

J. P. COWAN.
PLATFORM SCALE.

No. 441,827.

Patented Dec. 2, 1890.

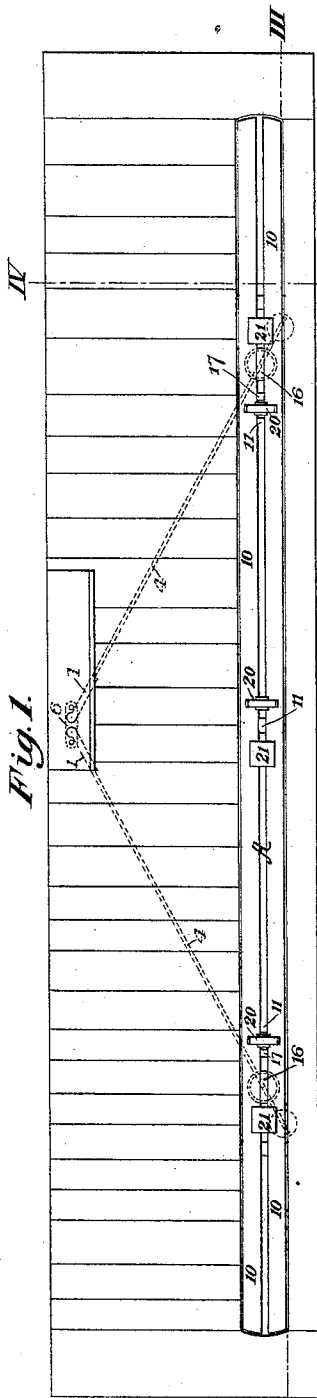


Fig. 1.

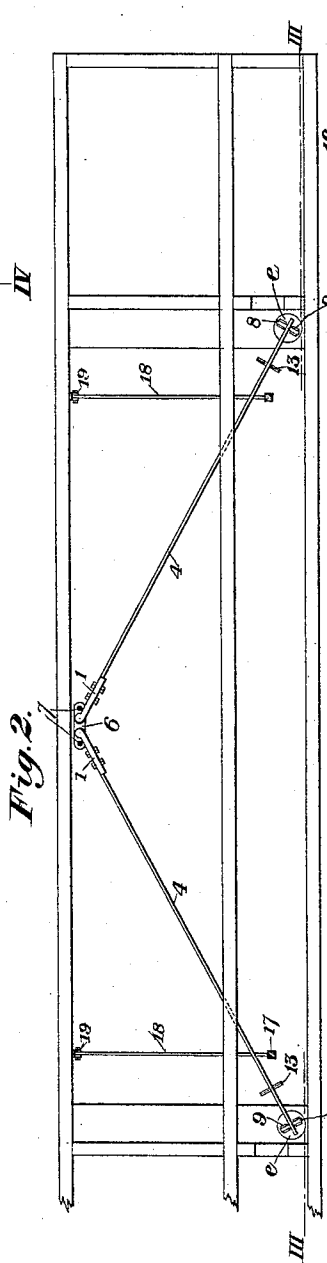


Fig. 2.

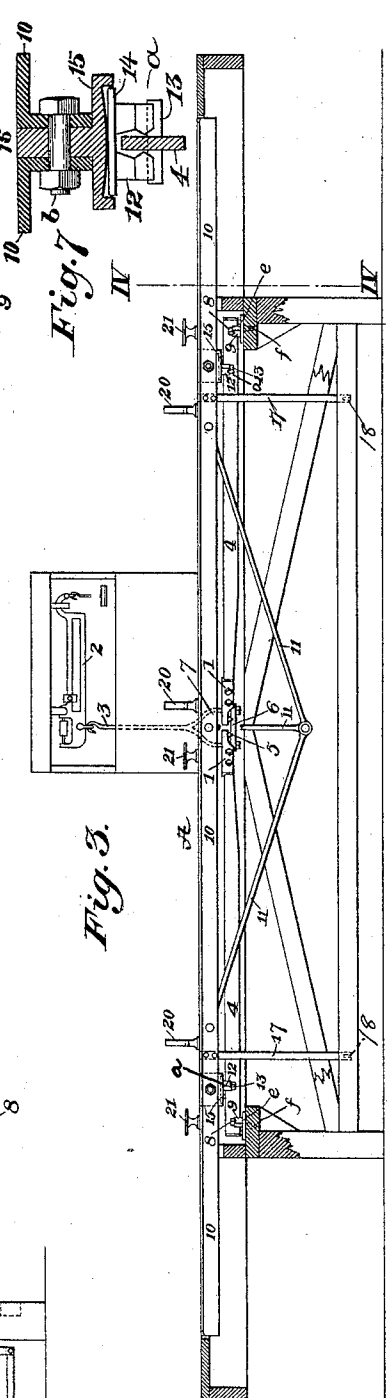


Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



Fig. 7.

WITNESSES

W. H. Brown
H. B. Gill

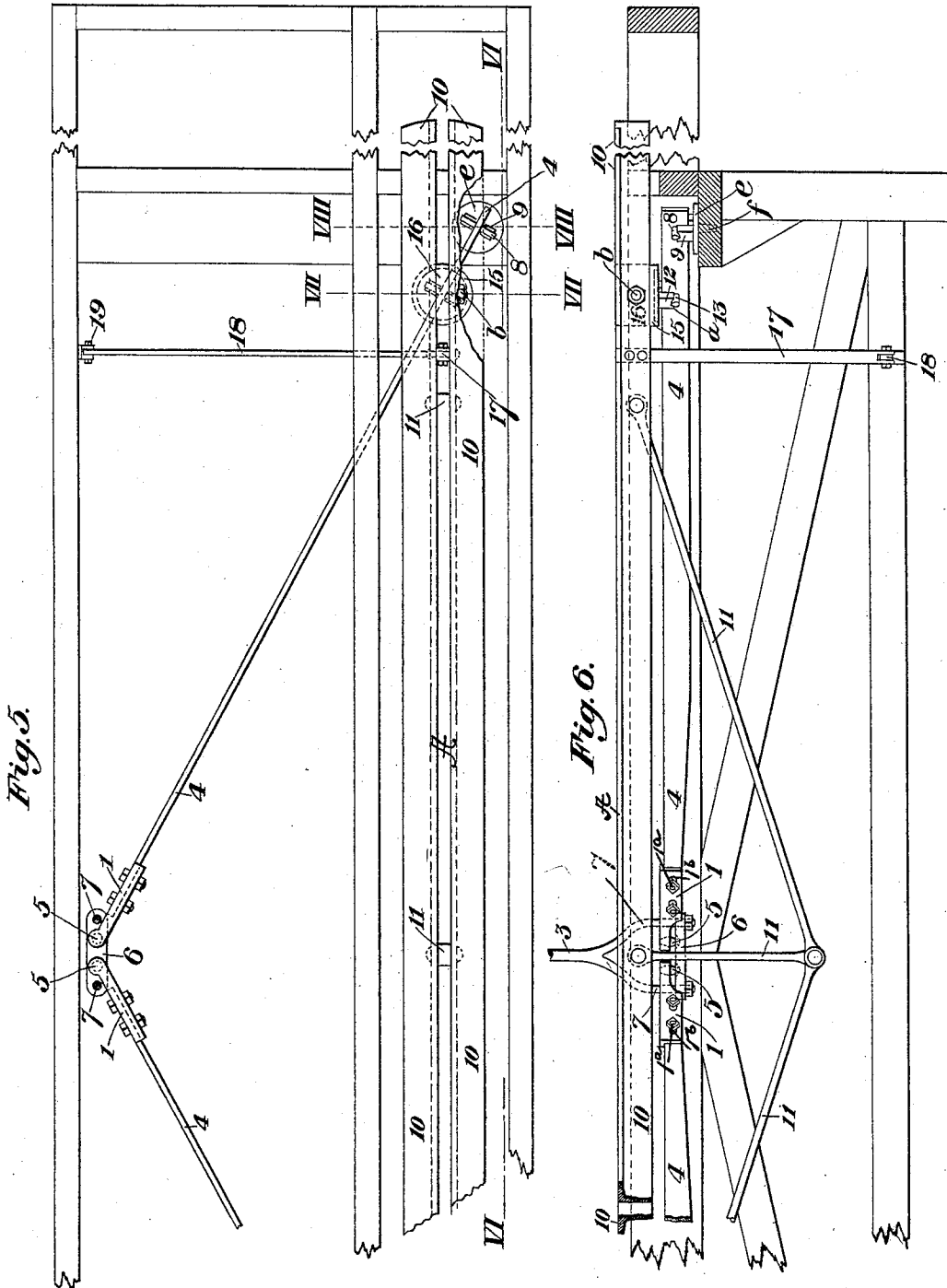
INVENTOR

Joseph P. Cowan


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Fig. 9.  Fig. 8. 
 INVENTOR
Joseph P. Cowan

UNITED STATES PATENT OFFICE.

JOSEPH P. COWAN, OF CHARTIERS, PENNSYLVANIA.

PLATFORM-SCALE.

SPECIFICATION forming part of Letters Patent No. 441,827, dated December 2, 1890.

Application filed October 7, 1889. Serial No. 326,212. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH P. COWAN, of Chartiers, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Weighing-Scales, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of my improved scales. Fig. 2 is a plan view, the top of the scales being removed to show the connection of the operative parts. Fig. 3 is a vertical longitudinal section on the lines III III of Figs. 1 and 2. Fig. 4 is a vertical cross-section on the line IV IV of Figs. 1 and 3. Fig. 5 is a plan view, on a larger scale, of a portion of the platform and operative parts of my improved scales. Fig. 6 is a vertical longitudinal section on the line VI VI of Fig. 5. Fig. 7 is a vertical cross-section of the upper part of the connection of the scale-platform with the levers 4, the section being on the line VII VII of Fig. 5. Fig. 8 is a vertical section on the line VIII VIII of Fig. 5 of one of the lower bearings of the scales. Fig. 9 is a top plan view of the bearing shown in Fig. 8.

Like symbols of reference indicate like parts in each.

My improved scales are capable of use for weighing articles of any size or shape, and the invention is not limited in its application to any particular use, though the construction of the scales makes them especially desirable in weighing long articles of metal—such as iron or steel rods, &c.—which, from their peculiar shape, cannot easily be weighed on scales of the kind now commonly used.

Referring now to the drawings, 2 represents the scale-beam of usual construction.

3 is a vertical rod by which the beam is connected with the levers 4, which transfer the weight of the burden from the platform to the beam. The inner ends of these levers 4 are provided with end pieces 1, longitudinally adjustable on said levers 4, said end pieces 1 having points or studs 5, which fit upon a strap 6 at the lower end of a stirrup 7 on the rod 3.

This construction, while not essential to my invention, is desirable, because it allows easy

motion of the parts. The inner end portions of the levers 4 are rendered longitudinally adjustable by making them of pieces 1, separate from the levers themselves and securing them to the levers by bolts 1^a, which pass through the levers and through elongated openings 1^b in the end pieces 1, as shown in Fig. 6. The levers 4 diverge from the strap 6 in the manner shown in Figs. 1, 2, and 5, and at their outer ends are provided with trunnions 8, fitting upon standards 9 on the frame of the scales. The standards 9 of each of the scale-levers preferably consist of upright lugs projecting from a plate *e*, which rests upon a part of the frame of the scales, and is provided with a vertical pin or pivot *f*, which enables this plate to turn in order to adjust it automatically in case the scale-lever 4 should through any cause be disturbed or warped from its proper position. A further adjustment is made possible by making the inner or opposite sides of the lugs of pointed or angled form, as shown in Figs. 8 and 9, so as to oppose no obstacle to slight lateral deflections of the scale-lever.

The platform A of the scales is set upon the levers 4 and transversely thereto, and has a bearing *a*, composed of the lugs 12 and trunnions 13, hereinafter referred to, upon each of the levers between the fulcrums 8 and the strap 6. I prefer to construct the platform, as shown in Figs. 1, 4, 5, 6, and 7, of two beams of angle-iron 10, arranged parallel to each other and braced and connected by means of a frame-work 11, as shown in Figs. 3, 5, and 6.

The platform is supported on each of the levers 4 in the following manner: 15 (see Fig. 7) is a plate or disk, preferably made of circular outline and having a peripheral downwardly-projecting flange, and having also an upwardly-projecting shank 16, which fits between the vertical portions of the angle-bars 10, and is secured thereto by a single bolt *b*, which enables the shank 16 to turn somewhat on the axis of the bolt and to adjust itself to irregularities in the position of the scale-platform. 14 is a horizontally-rotatory plate, which fits on the under side of the plate 15, within the peripheral flange thereof,

and on its under side is provided with downwardly-projecting lugs 12, having notched ends, which fit upon lugs or trunnions 13, which project laterally from both sides of the lever 4. The upper edges of these trunnions are preferably made knife-edged so as to form a very true bearing. The meeting faces of the plates 14 and 15 do not fit neatly against each other, but one of them is made somewhat convex in surface form, so as to be capable of a slight rocking motion in any direction. This enables the bearings to adjust themselves automatically to any deflection of the parts, and is a feature of marked advantage in increasing the accuracy and durability of the scales.

The construction just described is clearly illustrated in Fig. 7. It will be understood that each of the levers 4 is provided with the bearings shown in Figs. 7 and 8. By providing the platform with two bearings, as shown, the adjustment need not be as accurate as where four or more bearings are employed, and even should the frame of the scales sink in one part more than another, or from any other cause the adjustment should be disturbed, the platform will press equally on all its bearings.

In order to hold the platform steady on the scales and to prevent it from canting on its longitudinal axis, I provide it with two or more upright rods 17, which are secured to the angle-beams at their upper ends and at their lower ends are pivotally connected with one of the ends of the rods 18, (see Figs. 2, 3, 4, 5, and 6,) the other ends of which are pivoted at 19 to fixed portions of the scale-frame. This system of parts, while it enables the free vertical motion of the scale-platform, prevents the same from twisting, as will be readily understood.

In order to hold the metal rods on the scale-platform while being weighed, I provide for them rests or yokes 20, Figs. 1, 3, and 4, in which a number of rods may be placed and held in proper position to be weighed. When the rods are placed in these supports, their weight will be transmitted by the levers 4 to the strap 6, and thence by the rod 3 to the scale-beam. When the proper number of rods have been placed on the scales to make up the weight desired for a single bundle, they may be tied together by iron bands or straps without removing them from the supports 20. Before placing the metal rods on the scales the straps for securing the bundles may conveniently be laid upon small tables or supports 21, projecting from the scale-platform at about the level of the supports 20.

The advantages of my improvement will be appreciated by those skilled in the art.

The construction of the scales is simple and inexpensive, and the mechanism thereof is very durable and not apt to get out of order.

The advantages of the invention result from the fact that the scale-platform has two (or

three) bearings or points of support on the levers 4, so that warping or bending of the platform cannot alter these bearings or affect the accuracy of the scales. They also result from the other features of construction of the scales, which are pointed out by the claims of this patent.

I do not desire to limit myself to the use of a long platform on the scales, since they may be used for weighing articles of various shapes and sizes; but

I claim—

1. As an improvement in scales, the combination, with a scale-beam, of a series of scale-levers and a platform having a plurality of bearings or points of support on said scale-levers, said bearings or points of support not exceeding two in number, whereby the platform may automatically adjust itself to bear uniformly on all of the several scale-beams of the series, substantially as and for the purposes described.

2. As an improvement in scales, the combination, with a scale-beam, of scale-levers and a platform having a plurality of bearings, not exceeding two in number, on said levers, whereby the platform may automatically adjust itself to bear uniformly on the levers, substantially as and for the purposes described.

3. An improvement in scales, which consists in a platform composed of two beams united together and suitably braced, and scale-levers extending from points near the ends of said beams and converging to the scale-beam, substantially as and for the purposes described.

4. In scale-bearings, the combination, with the scale-lever, of blocks or plates 14 and 15, having faces which are directly in contact with each other and situate between the bearing on the scale-lever and the platform, one being secured to the platform and the other pivotally mounted on the lever, and one of said plates having a convex surface to permit a rocking adjustment thereof, substantially as and for the purposes described.

5. In scale-bearings, the combination, with the scale-lever, of blocks or plates 14 and 15, having faces directly in contact with each other and situate between the bearing on the scale-lever and the platform, one being secured to the platform by a transverse bolt and the other pivotally mounted on the lever, and one having a convex surface to permit a rocking adjustment, substantially as and for the purposes described.

6. As an improvement in scales, the combination, with the converging levers pivotally supported at their outer ends, of a long scale-platform extending transversely to said levers, bearings or lugs 12 on the under side of said platform, and a rotatory connection between said bearings or lugs and the frame of the scales, said connection having a vertical axis in the scale-frame, substantially as and for the purposes described.

7. In scales for weighing long articles, a
long weighing-platform having upright sup-
porting-yokes 20, adapted to receive and sup-
port the articles to be weighed, and supports
5 21 for supporting straps by which a number
of such articles may be bundled together, sub-
stantially as and for the purposes described.

In testimony whereof I have hereunto set
my hand this 17th day of September, A. D.
1889.

JOSEPH P. COWAN.

Witnesses:

W. B. CORWIN,
JNO. K. SMITH.