCE.

SPECIFICATION forming part of Letters Patent No. 776,880, dated December 6, 1904.

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To all whom it may concern:

Be it known that I, CHARLES W. ALLEN, a subject of His Britannic Majesty, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Lever-Balance, of which the following is a specification.

My invention relates to improvements in lever-balances; and the object of my improvement is to provide a new and useful adaptation of the well-known principle of the Roman steelyard that will primarily constitute an efficient and convenient weighing-machine and incidentally furnish a suitable medium for advertising purposes. I accomplish this by providing a plane surface for the beam instead of the ordinary bar, by confining the movable counterpoise in a horizontal slot instead of by a protuberance at the extremity of the long arm, by having a spring-clip provided with an eye or hook at the extremity of each limb at the end of the short arm to hold the matter to be weighed in place of the usual hook or pan, and by providing an index, which constitutes part of the hanger, to correspond with a fixed mark on the surface of the beam to indicate when the same is in equilibrium in lieu of the separate means ordinarily employed to that end.

Having reference to the accompanying drawings, Figure 1 is a front view of the beam of my lever-balance; Fig. 2, a similar view of the spring-clip; Fig. 3, a similar view of the counterpoise; Fig. 4, a similar view of the hanger; and Fig. 5, a similar view illustrating the balance with all the parts assembled and in use, the dotted line showing the position the beam would assume when in equilibrium.

The beam a of my lever-balance, Fig. 1, may be made of metal, celluloid, or other suitable rigid material, and it has a plane surface. It is provided with the horizontal slot a' , having at suitable intervals along its lower margin the nicks, as shown, above the figures " $\frac{1}{2}$," "1," "2," "3," and "4," which correspond therewith, adapted to receive and to detain the link f''' , whereby the traveling counterpoise f is supported and joined to the beam a . It is also provided with the perforations a'' and a''' for

the purposes hereinafter described and likewise with the broad arrow-mark a'''' .

The beam a is suspended by the hanger b , Fig. 4, which is provided at its lower extremity with the index b'' , the point of which will be in correspondence with the point of the broad arrow a'''' when the balance is in equilibrium. It is furnished at its upper extremity with the ring b''' , of diameter suitable to receive a supporting-finger. There is a perforation b'''' , corresponding with the perforation a'' , through both of which the rivet c is passed and then upset, the rivet c thereafter performing not only the function of uniting the beam a and the hanger b , but constituting the axis or fulcrum upon which the balance is operated.

The spring-clip d , Fig. 2, which depends from the short arm of the beam a , may be formed of spring-wire and is adapted to hold firmly, at right angles to the beam a , the letter e or other matter to be weighed that is forced between its limbs, which are provided at their extremities with the eyes or hooks d'' and d''' . It is joined to and suspended from the beam a by the link d'''' , which passes through the perforation a''' .

The counterpoise f , Fig. 3, is a mass of appropriate weight movably supported by the link f''' , which passing through the perforation f'' and the slot a' unites the counterpoise f with the beam a .

In use, Fig. 5, the letter e , an end view of which is shown, is forced between the limbs of the spring-clip d . The balance is then suspended by a finger passed through the ring b''' . Lastly, the link f''' of the movable counterpoise f is shifted along the lower margin of the slot a' until it lodges in whichever of the numbered nicks will indicate a greater weight than the matter being weighed.

In cases where it be found that matter to be weighed cannot conveniently be held between the limbs of the spring-clip d it may be placed in a pan or bag attached to the eyes or hooks d'' and d''' .

The plane surface of the body of the balance furnishes useful space whereon the official post-office rates and also any advertising matter may be stamped or printed.

What I claim as my invention, and desire to secure by Letters Patent, is—

5 A lever-balance having a traveling counterpoise confined within a nicked slot in the long arm and a series of figures corresponding with the nicks, combined with a spring-clip depending by a link from the short arm and a hanger provided with an index adapted to correspond with a fixed mark on the surface
10 of the beam whenever an article supported by the spring-clip shall be of weight equal to

that indicated by a figure relating to the particular nick in which the counterpoise then rests, substantially as set forth.

In testimony whereof I have signed my name 15 to this specification in the presence of two subscribing witnesses.

CHARLES W. ALLEN.

Witnesses:

A. E. GRAHAM,
W. PERCIVAL JOHNSON.