LE ROY P. CLUTTER.

EXCAVATOR.

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1,289,395.

Patented Dec. 31, 1918.

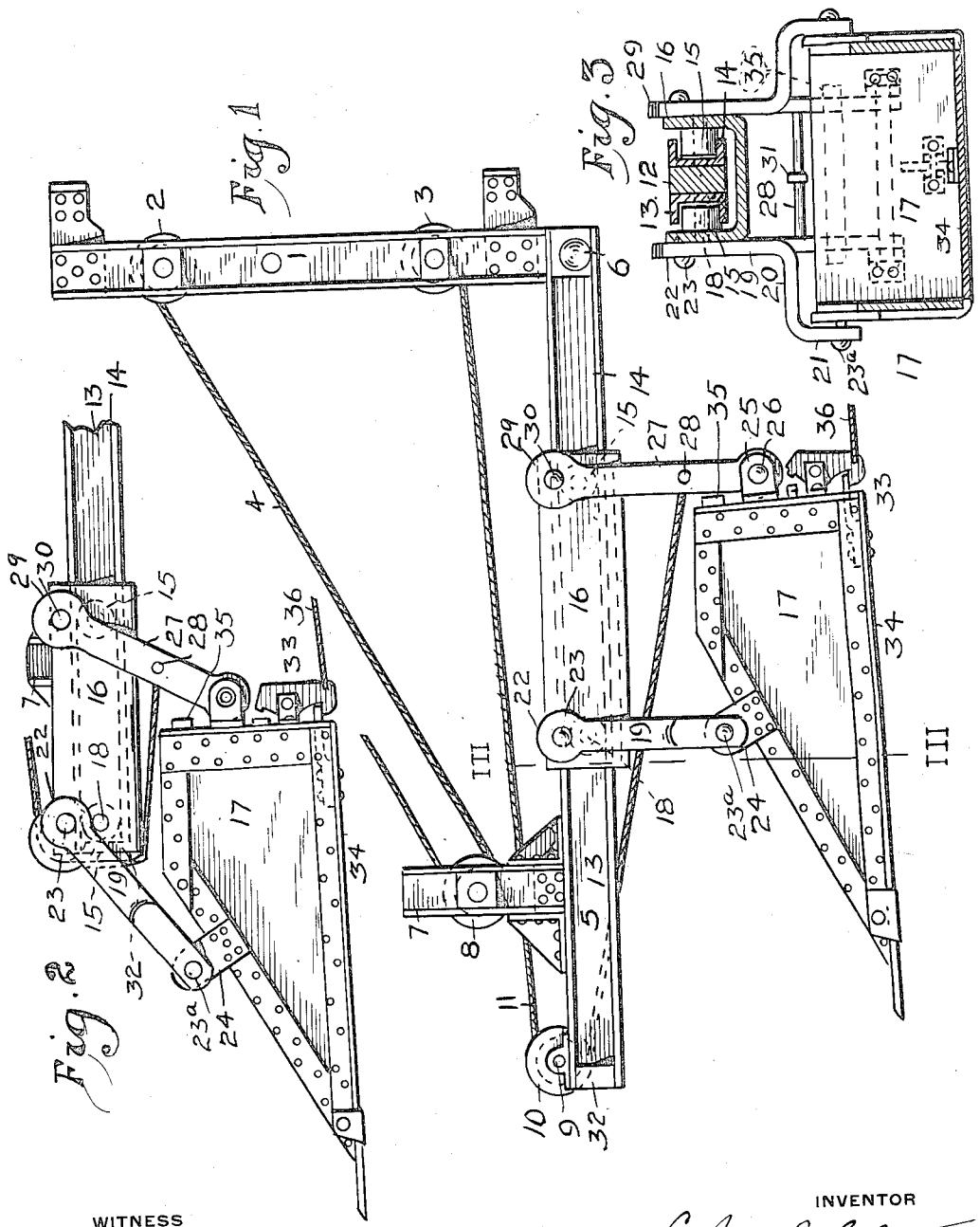


Fig. 1

Fig. 2

Fig. 3

WITNESS

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EXCAVATOR.

1,289,395. Specification of Letters Patent. Patented Dec. 31, 1918.

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To all whom it may concern:

Be it known that I, LE ROY P. CLUTTER, a citizen of the United States of America, residing at Washington, county of Washington, and State of Pennsylvania, have invented certain new and useful Improvements in Excavators, of which the following is a specification.

This invention relates to excavators and has for its object to provide means, in a manner as hereinafter set forth, to increase the length of the travel of the scoop or in other words to enable the scoop to move from the inner end to a point beyond the outer end of the boom whereby the ditching stroke of the scoop will be materially increased with respect to the length of the stroke now imparted to scoops in excavating or ditching machines.

With the foregoing and other objects in view the invention consists of the novel construction, combination and arrangement of parts, as hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:—

Figure 1 is a side elevation showing the adaptation of the arrangement of the scoop, in accordance with this invention, with respect to the boom of an excavating machine.

Fig. 2 is a side elevation showing the scoop at the limit of its outward movement.

Fig. 3 is a section on line III—III, of Fig. 1.

Referring to the drawings in detail 1 denotes a mast carrying pulleys 2, 3. Over the pulley 2 travels a pulling member 4 for elevating a boom 5, which is pivotally connected, as at 6, to the lower end of the mast 1. The boom 5 carries a bracket 7, provided with a pulley 8 over which travels the pulling member 4. At the outer end of the boom 5 a supporting bracket 9 is arranged for a pulley 10, over which travels a pulling member 11; the latter also travels against the pulley 3.

The boom 5 consists of a body portion 12 which is oblong in vertical section and has secured to each side a channel shape member 13, the latter being of the same length as the length of the body portion 12.

Each of the members 13 provides a track 14 for the wheels 15 of a trolley 16, from whch the scoop 17 is suspended.

The trolley 16 consists of a body portion which is U-shape in cross section so as to extend at each side of a boom 5. Each side of the body portion of the trolley supports a pair of inwardly extending shafts 18 and which carry the rollers or wheels 15. The body portion of the trolley 16 extends below the boom 5.

At each side of the trolley 16, near the forward end thereof, is a suspension arm consisting of an upper portion 19, an intermediate portion 20 and a lower portion 21. The intermediate portion 20 is disposed at right angles with respect to the portions 19 and 21. The upper portion 19 extends in a plane parallel to the plane of the lower portion 21. The upper portion 19 has an enlarged upper end 22 which is maintained in vertical engagement with the trolley 16 by a holding member 23. The lower portion 21 is pivotally connected as at 23^a, to an upwardly extending lug 24 carried by the side of the scoop 17.

Projecting from the rear of the scoop 17 is a pair of brackets 25, having a rod 26 fixedly secured therein and loosely mounted on said rod 26 is a pair of hanger arms 27, which are connected together by a tie-bar 28. The upper end of each of the arms 27, is enlarged as at 29, and is held in frictional contact, by a holding member 30, with one side of the trolley 16 near the rear end thereof.

The pulling member 11 extends between the upper portions 19 of the front hanger arms and is connected as at 31, to the tie-bar 28.

The enlarged upper ends of the front and rear suspension or hanger arms frictionally engage with the trolley to such an extent that under normal conditions the upper ends of the arms will not shift while the trolley 16 is moved by the pulling rope 11, but when the trolley moves to the limit of its movement upon the boom 5, and it abuts against the stop 32, a continual pull of the member 11 will break the frictional clamp and cause the scoop to project to the position shown in Fig. 2.

Owing to the manner in which the scoop

is connected with the trolley, the scoop can be projected forwardly of the outer end of the boom 5, after the trolley arrives at the limit of its outward travel.

The reference character 33 denotes a latch, of known construction, for the dumping bottom 34 of the scoop.

The back of the scoop 17, above the brackets 25, is provided with a transverse bar 35, which constitutes a stop for the arms 27, when the scoop is pulled forwardly by the member 11 and by such an arrangement the elements associated with the scoop are maintained in rigid relationship therewith when the scoop is moved forwardly.

The latch has a releasing member 36.

What I claim is:—

1. In excavators, a boom, a scoop, a trolley traveling on the boom, front and rear hangers pivotally connected to and depending from the trolley, means for pivotally connecting the lower ends of the front hangers to the forward portion of the scoop below the top thereof, and means for pivotally connecting the rear hangers to the back of the scoop below the top thereof, and a forwardly extending pulling member connected to the rear hangers intermediate the pivoted ends thereof.

2. In excavators a boom, a scoop, a trolley traveling on the boom, front and rear hangers pivotally connected to and depending from the trolley, means for pivotally connecting the lower end of the front hangers to the forward portion of the scoop below the top thereof, and means for pivotally connecting the rear hangers to the back of the scoop below the top thereof, and a stop projecting rearwardly from the back of the scoop to limit the forward swinging movement of the rear hangers.

3. In excavators a boom, a scoop, a trolley traveling on the boom, front and rear hangers pivotally connected to and depending from the trolley, means for pivotally connecting the lower end of the front hangers to the forward portion of the scoop below the top thereof, and means for pivotally connecting the rear hangers to the back of the scoop below the top thereof, a stop projecting rearwardly from the back of the scoop to limit the forward swinging movement of the rear hangers, and a forwardly extending pulling member connected to the rear hangers intermediate the pivoted ends thereof.

4. In excavators a boom, a scoop, a trolley traveling on the boom, angle shaped front hangers having their upper ends pivotally connected to the trolley, means for pivotally connecting the lower ends of said hangers to the forward portion of the scoop below the top, rear hangers having their upper ends pivotally connected to the trolley, and means for pivotally connecting the lower ends of the rear hangers to the back of the scoop below the top thereof.

5. In excavators a boom, a scoop, a trolley traveling on the boom, angle shaped front hangers having their upper ends pivotally connected to the trolley, means for pivotally connecting the lower ends of said hangers to the forward portion of the scoop below the top, rear hangers having their upper ends pivotally connected to the trolley, and means for pivotally connecting the lower ends of the rear hangers to the back of the scoop below the top thereof, the lower ends of the rear hangers being disposed inwardly with respect to the lower ends of the front hangers.

6. In excavators a boom, a scoop, a trolley traveling on the boom, angle shaped front hangers having their upper ends pivotally connected to the trolley, means for pivotally connecting the lower ends of said hangers to the forward portion of the scoop below the top, rear hangers having their upper ends pivotally connected to the trolley, and means for pivotally connecting the lower ends of the rear hangers to the back of the scoop below the top thereof, and a forwardly extending pulling member connected with the rear hangers intermediate the pivoted ends thereof.

7. In excavators a boom, a trolley comprising a U-shaped body portion overlapping said boom and further comprising inwardly extending shafts carried by the sides of said body portion and provided with wheels traveling upon each side of the boom, front and rear hangers formed of rigid material, means for pivotally connecting the upper ends of said hangers and the sides of said body portion at points above the axis of said wheels, means for pivotally connecting the lower ends of the front hangers to the forward portion of the scoop below the top thereof, and means for pivotally connecting the lower ends of the rear hangers to the back of the scoop below the top thereof.

8. In excavators a boom, a trolley comprising a U-shaped body portion overlapping said boom and further comprising inwardly extending shafts carried by the sides of said body portion and provided with wheels traveling upon each side of the boom, front and rear hangers formed of rigid material, means for pivotally connecting the upper end of said hangers and the sides of said body portion at points above the axis of said wheels, means for pivotally connecting the lower ends of the front hangers to the forward portion of the scoop below the top thereof, and means for pivotally connecting the lower ends of the rear hangers to the back of the scoop below the top thereof, the pivoted lower ends of the rear hangers being disposed inwardly with respect to the pivoted lower ends of the front hangers.

9. In excavators a boom, a trolley traveling thereon, a scoop, a means connecting the scoop and trolley to allow the scoop to be projected beyond the outer ends of the boom after the trolley has reached its limit of outward travel.

10. In excavators a boom, a scoop, a trolley traveling on the boom, front and rear hangers of rigid material, means for pivotally connecting the upper ends of the front hangers to the forward portion of the trolley, means for pivotally connecting the lower ends of the front hangers to the forward portion of the scoop, means for pivotally connecting the rear hangers to the trolley at the rear of the latter, and means for pivotally connecting the rear hangers to the back of the scoop below the top thereof.

11. In excavators a boom, a scoop, a trolley traveling on the boom, front and rear hangers of rigid material, means for pivotally connecting the upper ends of the front hangers to the forward portion of the trolley, means for pivotally connecting the lower ends of the front hangers to the forward portion of the scoop, means for pivotally connecting the rear hangers to the trolley at the rear of the latter, and means for pivotally connecting the rear hangers to the back of the scoop below the top thereof, and a forwardly extending pulling member connected with the rear hangers intermediate the pivoted ends of said rear hangers.

12. In excavators a boom, a scoop, a trolley traveling on the boom, front and rear hangers of rigid material, means for pivotally connecting the upper ends of the front hangers to the forward portion of the trolley, means for pivotally connecting the lower ends of the front hangers to the forward portion of the scoop, means for pivotally connecting the rear hangers to the trolley at the rear of the latter, and means for pivotally connecting the rear hangers to the back of the scoop below the top thereof, and a forwardly extending pulling member connected with the rear hangers intermediate the pivoted ends of said rear hangers, and a rearwardly extending stop carried by the back of the scoop and connecting as a means to limit the forward swinging movement of the rear hangers.

13. In excavators a boom, a trolley traveling thereon, a pair of front and a pair of rear suspension arms having their upper ends pivotally connected with and in normal frictional clamping engagement with said trolley, a scoop, means for pivotally connecting the lower ends of said front arms to the forward portion of the scoop, and means for pivotally connecting the lower ends of said rear arms to the back of the scoop below the top thereof.

14. In excavators, a boom, a trolley traveling thereon, a pair of front and a pair of rear suspension arms having their upper ends pivotally connected with and in normal frictional clamping engagement with said trolley, a scoop, means for pivotally connecting the lower ends of said front arms to the forward portion of the scoop, and means for pivotally connecting the lower end of said rear arms to the back of the scoop, below the top thereof, and a pulling member connected with said rear arms.

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

LE ROY P. CLUTTER.

Witnesses:
LUELLA H. SIMON,
MAX H. SROLOVITZ.