O. CROSBY,

PILE DRIVER.

APPLICATION FILED NOV. 2, 1907.

911,574.

Patented Feb. 9, 1909.

2 SHEETS—SHEET 1.

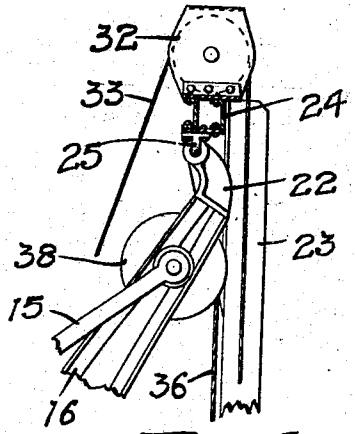


Fig 4.

Fig 1.

WITNESSES

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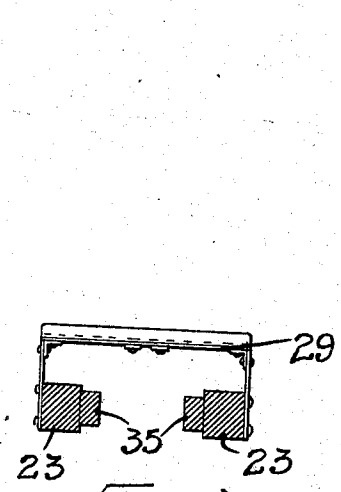


Fig 3. x-x

Fig 2.

WITNESSES

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UNITED STATES PATENT OFFICE.

OLIVER CROSBY, OF ST. PAUL, MINNESOTA.

PILE-DRIVER.

No. 911,574. Specification of Letters Patent. Patented Feb. 9, 1909.

Application filed November 2, 1907. Serial No. 400,324.

To all whom it may concern:

Be it known that I, OLIVER CROSBY, of St. Paul, Ramsey county, Minnesota, have invented certain new and useful Improvements in Pile-Drivers, of which the following is a specification.

The object of my invention is to adapt a ditching machine for use as a pile driver, the apparatus being capable of connection with a railroad ditching machine as illustrated, a log loader or a locomotive crane.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side view of a pile driving machine embodying my invention. Fig. 2 is a front view of the same. Fig. 3 is a sectional view on the line *x*—*x* of Fig. 2. Fig. 4 is a detail view illustrating the manner of pivoting the leads at the outer end of the boom.

In the drawing, 2 represents a car arranged to travel upon a track 3 and having a platform 4 on which track rails 5 are arranged to support a truck 6. A turn table 7 is mounted on the said truck and supports a platform 8 whereon the engine 9 is mounted. A series of drums 10, 11 and 12 are geared to the said engine and a cable 13 passes from the drum 10 to a pulley block 14 which has a connection 15 with the outer end of the boom 16 and through a pulley block connection 17 with a fixed point on the car. The inner end of the boom 16 is pivoted at 18 on the platform 8 and by the operation of the drum 10 the boom is raised or lowered. A frame 19 having a platform 20 is arranged beneath the boom and connected thereto by means of a bar 21. This platform has a pivot on the car frame that is concentric with the pivot of the boom, whereby the platform and boom are adapted to swing vertically to obtain the desired angle of the lead beams. This bar supports the scoop or shovel when the apparatus is used for ditching purposes. On the outer end of the boom a casting 22 is secured and leads 23 are connected at their upper ends by a cross beam 24 which has a knuckle joint connection 25 with the casting 22 to permit the lead beams to be swung back and forth in a vertical plane at an angle to the boom. The outer end of the frame 19 has a channel bar 26 provided with a central hole 27 and a series of other holes 28 on each side of the center. A plate 29 connects the lead beams opposite the end of the platform and said plate has a vertical slot 30 through which a bolt 31 passes into one of the holes in the channel beam 26. As indicated in full lines in Fig. 2 the lead beams are vertical and the bolt is arranged in the center hole of the series. Upon loosening this bolt the lead beams may be swung to the dotted line position and secured in one of the other holes, the upper end of the lead beams swinging on the knuckle joint described. Thus the apparatus can be operated at an angle to the vertical and piles can be driven thereby at an angle. The lead beams swinging through the desired arc obtain the necessary inclination of the piling.

A pulley block 32 is provided on the top of the lead beams and a cable 33 passes from the drum 11 over said pulley to the pile driving weight 34 that is vertically slidable between guides 35 on the lead beams.

For the purpose of raising or pulling out a pile, I provide a cable 36 connected to the drum 12 and passing under a pulley 37 on the outer end of the frame 19 and over a pulley 38 at the outer end of the beam terminating in a hook 39.

This machine combines all the essential features of a railroad ditching machine and pile driver and can be easily adapted for either purpose. The pile driving connection is composed of but few parts of simple, durable construction and can be utilized for driving piles either vertically or at an angle, as may be desired.

I claim as my invention:

1. The combination, with a car, of a boom pivoted thereon, lead beams carried by said car, a platform supported on said boom and adapted to swing vertically therewith, means securing the outer portion of said platform to the lower portions of said lead beams, a pile driving weight arranged to slide vertically between said lead beams, operating drums mounted on said car and cables connecting said pile driving weight and said boom with said drums.

2. The combination, with a car, of a boom pivoted thereon, lead beams pivotally connected with the outer end of said boom, a platform supported beneath said boom and adapted to swing therewith, means adjust-

ably connecting the lower portions of said lead beams with the forward edge of said platform, said connection allowing said lead beams to be adjusted at an angle to the vertical, a pile driving weight arranged to slide vertically between said lead beams, and means for operating said beam and weight.

3. The combination, with a car, of a boom pivoted thereon, a casting secured on the outer end of said boom, lead beams having a cross bar connecting them at their upper ends, said cross bar having a knuckle joint connection with said casting, means for connecting the lower ends of said lead beams and a pile-driving weight suspended between said beams.

4. In a machine of the class described, the combination, with a boom, of a casting secured on the outer end thereof, lead beams, a cross beam connecting said lead beams with one another and having a knuckle joint connection with said casting, a pulley block provided above said lead beam, a cable passing over said block, a pile-driving weight attached to said cable between said beams, means for raising said weight and means for tilting said boom.

5. The combination, with a car, of a boom pivoted thereon, lead beams carried by the outer end of said boom, a pile-driving weight suspended between said beams, a platform arranged between said lead beams and said boom, a plate interposed between said lead beams and the forward edge of said platform, and a bolt adjustably mounted in the edge of said platform and on which bolt said plate is adapted to slide, for the purpose specified.

6. The combination, with a car, of a boom pivoted at one end thereon, a platform having a common pivot with said boom on said car, lead beams having a knuckle joint connection with the outer end of said boom, a pile-driving weight suspended between said lead beams, a sliding connection interposed between said lead beams and the forward edge of said platform, said connection being movable on the edge of said platform to allow said lead beams to be adjusted at an angle to the vertical.

7. The combination, with a car, of a boom pivoted thereon, lead beams pivoted on the outer end of said boom, a platform interposed between said lead beams and said boom, the forward edge of said platform forming a support and guide for said lead beams and said platform having a common pivot on said car with said boom whereby said lead beams can be swung in or out to adjust them to the desired driving angle and a pile-driving weight suspended between said lead beams.

8. The combination, with a car, of a boom pivoted thereon, lead beams pivoted on said boom, a platform interposed between said lead beams and said boom, a plate having a vertical slot interposed between said lead beams and the forward edge of said platform, said platform having a series of holes in its forward edge and a bolt passing through the slot in said plate and into said holes, and whereby the said lead beams are slidably and adjustably connected to said platform, and a pile-driving weight suspended between said beams.

In witness whereof, I have hereunto set my hand this 15th day of October 1907.

OLIVER CROSBY.

Witnesses:

R. T. Reilly,

O. W. Morton.