E. L. GAGE.

TRUCK SCALE.

APPLICATION FILED MAR. 11, 1909.

955,640.

Patented Apr. 19, 1910.

2 SHEETS—SHEET 1.

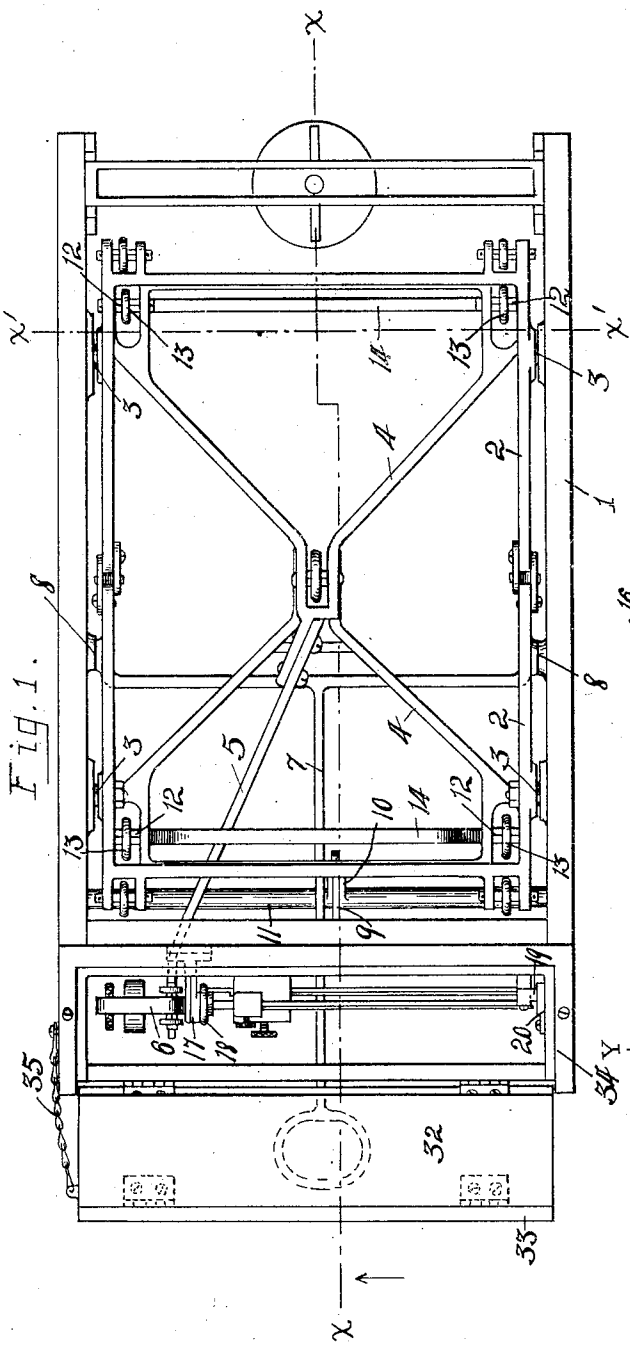

Fig. 1.

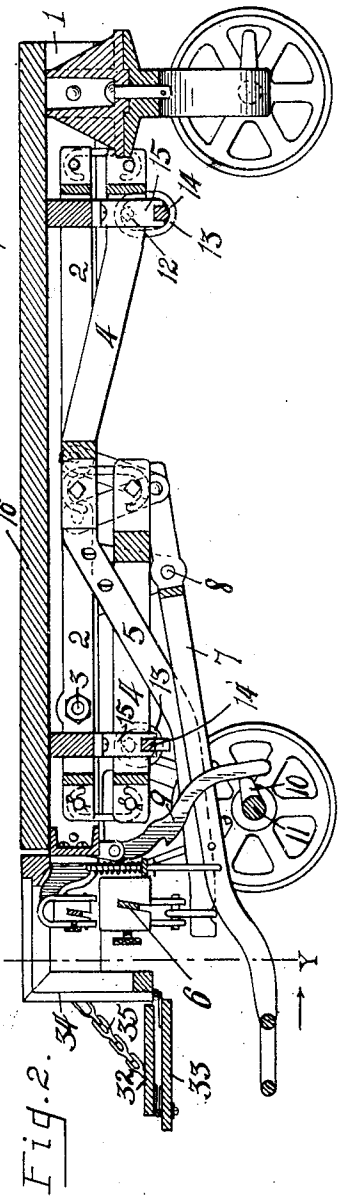

Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 4.

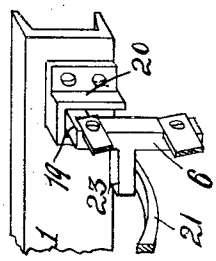


Fig. 6.

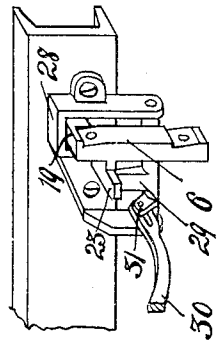
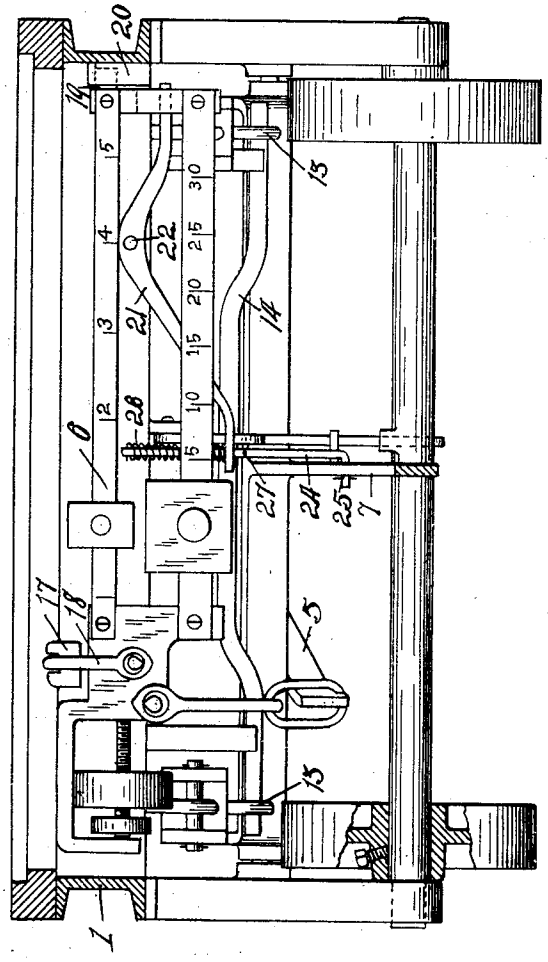


Fig. 3



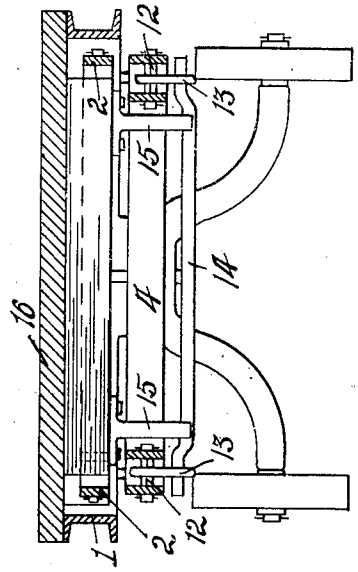


Fig. 5.

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UNITED STATES PATENT OFFICE.

EDWIN L. GAGE, OF TOLEDO, OHIO.

TRUCK-SCALE.

955,640. Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed March 11, 1909. Serial No. 482,729.

To all whom it may concern:

Be it known that I, EDWIN L. GAGE, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Truck-Scale; 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to truck-scales and has particular reference to improvements on the construction shown and described in United States Letters Patent No. 898,457, granted to me on September 15, 1908.

In the use of apparatus of this class it is found that when the truck is standing on an uneven surface and the platform standards are resting directly on pivots fixed to the scale-levers, as is customary in this class of scales, considerable inaccuracy in the weighing is caused by a lateral binding of such standards on the contiguous lever parts, such inaccuracy varying with the incline of the truck.

An object of my invention is the provision of simple and efficient means which is adapted to entirely obviate the above objection to permit the scale platform to swing freely relative to the scale-levers to accommodate itself to the incline of the truck.

A further object is the provision of simple and improved means for automatically locking the scale-beam against movement when the scale parts are thrown into inoperative position.

The operation, construction and arrangement of the parts of the invention are fully described in the following specification, and a preferred embodiment thereof illustrated in the accompanying drawings, in which,—

Figure 1 is a plan view of the truck-scale embodying the invention, with the platform removed and the scale-beam inclosing cover in open position. Fig. 2 is a longitudinal section of the same on the line x x in Fig. 1. Fig. 3 is an enlarged transverse section thereof on the line Y Y in Fig. 2. Fig. 4 is a perspective view of a portion of the scale beam and associated locking parts. Fig. 5 is a cross-section of the apparatus on the line x' x' in Fig. 1, and Fig. 6 is a perspective view of a slightly modified form of the scale-beam locking means.

Referring to the drawings, 1 designates the frame of an ordinary form of truck which may either be of the hand or wagon types; 2, 2 the elevating-levers which are pivoted to the frame sides as at 3; 4, 4 the scale-levers which are pivotally suspended at their outer ends from the outer ends of the elevating-levers 2, 2 and have their inner ends pivotally connected and one formed with an arm 5 which connects with the scale-beam 6; 7 the operating-lever which is pivoted to the frame-sides, as at 8, and connected at its inner end with the inner ends of the elevating-levers 2, 2 whereby a raising of the outer end of the lever 7 effects a raising of the outer ends of the elevating levers 2, 2 to throw the scale levers into commission; and 9 designates a pivotally pendent dog which is adapted to coact with the handle of the operating-lever 7 to hold it in raised position, except when said dog is tripped either manually or by contact of the cam 10 on the rear axle 11 of the truck therewith when such axle revolves, all of which parts and the operation thereof are more fully described in my previous Letters Patent No. 898,457.

The scale-levers 4, 4 are each provided near their outer ends with the pivots 12, 12, which are disposed between spaced portions of the levers, as shown, and carry pendent loops 13. The loops 13 of each scale-lever are intended to swingingly support the outer ends of a transverse bar 14, the ends of which bar loosely project through said loops as shown. When the scale-levers are raised into operative position, the bars 13, 13 are intended to coact with standards 15 on the under side of the bed or platform 16 to support such platform in elevated or weighing position relative to the frame 1, on which said platform is adapted to rest when the scale-levers are thrown out of commission.

It will be apparent that by supporting the platform by the swinging pendent bars 14, 14 when the levers are in operative position, the platform will be permitted to have free swinging movements independent of the scale-levers for the purpose of seeking a perpendicular position when the truck is standing on an uneven surface. This is a

very important feature as it is found in the use of the ordinary construction of truck-scales, in which the platform is supported directly by the scale-levers, that inaccuracies occur in the weighing if the truck is not standing on a level surface, as the tendency of the platform to move laterally causes a binding which is noticeable on the delicately poised scale-parts.

The scale-beam 6, which is shown as being disposed transversely of the rear end of the frame 1, is pivotally suspended from a bracket 17 by a clevis member 18, or in any other suitable manner.

The outer end of the long arm of the scale-beam 6 has a projection or boss 19 provided thereon and working in a socketed part 20 secured to the frame side whereby to cooperate therewith to limit the upward movement of such end of the scale-beam.

21 designates a lever, which is fulcrumed to the rear cross-piece of the frame 1, as at 22, and has one end projecting under a lug 23, which projects laterally from the outer end of the scale-beam 6, and has its other end pierced to permit a vertically-disposed rod 24 to loosely work upwardly therethrough from the handle portion of the operating-lever 7, to which it is pivoted as at 25, said rod being encircled above the end of the lever 21 by a coiled compression spring 26. When the outer end of the operating lever is lowered to throw the scale-levers out of commission, the rod 24 lowers therewith and moves the lower end of the spring 26 into contact with the associated end of the lever 21 to effect a raising of its other end and a consequent raising of the outer end of the beam to its limit of upward movement due to the lever acting on the lug 23 thereof, as shown in Figs. 3 and 4. It is thus apparent that when the scale-beam levers are thrown out of commission the operating-lever 7, rod 24, spring 26, and lever 21 act on the scale-beam to secure it against oscillatory movements. It is preferable to employ a yielding contact part, such as the spring 26, on the rod 24 for engagement with the end of the lever 21 when the rod lowers, as otherwise the quick lowering movement of the rod would tend to rack and injure the delicate weighing parts. On a raising of the rod 24 the lever 21 is positively moved to free the scale-beam due to the contact of a pin or projection 27 on the rod with the lever 21.

In Fig. 6, in which is shown a slight modification of the scale-beam locking means, 28 designates the socketed member in which the projection 19 on the scale-beam works; 29 a gate, which is pivoted to arms projecting downwardly from such member and adapted, when raised, to act on the lug 23 on the scale-beam to firmly lock the beam in raised position, and 30 designates the actuating lever, which works over the rod 24 at one end and has its other end slotted to receive a pin projecting from an arm 31 attached to the gate 29, whereby the gate is raised or lowered by a raising or lowering of the contiguous end of the lever, as is apparent.

To facilitate a reading of the graduations on the scale-beam the end of the frame 1 is open without the same as shown. When not in use the scale beam is inclosed by the top and end pieces 32 and 33, respectively, in conjunction with the contiguous portions of the frame 1. These pieces are hinged together at their meeting edges and the end piece is hinged at its lower edge to the lower portion of a casing 34 into which said pieces fit when in closed position. When open the top piece 32 folds against the inner side of the end piece 33 and the two are held in horizontal position by a chain or other stop member 35. With this construction it is possible in opening the scale-beam end of the frame to draw the top-piece 32 rearwardly from under an article which might project from the platform 16 over the forward portion of such piece. When lowered in open position the pieces 32, 33 serve as a shelf on which small articles may be placed.

It is apparent from the above description that on a raising of the operating lever 7 to throw the scale-levers into commission, the cross-bars, 14, 14 which are swingingly suspended from the scale-levers, move into engagement with the feet of the standards 15 of the platform and raise them sufficiently to elevate the platform to weighing position, and also that this manner of supporting the platform enables it to have free swinging movements relative to the scale-levers and to the frame 1, thus facilitating a self adjustment of the platform to suit the inclination of the truck frame. It is also apparent that on a lowering of the operating-lever 7 to throw the scale-levers out of commission, the rod 24 lowers therewith and causes the spring 26 to act on the lever 21 to move it to effect a locking of the scale-beam in raised position, whereby to prevent oscillatory movements thereof when the truck is in motion.

I wish it understood that my invention is not limited to any specific arrangement or construction of the parts, except in so far as such limitations are specified in the claims.

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

1. In an apparatus of the class described, the combination of a set of scale-levers, a set of loops pivotally suspended from each lever, a bar carried by each set of loops for swinging movements relative to the scale-levers, said bars being substantially equal in length to the width of a scale-lever, a plat-

form supported by said bars intermediate the associated loops when the levers are in operative positions, and means for throwing the levers into inoperative positions.

2. In an apparatus of the class described, the combination of a scale-beam, weighing mechanism associated with such beam, means for throwing such mechanism into operative or inoperative positions, and means movable relative to and automatically operative by said mechanism for securing the scale-beam against movement when the weighing mechanism is in inoperative position.

3. In an apparatus of the class described, the combination of a scale-beam, weighing mechanism associated with such beam, means for throwing such mechanism into operative or inoperative positions, means movable to secure the scale-beam against movements, and means movable by said mechanism when thrown to inoperative position for yieldingly acting on said first means to move it to secure the scale-beam against movements.

4. In an apparatus of the class described, the combination of a set of scale-levers, means movable to throw said levers into operative or inoperative positions, a scale-beam, and means movable by said first mentioned means for securing the scale-beam against movement when said first means is moved to throw the scale-levers out of commission.

5. In an apparatus of the class described, the combination of a set of scale-levers and an operating-lever movable to throw the scale-levers into or out of commission, a scale-beam, a rod projecting from the operating-lever, a compression spring carried by said rod, and a lever having a yielding movement imparted thereto by said spring when the rod is moved by a throwing of the scale-levers out of commission and adapted to act on the scale-beam to lock it against movement.

In testimony whereof, I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

EDWIN L. GAGE.

Witnesses:
C. W. OWEN,
D. C. WALTER.