W. MAGUIRE.

Balance.

No. 93,630. Patented Aug. 10, 1869.

Fig. 1.

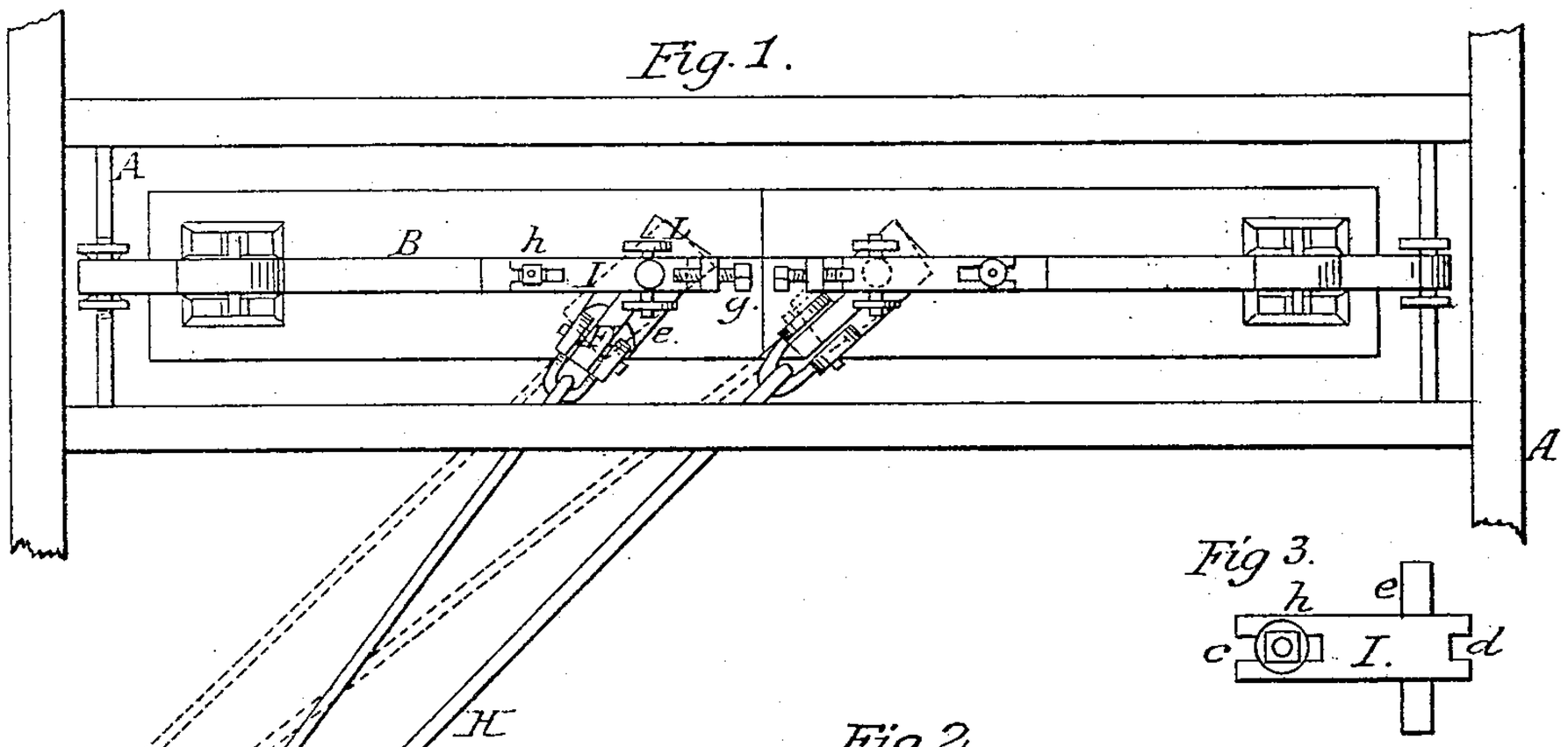
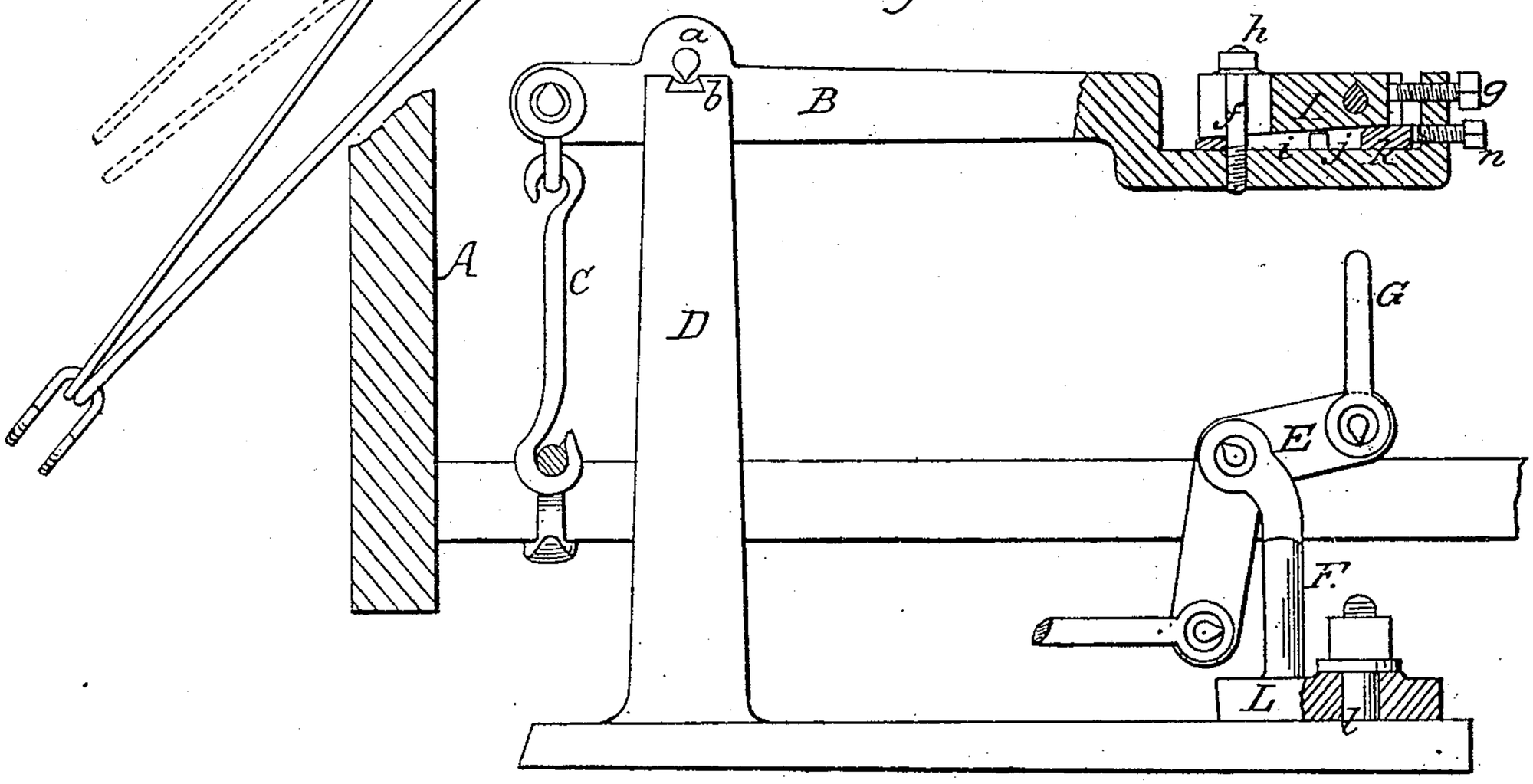


Fig 3.

Fig. 2.



WITNESSES

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WILLIAM MAGUIRE, OF BALTIMORE, MARYLAND, ASSIGNOR TO HIMSELF AND FRANCIS B. LONEY, OF SAME PLACE.

Letters Patent No. 93,630, *dated August* 10, 1869.

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, WILLIAM MAGUIRE, of Baltimore, in the county of Baltimore, and State of Maryland, have invented certain new and useful Improvements in 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, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention relates to scales, and especially to that class used with a platform, for weighing heavy weights; and consists in the novel construction and arrangement of mechanical devices to compensate for the wearing of the knife-edges or steel points on the levers, also, in making the knife-edges on the end of the long arm of the first levers adjustable; and, also, in attaching the plates, to which the posts supporting the second levers are connected, in such a way that they may turn loosely about a pin, connected to the base of the scales, so that its centre may be in the same vertical plane with the connecting-points of the first and second levers.

In the drawings—

Figure 1 is a top plan view of one end of my scales, showing two sets or series of levers;

Figure 2 is a side elevation of a part of one end of my scale, and partly in section; and

Figure 3 is a top plan view of a part detached.

As scales that are frequently used, and especially for heavy weighing, are constantly requiring attention, by reason of their wear, to keep them accurate, I have introduced certain novel mechanical devices into their construction, by which this wear may be compensated for, and also other improvements to make them accurate.

In constructiug the scales to which my devices are applied, as shown in the drawings, I make a frame, A, out of any suitable materials, and of any desired dimensions, and suspend it by means of iron rods, links, or chains, C, from the ends of the short arms of the first levers B, having their knife-edge or steel-point fulcra *a* resting on steel plates *b*, on the head of posts or standards D, as shown in fig. 2.

The posts D are four in number, and arranged so as to form a rectangle, and have each a first lever, B, mounted upon it.

The long arms of these levers I connect with rods, G, having the usual bearing-points, to the second levers E, mounted in standards, F.

These second levers E are again connected, by rods H, to the beam-levers, not shown, and these, in turn, to the beam, also not shown, and in the usual way.

As the four sets of levers are similarly constructed and arranged, I have made a top plan view of only one pair of the series, and a side elevation, partly in section, of a single series, as these are sufficient to show the points of my invention.

Inaccuracy in scales thus constructed sometimes arises from changing the position of the beam-levers, and also from the wear of the knife-edges on the long arms of the first levers B, unless they are provided with my devices for compensating for the wear of the knife-edges, and for permitting the second lever to adjust itself always in a line with the beam-levers.

In order to compensate for the wear of the knife-edges or steel points, I shape or construct the end of the long arm of the second levers, as shown in fig. 2, with a recess on its upper side.

Into this recess, I put an oblong block. I, provided on one end with a vertical slot, *c*, and on the other, with a vertical groove, *d*, and also with knife-edges *e*, as clearly shown in figs. 2 and 3, and connect it to the arm of the lever by a vertical pin, *f*, passing through the slot *c*, and having a nut, *h*, on its upper end.

In the end of the arm of the lever, I insert a set-screw, *g*, the inner end of which enters the groove *d* in the end of the block I, as shown in fig. 2, for the purpose of adjusting the block I longitudinally.

Between the block I and the lever-arm, I insert a wedge, K, having a slot, *i*, through which the pin *f* passes, and in which a guide-pin, *j*, enters, as shown in fig. 2, so as to be adjustable longitudinally, by means of a set-screw, *n*, as shown in the same figure.

The wedge K, thus arranged, can be easily crowded forward by the set-screw *n*, and the block I, and consequently the knife-edge or steel point *e* be elevated, and thus the wearing away of the knife-edges on the levers accurately be compensated for.

In order that the second levers E may always be in a line with the beam-levers, and have the knife-edges on their upper arm directly under the knife-edges in the block I, with which they are connected, and also directly over the point at which the supports of the second lever are connected with the base of the scales, I connect or attach the post F, which supports the levers E, to a plate, L, which turns loosely on a pin, *l*, which has a screw-thread and nut, *m*, on its upper end, for fastening, and is rigidly attached to the base of the scales at its lower end. Now, as the centre of the pin *l* and the edge of the knife-edge on the upper end of the arm of the second lever E are in the same vertical plane, they will remain so in whatever direction the beam-levers may be, as shown by the red lines in fig. 1, and at the same time the centre of the pin *l* will always be in the same vertical plane with the knife-edge *e* in the block I on the end of the first levers B,

as shown by the red line in fig. 2, by keeping the block I adjusted, by means of the set-screw *g*, for that purpose.

In this way, it will be seen, that in setting my scales, I can always adjust the knife-edge on the long arms of the first levers by means of the set-screw *g*, so that they will be in the same vertical plane with the knife-edges on the upper ends of the second levers, and that the beam-levers will draw in a line with the second levers, because the plate L, to which the posts F, supporting the second levers E, are attached, turn upon the centre of the pin *l*, thus allowing the second levers to turn without changing the vertical position of the knife-edges on their upper arms.

Scales constructed in this way may be very accurately adjusted. They are not liable to get out of repair.

When the steel bearing-points on the levers become worn, the wearing down of their edges can be readily and conveniently compensated for.

Having thus described my invention,

What I claim, is—

1. The method of compensating for the wear of the knife-edges or steel points on the levers of platform or similar scales, by means of an adjustable wedge, K, and adjustable block I, with their set-screws *g* and *n*, constructed and arranged to operate substantially as herein described.

2. The plate L, having rigidly attached to it a post, F, with a second lever, E, mounted therein, and loosely connected to a stationary pin, *l*, for the purpose of preserving the accuracy of the scales, while allowing the position of the point of connection of the rods H with the scale-beams to be varied or changed, substantially as herein described.

3. The plate L, second lever E, and adjustable block I, with their connections, in combination, when so arranged that the knife-edges of the levers, and the point about which the plate L moves, shall all be in the same vertical plane, substantially as herein described, and for the purpose set forth.

WM. MAGUIRE.

Witnesses:

H. B. MUNN,

P. P. MAST.