

No. 645,568.

Patented Mar. 20, 1900.

L. D. NORRIS.
WEIGHING WAGON.

(Application filed Dec. 19, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1

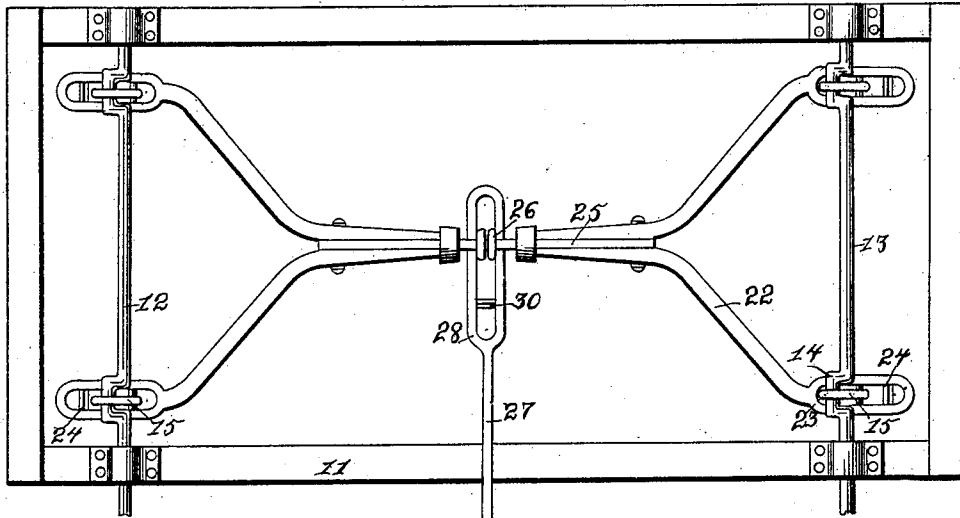


Fig. 5

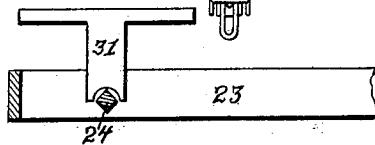
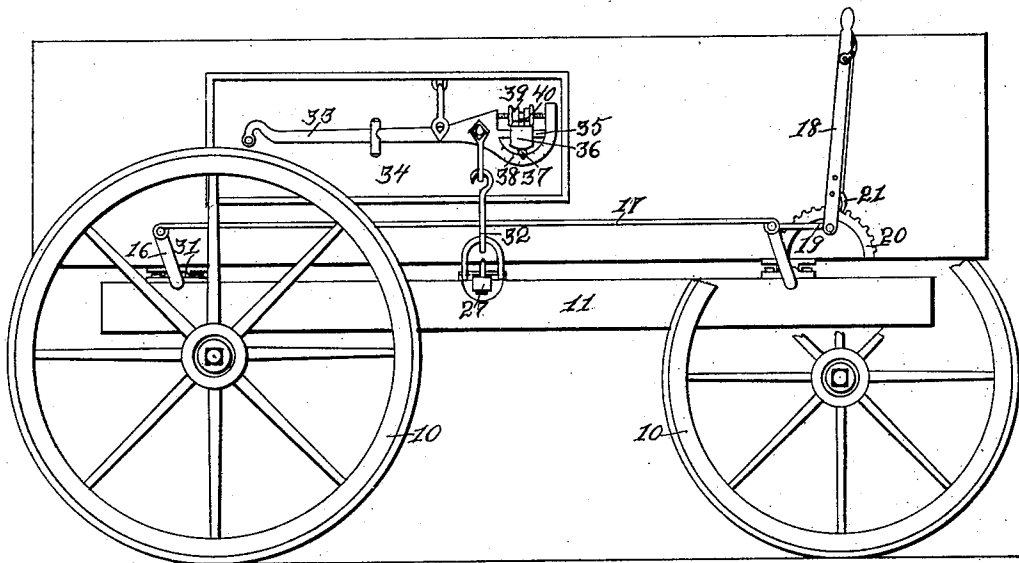


Fig. 2



Witnesses:
F. C. Stuart.
R. B. Orwig.

Inventor:
Lucius D. Norris
by J. Ralph Orwig Atty.

No. 645,568.

Patented Mar. 20, 1900.

L. D. NORRIS.
WEIGHING WAGON.

(Application filed Dec. 19, 1898.)

(No Model.)

2 Sheets—Sheet 2.



Fig. 4.

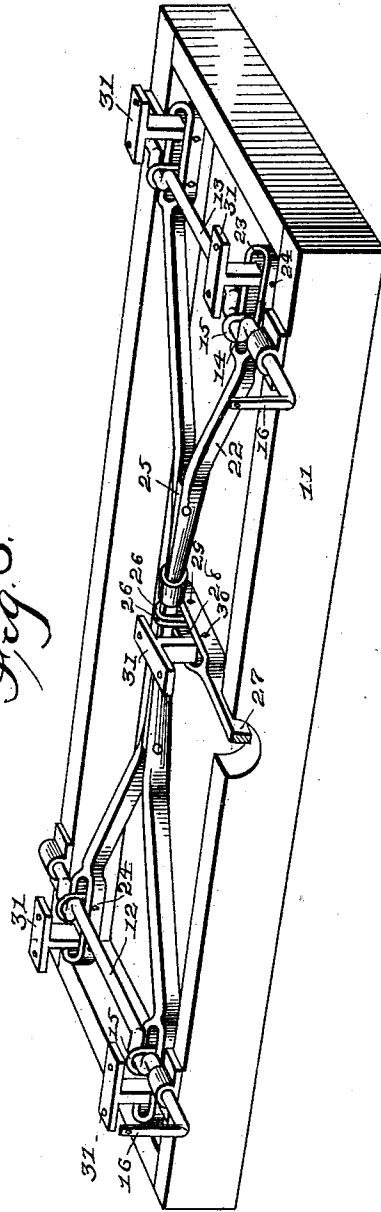


Fig. 3.

Witnesses: *Inventor L. D. Norris.*
Charles F. Wilcox.
Ed. Orwig. By *J. Ralph Orwig, Atty 2390*

UNITED STATES PATENT OFFICE.

LUCIUS D. NORRIS, OF MADRID, IOWA.

WEIGHING-WAGON.

SPECIFICATION forming part of Letters Patent No. 645,568, dated March 20, 1900.

Application filed December 19, 1898. Serial No. 699,661. (No model.)

To all whom it may concern:

Be it known that I, LUCIUS D. NORRIS, a citizen of the United States of America, residing at Madrid, in the county of Boone and State of Iowa, have invented certain new and useful Improvements in Weighing-Wagons, of which the following is a specification.

This invention relates to that class of weighing-wagons in which the balancing-levers are placed on the wagon-frame and the wagon-bed supported upon them and so arranged that the wagon-bed may be moved to a position resting upon the wagon-frame to thereby remove the strain and wear from the balancing-levers when the wagon is in use.

My invention relates more particularly to a certain weighing-wagon invented by D. J. Norris and S. D. Norris and patented August 22, 1882, No. 263,201.

The object of my present invention is to provide a weighing-wagon that will be simpler, stronger, and more durable than others of its class, and particularly to provide improved means for supporting the wagon-bed upon the knife-edge surfaces of the balancing-levers, whereby the contacting surfaces of these parts may not easily become disturbed or misplaced with relation to each other—as, for instance, by the shaking or jarring of the wagon when in use. Heretofore after the wagon has been used the bearing-surfaces of the various parts of the weighing apparatus did not always reëngage at the same points as before such use, and hence a maximum of accuracy was not attained.

My object is, further, to provide for the adjustment of the knife-edged surfaces of the balancing-levers so that when worn they may be turned and a sharp edge brought into use.

A further object is to provide an improved balance-indicator, arranged and constructed so that it may not become displaced by means of the shaking of the wagon when in use.

My invention consists only in certain details of construction, arrangement, and combination of parts, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a top or plan view of that portion of my improved weighing apparatus adapted to be placed on the trucks of a wagon.

Fig. 2 shows a side elevation of the complete weighing-wagon with the wagon-bed raised in readiness for weighing. Fig. 3 shows a detail perspective view illustrating the frame to be placed on the wagon-trucks and the feet to be attached to the wagon-bed in position on the knife-edged support and with the weighing-levers and connected parts in their raised position. Fig. 4 shows an enlarged vertical sectional view through the central portion of the balancing-indicator and connected parts. Fig. 5 shows a detail sectional view illustrating one of the supporting-feet of the wagon-bed resting upon one of the knife-edged pins.

Referring to the accompanying drawings, the reference-numeral 10 is used to indicate the wagon-wheels, and 11 a rectangular frame supported upon the bolsters of the wagon in the usual way in which the wagon-bed is supported. In this frame 11 I have mounted rotatably the two shafts 12 and 13 to extend transversely to points near the opposite sides of the wagon. In each of the shafts two crank-arms 14 are formed and from each crank-arm a metal loop depends. These loops are for the purpose of supporting the weighing-levers, as will hereinafter appear. On the end of each of the shafts 12 and 13 is a crank-arm 16, and these arms are connected by means of a rod 17. A lever 18, fulcrumed to the wagon-bed, is connected with this rod by means of a link 19, and hence as the lever is operated the said loop may be either raised or lowered, resulting in the raising or lowering of the wagon-bed, so that it may be supported upon either the said frame 11 or the balancing-levers, as will hereinafter appear. A segmental rack 20 is secured to the wagon-bed, and a spring-actuated pawl 21, attached to the lever, engages the rack, whereby the lever may be locked in any position.

Under each end of the wagon-bed is a forked balancing-lever constructed as follows: The forked end pieces are indicated by the numeral 22 and in the end of each is an oval opening 23. Extended transversely through each of these ends at opposite end portions of the opening are the transversely-square pins 24, which are secured by being driven in place, so that when one edge thereof becomes worn the pin may be driven out and turned to present a new edge. These two end

pieces are curved toward each other and joined, and between their united ends the straight bar 25 is clamped. This bar is provided with a notch in its outer end and designed to receive a loop 26 for connecting it with another lever. The aforesaid loops 25 are made to encircle the pins 24 nearest to the center of the wagon, and the weight of the wagon is placed upon the outer pins 24, as will appear hereinafter. Hence the ends of the bars 25 are forced upwardly. A straight lever 27 is provided, having an oblong opening 28 in its inner end. At the said inner end two square pins 29 and 30, similar to the pins 24, are passed through the opening and the two loops 26 are made to encircle the pin 29.

The wagon-bed is provided on its outer surface with five legs 31, each having a grooved lower end to rest upon and engage the square pins 24 in the outer ends of the forked levers and the pin 30 of the straight lever. In practical operation with this part of the apparatus, and assuming that the levers 16 are in a vertical position as required to elevate the feet 31 and with them raise the wagon-bed above the frame 11, it is obvious that all of the weight of the wagon will be thrown upon the outer ends of the levers and that these levers are pivoted upon the pins 24 in the links 15. Hence all of the weight on their ends will be applied to move the inner ends of the lever upwardly, thus drawing the inner end of the lever 27 upwardly. The central one of the feet 31 by engaging the pin 30 in said lever 27 transmits this power to a downward pull upon the outer end of the lever 27. Furthermore, when the cranks 16 are moved to a horizontal position and the wagon-bed is thereby lowered to rest upon the frame 11 it is obvious that the legs 31 do not disengage from the pins 24 and 30 and the loops 15 and 26 encircle the pins 24 and 29. Hence no amount of jarring and shaking, such as is given to a wagon, will cause these parts to become disengaged and the scales inoperative thereby. When it is desired to use the wagon-bed for weighing purposes, the levers 16 are turned upwardly and the weight of the wagon is supported upon the knife-edged pins. The outer end of the lever 27 has a link 32 pivotally attached thereto to connect with the scale-beam 33. This scale-beam is mounted in a box 34 on the side of the wagon-bed and is of the ordinary construction save for a balance-indicator, which is constructed as follows: The forward end of the scale-beam 33 is provided with a segmental arm or frame 38, extending downwardly and forwardly, as shown. Integral with this arm or frame 38 is a bar 35, extending above said segmental arm or frame. Pivotally mounted on the said bar is an indicator 36, having an index-finger 37, adapted to describe an arc identical with the arc described by the segmental arm or frame, which has a scale marked thereon. The upper portion of the indicator is provided with a projection 40, which is engaged by a circumfer-

ential groove in the weight 39, which weight is rotatably mounted upon the screw-threaded rod extending above the segmental arm or frame. Thus the weight by moving upon the screw-threaded rod engages the projection at the upper part of the indicator and causes the index-finger to move in an opposite direction upon the bearing 41. This indicator is very essential to accuracy in weighing, by reason of the variation in the weight of the wagon-bed at various times, as it may often happen that a difference in the weight of the wagon-bed may result between the time of loading and unloading by a change in the weather or by the adherence of mud to the wagon-bed; but if the index-finger should stand at either side of zero it would indicate an increase or decrease in pounds weight. Considering this, it is obvious that the balancing device or indicator should be so constructed that when once set there can be no deviation from the position it occupies unless manually operated, or, in other words, the construction of the indicator is necessarily such that when set no jolting or jarring of the wagon can cause it to deviate from the position in which it is placed. Thus it will be seen that the indicator always registers the number of pounds variation required to balance the scales. Thus the exact variation in the weight of the bed may be obtained from time to time.

The screw-thread prevents the balancing-weight from sliding upon the rod, and the index-finger thereby being maintained at the same positions relative to the scale upon the segmental arm or frame. When the device is used as a platform-scale, the frame 11 is placed upon the ground and the transverse shafts need not be rotatably mounted nor provided with crank-arms. However, in other respects the parts are identical, and it is thought unnecessary to describe further the operation of the device in this connection.

Having thus described my machine, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

1. In a weighing-wagon, the combination of a frame, a wagon-bed above the frame, two shafts rotatably mounted transversely of the frame, and each having two crank-arms therein, two forked levers each having in each end of the fork an elongated opening, two detachable pins passed through the levers at said openings, a metal loop for each of said crank-arms to encircle the inner pin of each of said forked ends and also the crank-arms, a straight lever having an elongated opening in one end, two detachable pins in said opening rectangular in cross-section, two metal loops attached to the inner end of said forked levers and to the inner one of said latter pins, and legs on the wagon-bed to rest upon the remaining ones of said pins, for the purposes stated.

2. In a weighing-wagon, the combination of a frame, a wagon-bed upon the frame, two

shafts rotatably mounted transversely of the frame, and each having two crank-arms therein, two forked levers each having in each end of the fork an elongated opening, two detachable pins passed through the levers at said openings, a metal loop for each of the said crank-arms to encircle the inner pin of each of said forked ends and also the crank-arms, a straight lever having an elongated opening in one end, two detachable pins in said opening rectangular in cross-section, two metal loops attached to the inner ends of said forked levers and to the inner one of said latter pins, legs on the wagon-bed to rest upon the remaining ones of said pins, a crank-arm on the end of each of said shafts, a rod for connecting them, and a lever attached thereto where-

by they may be moved in unison, for the purposes stated.

3. In a weighing-wagon scale, the combination with a scale-beam, of a screw-threaded rod on the end of the beam opposite the pivoted end, the sliding weight on said rod having a circumferential groove therein, a rod beneath the screw-threaded rod, a sliding block thereon, a projection on the block to enter said groove, an indicator on the block and a scale marked below the block and adjacent to the indicator, substantially as and for the purposes stated.

LUCIUS D. NORRIS.

Witnesses:

W. H. KEIGLEY,
C. E. PETERSON.