No. 726,268. PATENTED APR. 28, 1903.

F. A. VON EBERSTEIN.

PILE DRIVER.

APPLICATION FILED NOV. 18, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

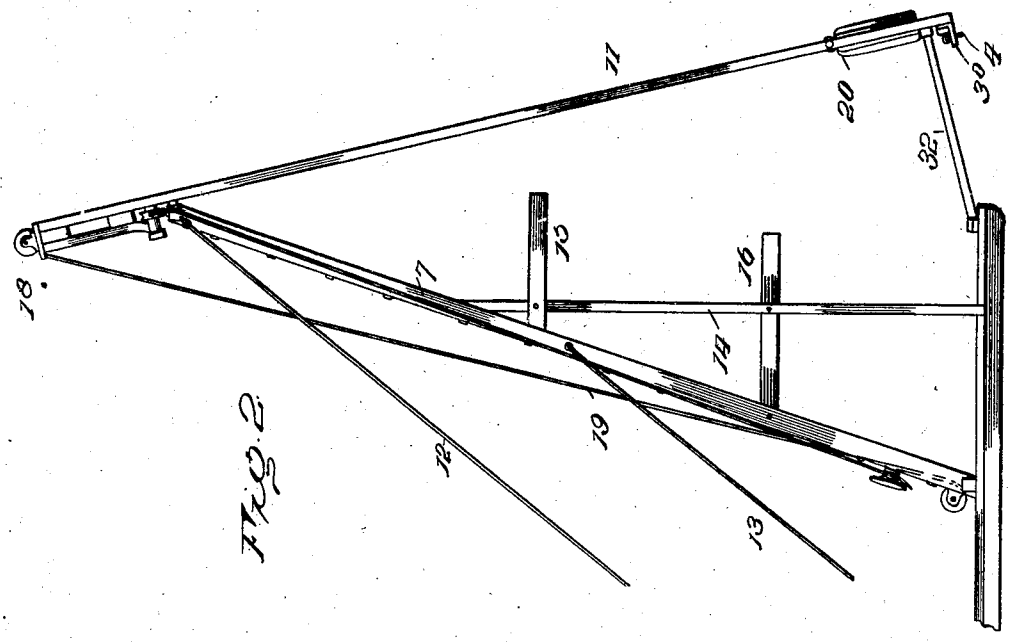


FIG. 2.

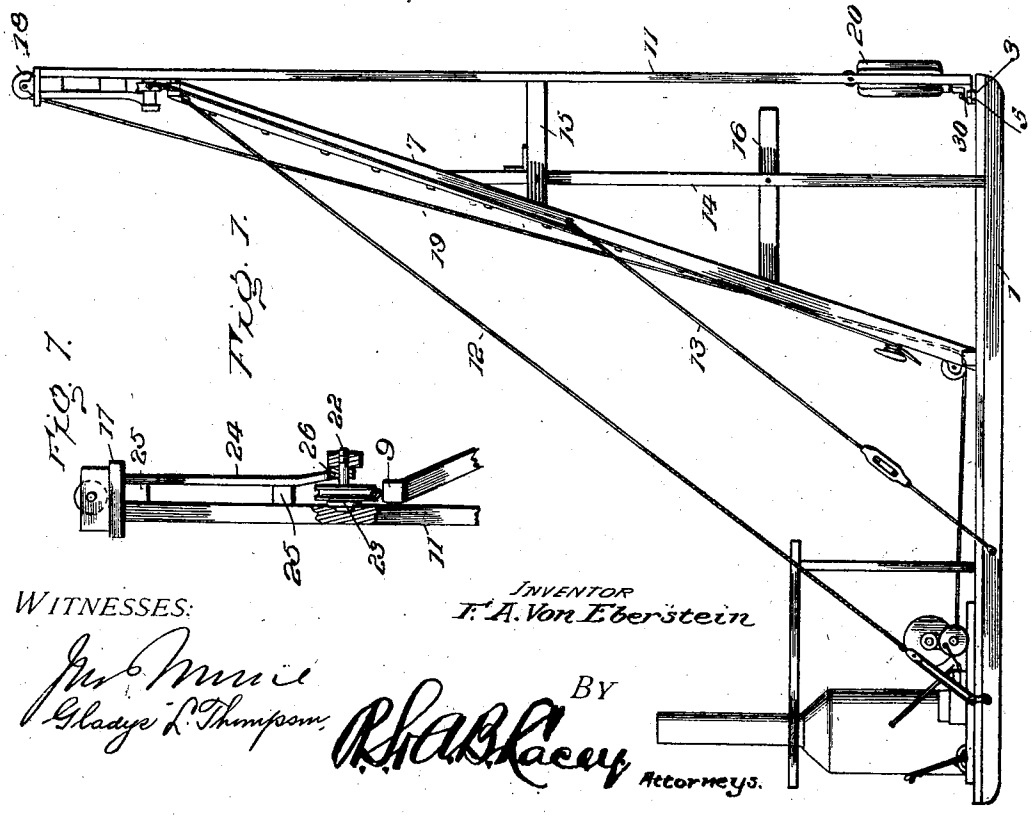


FIG. 1.

WITNESSES:

Jno. C. Mann

Gladys L. Thompson

INVENTOR

F. A. Von Eberstein

BY

R. H. & R. Lacey

Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 726,268. PATENTED APR. 28, 1903.

F. A. VON EBERSTEIN.

PILE DRIVER.

APPLICATION FILED NOV. 18, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

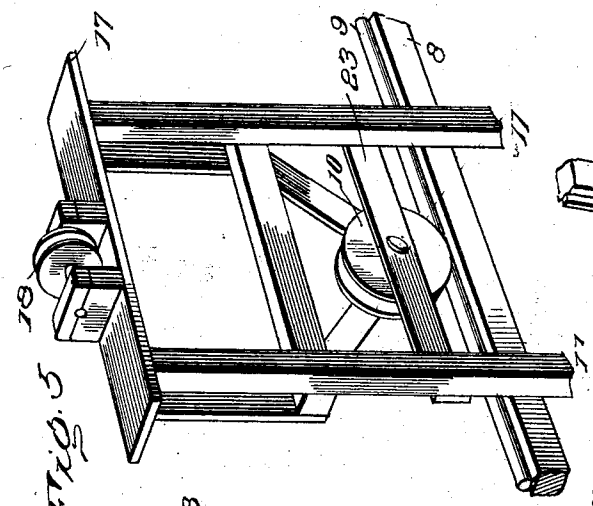


Fig. 5

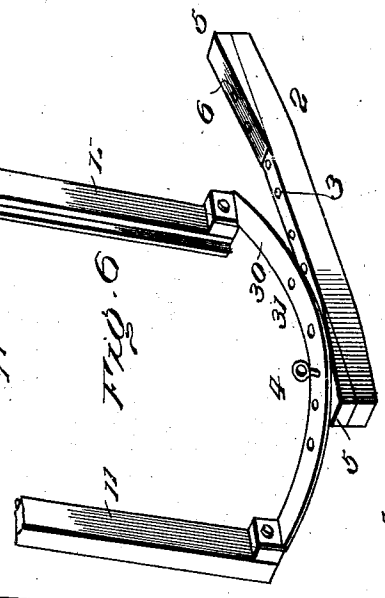


Fig. 6

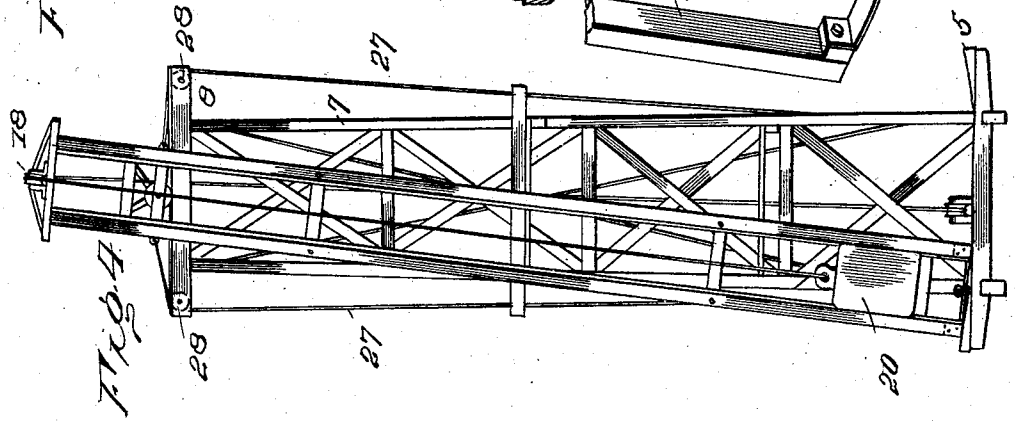


Fig. 4

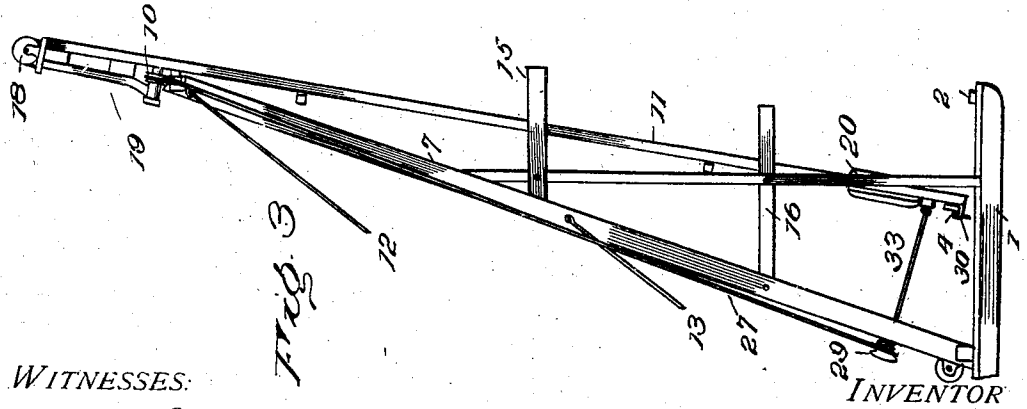


Fig. 3

WITNESSES:

Jno. Irvine

Gladys L. Thompson

INVENTOR

F. A. Von Eberstein

BY

R. H. B. Lacey

Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FREDRICK A. VON EBERSTEIN, OF SAVANNAH, GEORGIA.

PILE-DRIVER.

SPECIFICATION forming part of Letters Patent No. 726,268, dated April 28, 1903.

Application filed November 18, 1902. Serial No. 131,879. (No model.)

To all whom it may concern:

Be it known that I, FREDRICK A. VON EBERSTEIN, a citizen of the United States, residing at Savannah, in the county of Chatham and State of Georgia, have invented certain new and useful Improvements in Pile-Drivers, of which the following is a specification.

This invention relates to machines for driving piles, being particularly adapted for use in the construction of railroads in low, marshy, and soft land, the construction obviating the necessity of shifting the machine laterally to drive the usual number of piles transversely of the road and at the same time admitting of the center piles being driven perpendicularly and the end piles oppositely inclined, so as to mutually brace each other when the header is in place and secured thereto. The machine will also admit of driving piles perpendicularly, whether going up or down grade.

In accordance with this invention the guides may be moved laterally or swung from side to side or forward and rearward, according as the pile is to be driven vertical or inclined to meet any requirement.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a pile-driver embodying the invention, the guides being perpendicular. Fig. 2 is a view similar to Fig. 1, showing the guides inclined forward at their lower ends. Fig. 3 is a view similar to Fig. 2, showing the guides inclined rearward at their lower ends. Fig. 4 is a front view of the machine, showing the guides inclined to the left at their lower ends. Fig. 5 is a detail perspective view of the upper portion of the guides and the track therefor. Fig. 6 is a perspective view of the lower portion of the guides, a moon-beam coöperating therewith for fixing the position of the guides when in either a perpendicular or inclined position. Fig. 7 is a sectional detail view of the upper portion of the guides and derrick.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The mechanism is mounted upon a sled 1 of any substantial construction of a size to receive the operating-engine and adjunctive parts. The front end of the sled is provided with a moon-beam 2, which connects the runners and at the same time fixes the position of the lower ends of the guides when the latter are adjusted to a perpendicular position or are laterally inclined either to the right or to the left. The moon-beam is provided with a series of openings 3 for reception of the pin 4, by means of which the guides are secured at their lower ends in the required position. Wedge-blocks 5 are secured to the end portions of the moon-beam, and their upper sides or faces are inclined to conform to the inclination of the guides when swung laterally either to the right or to the left for driving the end piles at an outward and downward inclination. The wedge-blocks 5 are detachably fitted to the end portions of the moon-beam, so as to be replaced by other blocks of greater or less inclination, according to the required inclination of the piles to be driven. One or more openings 6 are formed in the wedge-blocks and correspond with like openings in the moon-beam and are adapted to receive the pin 4 or other fastening for securing the wedge-blocks when properly positioned upon the moon-beam. Obviously any means may be resorted to for fastening the wedge-blocks to the moon-beam, so as to prevent casual displacement.

The derrick 7 may be of any construction best adapted for the work in hand and is provided at its upper end with a cross-beam 8, upon which is secured a track 9, upon which is a trolley-wheel 10, supporting the guides 11. The trolley-wheel 10 is grooved in its periphery and the track 9 is of rounded form to admit of swinging the guides forward or rearward at their lower end without producing any binding between the said trolley-wheel and track. The track is braced by guys 12 and 13, connected at their lower rear ends with the rear portion of the sled and adjustable to

admit of inclining the track more or less to attain any adjustment of the guides without necessitating movement of the sled. Uprights 14 are interposed between the track and sled and serve to stiffen and brace said track. Horizontal braces 15 and 16, located at different levels, connect the track with the uprights 14 and in conjuction with said uprights 14 serve to materially strengthen the structure as well as to steady the guides when in a perpendicular position, as indicated most clearly in Fig. 1.

The guides are suitably braced and stayed and are connected at their upper ends by means of a cross-piece 17, upon which is mounted the trolley 18, from which passes the rope 19, whereby the monkey or driver 20 is actuated, said rope being adapted to wind upon the drum of the hoisting-engine 21, of any approved construction. The trolley-wheel 10 is mounted upon a pin or bolt 22, supported at one end by a cross-piece 23, connecting the guides 11, and at its opposite end in a frame 24, located in the rear of the guides and spaced therefrom by cross-pieces 25. The frame 24 is preferably of metal and its lower end is of V form, the outwardly-converged bars terminating in a bearing 26, through which the rear end of the bolt or pin 22 passes. This construction provides a support at each side of the trolley-wheel and equalizes the load upon the end portions of the pin or bolt 22. The weight of the guides is sufficient under ordinary conditions to hold the trolley-wheel upon the track 9, and when it is required to lower the guides for any purpose it is only necessary to lift the same a slight distance to disengage the trolley-wheel from the track, when the guides may be lowered in the usual way. Operating-ropes 27 are connected at their upper ends with the guides in any convenient way and pass from direction-pulleys 28 at the ends of the cross-beam 8 and extend within convenient reach of the ground and are adapted to be secured to the uprights of the derrick by means of cleats 29 or to be made fast in any determinate way. The ropes 27 admit of moving the guides laterally upon the track 9 to any position within its length, whereby the pile may be driven at any point in the width of the proposed road-bed or lateral range of the machine. A yoke 30 connects the lower ends of the guides 11 and is curved in its length and provided with a series of slots 31 for reception of the pin or fastening 4, by means of which the guides are secured to the moon-beam 2 in the required adjusted position.

For driving the piles perpendicular the guides 11 are permitted to hang vertical, as indicated in Fig. 1. Should it be required to drive the pile so as to incline laterally, the guides 11 are swung to one side or the other at their lower end, as indicated in Fig. 4. When the pile is to be inclined rearward at its upper end, the guides are swung forward at their lower end, as indicated in Fig. 2, and are held in this position by means of a prop or pole 32, interposed between them and the sled or other resisting-point. When it is required to drive the pile so as to incline forward at its upper end, the guides are swung rearward at their lower end, as indicated in Fig. 3, the rope or cable 33 holding the same in place.

A pile-driver constructed in accordance with this invention admits of a variety of adjustments and of driving the piles either perpendicular or at any angle without necessitating the shifting of the sled or other support upon which the operating parts are mounted. Moreover, the construction is extremely simple and capable of being easily manipulated. Hence the work may be performed in a rapid and effective manner.

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

1. In a pile-driver, a derrick provided at its upper end with a transverse track, a trolley-wheel mounted upon said track and adapted to travel and to rock thereon, guides connected at their upper end with said trolley-wheel and movable therewith and having an independent sidewise-swinging movement, and means for securing the guides in an adjusted position, substantially as described.

2. In a pile-driver and in combination with the derrick provided with a track, and guides, a single trolley-wheel for supporting the guides upon the track, a frame connected to the upper portion of the guides and spaced therefrom, and a pin for the trolley-wheel supported at its ends by said frame and a cross-piece connecting said guides, substantially as described.

3. In a pile-driver, the combination of the following parts, namely; a sled, a derrick mounted upon the sled, a transverse track at the upper end of the derrick, uprights between the derrick and sled, braces between the derrick and uprights, guides, a single trolley-wheel at the upper end of the guides and mounted upon the track, means for shifting the guides along the track and fixing them in an adjusted position, said guides being free to swing laterally, forward, and rearward at their lower end and means for securing the guides at their lower end in an adjusted position, substantially as set forth.

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

FREDRICK A. VON EBERSTEIN. [L. S.]

Witnesses:
W. P. L. ROCHE,
D. ELWOOD MCCUEN.