

V. VINCENT.  
Balance Scales.

No. 105,522.

Patented March 19, 1870.

Figure 1.

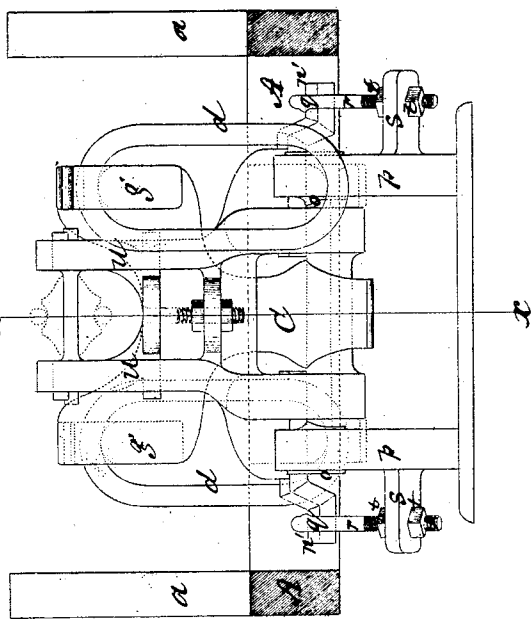


Figure 2. a, a.

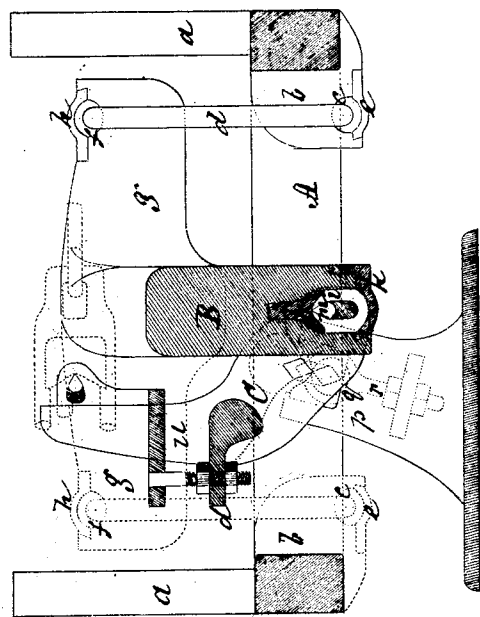


Fig. 6.

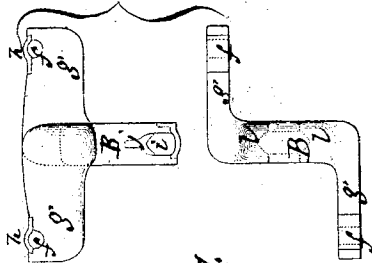


Fig. 7.

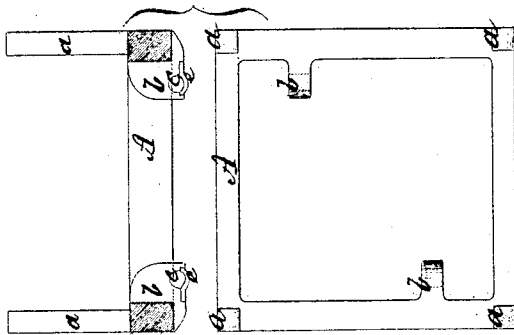


Fig. 5.



Figure 3.

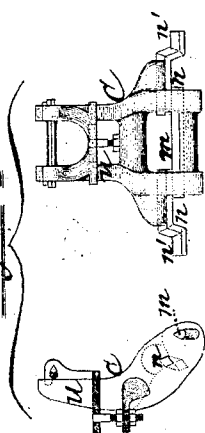
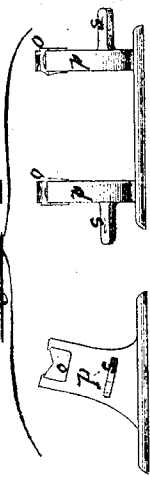


Figure 4.



Witness  
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Victor Vincent

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VICTOR VINCENT, OF NEW YORK, N. Y.

Letters Patent No. 105,522, dated July 19, 1870.

## IMPROVEMENT IN PLATFORM-SCALES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, VICTOR VINCENT, of the city, county, and State of New York, have invented certain new and useful Improvements in Platform-Scales; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is an elevation of one of the primary levers, with the bearing-beam, and the means of connection with the platform;

Figure 2, a cross vertical section thereof, taken in the plane of the line  $Xx$  of fig. 1;

Figure 3, a front elevation and section of the primary lever;

Figure 4, a front and a side elevation of the standards and brackets on which the primary lever rests, and with which it is connected;

Figure 5, face and edge view of the loops for securing the primary lever to its bearings;

Figure 6, side elevation and top view of the bearing-beam; and

Figure 7, plan and section of the frame for forming connection between the platform and bearing-beam.

Figures 3, 4, 5, 6, and 7, are drawn to a smaller scale than figs. 1 and 2.

The same letters indicate like parts in all the figures.

My said invention relates to improvements in platform-scales.

As heretofore constructed, the bearing-beams, that is, the parts with which the platform is connected by suspension links to transfer the weight to the primary levers, have been placed in the bifurcation of the long arm of the primary levers, so as to have the weight bear centrally between the two ends of the fulcrum, and hence the long arm of the said levers had to be made of sufficient length to accommodate the bearing-beam and the upper knife-edge and its adjusting mechanism.

The great length of lever thus rendered necessary has been a source of serious inconvenience, not only because the parts were required to be made very heavy to have the required strength, but because of the great elevation of the platform.

This defect I have avoided by the first part of my invention, which consists in constructing the bearing-beam with its arms, to which the suspension links are connected on each side of the upper end of the part which bears on the short arm of the lever, so that, instead of being in the bifurcation of the long arm, as heretofore, they are in planes each side, and on the outside of the long arms of the primary levers, so that the upper knife-edges and their adjusters can occupy the space heretofore required for the bearing-beams. I am, therefore, enabled to make the parts much

smaller and lighter with equal strength, and to materially reduce the height of the scales.

As heretofore made, the parts would become disconnected by moving the scales, and frequently even by jars, which was a source of serious inconvenience. This defect I have remedied by the second and third part of my invention.

The second part consists in combining with the knife-edge fulcrum on which the primary lever vibrates, and in line therewith, inverted knife-edges surrounded by loops or eyes secured to the standards of the bearing-blocks, or some other permanent part, so that the fulcrum cannot be separated from the bearings on which the lever vibrates, except by disconnecting the loops or eyes which embrace the inverted knife-edges, and as these are in the same line with the fulcrum knife-edge, the freedom of vibration of the lever will not be impeded; and

The third part of my said invention consists in combining with the suspension links locking-pieces, which prevent the links from being separated from the arms of the bearing-beam and the brackets of the hanging frame of the platform, while, at the same time, the links are permitted to have free play.

In the accompanying drawings—

A represents a square frame at the lower end of hangers,  $a a a$ , from the platform, the platform not being represented.

Two brackets,  $b b$ , project inward, one from each of the end pieces of the frame A, and the under edges of them are notched, as at  $c c$ , to receive the lower ends of the two suspension links  $d d$ , which are then inclosed by locking-pieces  $e e$ , which are fitted to dovetail recesses, so that, after the said locking-pieces have been inserted, the links, although free to move in the notches, cannot be separated from the brackets  $b b$  of the frame without first sliding out the locking-pieces.

The upper ends of the links  $d d$  are, in like manner, fitted to notches  $f f$ , in the upper edges of the two opposite arms  $g g$ , of what may be termed the balance bearing-beam B, and there inclosed by locking-pieces  $h h$ .

The lower end of the bearing-beam is recessed, as at  $i$ , and there fitted with a bearing-piece,  $j$ , of hardened steel, to rest on the knife-edge of the primary lever, to be presently described, and, after it has been put in place, the said knife-edge is inclosed by a locking-piece,  $k$ , so that these parts cannot be separated, except by first removing the locking-piece  $k$ .

The bearing-beam, instead of passing between the bifurcations of the upper or long arm of the primary lever, as heretofore, is formed with a cross-bar,  $l$ , at the upper end, and from each end of this cross-bar project, in opposite directions, the two arms  $g g$ , which receive the suspension links  $d d$ , before described.

By this construction of the bearing-beam the two

arms are in two parallel planes, one on each side of the primary lever, so that the weight on the scales shall have a fair bearing on the knife-edge of the primary lever, without the necessity of making the bifurcated arm of the primary lever of sufficient length to receive the bearing-beam in the bifurcation, as heretofore practiced.

If desired, the two arms *g g* may be both extended on opposite sides of the central or bearing part, to form what would be equal to four arms, requiring four suspension links, and four brackets from the frame A.

As fig. 2 of the drawings is a section taken in the plane of the line *X x* of fig. 1, one of the arms *g* and its connections are represented by dotted lines.

The short arm of the primary lever *O* is provided, as usual, with a knife-edge, *m*, for the bearing-beam to rest on, and it is also provided with the usual knife-edges *n n*, that constitute the fulcrum, and which rest and work on bearing-blocks *o o*, fitted in standards *p p*, but the pieces, of hardened steel, which form the two knife-edges *n n*, are extended and formed with inverted knife-edges *n' n'*, made exactly in line with the knife-edges *n n*, and these inverted knife-edges are embraced by loops *q q*, one on each side, the stems, *r r*, of which pass through holes in bracket-pieces *s s*, and by means of two nuts *t t*, on the threaded stems, the loops are secured in place, and may be properly adjusted at pleasure. In this way the primary lever is free to play as heretofore, but cannot be separated from its bearing-blocks without first disconnecting the stems of the loops *q q* from the brackets to which they are secured.

The long arm *u* of the primary lever is provided with an adjustable knife-edge, and means for adjustment, and for connection with the secondary lever, as represented; but as these make no part of my invention, they are merely represented to indicate that, by reason of the peculiar and novel construction of the bearing-beam, the mechanism for adjusting the knife-edge of the long arm of the said lever can occupy the space heretofore required for the bearing-beam, and hence that the said primary lever can be made much shorter than heretofore.

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

1. In combination with the primary lever, the construction of the bearing-beam with the arms for connection with the suspension links, in planes on each side of and outside of the long arm of the primary lever, substantially as and for the purpose described.

2. The locking-pieces on the arms of the bearing-beam and of the brackets of the frame to be connected with the platform, in combination with the suspension links, substantially as and for the purpose described.

3. The recesses at the lower end of the bearing-beam and the locking-piece *k*, in combination with and for the purpose of inclosing the knife-edge of the short arm of the primary lever, as and for the purpose described.

VICTOR VINCENT.

Witnesses:

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A. J. DE LACY.