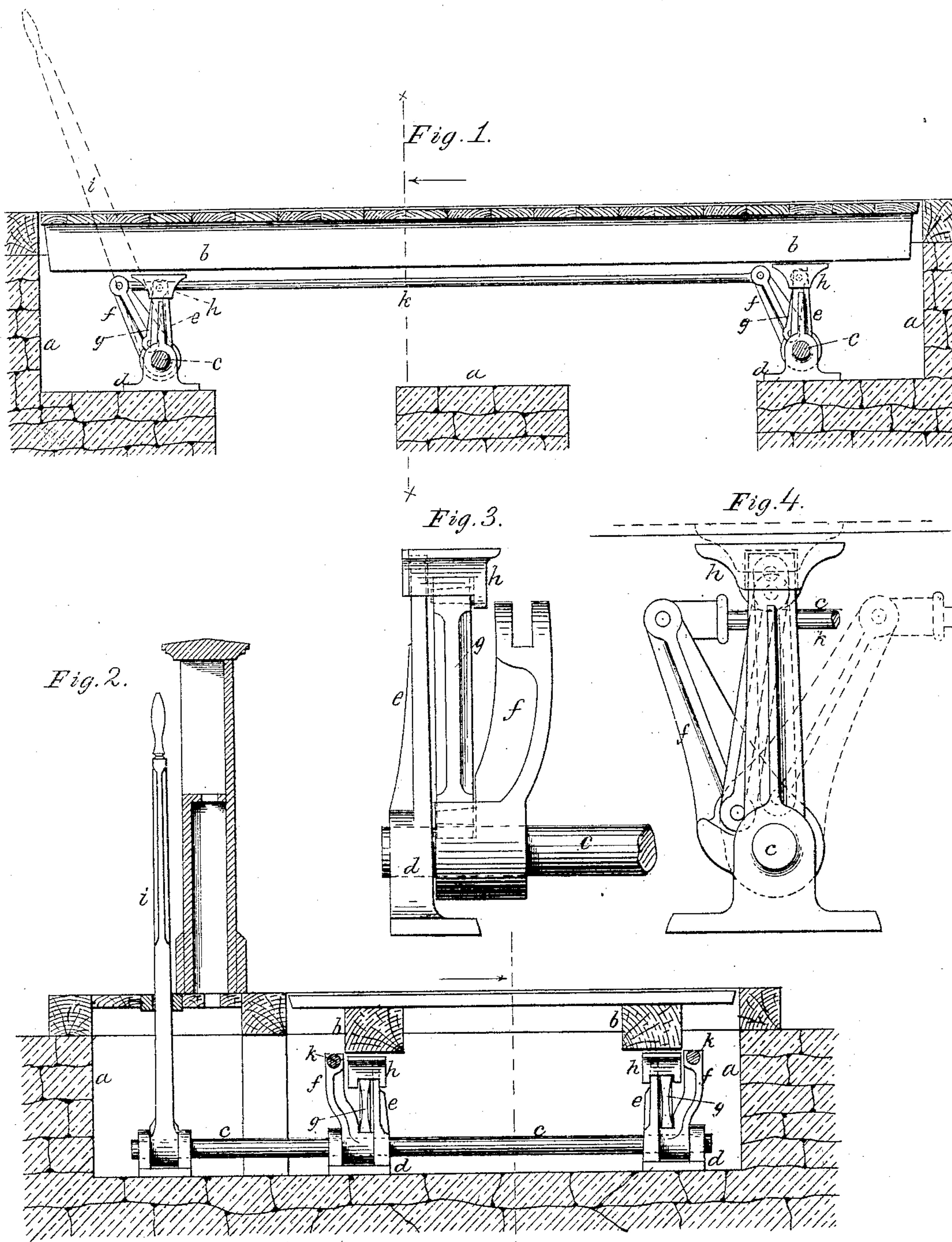


F. FAIRBANKS & L. G. SPENCER.  
Platform-Scale.

No. 213,743.

Patented April 1, 1879.



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# UNITED STATES PATENT OFFICE.

FRANKLIN FAIRBANKS AND LUKE G. SPENCER, OF ST. JOHNSBURY, VT.,  
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## IMPROVEMENT IN PLATFORM-SCALES.

Specification forming part of Letters Patent No. **213,743**, dated April 1, 1879; application filed  
December 21, 1878.

*To all whom it may concern:*

Be it known that we, FRANKLIN FAIRBANKS and LUKE G. SPENCER, both of St. Johnsbury, Caledonia county, Vermont, (assignors to E. & T. FAIRBANKS & Co., of same place,) have invented certain new and useful Improvements in Platform-Scales, of which the following is a specification:

The present improvement applies to that class of large fixed platform-scales, such as hay, railroad, and other scales, which are exposed to more or less constant vehicle traffic over their platforms; and our invention lies in a novel relieving device for lifting the platform off its pivots, and supporting it firmly in such removed position, so as to relieve the scale mechanism of unnecessary wear and strain, as hereinafter set forth.

In the adjoined drawings, Figure 1 presents a contracted longitudinal section of a large platform-scale provided with our present invention, the usual lever mechanism of the scale being omitted for sake of clearness; and Fig. 2 is a cross-section thereof on line *x x*, Fig. 1. Figs. 3 and 4 present end and side elevations, on an enlarged scale, of one of the lifting devices removed.

In small platform-scales, as is well known, it is common to employ what is known as a "drop-lever," acting through the medium of the steelyard-rod, to allow the platform, together with its underlying lever mechanism, to drop, so that the platform rests upon edges of the platform-casing, thus relaxing the mechanism, and relieving it of unnecessary wear or strain during periods of disuse. In large fixed platform-scales, however, where the platform and lever mechanism are so large and heavy, this mode of relief would be impracticable; and heretofore no relieving device has been embodied in the structure of this class of scales.

Now, in our invention, we employ a series of lifting devices arranged beneath the platform, and at or near the corners thereof, as shown in the drawings, which are fixed to the base of the platform-pit, with their upper or actuating ends arranged to bear upwardly against the base of the platform, these several devices being all coupled together, so that by the movement of a lever or equivalent oper-

ating device, connecting with the said lifts, and extending above the platform, the several lifts are simultaneously moved, so as to raise the platform bodily a sufficient distance off its lever-points, and thus relieve the same of all strain, at the same time supporting the platform firmly in such position.

The construction here outlined constitutes the essence of our invention, which also embodies specific features of construction, as fully expressed hereinafter.

In Figs. 1 and 2, *a a* indicate the platform-pit sunken in the ground, as usual, and walled about with masonry, as indicated, and *b b* indicate the two main timbers of the platform. The base or under side of these timbers is fitted at certain intervals with metal pivot-plates or saddles, which rest on the pivots of the system of main levers which extend transversely across the platform-pit, at corresponding intervals, in a manner well known to scale-makers, and not necessary to here illustrate.

Now, in the floor of the platform-pit, and preferably under each corner of the platform, the lifting devices are arranged as seen in Figs. 1 and 2, being mounted on two rock-shafts, *c c*, arranged transversely at opposite ends of the platform-pit, as shown. These rock-shafts are supported at each end in bearings on strong stands or bases *d*, securely bolted to the timbers or masonry in the floor of the pit, and situated at or near each corner of the platform, as shown. These bases are formed with an upright standard, *e*, which rises to nearly the base of the platform, as shown. Close to these standards rock-levers *f* are securely keyed on each end of the rock-shafts, while toggle-links *g* are pivoted at one end to the rock-levers, close to the fulcrum thereof, and at the other end to platens *h h*, which are fitted to slide on the top of the standards *e e*. These platens closely approach the base of the platform-timbers, and present a broad and level surface, as shown, to effectually apply the lifting action of the toggle thereto, while the top of the standard forms a guide for the platen, to retain it in true position and prevent lateral movements thereof.

The rock-shaft at the front end of the scales is provided with an operating hand-lever, *i*, which projects through the flooring of the scale



into a convenient position in front of the cupboard, as shown in Figs. 1 and 2. Rods *k k* connect the rock-levers of one of the rock-shafts with those of the other, and thus couple together the lifting mechanism at each end of the scale, as shown best in Fig. 2.

It will now be seen that by swinging the hand-lever *i* to one side the four rock-levers will be simultaneously oscillated, which movement will bring the toggle-links into a vertical position, and with enormous leverage force the platens at each corner of the scale upwardly against the platform-timbers, thus lifting the platform bodily off its pivots a distance sufficient to relieve the same of all strain or wear, as indicated by dotted lines in Fig. 4.

It will be seen that this lifting device, while being simple in construction and action, has such great leverage that the movement to lift or drop the platform off or on the pivots is accomplished with great ease; and, moreover, when the platform is lifted, the links assume a straight line with the points of support, and thus support the platform firmly as upon so many solid legs or pillars, without any danger of descent, which can be accomplished only by a direct lateral force applied to the rock-levers.

In practice, a movement of about one-half inch is imparted to the platens, so that the platform is lifted about one-eighth of an inch clear of the pivots, the platens retiring three-eighths of an inch below the platform when lowered on its pivots, as indicated by the full and dotted lines in Fig. 4, so as to give ample freedom of movement to the platform under the stress of the weight when the scale is in action.

The slot in the platform or flooring through which the operating-lever plays is provided with a notch at each end, into which the lever springs when at either end of its sweep, so as to prevent any accidental movement of the parts when set in either position.

The precise construction shown may be somewhat varied in the details without departing from the spirit of our invention; but we have shown the construction which is considered best.

Any suitable operating device, however, may substitute the hand-lever *i*—for instance, a hand-wheel on an upright shaft—which is geared by bevel or worm gearing with the rock-shaft or by any similar connection. For very long scales the lifting mechanism may be made in two or more independent sections or series—one series, say, to lift one end of the platform, and the other series to lift the opposite end.

What we claim as our invention is—

1. In a platform-scale, a relieving device consisting of a series of lifts arranged at intervals beneath the platform, fixed to the base of the platform-pit, and arranged to bear upwardly at several points upon the platform, the said lifts being coupled together and adapted to operate simultaneously by the movement of a hand-lever or equivalent device projecting above the platform, to raise the platform bodily off its pivots or to lower it therein, as occasion demands, substantially as herein set forth.

2. In a platform-scale, a relieving device formed by the combination of the rock-lever *f*, pivoted to a fixed base, with the link or toggle *g*, jointed to the said lever, and arranged to bear at its upper end on the base of the platform, substantially as and for the purpose herein set forth.

3. In a platform-scale, the combination, with the actuating rock-lever *f*, of the toggle-link *g* and platen *h*, arranged and operating substantially as shown and described.

4. The combination, in a platform-scale, of the fixed sustaining-standard *e* with the lifting-platen *h*, fitted to slide on the top of the said standard, together with the toggle-link *g* and rock-lever *f*, substantially as herein set forth.

5. The combination, in a platform-scale, of the rock-shafts *c c* and toggles *f g*, fixed on the ends thereof, and arranged to lift the platform, with the connecting-rods *k k*, coupling together the several toggles to act conjointly on the platform, substantially as shown and described.

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