H. L. GRAVES.

FARM WAGON SCALE.

APPLICATION FILED MAY 24, 1910.

995,131.

Patented June 13, 1911.

2 SHEETS—SHEET 1.

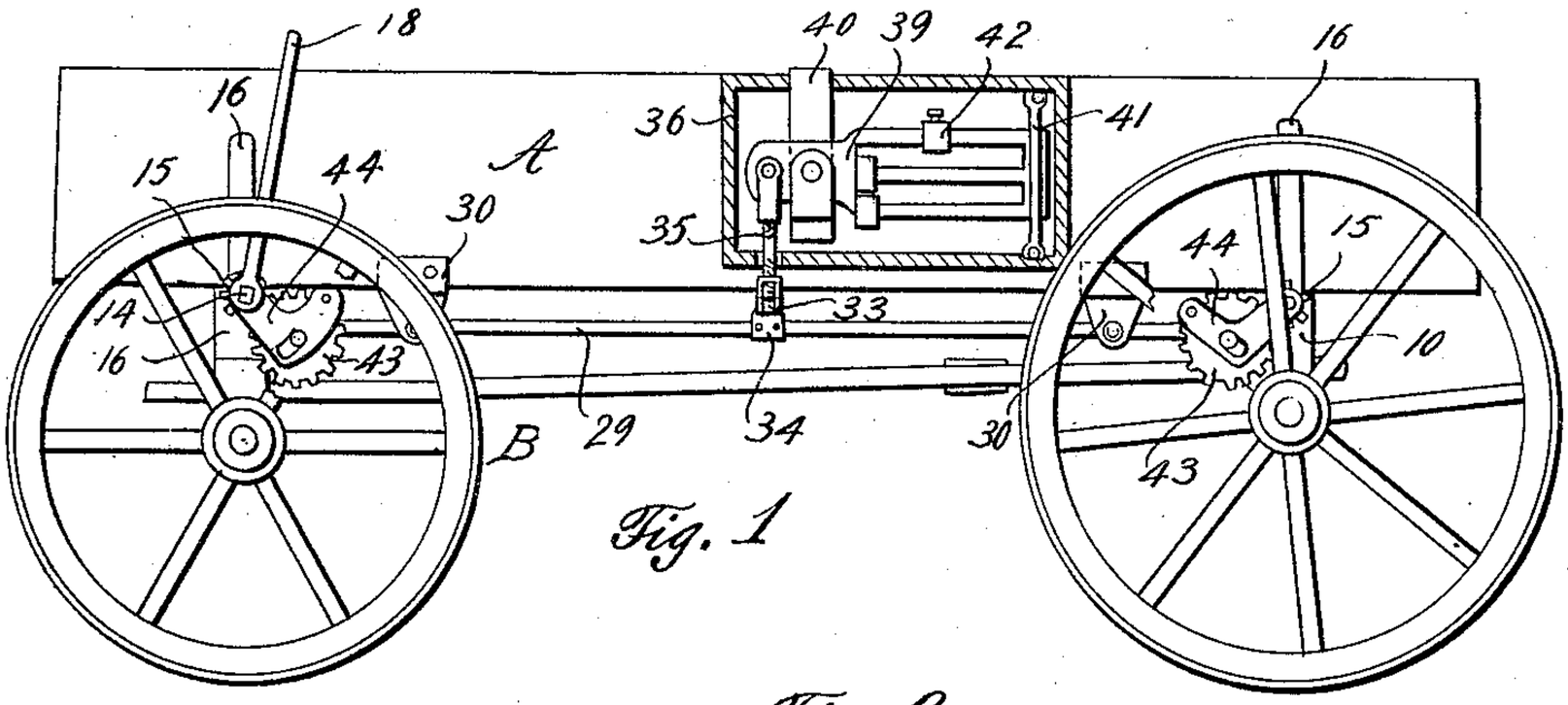

Fig. 1

Fig. 3

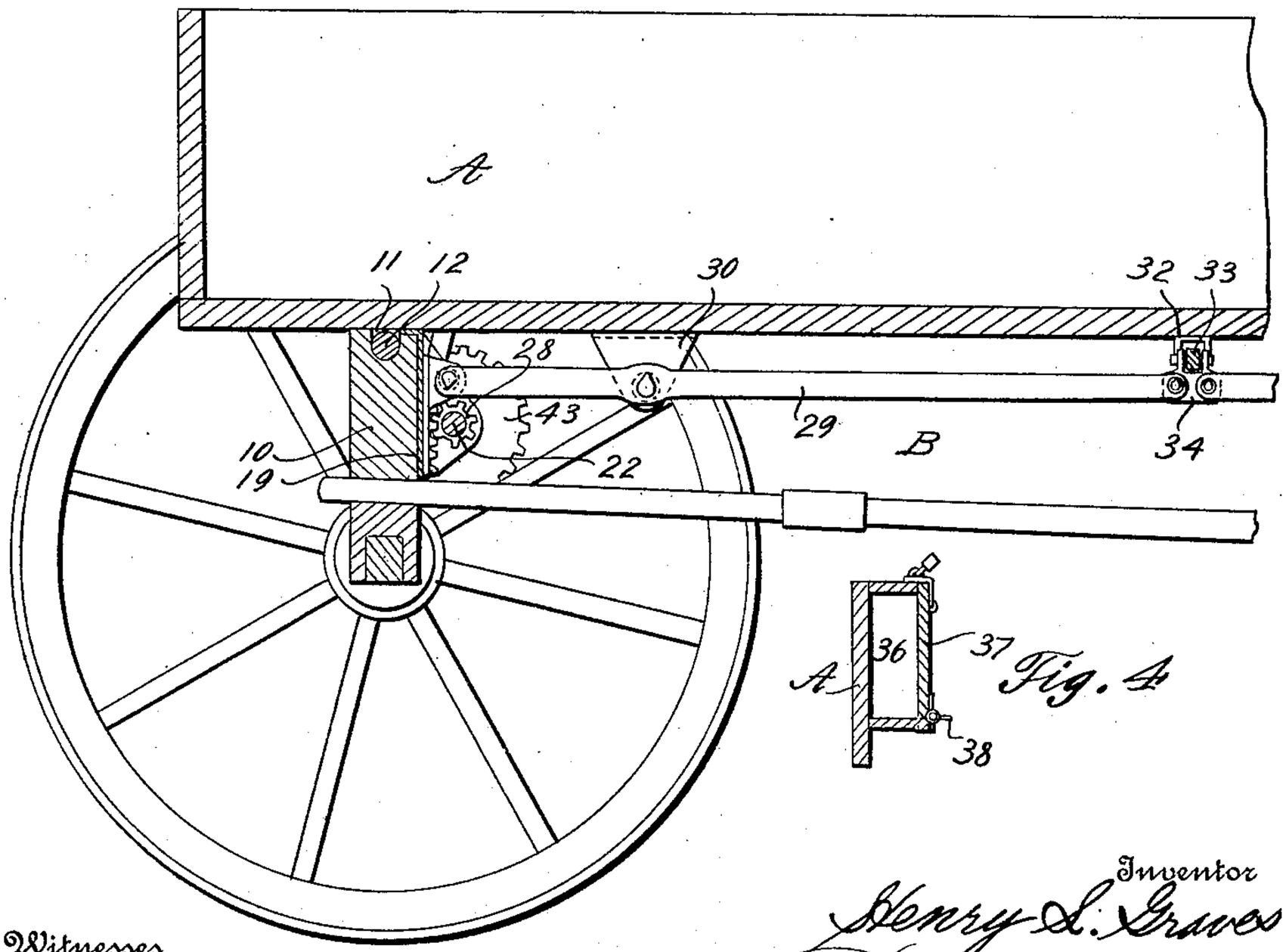

Fig. 4

Witnesses

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2 SHEETS—SHEET 2.

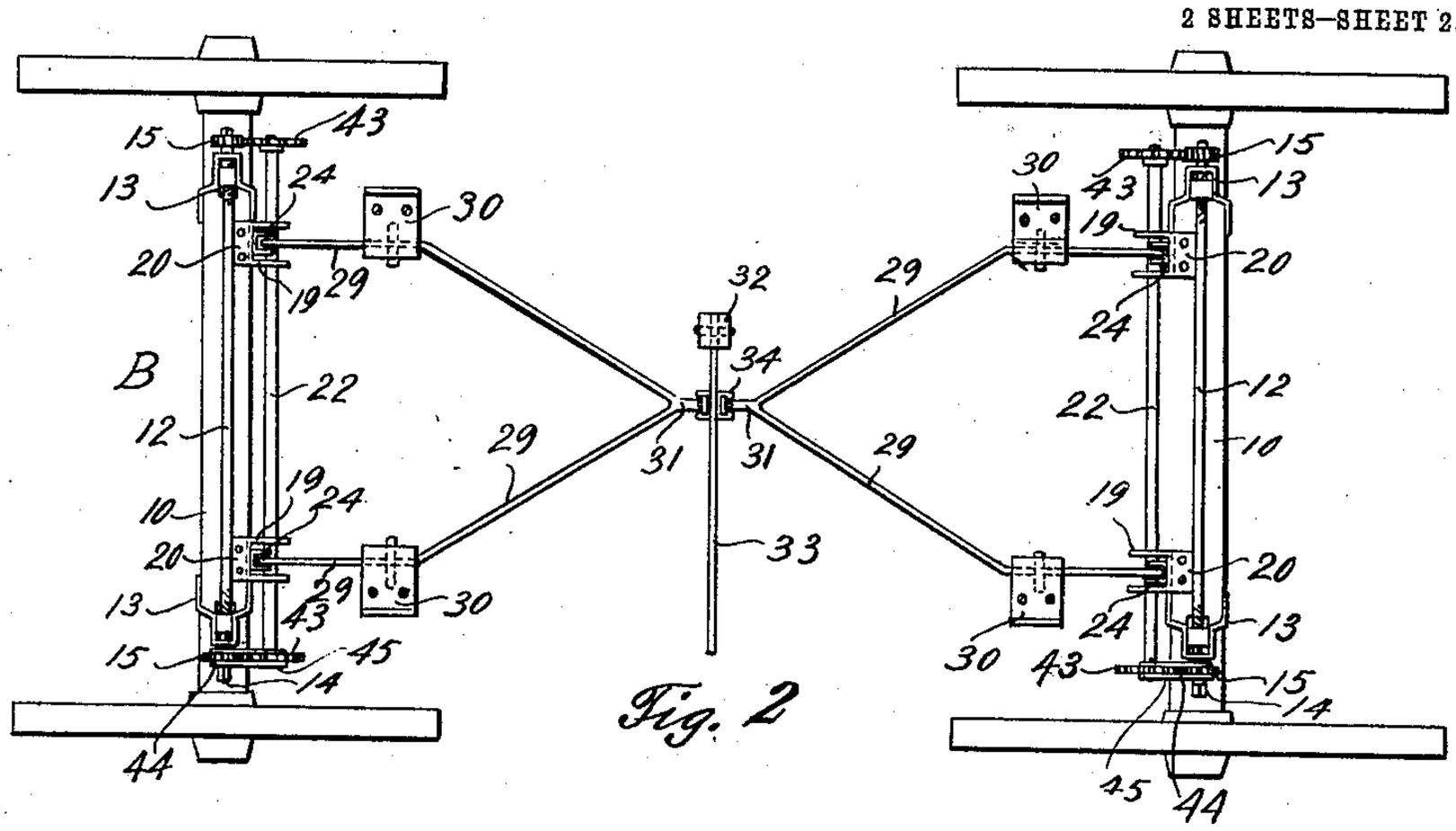

Fig. 2

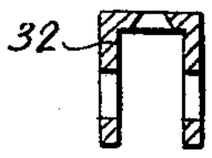

Fig. 7

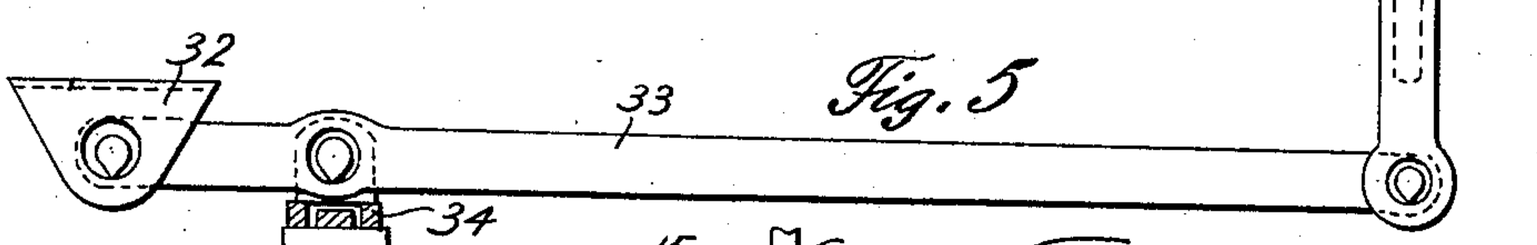

Fig. 5

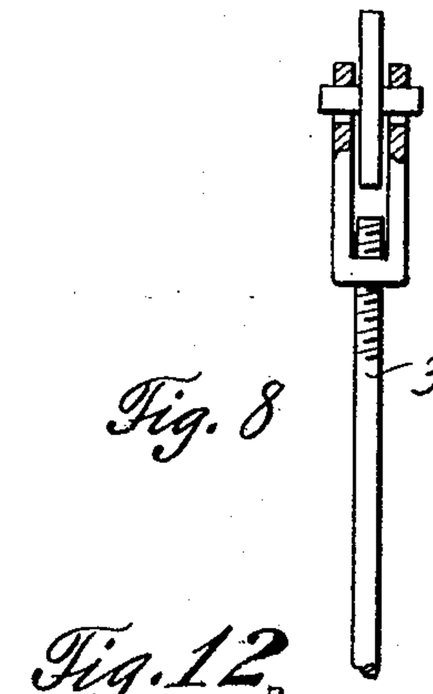

Fig. 8

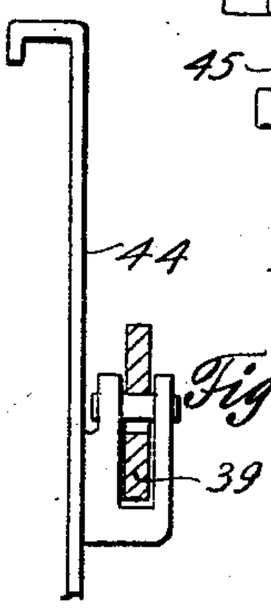

Fig. 9

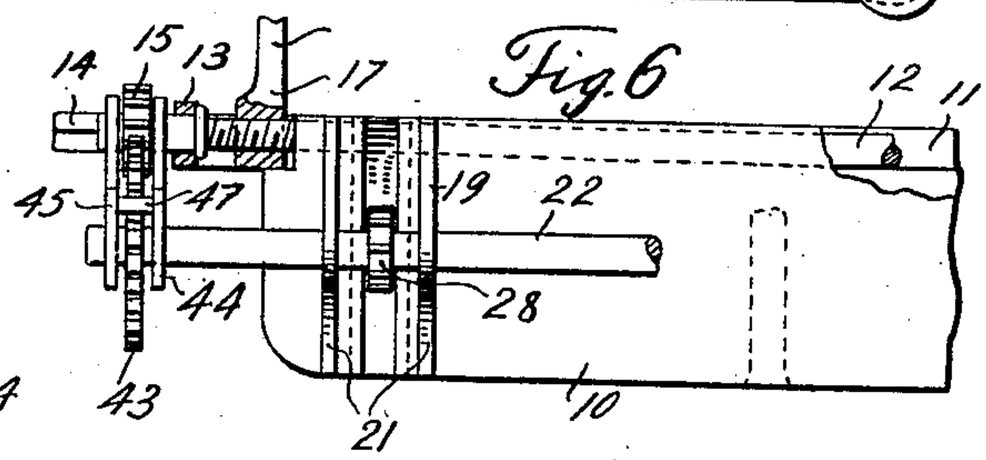

Fig. 6

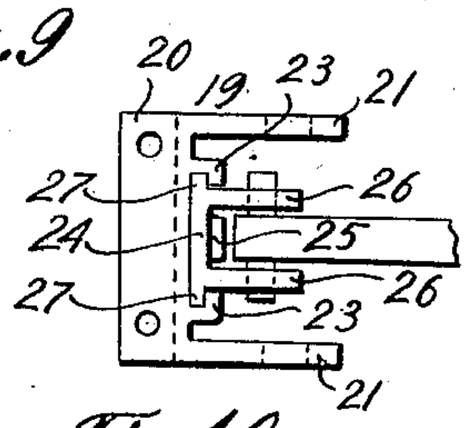

Fig. 10

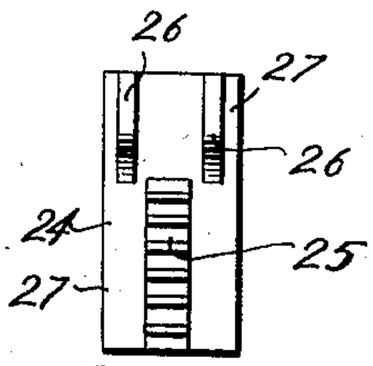

Fig. 11

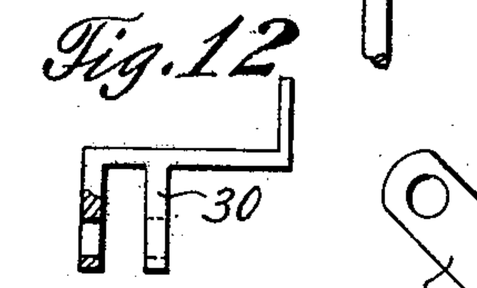

Fig. 12

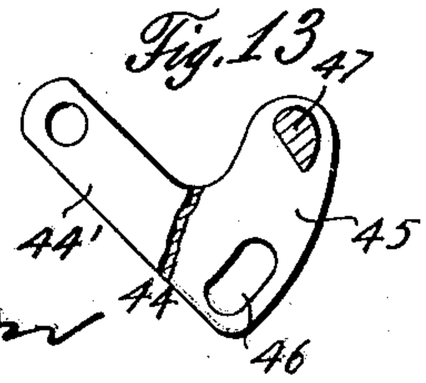

Fig. 13

Witnesses

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UNITED STATES PATENT OFFICE.

HENRY LEWIS GRAVES, OF IOWA PARK, TEXAS.

FARM-WAGON SCALE.

995,131. Specification of Letters Patent. Patented June 13, 1911.

Application filed May 24, 1910. Serial No. 563,167.

To all whom it may concern:

Be it known that I, HENRY LEWIS GRAVES, a citizen of the United States, residing at Iowa Park, in the county of Wichita and State of Texas, have invented certain new and useful Improvements in Farm-Wagon Scales, of which the following is a specification.

This invention relates to wagon scales, particularly that class of scales adapted to be carried by a wagon, wherein the wagon body is raised from the running gears, in such a manner that the scales will operate.

It also contemplates the construction of scales of this nature which will accurately weigh the contents of the wagon, which will be simple, durable, and inexpensive, the same being attachable to wagons of any type.

With the above and other objects in view this invention consists in the construction, combination, and arrangement of parts, all as hereinafter more fully described, claimed, and illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation partly in section of a wagon provided with the present invention; Fig. 2 is a top plan view of the running gears thereof illustrating the wagon body diagrammatically; Fig. 3 is a central section of a wagon illustrating the raising levers; Fig. 4 is a central vertical section of the scalebox; Fig. 5 is an elevation of the platform lever adapted to bear under the wagon body; Fig. 6 is a fragmentary inside elevation of one of the bolsters of the wagon, illustrating in section the shafts which operate the raising mechanism; Fig. 7 is a vertical section of the bracket securing the platform lever to the wagon; Fig. 8 is an end elevation partly in section of the platform lever illustrating the connecting link between the same and the scale beam; Fig. 9 is a bracket securing the scale beam to one of the vertical sides of the wagon body; Fig. 10 is a top plan view of one of the brackets carried by the bolsters in which the rack and gears operate to raise the wagon body; Fig. 11 is a front elevation of the rack bracket; Fig. 12 is an elevation partly in section of the pawl adapted to retain the gears and rack in a stationary position; Fig. 13 is an end elevation partly in section of one of the brackets forming a fulcrum of the raising levers.

Reference being had to the accompanying drawings, A indicates in general a wagon body adapted to rest on the bolsters 10, said bolsters coöperating with the running gear B in the usual manner. The outer edges of the bolsters are provided with a longitudinally extending groove or channel 11, in which the shaft 12 is rotatably mounted, each terminal of the shafts being provided with threads, one terminal thereof with right-hand threads and the other terminal with left hand threads. These shafts are rotatably mounted in the brackets 13 which are secured to each end of the bolsters 10, each terminal of the shafts adapted to project through said brackets, one of the terminals thereof being provided with the faced gripping portion 14. A spur gear 15 is mounted on each terminal of the shaft 12 and on the exterior of the bracket 13, said gear adapted to coöperate with the lifting shaft as hereinafter more fully described. The vertical standards 16 that are adapted to retain the wagon body on the bolsters and which are normally rigidly secured to the bolsters are provided with the enlarged portions 17, which are provided with an interiorly threaded bore, said bore being engaged by the threaded extremities of the shaft 12, the standard operating within the bracket 13. From this it will be seen that upon rotating the shaft 12 through the instrumentality of the handle or wrench 18 the standards 16 will be moved outwardly in opposite directions due to the right and left hand threads of the shafts 12, thereby releasing the wagon body A.

A pair of brackets 19 is mounted on the inner face of each bolster, said bracket being provided with the lateral extending plate 20 which is secured to the upper edge of the bolster and the inwardly extending arms 21 in which the shaft 22 rotates, said shaft constituting the lifting shaft, and carrying at each terminal thereof the gears 43 which mesh with the gears 15 of the shaft 12. These brackets are also provided with the guides 23 in the base thereof in which the rack 24 operates. This rack 24 comprises a plate provided with the teeth 25 and the inwardly extending bearing plates 26 and the flanges 27, said flanges adapted to be received in the guides 23 of the bracket 19. A gear 28 is rigidly mounted on the shaft 22 between the arms 21 of the bracket 19 and is adapted to coöperate with the teeth 25 of the rack 24, thus raising and lowering

the same. From this construction it will readily be seen that as the shaft 12 is rotated by the handle 18 the wagon body will be released as heretofore described and at the same time the rack 24 will be moved vertically and will raise the wagon body through the instrumentality of the levers as hereinafter more fully described. Each pair of shafts 12 and 22 are provided with a pair of gears 28 and a pair of coöperating racks 24. A lever 29 is pivoted in the bearing plates 26 of each rack 24 and extends inwardly and is pivoted in the fulcrum bracket 30, said lever being bent inwardly after the same passes the fulcrum bracket and converges to the central straight portion 31. As each lever 29 converges and is formed to the central straight portion 31 the levers operating from the racks coöperating with the same shaft will be moved simultaneously.

A bracket 32 is centrally secured to the bottom of the wagon body A with respect to the longitudinal axis thereof and to one side of the center with respect to the transverse axis thereof. This bracket has pivoted thereto the lever 33, said lever constituting the platform lever of the scale. The terminals of the straight portions 31 of the levers 29 are pivoted in a bracket 34 carried by the lever 33 and thus it will be seen that the wagon body will be raised through the instrumentality of the connection between the bracket 32 and the straight portions 31 and will support the wagon upon the end of the platform lever 33. The outer terminal of the lever 33 has a link 35 secured thereto which extends upwardly adjacent to the side of the wagon body A.

A box 36 is mounted on the side of the wagon body and is provided with a front 37, said front being pivotally connected thereto and being provided with a stop projection 38 which when the bracket 37 is open retains the same horizontally, forming a rest upon which writing and the like may be done. The scale beam 39 is pivotally mounted on the bracket 40 in the box 36 and is connected at one side to the link 35 while the terminal of the other arm thereof operates in the guide 41 and is provided with a series of counter-balances 42 which tend to balance the wagon upon the lever 33 thereby weighing the contents thereof.

All of the pivots in the present invention are knife-edge pivots, thus increasing the accuracy with which the present invention operates.

In order that the gears 15 and 43 may be retained stationary when the wagon body is in an elevated position, a pawl 44 is pivoted to the shaft 12 and comprises a pair of plates 44′ one of which is secured to said shaft on each side of the gear 15, said plates being provided with the upwardly curved portions 45 at their outer terminals, said curved portions being provided with the registering slots 46 which engage the terminals of the shaft 22 on each side of the gear 43. A pin 47 is interposed between the terminals of the curved portions 45 and engages the teeth of the gear 43 and thereby retains said gear stationary and consequently holding the wagon in an elevated position.

Having thus described the invention, what is claimed as new, is:

1. In a wagon, the combination with a running gear, of a body adapted to rest on the bolsters of said running gear, a shaft mounted on each bolster having oppositely disposed threads at the ends thereof, standards threaded on each end of said shaft adapted to be moved from and into engagement with said body upon the rotation of said shaft, and means whereby the rotation of said shaft will elevate said body.

2. In a wagon, the combination with a running gear, of a body adapted to be retained thereon, of standards carried by the bolsters of the running gear on each side thereof, a shaft operating through said standards and adapted to move the same to and from engagement with said body, a countershaft coöperating with each of said last named shafts adapted to be rotated therefrom and means operable by said countershaft whereby the body may be elevated.

3. In a wagon, the combination with a running gear, of a body adapted to be retained thereon, of standards carried by the bolsters of the running gear on each side thereof, a shaft operating through said standards and adapted to move the same to and from engagement with said body, brackets carried on said bolsters, a shaft mounted on the brackets of each bolster adapted to be rotated by the shaft operating the standards, and racks slidably mounted in said bracket adapted to be operated vertically by said last named shaft whereby said wagon may be elevated.

4. In a wagon, the combination with a running gear, of a body adapted to be retained thereon, of standards carried by the bolsters of the running gear on each side thereof, a shaft operating through said standards and adapted to move the same to and from engagement with said body, brackets carried on said bolsters, a shaft mounted in the brackets of each bolster adapted to be rotated by the shaft operating the standards, racks slidably mounted in said brackets, means whereby said racks may be operated vertically upon the rotation of the shaft carried by said brackets, and means whereby the movement of said racks may elevate the body.

5. In a wagon, the combination with a running gear, of a body adapted to be retained thereon, of standards carried by the bolsters of the running gear on each side

thereof, a shaft operating through said standards and adapted to move the same to and from engagement with said body, brackets carried on said bolsters, a shaft mounted on the brackets of each bolster adapted to be rotated by the shaft operating the standards, racks slidably mounted in said brackets, gears mounted on said shafts carried by said brackets adjacent to each bracket, and means whereby the movement of said racks will elevate said body.

6. In a wagon, the combination with a running gear, of a body adapted to be retained thereon, of standards carried by the bolsters of the running gear on each side thereof, a shaft operating through said standards and adapted to move the same to and from engagement with said body, brackets carried on said bolsters, a shaft mounted on the brackets of each bolster adapted to be rotated by the shaft operating the standards, racks slidably mounted in said brackets, gears mounted on said shafts carried by said brackets adjacent to each bracket, converging levers pivoted on the under side of said body, the terminals of said levers being pivotally connected to said slide racks, and a platform lever centrally mounted on the under side of said body having said converging levers pivotally connected thereto.

7. In a wagon, the combination with a running gear, of a body adapted to be retained thereon, of standards carried by the bolsters of the running gear on each side thereof, a shaft operating through said standards and adapted to move the same to and from engagement with said body, brackets carried on said bolsters, a shaft mounted on the brackets of each bolster adapted to be rotated by the shaft operating the standards, racks slidably mounted in said brackets, gears mounted on said shafts carried by said brackets adjacent to each bracket, converging levers pivoted on the under side of said body, the terminals of said levers being pivotally connected to said slide racks, a platform lever centrally mounted on the under side of said body having said converging levers pivotally connected thereto, and means whereby the movement of said platform lever may indicate the weight of the body and the contents thereof.

8. In a wagon, the combination with a running gear, of a body adapted to be retained thereon, of standards carried by the bolsters of the running gear on each side thereof, a shaft operating through said standards and adapted to move the same to and from engagement with said body, brackets carried on said bolsters, a shaft mounted on the brackets of each bolster adapted to be rotated by the shaft operating the standards, racks slidably mounted in said brackets, gears mounted on said shafts carried by said brackets adjacent to each bracket, converging levers pivoted on the under side of said body, the terminals of said levers being pivotally connected to said slide racks, a bracket pivotally and centrally mounted on the under side of said body, a platform lever pivoted to said bracket and having the inner terminals of said converging levers pivotally connected thereto adjacent to said bracket, and an adjustable scale means carried by the body connected to the free terminal of said platform lever.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY LEWIS GRAVES.

Witnesses:

CELL P. FOWLER,

T. R. BOONE.