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C. J. ELLIS & L. M. VREELAND.

PITLESS PLATFORM SCALE.

APPLICATION FILED JULY 23, 1906.

Fig. 1.

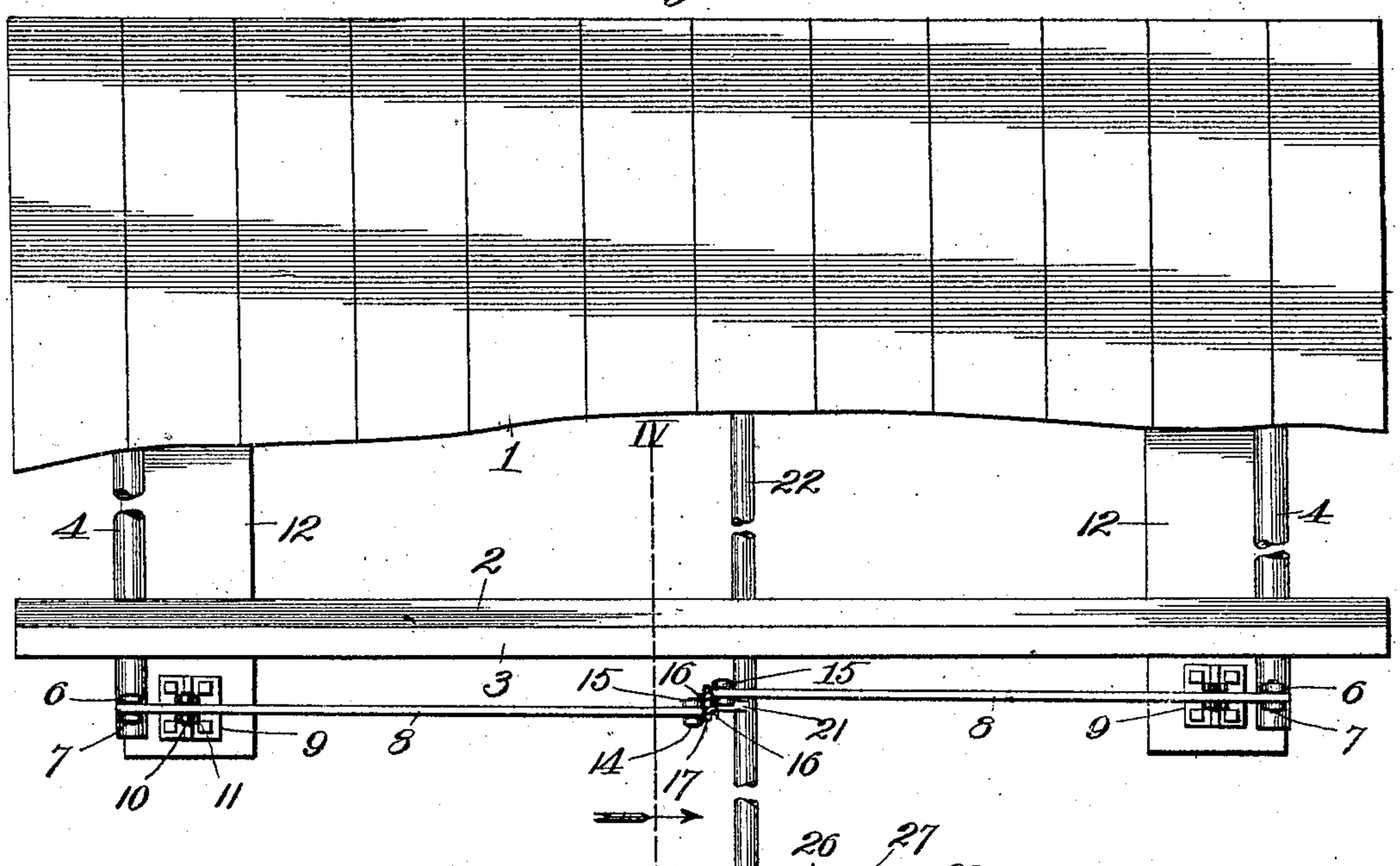


Fig. 2.

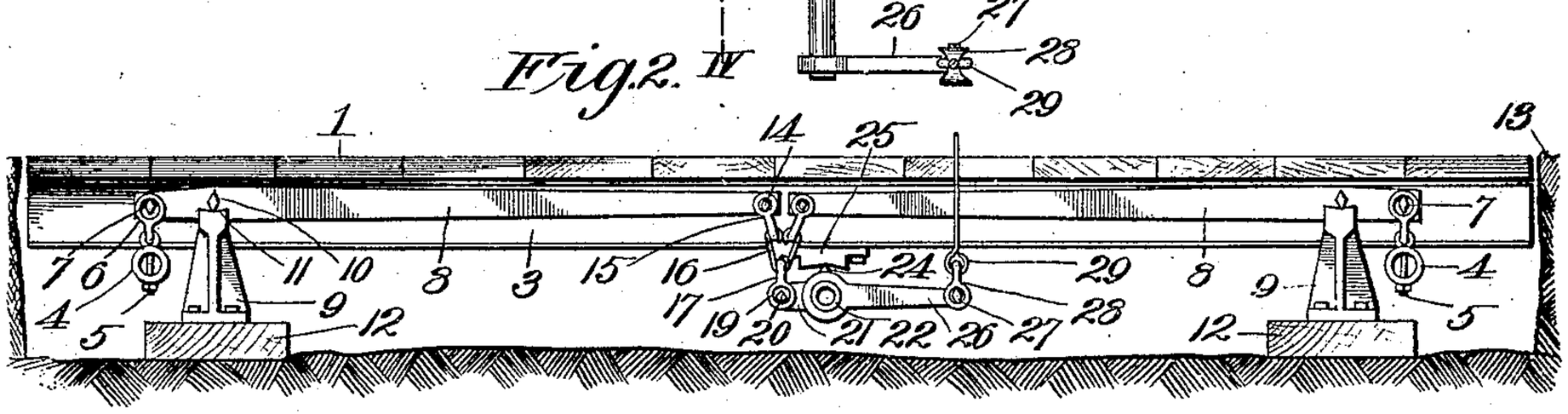


Fig. 3.

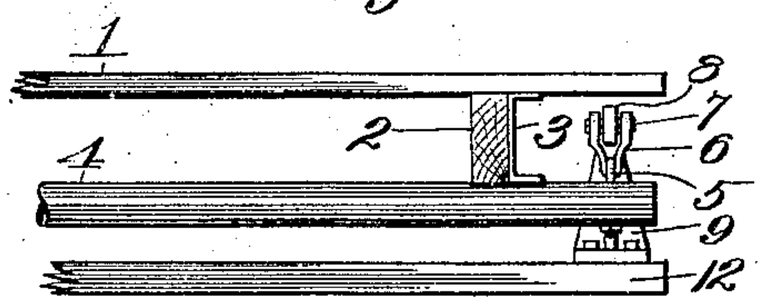


Fig. 4.

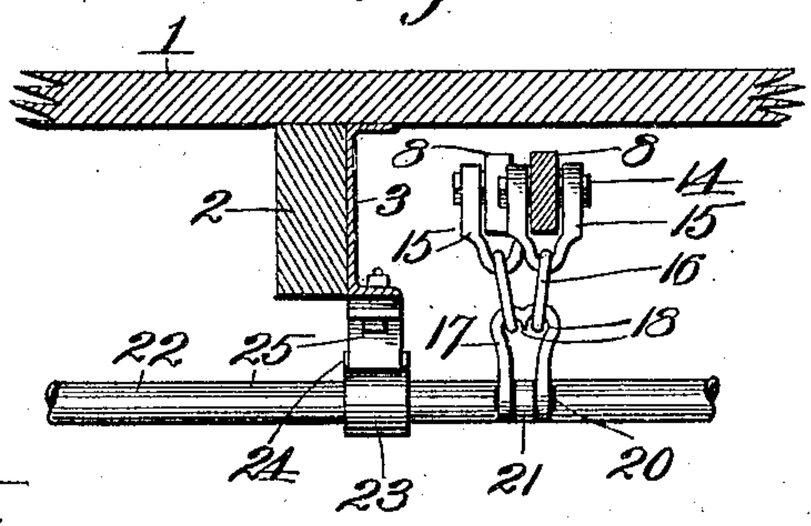
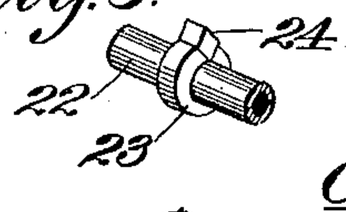


Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

CALVIN J. ELLIS AND LUCIAN M. VREELAND, OF KANSAS CITY, MISSOURI.

PITLESS PLATFORM-SCALE.

No. 834,276. Specification of Letters Patent. Patented Oct. 30, 1906.

Application filed July 23, 1906. Serial No. 327,339.

To all whom it may concern:

Be it known that we, CALVIN J. ELLIS and LUCIAN M. VREELAND, citizens of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Pitless Platform-Scales, of which the following is a specification.

This invention relates to weighing-scales, and has for its object to produce a structure of this character designed especially as a pitless platform-scale, though not necessarily restricted to such use, which will weigh accurately without regard to whether it sets perfectly level.

A further object is to produce a scale of this character without a surrounding frame and which therefore can be manufactured and sold cheaply.

With these general objects in view the invention consists in certain novel and peculiar features of construction and organization, as hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 is a top plan view of a scale embodying our invention, the platform and certain other parts being broken away. Fig. 2 is a side elevation of the scale. Fig. 3 is an end view of a part of the scale. Fig. 4 is an enlarged vertical section on the dotted line IV IV of Fig. 1. Fig. 5 is a detailed perspective view of a part of the rocker-bar.

In the said drawings, 1 indicates transversely-arranged planks nailed or otherwise secured to the parallel longitudinal bars 2, secured in any suitable manner to the inner sides of the channel-bars 3, said parts constituting the platform of the scale.

The platform rests near its ends upon the cross-bars 4, equipped outward of channel-bars 3 with eyebolts 5, pivotally connected to links 6, suspended from knife-bearings 7, projecting laterally from the outer ends of longitudinally-arranged levers 8, there being a pair of such levers at each side of the machine and below the projecting ends of timbers 1. The levers of each pair may be longitudinally alined, preferably will have their inner or contiguous ends at different distances from the channel-bars 3, for a purpose hereinafter explained. (See Figs. 1 and 4.)

The levers fit into the notched upper ends of standards 9 and are provided with laterally-projecting knife-bearings 10, engaging the concaved edges or bars 11 of the standards, and the latter are bolted or otherwise rigidly secured to the cross-timbers 12, adapted to rest upon the ground. A scale of this character may be arranged in a shallow pit, if desired, but preferably will be placed upon the surface of the ground, and an approach 13 will be provided at each end, up or down which a wagon may travel to or from the scale.

14 indicates knife-bearings projecting laterally from the inner or contiguous ends of levers 8, and pivotally suspended on said knife-bearings are U-shaped links 15, pivotally connected by links 16 to an inverted-U-shaped link 17, arranged below and centrally with respect to the inner ends of the levers, said link 17 being formed with a pair of loops 18 for engagement by links 16 in order to prevent friction between the latter, which would be engendered by contact and affect the accurate weighing of the scale. The link 17 is provided with openings 19, into which project the laterally-projecting knife-bearings 20 of a short arm 21 of rocker-bar 22, the latter underlying and extending transversely of the platform.

23 indicates collars rigidly secured on the rocker-bar and equipped with rigid knife-bearings 24, engaging the concave faces of bearing-plates 25, secured to the under sides of channel-bars 3.

The rocker-bar projects beyond each side of the platform and at its projecting end is equipped with an arm 26, projecting in the opposite direction from arm 21 and provided at its extremity with knife-bearings 27, engaged by a link 28, pivotally connected in the usual or any preferred manner to the scale-beam. (Not shown.)

As weight is imposed upon the platform a downward pull through the medium of cross-bars 4, eyebolts 5, and links 6 is imposed on the outer ends of the levers, this, of course, resulting in upward movement of the inner ends of said levers. As result of this action the rocker-bar will swing with the point of knife-bearings 24 as the fulcrum, the swing being such that the short arm 21 will move upward and the long arm 26 downward, and thus exert a downward pull on the scale-beam, hereinbefore referred to, the latter, with its acces-

sories, showing the weight upon the platform, it being noted in this connection that the point of knife 24 is depressed an equal distance with cross-bars 4, because of the rigid character of the platform.

The platform by reason of its method of suspension from the levers is permitted the usual endwise vibration without affecting the weighing operations, and because of the use of four levers the machine will weigh accurately whether disposed in a perfectly horizontal plane or not—that is to say, by the use of four levers the imposition of the weight on any corner of the scale causes the adjacent lever to operate and through the instrumentalities described impart the necessary movement to the scale-beam. The levers will perform this weighing function individually or collectively, and as a result the scale may be adjusted to accommodate exceedingly light burdens. It will be noted that a scale of this character needs no inclosing frame, as is customarily employed in pitless scales, and consequently can be manufactured and sold more cheaply than the scales provided with rigid frames which are utilized as the fulcrum for the platform.

From the above description it will be apparent that we have produced a pitless scale embodying the features of advantage enumerated as desirable in the statement of the object of the invention, and we wish it to be understood that we reserve the right to make such changes as properly fall within the terms of the appended claims.

Having thus described the invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A weighing-scale comprising a plurality of levers suitably fulcrumed, cross-bars suspended from the outer ends of said levers, a platform supported by the cross-bars, a rocker-bar underlying and fulcrumed against the platform and provided with an arm, and connections between said arm and the inner ends of said levers.

2. A weighing-scale comprising a plurality of levers suitably fulcrumed, a platform supported by the outer ends of said levers, a rocker-bar underlying and fulcrumed upon the platform and provided with arms, and link connections between the inner ends of the levers and said arms.

3. A weighing-scale comprising a plurality of levers suitably fulcrumed, a platform supported by the outer ends of said levers, a rocker-bar underlying and fulcrumed upon the platform and provided with arms, and an arm projecting from the rocker-bar oppositely to the first-named arms.

4. A weighing-scale comprising substantially parallel bars, planks bridging the space between and resting upon said bars, cross-bars underlying and supporting the first-named bars, bearing-standards inward of said cross-bars, levers fulcrumed on said standards and linked at their outer ends to said cross-bars, a transverse rocker-bar underlying the first-named bars and fulcrumed upon the same and provided with a pair of laterally-projecting arms pivotally linked to the inner ends of said levers, and an arm projecting from said rocker-bar oppositely from said pair of arms.

5. A weighing-scale comprising a pair of cross-timbers, standards mounted thereon, levers fulcrumed on said standards, cross-bars suspended from the outer ends of said levers, a platform supported by said cross-bars, a transverse rocker-bar underlying and fulcrumed upon the platform and provided with laterally-projecting arms, an inverted-U-shaped link pivoted to each of said arms, U-shaped links pivotally suspended from the inner ends of the levers, links pivotally connecting the U-shaped links with the inverted-U-shaped links, an arm projecting from the rocker-bar oppositely to said pair of arms, and a pull-rod pivotally linked to said oppositely-projecting arm.

In testimony whereof we affix our signatures in the presence of two witnesses.

CALVIN J. ELLIS.
LUCIAN M. VREELAND.

Witnesses:
A. L. WEBBER,
H. R. PEARSON.