

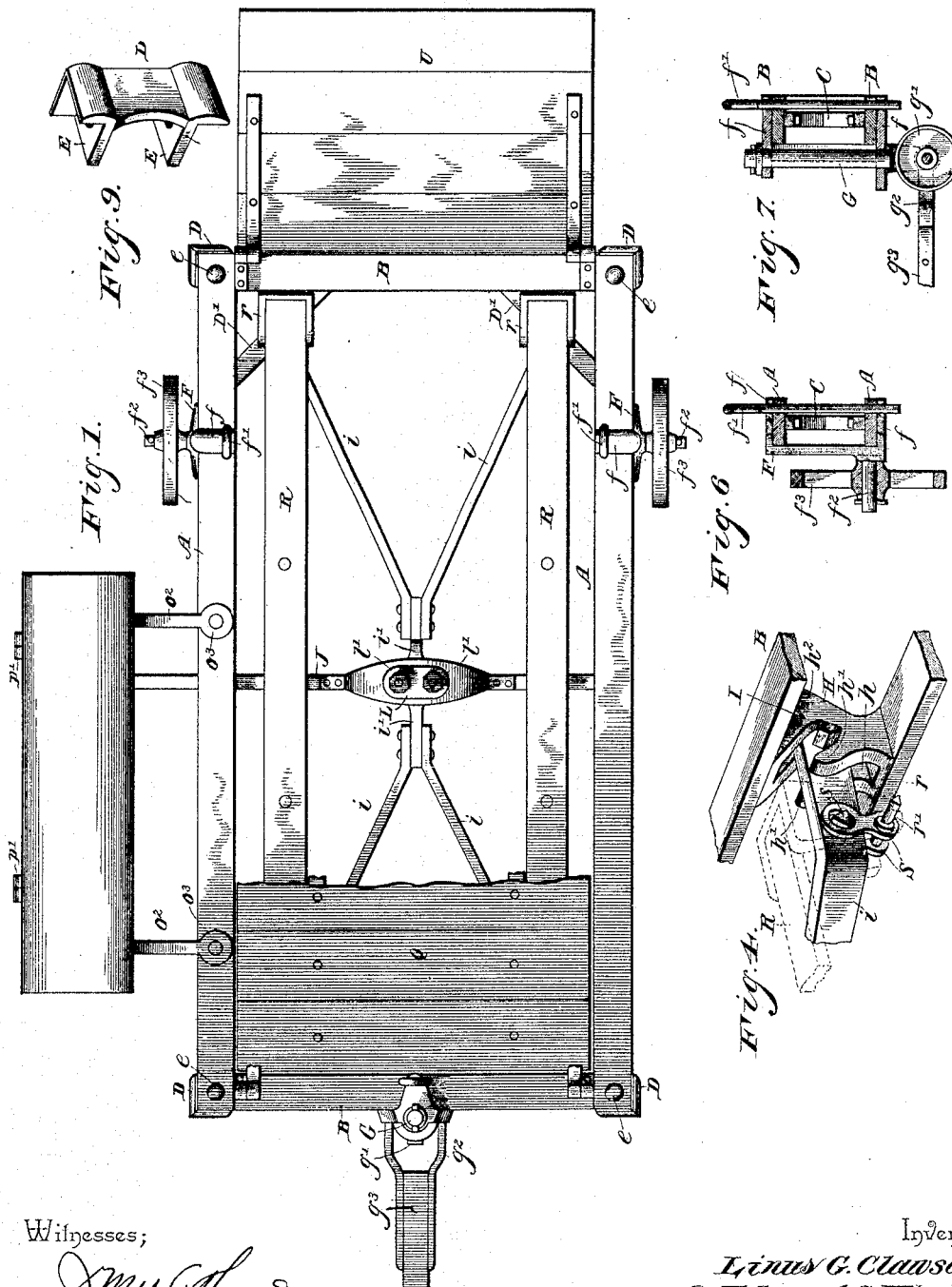
(No Model.)

2 Sheets—Sheet 1.

L. G. CLAWSON & E. G. WHEELER.
PORTABLE WAGON SCALE.

No. 489,930.

Patented Jan. 17, 1893.



Witnesses;

J. M. W. Sherrou.
D. P. Walchaupter.

By *Their* Attorneys,

Invenlör, s,

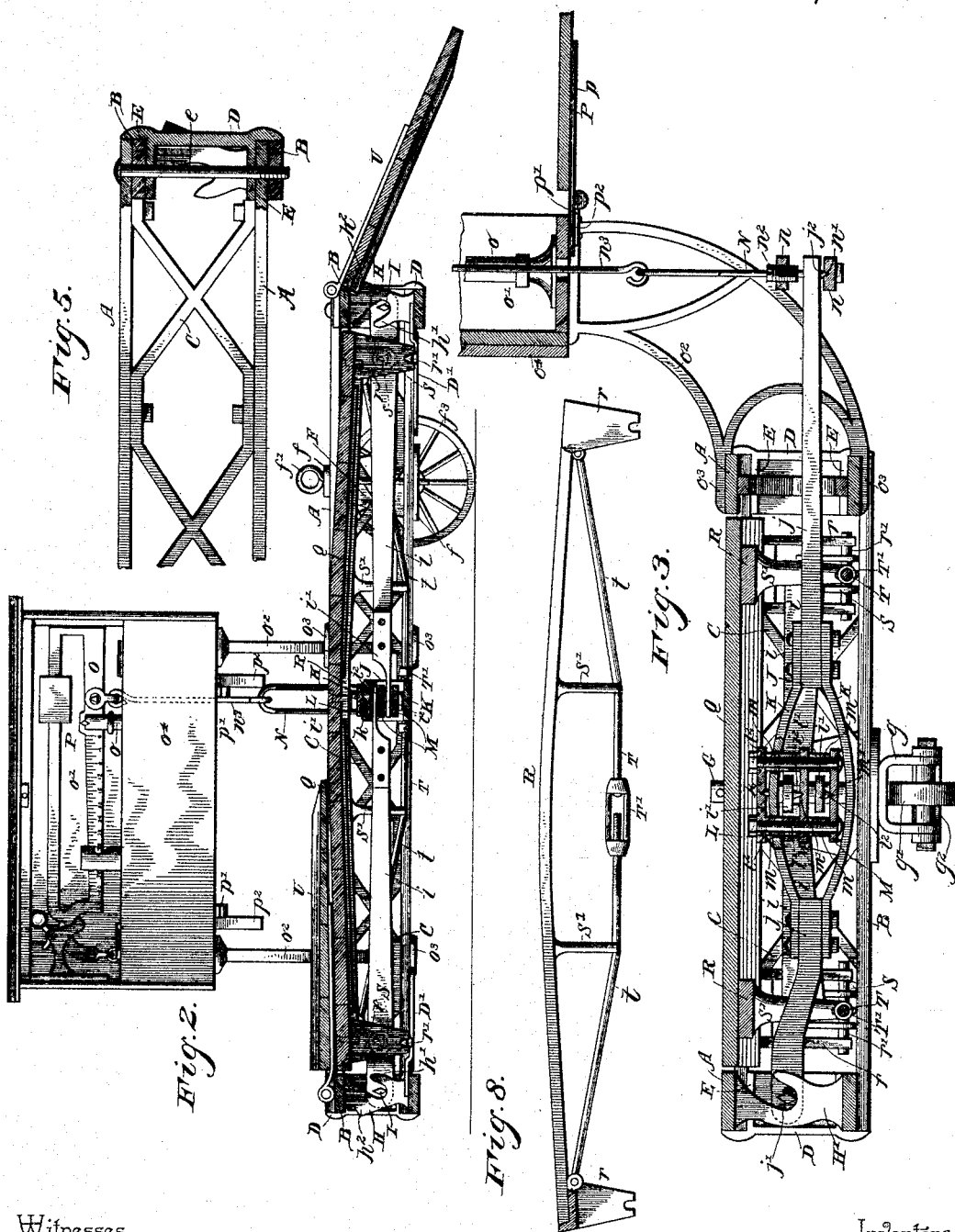
*Linus G. Clawson
& Edward G. Wheeler.*

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2 Sheets—Sheet 2.

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Witnesses

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Jm. Throu.

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UNITED STATES PATENT OFFICE.

LINUS G. CLAWSON AND EDWARD G. WHEELER, OF PLEASANT HILL,
MISSOURI, ASSIGNORS OF ONE-TENTH TO GEORGE T. WARE, OF
SAME PLACE.

PORTABLE WAGON-SCALE.

SPECIFICATION forming part of Letters Patent No. 489,930, dated January 17, 1893.

Application filed April 5, 1892. Serial No. 427,890. (No model.)

To all whom it may concern:

Be it known that we, LINUS G. CLAWSON and EDWARD G. WHEELER, citizens of the United States, residing at Pleasant Hill, in the county of Cass and State of Missouri, have invented a new and useful Portable Wagon-Scale, of which the following is a specification.

This invention relates to wagon scales; and it has for its object to provide a portable scale of this character which shall be particularly strong and durable and the mechanism thereof delicately yet firmly arranged.

The invention principally contemplates important improvements over our former patent, dated February 2, 1892, No. 467,918, the main object therefore being to improve upon and render more efficient the devices disclosed by said patent.

With these and many other objects in view which will appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a plan view of a wagon scale constructed in accordance with the present invention, a portion of the platform being removed to expose the interior construction. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a vertical transverse sectional view. Fig. 4 is a detail in perspective illustrating the construction and arrangement of the stirrups and hangers connecting the scale lever and platform with the frame. Fig. 5 is an enlarged detail sectional view of the corner connection of the meeting frame pieces. Fig. 6 is a detail sectional view through the side frame pieces and one of the supporting wheels. Fig. 7 is a similar view through the end frame pieces and the advance caster wheel attachment. Fig. 8 is an enlarged detail elevation of one of the platform side beams. Fig. 9 is a detail in perspective of one of the corner pieces or castings.

Referring to the accompanying drawings;—A, A represent parallel side frame pieces overlapping at their opposite ends the parallel end frame pieces or bars B, B. The said

side and end frame pieces are preferably metallic strips or plates, and when connected together form a strong and durable scale frame. The parallel side and end frame pieces A and B are firmly braced and connected to each other by the intermediate open work C, extending between each pair of side and end pieces from end to end and forming a truss therefor which prevents sagging and gives strength and rigidity to the frame. The overlapping ends of the parallel side and end pieces, forming the corners of the frame are held firmly together by means of the corner pieces or castings D. Said corner pieces or castings D are provided with the upper and lower flanged seats E, which receive the overlapping ends of the upper and lower bars comprising the ends and sides of the frame, and the same are held firmly in their respective seats in said corner pieces by means of the clamping bolts *e*, located at each corner of the frame and passing through said overlapping ends and the corner pieces. Removably connected to the parallel side pieces near the rear end of the frame are the opposite wheel supporting plates F. The said plates F are provided with the parallel securing arms *f* which fit over the upper and lower frame pieces A, and are held detachably to said frame pieces by means of the securing pins or bolts *f'*, passing through perforations in said arms and said side frame pieces. The plates F are further provided with the short stub axles *f*² which accommodate the supporting wheels *f*³, upon which the rear portion of the frame is supported.

The wheel attachment just described may easily be removed, as will be quite apparent when it is not desired to transport the scale from one point to another, or while the scale is used in one position. At the front end of the frame is also removably attached a wheel supporting plate similarly constructed to the plates just described and similarly attached to the front end bars or pieces of the frame. The said end plate differs only from the plates described in that the same is left open in front so as to accommodate the vertical shaft G, swiveled therein and terminating at its lower end in a yoke *g*, which ac-

commodates the advance caster wheel g' , and has connected thereto and embracing the said caster wheel, the hound frame g^2 , from which extends a tongue g^3 , to which a team 5 may be hitched for the purpose of transporting the scale from place to place.

It can be readily seen that the various wheel attachments can be readily detached from the scale frame when located at a particular point for weighing, so that the same 10 can be readily lowered to adapt it for convenient use.

To insure greater strength for the frame, the same is additionally braced by means 15 of the corner braces D' , which corner braces are securely connected at each corner of the frame, and within the same, to the lower side and end frame pieces respectively, which connection and bracing makes the frame excep- 20 tionally strong at the corners where it is most needed.

Between the opposite parallel end pieces B and near each corner thereof are securely mounted the hangers H. The said hangers 25 H are provided with the vertical openings h therethrough, and the inwardly extending parallel bearing hooks h' , while on the opposite side thereof each of the said hanger plates or castings are further provided with the inclined lugs h^2 , which form rests for the hinged platform aprons hereinafter described. The inwardly extending parallel hooks h' , form 30 bearings for the laterally extending knife edges I, at the outer ends of the horizontal scale levers i . The horizontal scale levers i resting at their outer ends in said hangers, converge inwardly toward the center of the scale frame and are there connected to the lever arms i' , which lever arms are provided on 40 their under sides with the pointed bearing studs i^2 . The said lever arms lie parallel, one over the other at the center of the scale frame and are designed to be supported at such point by the central cross-lever J. The said 45 cross-lever J comprises the opposite members j , one of which is provided at its outer end with the laterally extending knife edges j' , resting in a hanger plate or casting H' , securely mounted at the front side of the frame 50 between the side frame pieces A. The hanger plate or casting H' is similar in construction to the hanger plates or castings H previously described, with the exception of the bearing lugs upon the outer faces thereof.

It may be here noted in connection with the hanger plates or castings, that inasmuch as the same are mounted between the frame pieces, the same are thereby protected from dirt &c. falling through the floor of the scales 60 and therefore into the bearing hooks thereof, and impairing the pivotal connection of the scale levers in said hangers. The two members j are connected centrally within the frame by the curved connecting plates K secured to the top and bottom sides of said 65 members respectively so as to leave an enlarged opening or slot between the inner ter-

minal of each lever member j , to receive and accommodate the lever arms i' and the supporting devices therefor. The uppermost con- 70 necting plate K is provided on the upper side thereof with a pointed bearing lug or stud k , which forms a bearing for the supporting plate L, provided with a recess or bearing receiving said stud, and having depending from 75 the opposite ends thereof the supporting bolts l' , passing through perforations l^2 , on each side of the bearing lug k and projecting into the space between the oppositely bowed or curved connecting plates. The said sup- 80 porting bolts l' support a pair of plates M which are arranged one above the other within the said inclosed space or opening. The said plates are suitably spaced from each other by means of suitable sleeves or thimbles m , and 85 are each provided upon their upper faces with the bearing recesses m' , which receive the pointed bearing studs i^2 , upon the outer ends and under sides of the opposite parallel lever arms i' . It will thus be seen that by 90 this construction and connection between the scale levers and the cross lever J, the various parts thereof are permitted to work freely with the least possible degree of friction, and also that the weight placed upon the free end 95 of the cross lever or upon the scale levers i will be evenly distributed. The extreme free end of the cross lever J is extended between the rear side frame pieces A, and is provided upon the underside thereof with the down- 100 wardly projecting pointed stud j^2 . The said free end of the cross lever receives the connecting loop N. The said connecting loop is provided near the lower ends thereof with the parallel fixed plates n , the lower plate being 105 provided with the conical recess n' , receiving the downwardly projecting bearing stud j^2 , while the upper plate n carries the set screw n^2 , working therethrough and adapted to be screwed into as close contact with the top of 110 the cross lever J as necessary, in order to hold the loop N in position thereon and so as to prevent the bearing connection from becoming displaced. The said connecting loop N is connected by a connecting rod n^3 , with the 115 scale beam O, which is mounted pivotally upon the post o within the inclosing casing o' . The casing o' inclosing the scale beam is held off from the rear side of the frame by the off-standing bracket arms o^2 , having lower 120 bifurcated ends o^3 , taking over the parallel side frame pieces and secured thereto. The front of the casing o' is provided with the ordinary door o^4 , inclosing an opening therein so that the readings may be noted, while the 125 rear side of the casing is inclosed by the door P fitting over the entire rear side of the same. The said door P is provided with the opposite straps p , hinged to the lugs p' , extending from the bottom of the scale beam casing, 130 and having extended portions p^2 extending beyond the point of pivot so that when the said door is thrown open to a horizontal position the extended portions p^2 , take under the

bottom of the casing and support the door in such horizontal position to form a table or rest for the weights &c., while in use.

The platform of our improved scale comprises a number of removable platform sections Q removably secured to the parallel platform side beams R which support said sections in a manner somewhat similar to that illustrated in our former patent. The said platform side beams R have connected to the opposite ends thereof the forked or bifurcated hangers *r*, straddling the scale levers near their pivoted ends and bearing upon the laterally extending knife edges *r'*, extending laterally from the lower ends of the swinging bearing stirrups S, which stirrups embrace the scale levers near the outer ends thereof and are mounted pivotally upon the knife edges *s*, extending laterally from said scale levers near the knife edges thereof and in a line therewith. The said platform supporting side beams R are further provided with the depending struts S', the lower ends of which receive the sectional and adjustable truss rods T, connected at each end with the hangers *r*, at each end of the said side beams, and comprising opposite truss members *t*, which are adjustably connected together at a point below the central cross lever J, by means of the turn buckles T', which provide means for tightening the truss rods under the side beams to any degree of tension to give the requisite strength and support thereto.

Now, the various connections of the scale are fully set forth and it will be readily seen that the platform is supported upon the scale levers in such a manner, so that the same is not only allowed to play freely upon its supporting stirrups, but is also so connected with the weighing devices as to be easily moved by the slightest weight. To the opposite ends of the frame are hinged the opposite platform aprons U which when swung outwardly from the opposite ends of the frame provide means for allowing vehicles to be driven onto the scale, and when said aprons are extended for use it will now be readily seen that the inner edges of the same rest upon the inclined supporting lugs *h*², projecting from the hangers H so as to form rests for said inner edges of the aprons and relieve the strain from the hinges. When not in use the said aprons are folded back over the platform as will be quite apparent.

From the foregoing description it will be readily seen that many important improvements have been provided over our former patent, and that the wagon scale herein described not only combines a comparatively simple and inexpensive scale but one which is so constructed and arranged as to have exceptional strength and certainty and accuracy of operation.

Having thus described our invention, what we claim and desire to secure by Letters Patent is:—

1. In a platform scale the combination of the

frame comprising opposite parallel pairs of side and end pieces overlapping at their ends, open work clamped between said side and end pieces and trussing the same, and corner pieces receiving the overlapping ends of the frame pieces, and weighing devices mounted within said frame substantially as set forth.

2. In a platform scale the combination of the frame comprising opposite parallel pairs of side and end pieces overlapping at their ends, open work clamped between said side and end pieces and trussing the same, corner pieces or castings receiving the overlapping ends of the frame pieces, and corner braces connected to the lower side and end pieces at each corner of the frame, and weighing devices mounted within said frame substantially as set forth.

3. In a platform scale the combination of the frame comprising opposite parallel pairs of side and end pieces overlapping at their ends and spaced from each other, corner pieces having upper and lower flanged seats receiving the overlapped ends of said end and side pieces, clamping bolts clamping said overlapped ends in said seats, and corner braces connected to the lower side and end pieces at each end of the frame, and weighing devices mounted within said frame substantially as set forth.

4. In a portable wagon scale, the combination with the scale frame composed of the opposite side and end pieces arranged in pairs, of the wheel supporting plates having parallel securing arms fitting over the upper and lower side pieces and stub axles or spindles, and securing pins or bolts passing through said arms and side frame pieces, substantially as set forth.

5. In a portable wagon scale, the combination with the scale frame, of the opposite wheel carrying plates removably connected to opposite sides of the frame near one end thereof, a caster wheel plate having parallel securing arms removably engaging the front end of said frame, a vertical shaft swiveled in said plate and terminating at its lower end in a caster wheel yoke, and the hound frame, connected to and embracing said yoke, substantially as set forth.

6. In a platform scale, the combination with the frame composed of the opposite end and side frame pieces arranged in pairs, of the bearing hangers mounted between the end frame pieces and provided with the outwardly extending inclined lugs, weighing devices supported in said hangers, and the aprons hinged to the opposite ends of the frame and having their inner edges adapted to rest upon said inclined lugs, substantially as set forth.

7. In a platform scale, the combination with the frame; of the hangers mounted within the opposite end frame pieces near each corner and provided with the inwardly extending parallel hooks and the outwardly extending inclined lugs, horizontal scale levers resting at their outer ends in said hooks, and the aprons hinged to the opposite ends of the frame and

having their inner edges adapted to rest upon said inclined lugs, substantially as set forth.

8. The combination of the independent converging scale levers, lever arms connecting the opposite pairs of levers and having pointed bearing studs, a central supporting lever comprising opposite members connected centrally by the oppositely bowed or curved connecting plates forming a slot or opening therebetween, the upper of said bowed plates having a pointed bearing lug or stud, a supporting plate resting upon said stud and having depending bolts passing from each end thereof through the upper connecting plate into the opening thereunder, parallel and spaced plates secured to said bolts within the opening or slot and each provided with bearing recesses to receive the pointed bearing studs on said lever arms, substantially as set forth.

9. The combination with the scale levers, of the opposite parallel platform carrying side beams, depending hangers secured to the opposite ends of said side beams and supported over said scale levers near each end thereof, depending studs secured to and extending below said side beams, sectional truss rods connected to the opposite hangers and passing under said struts, and turn buckles adjustably connecting the ends of said rods below said beams, substantially as set forth.

10. In a scale, the combination with the independent scale levers, of the central slotted cross lever supporting the inner ends of said scale levers and provided at one end with a depending pointed bearing lug or stud, the scale beam, and a connecting loop connected to said scale beams and receiving said pointed stud to form a bearing therefor, substantially as set forth.

11. In a scale, the combination with the scale levers, of the cross lever pivoted at one end and provided at its opposite free end with a depending pointed bearing stud, the scale beam, a connecting loop connected to said scale beam, parallel plates near the lower end of said loop, the lower of said plates being provided with a bearing recess receiving the bearing stud of said lever, and a set screw passing through the upper plate and working over the free end of said lever, substantially as set forth.

12. The combination with the frame composed of the opposite end and side pieces and weighing devices within said frame, of the off-standing bracket arms having lower bifurcated ends secured to the rear side frame pieces, and the scale beam casing mounted upon said arms off from said frame, substantially as set forth.

13. The combination with the scale beam casing, open at one side; of the lugs secured to the bottom of said casing, the door inclosing said side opening, and the straps secured to said door and pivoted to the outer ends of said lugs, said straps being provided with extended rest portions extending beyond the point of pivot to engage under the casing when the door is in a horizontal position, substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

LINUS G. CLAWSON.
EDWARD G. WHEELER.

Witnesses:

THOMAS J. BUCHANAN,
FRANK A. BEELER.