No. 822,455.

PATENTED JUNE 5, 1906.

G. JONES.

PLATFORM SCALE.

APPLICATION FILED MAY 25, 1905.

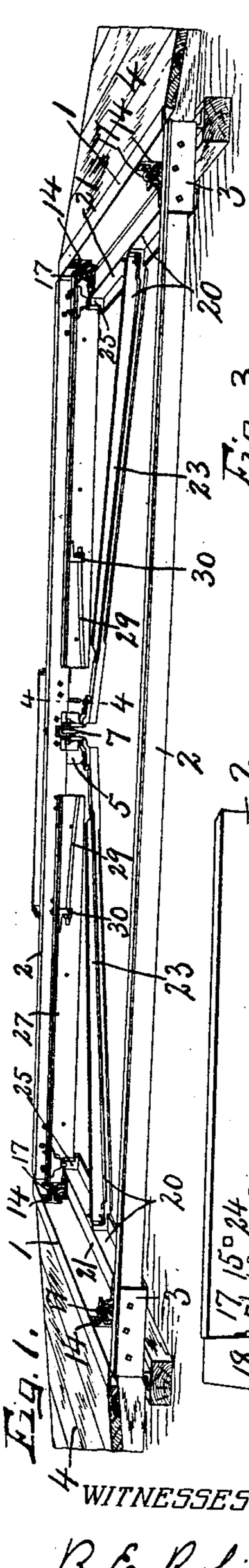

Fig. 1.

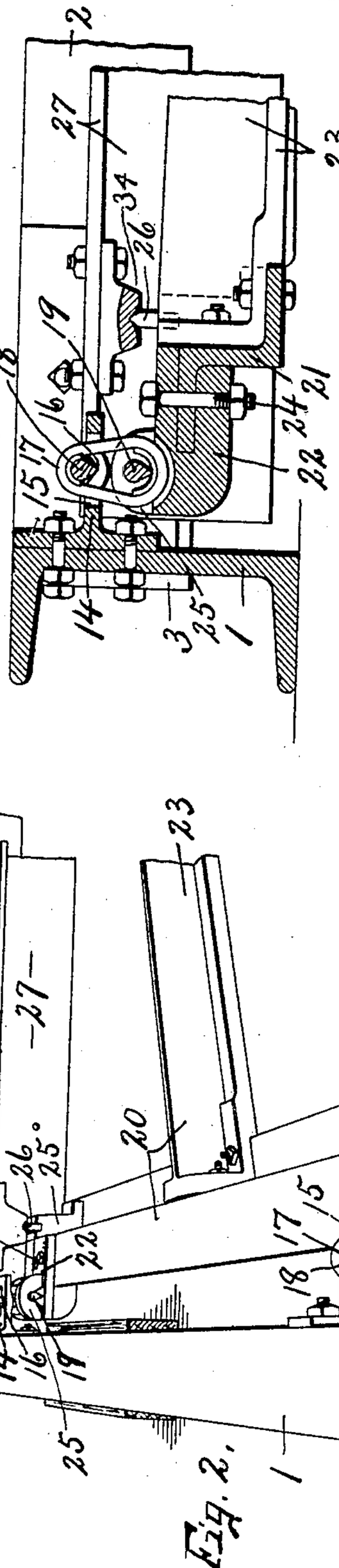

Fig. 3.

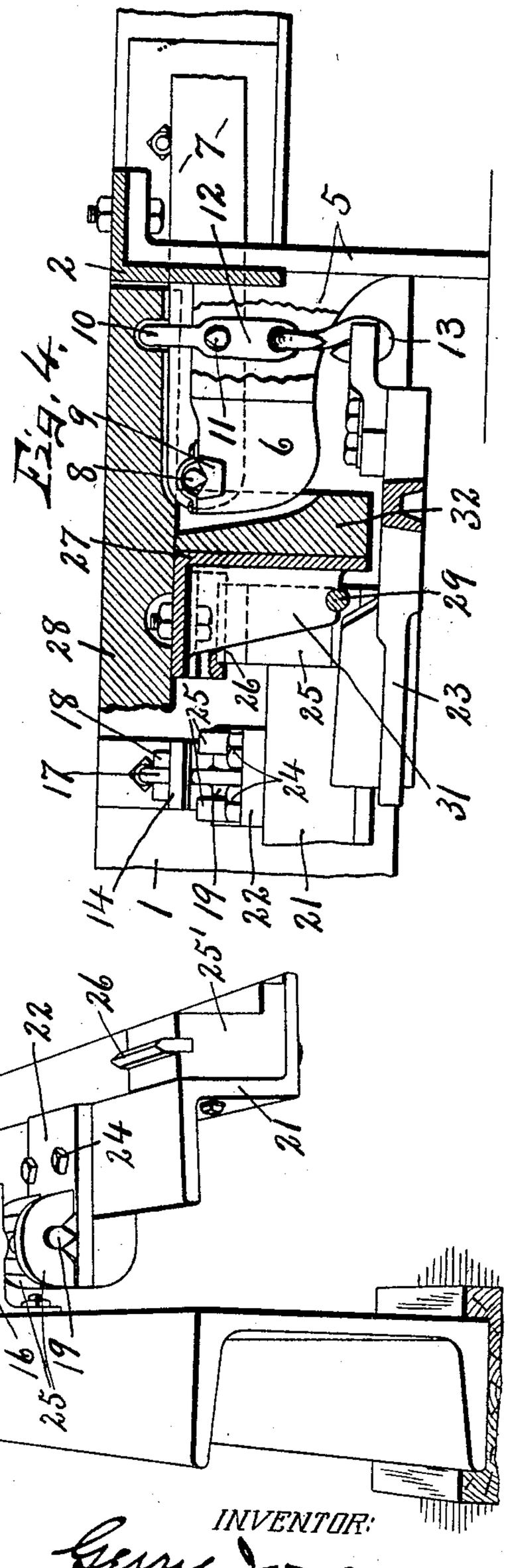

Fig. 4.

Fig. 2.

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PLATFORM-SCALE.

No. 822,455. Specification of Letters Patent. Patented June 5, 1906.

Application filed May 25, 1905. Serial No. 262,227.

To all whom it may concern:

Be it known that I, GERRY JONES, of Binghamton, in the county of Broome, in the State of New York, have invented new and useful Improvements in Platform-Scales, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in wagon-scales, and refers more particularly to a pitless-platform scale or one which is adapted to be quickly and economically set up and used on the surface of the ground or other available area without necessitating any special excavation, pits, or foundations.

The essential object therefore is to bring the platform and other operating parts within and in substantially the same horizontal plane as the main supporting-frame and to rest such frame upon any available supports capable of sustaining the frame on the surface of the ground in a low-down horizontal position, so that the approaches to the platform will be as nearly horizontal as possible.

Another object is to sustain the ends of the movable platform-frame upon suitable knife-edges on the ends of the opposed transverse **Z** bars or levers and to fulcrum said bars in swinging clevises which are suspended from the inner sides of the main frame, thereby allowing the platform-frame to be placed within the horizontal plane of the main frame and at the same time affording a rigid connection for the even distribution of the load to the multiplying or counter lever.

A further object is to provide a combination clevis and span connection for transmitting motion from the **Z**-bar levers to the counter-lever.

A still further object is to make the platform-frame of comparatively light angle-irons and to equip them with suitable trusses and also with wood stringers or beams to which the floor may be nailed or otherwise secured.

Other objects relating to the several specific parts of the weighing-scales will be brought out in the following description.

In the drawings, Figure 1 is a perspective view of a platform-scale embodying the features of my invention, the flooring being omitted to disclose the underlying parts. Fig. 2 is an enlarged perspective view of one end of the main frame and platform-supports, showing particularly the **Z**-bar and manner of mounting it in the main frame. Fig. 3 is a transverse sectional view through one end of the main frame and adjacent end of the platform-supporting frame and lever-bar. Fig. 4 is an enlarged sectional view taken on line 4 4, Fig. 1.

In carrying out the objects stated I provide an elongated rectangular supporting-frame of suitable dimensions and preferably composed of end channel-beams 1, of wrought or rolled iron, and side angle-irons 2, which are rigidly united to the ends of the channel-beams by angle-plates or iron corner-pieces 3, thereby forming a rigid open frame adapted to be sustained upon the surface of the ground with the upper faces of its sides and ends in substantially the same horizontal plane and their horizontal flanges facing outwardly to leave a clear central opening for the reception of the platform and other movable parts of the device.

The transverse end bars 1, which receive the full weight of the load passing to and from the weighing-platform, are somewhat heavier and of greater depth than the side bars 2 and not only serve to support the platform and its levers, but also carry one end of suitable approaches 4, Fig. 1. These approaches preferably rest upon the lower flanges, with their top faces in substantially the same horizontal plane as the top faces of the upper flanges of the end bars 1, so as to afford an easy entrance and exit to and from the platform.

The central portion of one of the side bars 2 is supported upon and secured to a cast-iron or equivalent chair 5, which rests upon the surface of the ground midway between the end bars 1 and has an inwardly-projecting arm or housing 6 for receiving and supporting one end of a counter-lever 7. This lever 7 is fulcrumed at 8 upon adjustable bearings 9 on the inner end of the arm or housing 6 and extends laterally and outwardly through an opening in the chair 5 and is adapted to be connected to a suitable weighing-beam. (Not shown.)

A swinging clevis and span 10 is saddled and fulcrumed at 11 upon the lever 7 a short distance from its fulcrum 8 and is provided with opposite depending arms 12, to which are pivotally attached separate swinging

links or hooks 13 for receiving and sustaining the adjacent ends of the platform-levers, presently described, and whereby the action of the platform under a load is transmitted to the counter-lever 7.

Each of the end bars or beams 1 is provided with a pair of inwardly-projecting brackets 14, which are spaced a suitable distance apart and are formed with vertical openings 15 and chilled bearings 16 for receiving and sustaining a pair of separate swinging hangers or clevises 17 and their supporting-pivots 18.

It will be observed that each end beam 1 carries two swinging hangers or clevises 17 and that each pair of hangers receives and supports a pair of fulcrum-pins 19, which are arranged in axial alinement with each other parallel with the adjacent end beam 1 and constitute a fulcrum for each of the platform-levers, presently described.

It will be observed that the entire weight of the platform, together with any superimposed load, is borne wholly by two similar but reversely-arranged levers 20, each of which is fulcrumed at one end in a pair of stirrups or swinging hangers 17, while its other end is suspended from one leg of a swinging saddle or clevis 10 on the counter-lever 7. Each of these platform-levers consists, essentially, of a double angle or Z-bar 21, running along the inner side of and parallel with one of the end bars of the main frame and provided with a pair of clamps or brackets 22 and an inwardly-projecting arm 23. These Z-bars 21 are arranged in a plane below the brackets 14, with their lower and upper flanges disposed horizontally and their lower flanges projecting inwardly toward each other.

The clamping-plates 22 are bifurcated or slotted horizontally to receive the upper flange of the bar 21 and are secured to the said upper flange by suitable clamping-bolts 24 and are each provided with a pair of upwardly-projecting ears 25, having transverse apertures receiving the fulcrum-pins 19, upon which the levers 20 swing or rock.

The arm 23 is secured at one end to and rests upon the top face of the lower flange of its corresponding Z-bar 21, substantially midway between the ends of the latter, and projects inwardly in a direct line toward and directly beneath one of the arms 12 of the clevis or span 10 and is engaged and supported by its corresponding link or hook 13.

The bars 21 are nearly coextensive with the lengths of the end bars 1 of the main frame, except that ample clearance is left between the ends of the Z-bars and sides of the main frame to permit free movement of the working parts of the scales without friction or interference one with the other, and in order that the strain may be evenly distributed the clamping-plates 22 and supporting parts, to which they are connected, are located equidistant from but in proximity to the ends of the bar 21, said bars 21 being of sufficient rigidity to prevent torsional or twisting strain should the load be applied to one end more than at the other, so that the load will always be evenly distributed and produce the same leverage effect upon the counter-lever, even though the bulk of the load may be applied to one corner of the platform, presently described.

It is now clearly apparent that each of the platform-levers comprises, essentially, a Z-bar 21, a pair of clamping-plates 22, and an inwardly-projecting arm 23, all of which parts are rigidly united to form a unitary structure capable of transmitting the load or movement of the bar 21 to the counter-lever 7.

As previously stated, the bars 21 are supported in a plane some distance below the top face of the main supporting-frame, and each of these bars is provided with a pair of cast-iron blocks 25', which are secured to the top face and opposite ends of the lower flange of the bar 21 and are provided with knife edges or bearings 26, projecting a suitable distance above the upper face of the top flange of said bar to receive and support the adjacent ends of opposite lengthwise platform-supporting bars 27. These bars 27 therefore bridge or span the distance between the transverse Z-bars 21 and are supported at their ends upon the bearings 26, so as to have a free vertical movement without friction with any of the other working parts.

It will be observed that these bars 27 are parallel with each other and with the side bars 2 of the main frame and are located at the outer sides of the fulcrum-bearings 19, so as to bring them as close to the sides 2 as possible for receiving and supporting a suitable flooring or platform 28. This flooring is made of comparatively heavy plank, bridging across and resting upon the upper faces of the bars 27, and has a surface area substantially equal to the area of the opening in the main frame between the side and end bars 1 and 2, except for a slight clearance along the sides and ends of the platform to permit its vertical movement without friction.

The platform beams or bars 27 are made of comparatively light angle-irons arranged with the horizontal flange at the top facing inwardly, and each of these bars is reinforced longitudinally by truss-rod 29, underlying the upper horizontal flange and having its ends secured to suitable brackets 30 and its central portion braced by additional bracket 31. These bars 27 are further reinforced by wood floor-beams or stringers 32, which are bolted or otherwise secured to the outer side faces of the upright flanges of said bars 27 and are adapted to receive nails or other similar fastening means by which the floor or

platform 28 is firmly secured in operative position.

It is now clear that the platform comprises, essentially, the opposite lengthwise angle-bars 27 and floor-beams 32, together with the truss-rods 29, the bars 27 being provided with suitable blocks 34, which rest upon the knife-bearings 26, thereby supporting the bars 27 in a plane below the top face of the main frame a sufficient distance to receive the planking or flooring 28, so that the top of the face of the latter is substantially coincident with the top face of the main supporting-frame.

The operation, briefly described, is as follows: A wagon or other vehicle being drawn upon the platform or floor 28 causes a vertical depression of said platform, which bearing upon the knife-bearings 26, located a short distance inside of the fulcrum 19, causes the levers 20 to rock upon their fulcrums 19, thereby depressing the inner ends of the arms 23 and transmitting a similar motion to the counter-lever 7 through the medium of the clevis or span 10, said counter-lever rocking upon its fulcrum 8, and is adapted to be connected to the weighing-beam (not shown) as the external parts ot the weighing apparatus form no part of my present invention, and it is therefore unnecessary to further illustrate or describe the same.

It will be observed that the moving parts of the weighing-scales are sustained in operative position within a comparatively shallow vertical space between the lower and upper faces of the end beams 1 of the main frame, thereby permitting the whole structure to be supported and operated upon the surface of the ground without necessitating any special excavation, pit, or foundation, and that all of the operating parts are constructed and associated with this end in view.

What I claim is—

1. In a wagon-scale a rigid rectangular frame adapted to be supported upon the surface of the ground, a chair secured to one side of the frame, a counter-lever fulcrumed in said chair, opposite Z-bars fulcrumed on the ends of the frame and having separate connections with the counter-lever and a platform mounted upon the Z-bars.

2. In a wagon-scale a rigid rectangular frame adapted to be supported upon the surface of the ground, a chair secured to one side intermediate the ends of the frame, and also adapted to rest upon the ground, a counter-lever fulcrumed in said chair, opposed platform-levers fulcrumed on the ends of the frame and having separate connections with the counter-lever, and a platform mounted upon the platform-levers.

3. In a wagon-scale a rectangular frame composed of side and end pieces rigidly secured together and resting upon the surface of the ground, a pair of swinging stirrups mounted upon each of the end pieces of the frame, Z-bars each suspended in the stirrups at one end of the frame whereby the Z-bars and their supporting-stirrups have independent oscillation, platform-supporting bars bridging the space between and resting upon the ends of the Z-bars, wooden beams or stringers secured to the platform-supporting bars, a chair secured to one of the sides of the frame substantially midway between these ends and adapted to rest upon the ground, a counter-lever fulcrumed in said chair, opposite arms having their outer ends rigidly secured to the Z-bars and their inner ends flexibly connected to the counter-lever.

4. In a platform-scale, the combination with a main supporting-frame adapted to be supported upon the surface of the ground, a counter-lever fulcrumed in said frame, a clevis pivotally saddled upon the counter-lever at one side of its fulcrum and provided with opposite depending arms, opposite similar platform-levers fulcrumed on the ends of the frame and having inwardly-projecting arms, each attached to one of the depending arms of said clevis, and a platform bearing upon said platform-levers at points at the inner side of their fulcrums.

5. In a wagon-scale, a rectangular frame composed of side and end pieces rigidly secured together and adapted to be supported upon the surface of the ground, brackets projecting inwardly from each of the end pieces of the frame, swinging stirrups pivotally mounted in said brackets, a chair secured to one of the sides, substantially midway between its ends and projecting inwardly therefrom, a counter-lever fulcrumed in said chair, opposite swinging hooks suspended from said lever, and opposite platform-supporting levers each fulcrumed in the stirrups at one end of the frame and having their inner ends each engaged with one of said hooks.

6. In a wagon-scale, a rectangular frame composed of side and end pieces rigidly secured together and having their upper faces in substantially the same horizontal plane, approaches seated in the end pieces, a chair secured to one of the side pieces substantially midway between its ends and projecting inwardly therefrom, a counter-lever fulcrumed in said chair below the top face of the frame, opposite platform-supporting levers wholly within the plane of the frame and each flexibly connected to one of the end pieces and to the counter-lever.

7. In a wagon-scale, a main supporting-frame comprising end channel-bars and side bars united to the ends of the channel-bars forming a rectangular open frame, the flanges of the channel-bars facing outwardly, suitable approaches having adjacent ends resting in said channels, in combination with platform-levers having inwardly-projecting arms rigid therewith, a counter-lever fulcrumed upon

the main frame and attached to the inner ends of said arms and a platform resting upon the platfrom-levers.

8. In a wagon-scale, a substantially rectangular frame composed of side and end pieces having their upper faces disposed in substantially the same horizontal plane, end approaches each seated in one of the end pieces of the frame, said frame having bearing-faces adapted to rest upon the surface of the ground, a chair rigidly secured to one of the side pieces substantially midway between its ends and below its upper surface, a counter-lever fulcrumed in said chair, platform-supporting levers each flexibly connected to one end of the frame in a plane wholly below the top face of said frame and separate connections between the inner ends of said levvers and the counter-lever.

9. In a wagon-scale, a substantially rectangular horizontal frame adapted to be supported upon the surface of the ground, a chair secured to one side of said frame substantially midway between its ends and projecting inwardly therefrom, a counter-lever fulcrumed in said chair below the top face of said frame, end approaches each secured to one end of the frame, swinging stirrups at the inner sides of and supported by the ends of the frame in a plane below the top faces of said ends, Z-bars each pivotally suspended in the stirrups at each end of the frame and arms each having its outer end rigidly secured to one of the Z-bars and its inner end flexibly connected to the counter-lever.

10. In a wagon-scale adapted to be supported upon the surface of the ground, the combination of a rectangular supporting-frame, brackets projecting inwardly from the ends of the frame, hangers suspended from said brackets, Z-bars fulcrumed in said hangers, knife-bearings supported upon said Z-bars at the inner side of their fulcrums, a chair secured to one side of the frame, a counter-lever fulcrumed on said chair, a span or clevis pivotally mounted upon the counter-lever, and provided with depending arms, and connections between the Z-bars and said depending arms of the clevis.

11. In a wagon-scale, a substantially horizontal frame composed of side and end pieces rigidly secured together, opposite end approaches each seated in one of the end pieces, a counter-lever flexibly connected to one of the side pieces substantially midway between its ends, platform-supporting levers each flexibly connected to one of the end pieces and having its inner end flexibly connected to the counter-lever, platform-supporting bars bridging the space between and resting upon said platform-supporting levers wholly below the top faces of the frame and a platform supported upon the last-named bars wholly above said levers and in a plane substantially coincident with the top face of the frame.

12. In a wagon-scale, the combination with a substantially horizontally frame composed of side and end pieces rigidly secured together, a chair secured to one of the side pieces substantially midway between its ends and projecting inwardly therefrom, a counter-lever fulcrumed in said chair, pendent members pivotally connected to said counter-lever, brackets projecting inwardly from each of the ends of the frame, stirrups pivotally hung in said brackets, Z-bars each pivotally suspended by the stirrups at the corresponding end of the frame, arms each having one end rigidly secured to said bars and its inner end attached to one of said pendent members on the counter-lever, additional bars bridging the space between and resting upon the Z-bars and a platform resting upon said additional bars.

In witness whereof I have hereunto set my hand this 19th day of May, 1905.

GERRY JONES.

Witnesses:
R. B. RICHARDS,
MAY E. LYNCH.