E. SAMPSON.

Platform Scales.

No. 57,640. Patented Aug. 28, 1866.

Fig. 1.

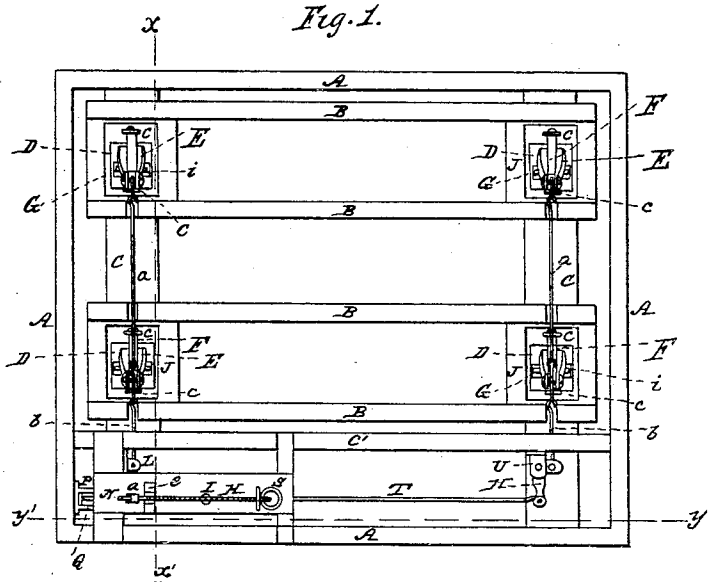


Fig. 2.

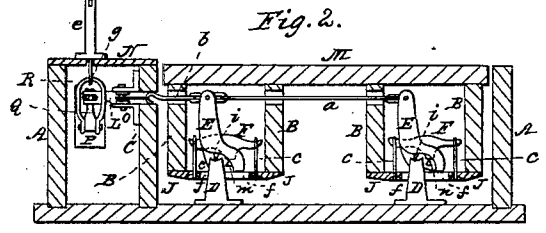
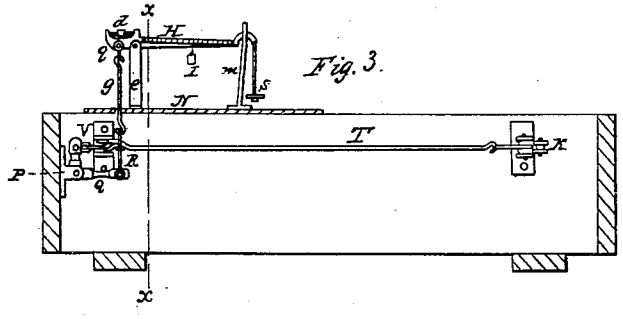


Fig. 3.



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ELNATHAN SAMPSON, OF LANSINGBURG, ASSIGNOR TO ALFRED CLARK HITCHCOCK, OF TROY, NEW YORK.

IMPROVEMENT IN PLATFORM-SCALES.

Specification forming part of Letters Patent No. **57,640**, dated August 28, 1866.

To all whom it may concern:

Be it known that I, ELNATHAN SAMPSON, of Lansingburg, in the county of Rensselaer and State of New York, have invented a useful and Improved Platform-Scale; and I do hereby declare that the following is a full and exact description of the same, reference being had to the annexed drawings, and to the letters of reference marked thereon, making a part of this specification, in which—

Figure 1 is a top view of the scale with the platform removed. Fig. 2 is a vertical transverse sectional view taken at the line *x x* of Fig. 1; and Fig. 3 is a side elevation of the scale-beam side of the same, showing the manner of connecting with the scale-beam.

The same letters have reference to like parts in each of the said figures.

My said invention consists in the location under the platform of a scale of a series of bell-crank levers with yokes and suspension-links, said links connecting with suitable co-operating and connecting parts for supporting the platform of the scale, substantially in manner as hereinafter fully described, and for the purpose of a weighing-scale. By this part of my invention the scale is made to require less room for its frame, and also less timber for building the same, and the whole scale can be built more compactly, and its platform be better supported, and its operating and adjusting parts made more easy of access to adjust the same.

My invention also consists in the arrangement of a series of bell-crank levers, with their long arms in upright position below and placed to act transversely to the length of platform or to the track over the platform of the scale, in manner substantially and for the purpose hereinafter fully described. By this part of my invention I am enabled to use very short suspension-links for connecting the yokes of said levers with the platform, thereby obviating the extreme swinging motion of platform caused by using long suspension-links. This is an important feature in platform-scales, for when the platform is in motion from restless cattle being upon it the beam does not indicate correctly, for the reason of the extreme swinging of the platform; but by my arrangement and improvement there is very little motion, for the short suspension-links used do not permit much swinging motion, and what little there is is mainly transversely to the platform, so that a team may pass over the platform and the platform at once resume its rest.

My invention also consists in arranging together a bell-crank lever, with its yoke and fulcrum-standard, in combination with a supporting frame or plate, said supporting frame or plate being so constructed as to furnish ample supports or bearings for the platform-timbers to rest upon and allow vibrations of the same without disturbing the weighing apparatus connected with it, in manner substantially and for the purpose as hereinafter fully described.

It also consists in the connected arrangement, relatively to and with each other and the platform-timbers, of the several bell-crank levers with their yokes, fulcrum-standards, and supporting plates or frames, in manner substantially and for the purpose as hereinafter fully set forth.

To enable others skilled in the art of constructing weighing-scales to construct and use my invention, I now proceed to fully describe the same, to wit:

I construct a box or a pit, the sides A A of which are made either of timber or of stone or brick, as circumstances may require. At the bottom of this box or pit, and extending across the same, are arranged the sill-timbers C C, and, in case the said pit is made in the ground, a substantial foundation of stone is prepared, upon which the said sill-timbers may have a firm support. Traversing the said pit or box from end to end is the partition-wall C′. Properly arranged and secured upon said sill-timbers are the fulcrum-standards D.

Arranged transversely to the platform, and with their long arms in upright positions in the space between the timbers B B and platform M, and resting and operating upon the said fulcrum-standards D, are the bell-crank levers E. These levers are provided with knife-edge bearings *i*, of hard metal, in the usual manner, and said levers E are constructed with an opening or slot through them of sufficient capacity to receive a yoke, and within and through which opening is arranged the yoke F, which rests and operates upon a knife-edge bearing, *n*, fixed within the short

arm of said lever E, all substantially in manner as shown in Figs. 1 and 2 of annexed drawings.

J are supporting frames or plates, which are constructed with an opening, so that they surround or permit the fulcrum-standard D to pass up through the central parts of said opening, and leave ample margin or space for said plates or frames J to vibrate in all directions without touching said fulcrum-standards. Projecting from the opposite internal edges of said plate or frames J are the horns *f f*, and they are arranged so as to be substantially in line with and below the ends of said yoke F, which is connected to the said horns by means of the suspension links or stirrups *c c*, substantially in manner as seen in Fig. 2.

Resting upon, arranged lengthwise with the platform, and in parallel positions to each other, and secured to the diametrically-opposite sides of said supporting plates or frames J J, are the platform-timbers B B, which support the platform M in manner substantially as seen in said Fig. 2.

As many as may be necessary of the aforesaid fulcrum-standards D, bell-crank levers E, with yokes F, and supporting plates or frames J to give sufficient support to the timbers and platform of the scale, and to constitute together an effective weighing apparatus, may be used, and they are combined together and arranged with reference to each other and the platform-timbers substantially in manner as shown in Fig. 1, which represents four of the aforesaid fulcrum-standards D, levers E, with yokes F, and supporting plates or frames J as being combined together and properly arranged with reference to each other and the platform-timbers B B upon the sill-timbers C C about, at, and below the corners of the said platform M, which is considered a proper number and arrangement for a platform of an ordinary hay-scale or coal-scale or cattle-scale; but for a longer platform—such as needed for a railway-track scale—a greater number of the aforesaid weighing devices would be necessary in order to sufficiently support the platform, thereby preventing any tendency to deflect, spring, or warp by the action of articles being weighed upon or traversing over the said platform.

These respective weighing devices, as above described, are connected with each other and their action communicated to the scale-beam by means and in manner substantially as follows: The ends of the long arms of the respective levers E E, with yokes F, are connected one to the other and transversely to the platform M by the links and rods *a*, the said rods passing through openings made for that purpose in the platform-timbers B B.

Arranged on and secured to the partition timbers or wall C′ are the respective fulcrum-bearings U and V, and arranged and operating therein are the respective transmitting bell-crank levers K and L. One of the arms of these levers is connected, respectively, to the long arms of said levers E E by means of the links and rods *b b*, and one of the arms of each of said levers K and L are connected together by the rod T.

Arranged and operating in the fulcrum-bearing P is the main connecting bell-crank lever Q, which connects with and transmits to the scale-beam the weight upon the platform, and one of its arms is connected by means of a link with an arm of the said lever L, while its other arm is connected by means of a clevis-link, R, rod *g*, and clevis *q* to the scale-beam H, which is supported by the fulcrum-standard *e*, said scale-beam being constructed, graduated, and arranged in the usual manner.

Having fully described my improved platform-scale, what I claim as my invention therein, and desire to secure by Letters Patent, is—

1. The location under the platform of a scale of a series of bell-crank levers E, with yokes F and suspension-links *c c*, which connect said yokes with co-operating and connecting parts for supporting the platform of the scale, substantially as herein described, and for the purpose set forth.

2. The arrangement of a series of bell-crank levers, with their long arms in upright position, below and placed transversely to the length of platform or to the trackway over the platform of the scale, substantially in manner as herein described, and for the purpose set forth.

3. When arranged in combination with the lever E, with the yoke F, fulcrum-standard D, and platform-timbers B B, the supporting plate or frame J, or its equivalent device, constructed and arranged substantially in manner and for the purpose as herein set forth.

4. The arrangement relatively to and with each other and with the platform-timbers of the respective bell-crank levers, with yokes, supporting plates or frames, and fulcrum-standards, as herein described, when the same are so connected with each other by connecting parts as to operate together for the purpose of a platform-scale, substantially in manner as herein described.

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