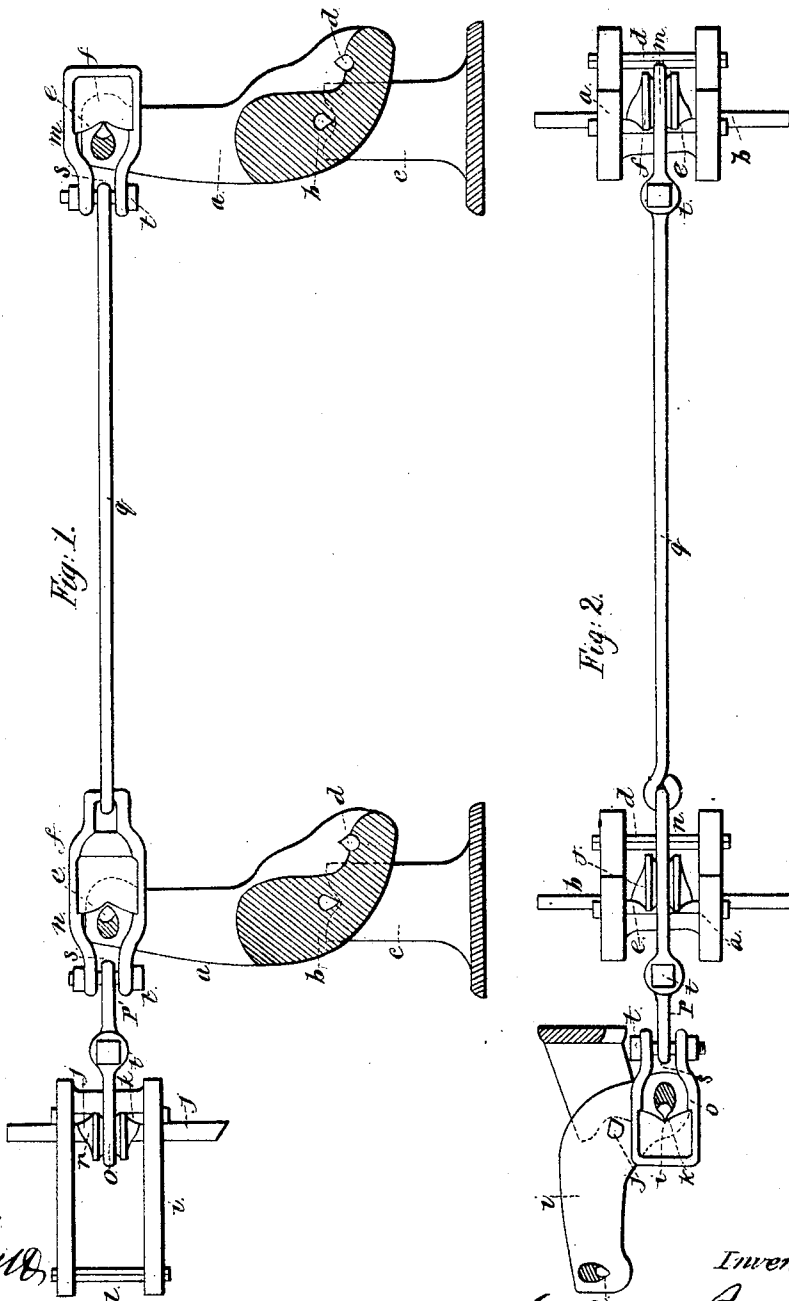


Balance Scales.

N^o 106,174.

Patented Aug. 9, 1870.



Witnesses:
Vict. Vincent
G. de la Haye

Inventor:
Michael J. Kennedy

United States Patent Office.

MICHAEL KENNEDY, OF NEW YORK, N. Y.

Letters Patent No. 106,174, dated August 9, 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, MICHAEL KENNEDY, of the city, county, and State of New York, have invented certain new and useful Improvements in Platform, Railroad, and Weigh-lock Scales; and I do hereby declare that the following is a full, clear, and exact description of the same, reference be had to the accompanying drawings making part of this specification, in which—

Figure 1 is a vertical section of one set of primary bell-crank levers, such as are used in this class of scales, showing my improved mode of connecting them with each other and with a secondary bell-crank lever; and

Figure 2, a top view of the said primary levers, and the mode of connecting them, and representing the secondary lever in section.

The same letters indicate like parts in both figures.

In this class of scales it has been the custom to connect the primary levers with each other and with the secondary lever by a rod, having closed loops to embrace the knife-edges, and, in consequence of this, the knife-edges had to be connected with their levers, so that they could be taken out and replaced whenever the scales had to be taken apart or put together. This not only increased the cost, but rendered such parts of the scales liable to derangement, as their form had to be tapering, and, hence, required to be carefully fastened, to guard against their tendency to work out, as the slightest variation in the position of the knife-edges destroys the accuracy of the scales.

By my said invention, I avoid the defect above referred to.

My said invention consists in securing the bearing-blocks which bear against the knife-edges of the levers in open links, and connecting the open ends of the said links with the connecting-rods by screw-bolts, or equivalent fastening, so that, when connected, the open ends of the said links are closed, and, by removing the bolts or equivalent fastening, the links, with their bearing-blocks, can be removed, and all the parts readily disconnected and reconnected without moving the knife-edges in their levers.

By reason of this mode of construction, the knife-edges can be permanently secured in the ends of the levers.

In the accompanying drawings—

a a are the primary bell-crank levers, with knife-edge journals *b b* resting on bearings *c c*.

Their short arms are provided with knife-edges *d d*, for the platform to rest on, and their long arms with knife-edges *e e*, which rest against the bearing-blocks *f f*.

The secondary bell-crank lever *i* is, in like manner,

provided with three knife-edges *j k l*, in the usual manner, and its plane of motion, as usual in platform-scales, is at right angles with the plane of motion of the primary levers *a a*.

Each of the levers consists of two side plates and cross-bars, cast in one piece. The cross-bars are for the support of the steel fulcrum and the knife-edges of the levers when the levers are subjected to serious strain. The pieces of steel are prepared of an approximate shape, and inserted in the mold, and the lever cast thereon.

After cooling, the pieces of steel are driven out of the casting, the knife-edges finished and hardened, and, thus finished, they are again driven into the lever and fastened, where they remain as permanent fixtures, not liable to derangement.

This construction necessitates the use of other means for connecting the several levers than have heretofore been used, and such a means I have hereinabove described.

The two long arms of the primary levers *a a*, and the short arm of the secondary lever *i*, are all three connected together by three links, *m n o*, and two rods, *p* and *q*.

The links extend around and are secured to the bearing-blocks *f f r*, which bear against the knife-edges *e e* of the long arms of the primary levers, and *k* of the short arm of the secondary lever, and the ends of the said links are open, as at *s s s*, so that they can be taken off or put over the knife-edges, and the open ends have holes through them, to receive bolts *t t t*, which also pass through holes in the two ends of the rod *p* and one end of the rod *q*, the other end of the rod *q* being linked, as represented, with the closed end of the middle link.

From the foregoing, it will be seen that, by taking out the three bolts *t t t*, the three links can be taken off and put on without removing the knife-edges, and, for that reason, the knife-edges of the three levers which require to be connected, can be permanently secured to their arms, as by casting the arms onto them, as before stated, or by any other suitable means.

It will be understood that the arrangement of levers and their connections, above described, will require at least to be duplicated, for platform-scales require at least four primary levers, the number being varied for other kinds.

And, although I have above described only the connections of the primary levers with each other and with the secondary lever, I do not wish to be understood as limiting my claim of invention to the connecting the said primary and secondary levers by my said improved method, as it will be evident that my said invention is equally applicable to any other

two or more levers which require to be connected in platform-scales.

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

In combination with the knife-edges, permanently secured in the levers, substantially as described, the arrangement of the bearing-blocks in links of the connecting-rod or rods so constructed, substantially

as described, that they can be opened and closed, to connect or disconnect the levers without removing the knife-edges.

MICHAEL KENNEDY.

Witnesses:

VICT. VINCENT,
G. DE SERTRAN.