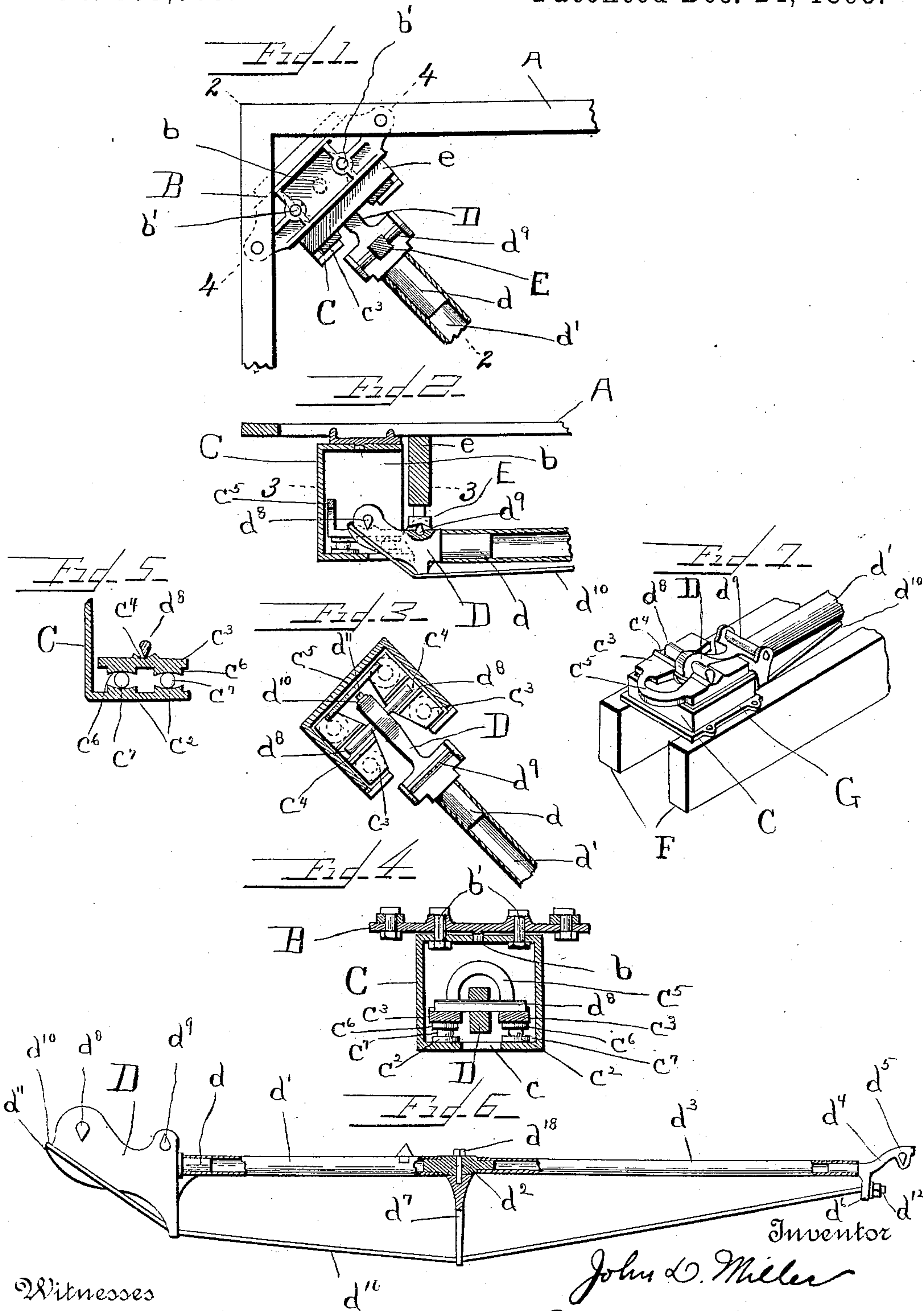


(No Model.)

J. D. MILLER.  
WEIGHING SCALE.

No. 551,986.

Patented Dec. 24, 1895.



Witnesses

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# UNITED STATES PATENT OFFICE.

JOHN D. MILLER, OF RIVERDALE, MARYLAND.

## WEIGHING-SCALE.

SPECIFICATION forming part of Letters Patent No. 551,986, dated December 24, 1895.

Application filed February 1, 1895. Serial No. 536,986. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN D. MILLER, a citizen of the United States, residing at Riverdale, in the county of Prince George's and State of Maryland, have invented certain new and useful Improvements in Weighing-Scales; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to weighing-scales generally, but more particularly to wagon and railroad scales.

The object of my invention is to construct a scale wherein the levers and platform will have a perfectly unison movement.

A further object is to dispense with the link connection now employed, as these links must, of necessity, be accurate in size, and they must be made by hand and welded by an expert, in order to withstand the strain, all of which makes them very costly. In dispensing with the links I use a ball-bearing.

A further object is to pivot the corner box or hanger in order that it may be adjusted to whatever angle the beam may, of necessity, be in; and a still further object is to construct the scale-beams of metal tubing; and with these objects in view my invention consists of the parts and combination of parts, as will be more fully hereinafter pointed out.

In the drawings, Figure 1 is a top plan view of one corner of a scale-frame with my invention attached. Fig. 2 is a central vertical section of Fig. 1 on the line 2 2. Fig. 3 is a longitudinal section of Fig. 2 on the line 3 3. Fig. 4 is a vertical sectional view on the line 4 4, Fig. 1. Fig. 5 is a detail sectional view of the ball-bearing. Fig. 6 is a side elevation of my improved beam, parts being in section. Fig. 7 is a perspective view of my improved bearing adapted for railroad-scales.

A represents one corner of a scale-platform frame, and B a corner plate securely bolted to the frame A, as shown. *b* is a pivot-point depending from said plate. *b'* are bolts secured to the plate B, to be hereinafter referred to.

C is a box closed on three sides, the bottom of said box having a slot *c*. The top of the box C is provided with a small opening in which the point *b* works and two circular slots

*c'* (shown in dotted lines in Fig. 1) in which the bolts *b'* work. The box C is pivotally hung to the corner plate by means of the bolts *b'*. 55

*c*<sup>2</sup> are saucers cast on the bottom and integral with the box C.

*c*<sup>3</sup> are bearing-plates having hardened bearing-surfaces *c*<sup>4</sup>, said bearing-plates being connected in the rear by means of the yoke *c*<sup>5</sup>. 60

*c*<sup>6</sup> are saucers cast on the bottom of and integral with the bearing-plates *c*<sup>3</sup>.

It will be observed that the plates *c*<sup>3</sup> are wider in the center than at the ends, so that the space is wider at the ends than at the center, the object of which will be hereinafter referred to. 65

*c*<sup>7</sup> are steel balls.

D is the end of a scale-beam formed by casting. *d* is a shouldered projection integral with said end. *d'* is a hollow tube shrunk or sweated on said shouldered projection. 70

*d*<sup>2</sup> is a solid plug shouldered at each end, on which one end of the tubes *d'* and *d*<sup>3</sup> are shrunk or sweated. 75

*d*<sup>4</sup> is the small end casting of the beam, which is provided with the usual bearing *d*<sup>5</sup>.

*d*<sup>6</sup> is a depending lug provided with an opening and integral with the end *d*<sup>4</sup>.

*d*<sup>7</sup> is a brace curved on the upper end to conform with the shape and size of the tubing while its lower end is notched. 80

*d*<sup>8</sup> is a bolt passing through the plug *d*<sup>2</sup> into the brace *d*<sup>7</sup>, thereby preventing the brace from turning or becoming displaced. 85

*d*<sup>8</sup> and *d*<sup>9</sup> are bearing-points on the casting *d*.

*d*<sup>10</sup> is a tie-rod looped over the projection *d*<sup>11</sup> on the casting D, and placed in the notch in the brace *d*<sup>7</sup> and finally passed through the opening in the lug *d*<sup>6</sup> and there secured by means of the nut *d*<sup>12</sup>. Said tie-rod may be tightened or loosened, as desired, by means of the nut *d*<sup>12</sup>. 90

E is a stool-casting which is secured to the timber *e* and bears on the bearing *d*<sup>9</sup>. 95

The end D of the beam is placed in the box C, its pivot *d*<sup>8</sup> bearing on the bearing-surface *c*<sup>4</sup>. The end D hangs between the plates *c*<sup>3</sup> and in the slot *c*.

It will be readily seen from the foregoing that by reason of the ball-bearing there is a unison of movement between the beams and 100



scale-platform. The saucers  $c^2$  and  $c^6$  are of such size that the balls  $c^7$  are given considerable play.

In some scales it has been found necessary to set the beams at a different angle from that first intended. In such event I simply turn the box C on its pivot  $b$  to the proper angle.

In making the plates  $c^3$  wider in the center it will be seen that I provide a larger bearing-surface for the bearing  $c^4$  and at the same time bring the point of contact nearer the casting D and still leave considerable play for the casting.

In Fig. 7 I have shown the box adapted for railroad-scales. F are beams. To adapt it for this purpose I simply cast a flange G, which is provided with bolt-holes. The upper portion of the box is dispensed with, as will be seen.

It is obvious that many slight changes may be made in parts and combination of parts. Hence I would have it understood that I do not confine myself to the exact construction shown.

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

1. In a weighing scale, the combination with the platform frame, the corner plate secured to said frame, of a box adjustably secured to said plate, and the scale beams having a bearing in said box.

2. In a weighing scale, the combination with the platform frame, the corner plate secured

thereto, of a box adjustably secured to said plate, a ball bearing in said box, and the scale beam engaging said bearing.

3. In a scale, the combination with the platform frame, a corner plate secured thereto, of a box secured to said corner plate, saucers secured to the bottom and inside of said box, bearing plates connected by a yoke, saucers on the under side of said plates, and balls setting in said saucers, and a scale beam adapted to engage the bearing plates.

4. In combination with a weighing scale, the box open in the front, a slot through the bottom of said box, saucers inside and integral with the bottom of the box, bearing plates connected at one end by a yoke integral with the plates, a hardened bearing surface on said plates and balls working between said saucers.

5. The combination with a weighing scale, of a corner plate secured to the platform frame thereof, a pivot point depending from said plate, a box provided with a seat for said pivot point, circular slots formed through the top of said box, bolts passing through the corner plate and said slots, thereby securing the box and plate together, a bearing in said box adapted to be engaged by the scale beam.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN D. MILLER.

Witnesses:

EDWIN S. CLARKSON,  
B. F. FUNK.