

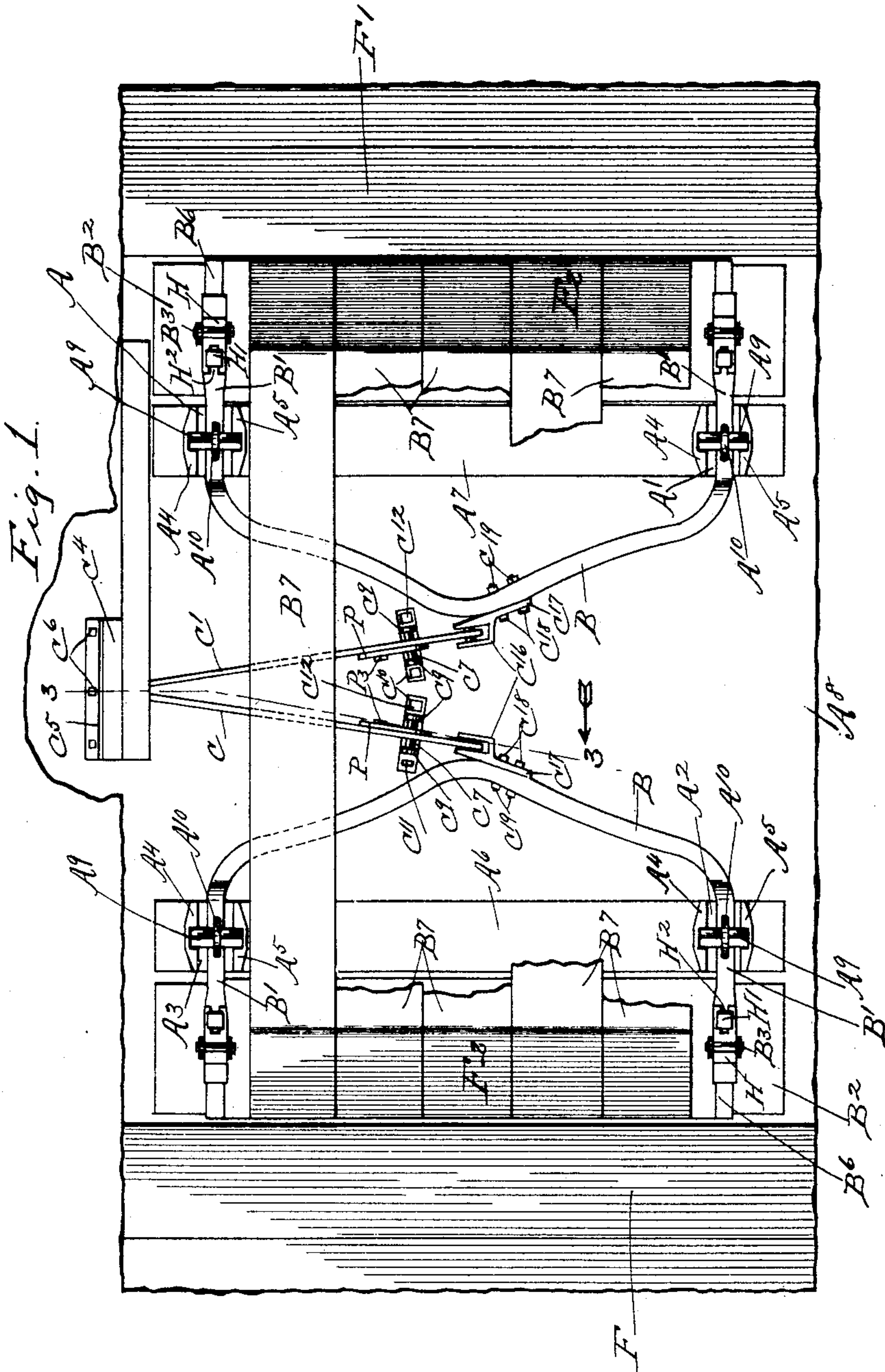
(No Model.)

2 Sheets—Sheet 1.

A. W. PARKHURST.  
PORTABLE PLATFORM SCALE.

No. 538,381.

Patented Apr. 30, 1895.



Witnesses:  
Geo. H. L. Russell  
Frank Nagemann

Inventor:  
Albert W. Parkhurst  
by Mosher Curtis  
attys

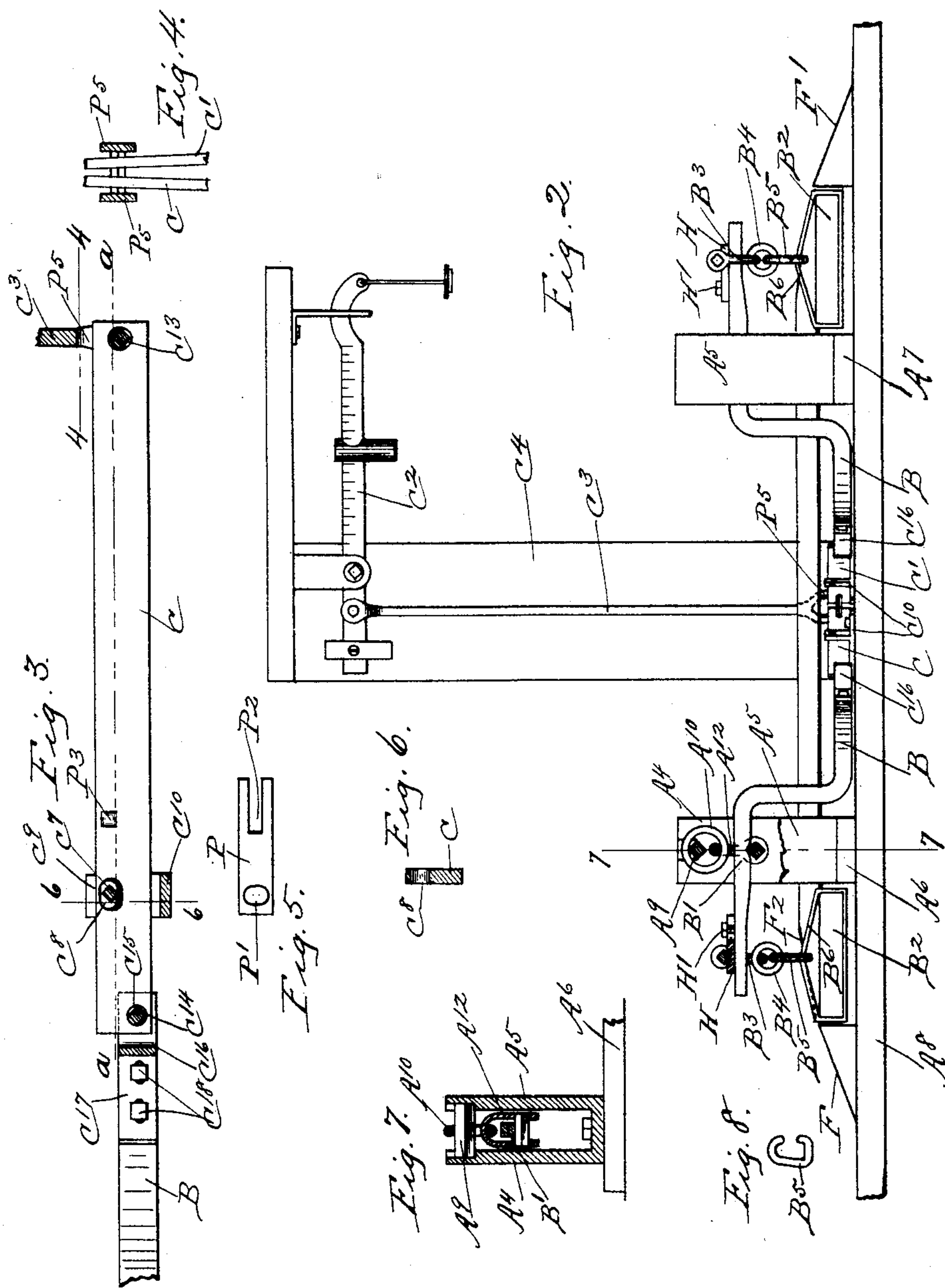
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Witnesses:  
Geo. J. Dorell  
Frank Hagmann

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by Mosher & Curtis  
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# UNITED STATES PATENT OFFICE.

ALBERT W. PARKHURST, OF BUCKLAND, ASSIGNOR OF THREE-FOURTHS TO  
O. E. KELLYER, WM. H. ASHMAN, AND HENRY J. MCKNIGHT, OF SHEL-  
BURNE, MASSACHUSETTS.

## PORTABLE PLATFORM-SCALE.

SPECIFICATION forming part of Letters Patent No. 538,381, dated April 30, 1895.

Application filed April 18, 1894. Serial No. 507,960. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT W. PARKHURST, a citizen of the United States, residing at Buckland, county of Franklin, and State of Massachusetts, have invented certain new and useful Improvements in Portable Platform-Scales, of which the following is a specification.

My invention relates to such improvements and consists of the novel construction and combination of parts hereinafter described and subsequently claimed.

Reference may be had to the accompanying drawings, and the letters of reference marked thereon, which form a part of this specification.

Similar letters refer to similar parts in the several figures therein.

Figure 1 of the drawings is a top plan view of my improved scale with a portion of the platform broken away to show the subjacent mechanism. Fig. 2 is a front elevation of the same partly in section. Fig. 3 is a view, partly in elevation and partly in vertical section, on the broken line 3 3 in Fig. 1, viewed in the direction of the arrow. Fig. 4 is a horizontal section on the broken line 4 4 in Fig. 3. Fig. 5 is a view in side elevation of the safety-plate detached. Fig. 6 is a vertical cross-section of one of the intermediate levers, taken on the broken line 6 6 in Fig. 3. Fig. 7 is a vertical cross-section of one of the corner fulcrums and fulcrum-supports, taken on the broken line 7 7 in Fig. 2 and showing the broken upright restored. Fig. 8 is a view in side elevation of the detachable hook B<sup>5</sup>.

The object of my invention is to provide a platform scale of considerable dimensions, which can be easily and quickly taken apart and moved and set up on a barn floor, in a field or other convenient place, without skilled labor and without the necessity of securing the corner-fulcrums in the same horizontal plane.

My invention consists in part of a universally compensating connection between the platform and platform-levers pendent from the levers, a similar connection between the corner-fulcrums and their several supports, pendent from the supports, and intermediate

levers having laterally oscillating compensating movement; also, in providing a removable platform and detachable and adjustable connections whereby the various parts can be easily and quickly separated and transported, and again set up in a new place ready for use, as will be hereinafter more fully set forth and claimed.

Referring to the drawings, A, A', A<sup>2</sup>, and A<sup>3</sup> are the supporting blocks for the corner-fulcrums. Each block is provided with a pair of lugs or uprights A<sup>4</sup>, A<sup>5</sup>, and means for securing the blocks upon a pair of portable sills A<sup>6</sup>, A<sup>7</sup>, near their ends as shown, by means of bolts inserted through bolt-holes in the base of each block. The sills may be laid directly upon the ground or upon any desired artificial support. I have shown them resting upon a platform or section of a barn floor A<sup>8</sup>. The uprights support in recesses in their upper ends a cross-bar A<sup>9</sup> which is passed through and supports a pendent ring or loop A<sup>10</sup>. The loop also supports a clevis or stirrup A<sup>12</sup>, the base or cross-bar of which forms one of the corner-fulcrums for the pair of bifurcate platform-levers B, one of the bifurcate arms B' of the levers resting on each corner fulcrum. The bifurcate arms of each platform-lever are severally connected with and supported by a pendent cross-beam B<sup>2</sup>. The connections are located at the ends of the cross-beam, and comprise an inverted stirrup B<sup>3</sup>, ring B<sup>4</sup>, detachable hook B<sup>5</sup>, and strap B<sup>6</sup>. The strap incloses one end of the cross-beam and the base of the stirrup bears upon the bifurcate arm of the lever. The adjustable bearing-plate H upon which the four-edged base of the stirrup B<sup>3</sup> bears, is secured in place by the screw-threaded bolt H' which passes through slot H<sup>2</sup> in the plate and is inserted in a screw-threaded aperture in the platform-lever. The cross-beams support the platform, which comprises a plurality of removable planks B<sup>7</sup> with their ends resting upon the cross-beams as shown.

C, C' are the intermediate levers which connect the bifurcate platform-levers with the weigh-beam C<sup>2</sup> through the link C<sup>3</sup>, the weigh-beam being of any well known form



and supported by the upright  $C^4$ — which is secured to the floor by the angle-iron  $C^5$ — and bolts  $C^6$ —.

It has heretofore been by many considered impracticable to construct an accurate portable platform-scale of large dimensions. It was deemed necessary to support the corner-fulcrums in the same horizontal plane upon permanent foundations.

In my improved portable scale, if the ground or other support is not exactly level, or if some of the corner-supports settle after the scale has been set up, all the pendent corner-fulcrums being free to swing in every direction, and being all connected with each other by the platform-levers and platform pendent from the levers, will receive a compensating gravity-movement, whereby the leverage of the platform-levers will remain constant and friction will not be increased. If the front corners  $A^1$ — and  $A^2$ — should settle below the level of the other corners, all the corner-fulcrums would swing slightly to the front, and the pendent platform would also swing slightly forward relatively to the levers but without changing the leverage and without any twisting strain upon the levers because the stirrup-connecting loops or rings may incline without any inclination of the stirrup-base or fulcrum. Should the end-corners  $A^2$ — and  $A^3$ — settle, the fulcrums and platform would swing toward that end maintaining the same relative distances from each other. Should the corners  $A^2$ — and  $A^3$ — both settle, but one more than the other, the compensating movement of the fulcrums and other parts would maintain them in the proper relation to each other. It would only be necessary to provide for the readjustment of the connection between the intermediate levers and the platform-levers, whereby the leverage is restored to the normal.

The intermediate levers are each provided with a four-edged fulcrum  $C^7$ — inserted through the bearing-aperture  $C^8$ — and supported at its ends in the lugs  $C^9$ — erected from the plate  $C^{10}$ —. The plate is provided at each end with a transversely elongated slot  $C^{11}$ — adapted to receive a screw-bolt  $C^{12}$ — which is screwed into the floor or other support.

The transverse slots afford means for adjusting the position of the fulcrum in a direction extending lengthwise of the lever.

The safety or guard-plate,  $P$ — is provided with an aperture  $P^1$ — through which the fulcrum  $C^7$ — is adapted to pass loosely, and with the elongated attaching-slot  $P^2$ — adapted to receive the attaching-bolt  $P^3$ — by means of which the plate can be adjusted and secured in any desired position, as shown in Fig. 1, to an intermediate lever. In Fig. 3 the lever is shown with this plate detached. When desired, this plate  $P$ — may be dispensed with.

The long end of each intermediate lever is connected by a stirrup  $P^5$ — common to both levers, with the link  $C^3$ —. The four-edged

stirrup-base passes through bearing-apertures  $C^{13}$ —. The short end of each of said levers is connected with a platform-lever by means of a four-edged bearing-bar  $C^{14}$ — passed through a bearing-aperture  $C^{15}$ — having a bearing on its upper wall. The bearing-bar is detachably supported by the bifurcated arms of the fork  $C^{16}$ —. The shank  $C^{17}$ — of the fork is provided with bolt-holes elongated lengthwise of the shank, and is adjustably secured to the platform-lever by bolts  $C^{18}$ — passed through such holes and bolt-fitting holes in the platform-lever and secured by nuts  $C^{19}$ —.

Should the compensating movements of the corner-fulcrums tend to move the platform-lever, sidewise of the platform, that is to or from the side on which the scale-beam is supported, it would only be necessary to loosen the bolts  $C^{18}$ —, readjust the position of fork  $C^{16}$ — to compensate for the movements of the corner-fulcrums, and secure the fork in its readjusted position by tightening the nuts again.

The compensating movements of the corner-fulcrums lengthwise of the platform will simply slide the intermediate levers lengthwise of their fulcrums without affecting their leverage, the space between the fulcrum-supporting lugs  $C^9$ — being ample to permit of such movement.

A portable platform-scale for wagons, &c., must be so constructed that the height of the scale-platform above the level of the barn-floor or other support will not make it impracticable to drive a loaded wagon from the floor onto the scale-platform. For this reason, the lugs which support the corner-fulcrums project above the level of the scale-platform, and for the same reason the connected ends of the platform-levers and intermediate levers must occupy a minimum space between the lower surface of the scale-platform and the supporting floor.

Very little space is afforded to provide against the slip or lateral draw which would result from a simple contact of the intermediate and platform levers. I overcome the slip or draw laterally of the intermediate levers by constructing such levers to rock upon a longitudinal axis. Such axis is represented by the dotted line  $a-a$ , in Fig. 3, and passes through the bearing-surfaces at the upper edge of the aperture  $C^{13}$ — and the bearing-surface at the lower edge of aperture  $C^8$ —.

It will be seen that the bearing surface at the upper edge of aperture  $C^{13}$ — is a little below or on one side of the longitudinal axis represented by the dotted line  $a-a$ , so that a slight lateral pressure or draw on the bearing surface at  $C^{13}$ — would simply cause the intermediate lever to rock upon its bearing surfaces at  $C^{13}$ — and  $C^8$ . By rounding these bearing surfaces transversely of the axis, as shown in Fig. 4, which is a cross-sectional view of one of such bearings, the rocking movement is facilitated to such a degree as to re-



duce the resistance to a practical *nil*. The bearing-surface at C<sup>15</sup>— is also similarly rounded.

5 The draw of the intermediate levers laterally on the platform levers produces a practically imperceptible movement of the oscillating corner-fulcrums, the resistance of which to so slight a movement may be treated as *nil*.

10 F—, and F'— are two cross-beams resting upon the floor and having their upper sides beveled to form inclined ways leading from the level of the supporting floor to the lower level of the beveled ends F<sup>2</sup>— of the scale-  
15 platform.

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

1. In a weighing machine, the combination with pendent universally-compensating corner-fulcrums, of a platform, platform-levers supported by the pendent fulcrums, a weigh-beam, an intermediate lever, a bearing-connection between its longer arm and the weigh-beam, a bearing-connection between its  
25 shorter arm and a platform-lever, and means for adjusting the position of the bearing-connection with the platform-lever relatively to the fulcrum of the intermediate lever, substantially as described.

30 2. In a weighing-machine, the combination with a platform and platform-levers, of oscillatory connections between the platform-corners and the platform-levers, pendent fulcrums for the platform-levers each pendulously oscillatory both laterally and longitudinally of the platform, a weigh-beam, and connections between the weigh-beam and platform-levers, substantially as described.

3. In a weighing-machine, the combination  
40 with the corner-fulcrums and portable supports, of stirrup-and-loop connections between the several fulcrums and supports, whereby the fulcrums have a universally com-

45 pensating movement, platform-levers bearing upon the corner-fulcrums, platform-supporting cross-beams, oscillatory connections between the platform-levers and the ends of the cross-beams, a platform detachably supported by the cross-beams, a weigh-beam, and detachable connections between the platform-  
50 levers and weigh-beam, substantially as described.

4. In a weighing machine, the combination with a pair of portable sills, a corner-fulcrum support erected upon each end of each sill, and corner-fulcrums, of a pair of bifurcate platform-levers, each lever having its bifurcate arms bearing upon the corner-fulcrums of one sill, a platform supported by the bifurcate arms, a weigh-beam, two intermediate  
60 levers severally connecting the bifurcate levers with the weigh-beam, and independent portable fulcrum-supports and fulcrums for the intermediate levers, substantially as described.

5. In a weighing-machine, a detachable fulcrum-bar having a plurality of knife-edge bearings, in combination with end-supports, and a lever removably fulcrumed upon the bar, substantially as described.

6. In a weighing-machine, the combination with a platform-lever and connected bearing-bar, a weigh-beam and connected bearing-bar, and a fulcrum-bar, of an intermediate lever having two oppositely-facing, rocking bearing-surfaces bearing upon the fulcrum-bar and weigh-beam bearing-bar respectively, and a third rocking bearing-surface, out of line with the other two, bearing upon the platform-lever bearing-bar, substantially as described.

In testimony whereof I have hereunto set my hand this 15th day of March, 1894.

A. W. PARKHURST.

Witnesses:

GEO. A. MOSHER,  
FRANK C. CURTIS.