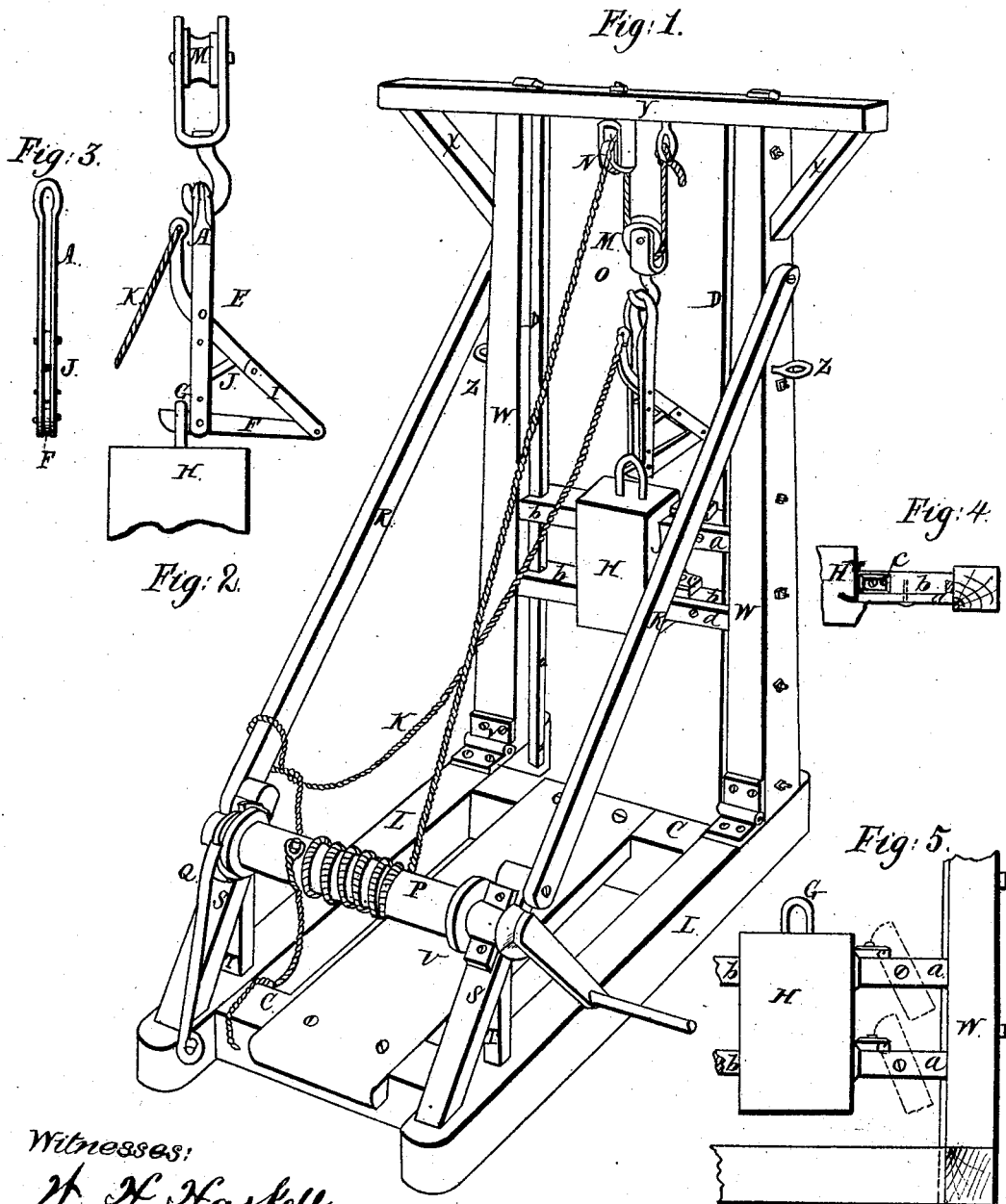


*N. Havermale.*

*Pile Driver.*

*N<sup>o</sup> 110,359.*

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Witnesses:  
*H. H. Haskell.*  
*E. L. Volman*

Inventor:  
*Noah Havermale.*

# United States Patent Office.

NOAH HAVERMALE, OF CANTON, ILLINOIS.

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## IMPROVEMENT IN PILE AND POST-DRIVERS.

The Schedule referred to in these Letters Patent and making part of the same.

I, NOAH HAVERMALE, of Canton, in the county of Fulton and State of Illinois, have invented certain Improvements in Pile and Post-Drivers, of which the following is a specification.

The nature of my invention consists in providing a suitable frame-work that can be loaded and hauled upon an ordinary wagon.

To the front end of the frame two guide-posts are hinged, so they can be raised to any angle, and properly braced when set up.

To the cap is attached the main line, which passes downward, and suspends a movable pulley, to which is attached the shipping-hook, which raises and drops the hammer. The line passes from the movable pulley over one fixed to the cap, and thence to a windlass or other power.

The shipping-hook is so constructed that, by means of a cord, the hammer is let fall from any desired elevation.

The construction of the frame-work, the connection of the hammer, and the ease with which the weight is discharged at any height, make this machine peculiarly adapted to the driving of piles for highway-bridges or coffer-dams, or the posts of an ordinary post-and-board fence.

Figure 1 is a perspective elevation of a pile and post-driver.

Figure 2 is a side elevation of the shipping-hook.

Figure 3 is an edge elevation of the draft-bar of the shipping-hook.

Figure 4 is a vertical section, showing compound guide-arms.

Figure 5 is a front elevation of hammer, guide-arms, and the foot of one post.

### General Description.

L L are the sills.

C C, the cross-timbers.

U is the platform.

S S T T are the windlass-posts and braces.

W W, the guide-posts, capped by Y, and braced by X X and R R, all of suitable size and material.

Guide-bars D extend to the bottom of the sills, and are bolted to the posts W, which have short tenons to fill mortises in sills L, to which they are connected by suitable hinges, V.

Of any required weight I make the hammer H, cast with mortises to receive the wooden guide-arms b b, which have a slot in each end to work up and down on the bars D D.

On one side of the hammer these arms have, on their front edges, a movable section, a, turning verti-

cally upon a bolt, the outer end of the section forming one side of the slot which receives the guide-bars, and the inner end secured to its guide-arm by means of a projection cast upon the hammer and a button, c, upon the upper side of arm. (See figs. 4 and 5.)

Of suitable size and metal I make the draft-bar A, as shown in figs. 2 and 3, having the lever-hook I pinned within the lower end of the sides, and connected to the jointed lever J, that is pinned between the sides of the draft-bar above the joint, and then bent upward, and terminating in an eye, in which is fastened the cord K.

The joint of the lever I sets slightly toward the bar A, and the weight rests upon the set-screw or pin J, that is secured to a plate riveted between the sides of the bar.

When the machine is to be used for driving piles for a bridge, proper false work is made, about the height the piles are to be when driven. Then the frame of the driver is removed from the wagon, set on the false work, and properly leveled. If necessary, a sub-sill is placed under the front end, extending far enough on either side to allow bracing from the ends of the sub-sill to the rings Z Z. The cap Y is placed upon its tenons, and the tenons of the braces X X are entered. The guide-posts W W are then raised to a right angle with the sills by means of the braces R R, their upper ends being bolted to posts. Then their lower ends are to be bolted to S S of the windlass-frame. Place the hook of the movable pulley M into G, the eye of the hammer, and draw it by the windlass to the platform U, and put in the shipping-hook. When the guide-arms b b are adjusted, the sections a a being raised so as to open the slots, raise the hammer, fix the arms in their places, close the slots, and fasten the sections by putting the inner ends down behind the projections on hammer until they touch the bottom shoulder of projections, and secure them there by turning the buttons c c. The pile being ready, raise the hammer, by means of the windlass, to any desired height. Then pull on the cord K until joint in I is straightened, and the hammer discharged. If the height from which the blow is to be delivered is determined, tie the cord K at the proper length to the frame, and the hammer will be discharged.

If it is desirable to drive the piles at any inclination, as for a coffer-dam, shorten the coupling of the braces R R at their lower ends, as desired, bringing the top of W inward, and proceed as before stated.

When the machine is to be used for driving fence-posts, it is made of suitable size, remains upon the wagon, which is driven on the desired line of fence,

and is operated in the same manner. In such a case the guide-posts may be inclined to suit any ascending or descending surface of the ground.

If the descent of ground is across the desired line of fence, blocking on the hind axle may be used, the weight being over that axle, and the bolster readily conforming thereto.

When the machine is being hauled from place to place, the guide-posts are down, and rest upon the windlass-frame, and the hammer taken out.

I claim as my invention—

1. The sills L, cross-timbers C, platform U, guide-

posts W, guide-bars D, braces X, cap Y, braces R and S, posts T, windlass P, rope O, and pulleys M and N, when combined and arranged in the manner shown and described, and for the purpose set forth.

2. The hammer H, guide-arms b, sections a, buttons c, guide-bars D, and posts W, when combined and arranged in the manner shown and described, and for the purpose set forth.

N. HAVERMALE.

Witnesses:

W. H. HASKELL,

R. W. DEWEY.