

No. 791,568.

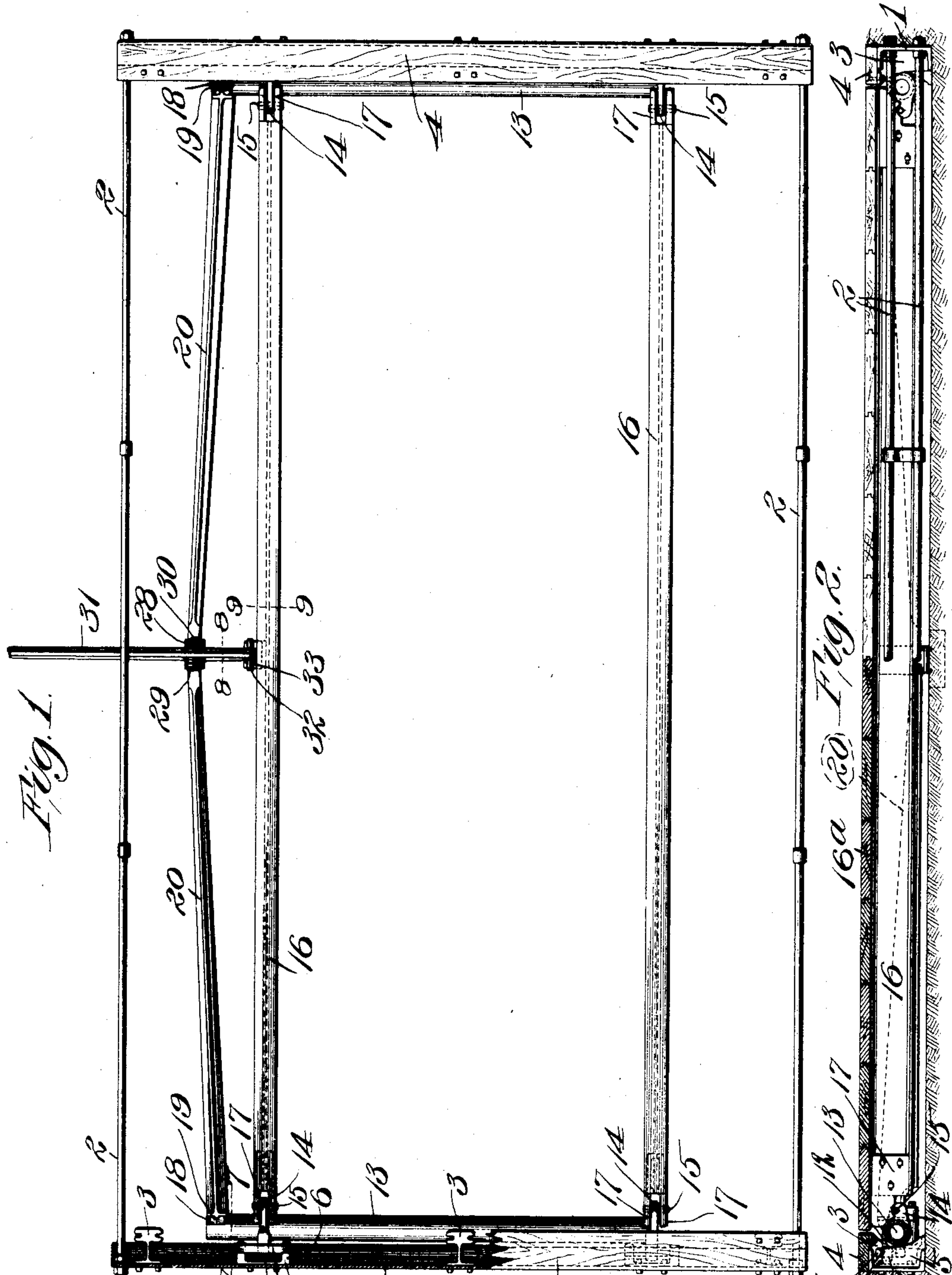
PATENTED JUNE 6, 1905.

B. T. McDONALD, JR. & J. M. McDONALD.

WAGON SCALE.

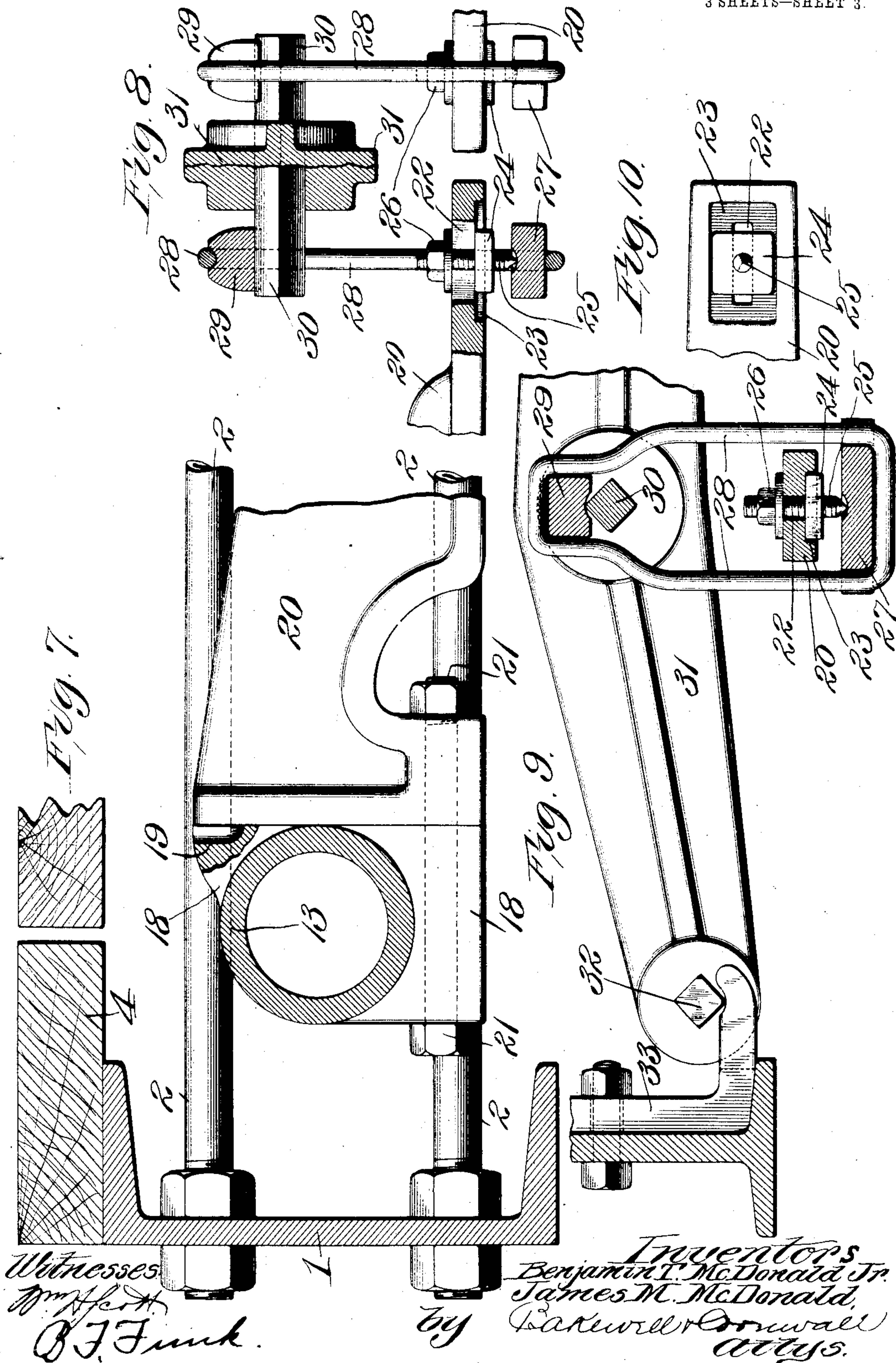
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3 SHEETS—SHEET 1.



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UNITED STATES PATENT OFFICE.

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WAGON-SCALE.

SPECIFICATION forming part of Letters Patent No. 791,568, dated June 6, 1905.

Application filed June 30, 1904. Serial No. 214,793.

To all whom it may concern:

Be it known that we, BENJAMIN T. McDONALD, Jr., and JAMES M. McDONALD, citizens of the United States, residing at Pleasanthill, Cass county, Missouri, have jointly invented a certain new and useful Improvement in Wagon-Scales, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it ap-
 10 pertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view, partly in horizontal section, of the working parts of our improved wagon-scale, the platform being omitted.
 15 Fig. 2 is a side elevational view partly in vertical section. Fig. 3 is an enlarged vertical sectional view showing one of the end frames, rocker-shaft, and a portion of the platform.
 20 Fig. 4 is a sectional view on the line 4 4 of Fig. 3. Fig. 5 is a plan view of the parts shown in Fig. 3, the top flange of the channeled end frame being cut away. Fig. 6 is a detail view of the supporting-chair and stirrup-hanger, said hanger being partly in sec-
 25 tion to show the bearing-block mounted therein. Fig. 7 is a sectional view on the line 7 7 of Fig. 1. Fig. 8 is a sectional view on the line 8 8 of Fig. 1. Fig. 9 is a sectional view
 30 on the line 9 9 of Fig. 1, and Fig. 10 is a bottom plan view of the end of one of the rock-arms.

This invention relates to a new and useful improvement in wagon-scales of that type
 35 shown in our Patent No. 720,728, dated February 17, 1903.

The objects of this invention are to simplify the construction of the working parts of the scale and also to reduce the cost of manufac-
 40 ture of the same.

With these objects in view the invention consists in the construction, arrangement, and combination of the several parts of our device, all as will be hereinafter described and
 45 afterward pointed out in the claims.

In the drawings, 1 indicates the commercially-rolled channels forming the end frames, which channels are connected by pipes 2 pass-
 ing through openings in the ends of the chan-

nels, said pipes being threaded and having 50 nuts which impinge against the inner and outer faces of the webs of the channels in order to adjust the end frames toward or from each other. These channeled end frames are provided with brackets 3, bolted thereto for 55 securing a top-frame timber 4 in position. 5 indicates a supporting-chair bolted to the channeled end frame, which chair is provided with recessed lugs 6, affording seats for the stirrup-hanger 7. This stirrup-hanger, as 60 shown in Fig. 6, has knife-edge bearings 8 coöperating with the recessed seats 6, and in addition each stirrup-hanger is provided with an opening the bottom wall of which is provided with a pocket 9, in which is arranged a 65 rocking bearing-block 10. This bearing-block is formed with a curved lower face, as shown, so as to rock in the pocket of the stirrup-hanger and in this manner accommodate itself to the load carried thereby. In addition this 70 rocking bearing-block is provided with a recess or seat in its upper face, which receives a knife-edge bearing on the under side of a block 11 in a lug 12, extending from a rocker-shaft 13. This bearing-block 11 is preferably 75 made of tool-steel and grooved longitudinally, as at 11^a, the said bearing-block being inserted in the mold at the time that the rocker-shaft and its lug are cast. Thus the metal forming the lug enters the groove and serves as a key 80 to hold the bearing in place. The bearing is slightly tapered, so that it may be driven from the lug for the purpose of being ground and then inserted in position. In this manner the knife-edge on the bearing may be kept sharp, 85 said bearing being capable of removal for regrinding at will.

Projecting diametrically opposite to the lug 12 is another lug, 14, (there being two such lugs 12 and 14 on each rocker-shaft,) and in 90 the lugs 14 are knife-edge bearings 15, preferably made of tool-steel and tapered so that they can be driven into and out of their openings in the lug. These bearings 15 are also preferably inserted in the mold before the lugs 95 14 are cast and can be removed for regrinding, as is well understood.

16 indicates a platform-joist, preferably in

the form of an I-beam or channel, to the ends of which are adjustably secured cheek-plates 17, there being a pair of such plates on the end of each joist. These cheek-plates are
 5 slotted and held in position by clamping-bolts, so that said plates are adjustable longitudinally the beam for well-understood purposes. The projecting ends of these cheek-plates straddle the lugs 14 and rest upon the knife-
 10 edges of the bearings 15.

The platform-timbers 16^a are supported by the beams 16, as is well-understood. The end of each rocker-shaft is provided with a head 18, having a recess 19 and suitable openings
 15 for the passage of securing-bolts.

20 indicates rock-arms provided with lugs or projections fitting in the recesses 19, said rock-arms being secured in place by the bolts 21. The rock-arms 20, as shown in Fig. 1, extend toward each other, and in the end of each rock-arm is an elongated slot 22, while on the under face of each rock-arm is a seat 23.

24 indicates a block slidingly mounted in the seat, said block having threaded engagement with a bearing-bolt 25, which projects up through the slot and passes through a suitable washer, the upper end of said bolt receiving a jam-nut 26, by which it may be
 25 locked in adjusted position.

27 indicates a saddle-block having a recess in its upper face for receiving the bearing end of the bolt 25, the ends of said block 27 being recessed to receive the side members of a stirrup-loop 28. The upper end of said loop
 30 embraces a saddle-block 29, whose upper face is recessed to accommodate the loop and whose lower face is grooved to cooperate with a bearing 30 in the form of a squared shaft, preferably made of tool-steel and being mounted
 35 in the cross-lever 31. The outer end of said cross-lever cooperates with a rod extending up to the scale-beam, as usual. The rod and scale-beam being of the form commonly employed in connection with platform-scales, it
 40 is not deemed necessary to illustrate them. The inner end of this cross-lever is provided with a bearing 32, preferably in the form of a squared shaft, which is seated in recesses formed in an angular extension of a casting
 45 33, bolted to one of the platform-joists.

From the above description it will be obvious that the platform is suspended in position, so as to freely swing upon the application of a moving load, the swinging motion of
 55 the platform being limited by the running-boards 4, which prevent too great a movement and consequently displacement of any of the parts. The shackle connection between the rock-arms and cross-lever is also such as
 60 to accommodate vibration of the platform without disturbing the relation of the parts and without interfering with the accurate weighing of the load on the platform. The rocker-bearings in the stirrup-hangers accommodate themselves to the knife-bearings

11 and insure a full bearing of the knife-edges 11 notwithstanding the fact that said knife-edges may not be accurately ground.

We are aware that minor changes in the construction, arrangement, and combination
 70 of the several parts of our device can be made and substituted for those herein shown and described without in the least departing from the nature and principle of the invention.

Having thus described the invention, what
 75 is claimed as new, and desired to be secured by Letters Patent, is—

1. In a wagon-scale, the combination with end frames, stirrup-hangers in said end frames and provided with pockets, rocker bearing-
 80 blocks carried in the pockets, and rock-shafts supported by the rocker bearing-blocks; substantially as described.

2. In a wagon-scale, the combination with supporting-chairs, stirrup-hangers in the supporting-chairs and provided with pockets, rocker bearing-blocks in the pockets and having curved lower faces to accommodate the load, and rock-shafts carried by said rocker bearing-blocks; substantially as described.
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3. In a wagon-scale, the combination with end frames, supporting-chairs having recessed lugs, stirrup-hangers carried by the recessed lugs and provided with pockets, rockable bearing-blocks in the pockets, rock-shafts supported by the bearing-blocks and having lugs provided with knife-edges, and beams supported by the knife-edges; substantially as described.
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4. In a wagon-scale, the combination with
 100 a beam, a saddle-block having a recess, and a stirrup-loop for supporting the saddle-block on the beam, a rock-arm, and an adjustable device movable in the rock-arm and engaging the recess in the saddle-block; substantially
 105 as described.

5. In a wagon-scale, the combination with a frame, of rock-shafts and their rock-arms having slots, a cross-lever, a bearing 30 carried by said cross-lever, saddle-blocks 29 cooperating with said bearing, stirrups 28 supported by said saddle-blocks, saddle-blocks 27 arranged in the lower ends of the stirrups, said last-mentioned saddle-blocks having recessed seats in their upper faces, and bearing-
 110 bolts 25 passing through the slots in the ends of the rock-arms respectively, sliding blocks cooperating with the bearing-bolts and mounted in the seats on the under faces of the rock-arms and having threaded upper ends for the
 115 reception of binding-nuts; substantially as described.

6. In a wagon-scale, the combination with end frames, supporting-chairs carried by said end frames, stirrup-hangers carried by the supporting-chairs and provided with knife-edge bearings, said stirrup-hangers having pockets, rocking bearing-blocks in the pockets whose lower faces are curved to accommodate the load, rock-shafts carried by the bearing-
 120 125 130

blocks, and platform-joists supported by the rock-shafts; substantially as described.

7. In a pitless wagon-scale, the combination with end frames made of commercially-rolled channels, of castings secured to said channels and affording supports, swinging members carried by said supports, a rocker-shaft having lateral extensions on one side engaging said swinging members, lateral extensions on the opposite side of said shaft for supporting the platform, a rock-arm on the end of said shaft, and a cross-lever with which said rock-arm coöperates all of the above-mentioned elements being above the horizontal plane of the bottom faces of the channel end frames; substantially as described.

8. In a pitless wagon-scale, the combination with two commercially-rolled channels forming the end members of the frame, means for connecting said channels together, castings secured to the inner faces of said channels, swinging members which are supported by said castings, rocker-shafts parallel with said end channels and provided with laterally-extending projections engaging said supporting members, said rocker-shafts also being provided with oppositely-disposed projections for supporting the platform of the scale, rock-arms which are secured to said rocker-shafts and extend toward each other, and a cross-lever to which said rock-arms are connected all of the above-mentioned elements being above the horizontal plane of the bottom faces of the channel end frames; substantially as described.

9. In a wagon-scale, the combination with a lever, stirrups suspended from the lever, saddle-blocks carried by the stirrups, rock-shafts, rock-arms on the shafts and extending toward each other, the ends of said rock-arms projecting through the stirrups, blocks slidably mounted on the rock-arms near their ends, and bearing-bolts carried by the sliding blocks and bearing upon the saddle-blocks; substantially as described.

10. In a pitless wagon-scale, the combination with end frames made of commercially-rolled channels, the webs of the channels being in vertical planes, of castings secured to the webs of said channels and comprising chairs, swinging members carried by said chairs, a rocker-shaft having extensions engaging said swinging members, extensions

also on said shaft for supporting the platform, a rock-arm on the end of said shaft, and a cross-lever with which said rock-arm coöperates all of the above-mentioned elements being above the horizontal plane of the bottom faces of the channel end frames; substantially as described.

11. In a pitless wagon-scale, the combination with end frames made of commercially-rolled channels, of castings secured to said channels and affording supports, swinging members carried by said supports, a rocker-shaft having lateral extensions on one side engaging said swinging member, lateral extensions on the other side of said shaft for supporting the platform, and platform-beams having cheek-plates engaging the last-named lateral extension all of the above-mentioned elements being above the horizontal plane of the bottom faces of the channel end frames; substantially as described.

12. In a pitless wagon-scale, the combination with end frames made of commercially-rolled channels with their flanges projecting inwardly, of brackets secured to the webs of said channels and affording supports, shaft-supports carried by said hangers, a rocker-shaft having oppositely-disposed projections, one of which engages the shaft-support, and a floor-beam engaging the opposite projection all of the above-mentioned elements being above the horizontal plane of the bottom faces of the channel end frames; substantially as described.

13. In a pitless wagon-scale, the combination with end frames comprising commercially-rolled channels, of brackets secured to said channels and affording supports, swinging shaft-supports carried by said brackets, shafts engaging said supports, and platform-beams supported by the shafts all of the above-mentioned elements being above the horizontal plane of the bottom faces of the channel end frames; substantially as described.

In testimony whereof we hereunto affix our signatures, in the presence of two witnesses, this 27th day of June, 1904.

BENJAMIN T. McDONALD, JR.
JAMES M. McDONALD.

Witnesses:

W. W. MASON,
A. R. WHERRITT.