(No Model.)

2 Sheets—Sheet 1.

L. H. KETCHAM.

POST DRIVER.

No. 553,002. Patented Jan. 14, 1896.

Fig. 1.

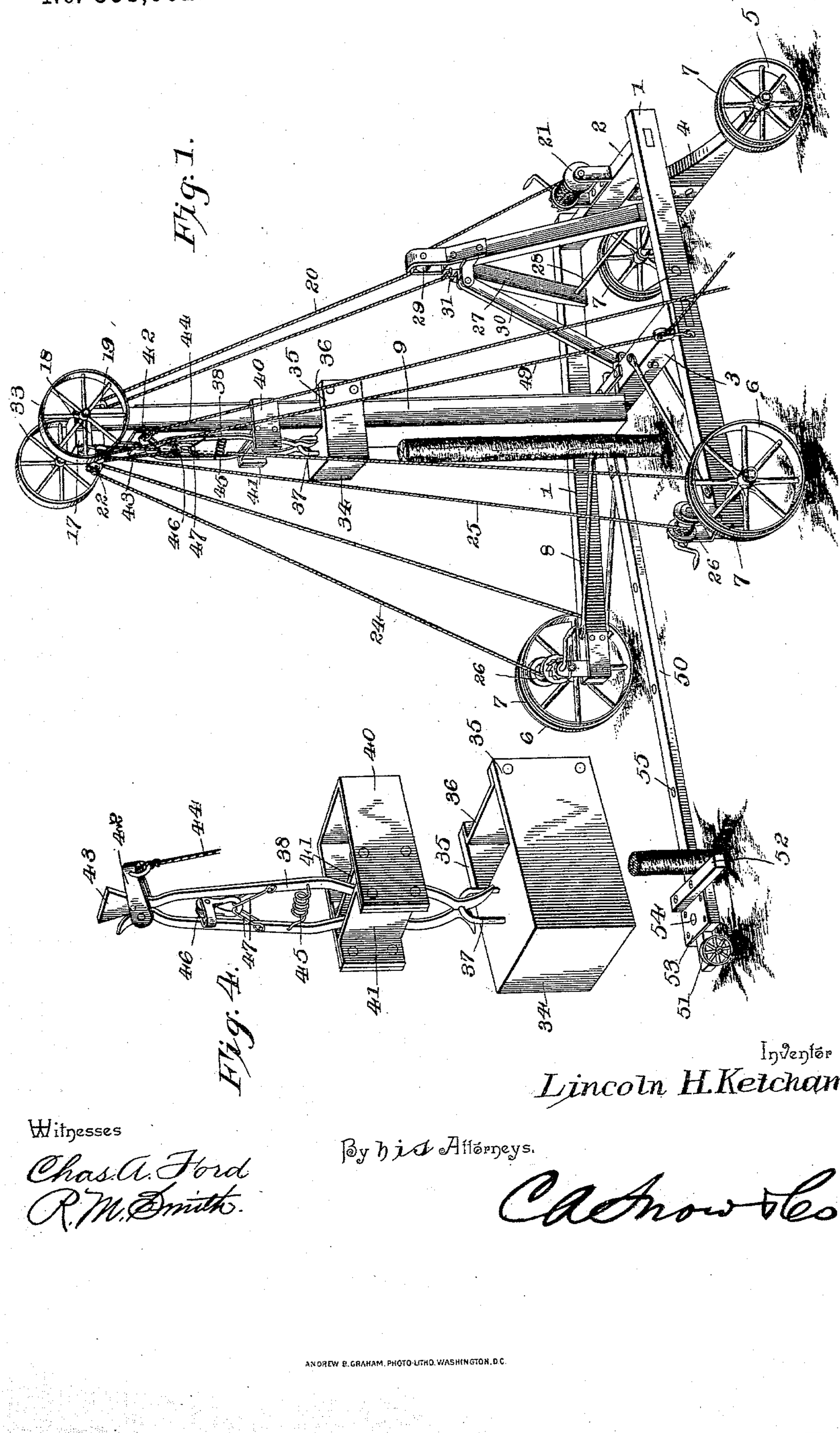


Fig. 4.

Witnesses

Chas. A. Ford

R. M. Smith.

Inventor

Lincoln H. Ketcham,

By his Attorneys.

C. A. Snow & Co.

(No Model.) 2 Sheets—Sheet 2.

L. H. KETCHAM.

POST DRIVER.

No. 553,002. Patented Jan. 14, 1896.

Fig. 2.

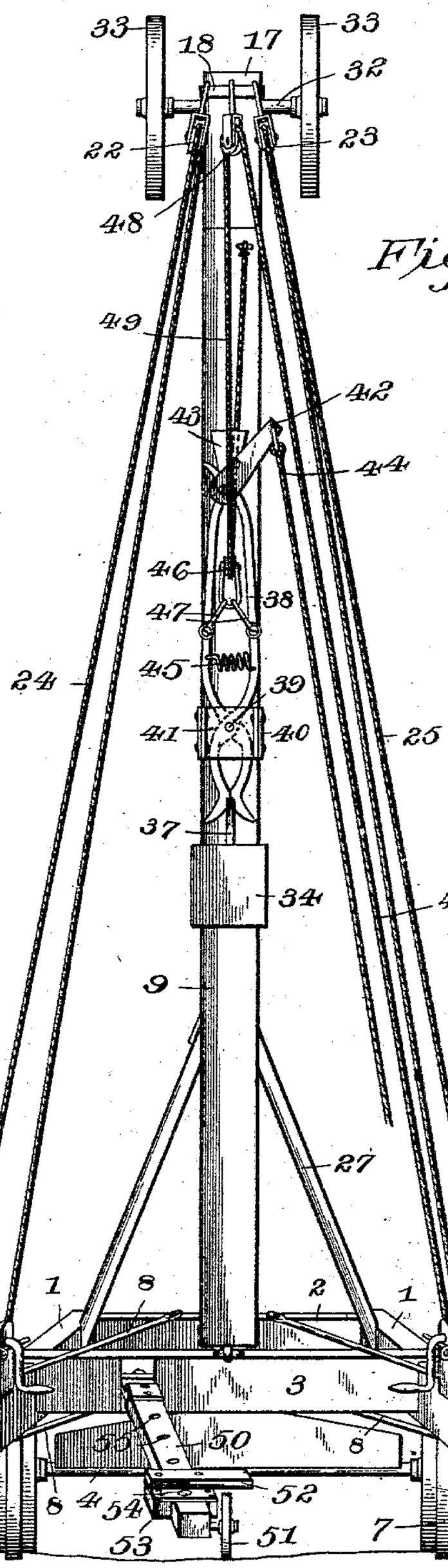
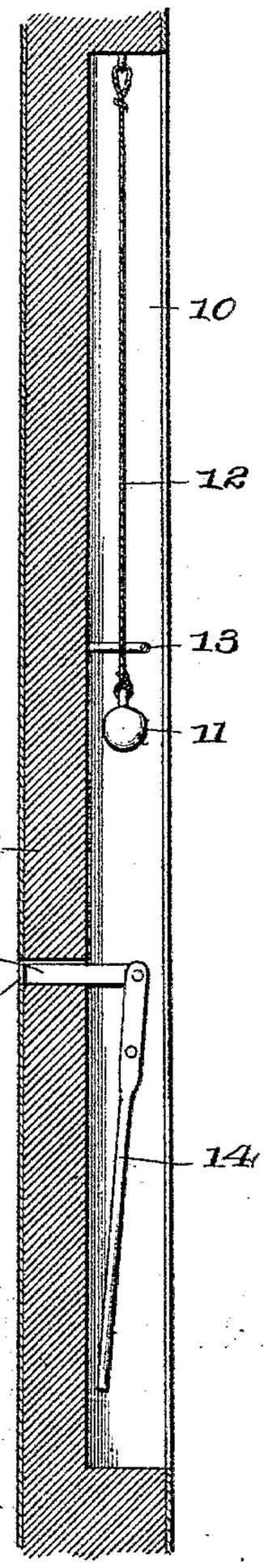


Fig. 3.



Witnesses
Chas. A. Ford.
R. M. Smith.

Inventor
Lincoln H. Ketcham,
By his Attorneys,
C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

LINCOLN H. KETCHAM, OF CORNING, OHIO.

POST-DRIVER.

SPECIFICATION forming part of Letters Patent No. 553,002, dated January 14, 1896.

Application filed March 28, 1895. Serial No. 543,482. (No model.)

To all whom it may concern:

Be it known that I, LINCOLN H. KETCHAM, a citizen of the United States, residing at Corning, in the county of Perry and State of Ohio, have invented a new and useful Post-Driver, of which the following is a specification.

This invention relates to an improvement in machines for driving fence and other posts, piling for railroads, &c.

The object of the present invention is to simplify and improve the construction described in my former patent, No. 500,138, granted to me June 27, 1893, for an improvement in fence-post drivers; furthermore, to provide such machine with means whereby it may be adjusted with the aid of a visible indicator for adapting it to drive posts vertically, notwithstanding the surface of the ground may be undulating or uneven.

To this end the invention consists in certain features and details of construction, and arrangement of parts, hereinafter fully described, illustrated in the drawings, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a post-driving machine constructed in accordance with my improvements. Fig. 2 is a rear elevation of the same. Fig. 3 is a vertical longitudinal section through a portion of the mast, showing the plumb-bob by means of which the vertical position of the mast may be accurately determined. Fig. 4 is a detail perspective view of the hammer, tong members, guiding-block, &c.

Similar numerals of reference indicate corresponding parts in the several figures of the drawings.

Referring to the drawings, 1 1 designate two rearwardly-diverging side frame-bars of the machine-truck; 2, the forward connecting transverse beam, and 3 the main supporting transverse beam to which the mast is hinged. The truck is mounted at its forward end upon a pivoted axle 4 having a pair of wheels 5 mounted thereon, as shown. The longitudinal truck frame-bars 1 are provided at their rear ends with short laterally-projecting stud-shafts or axles on which are mounted other similar ground-wheels 6, all of said wheels 5 and 6 being provided with peripheral flanges or anchoring-ridges 7 which are adapted to penetrate the surface of the ground and to prevent lateral movement of the machine while in operation. Suitable brace-rods 8 extend from the main transverse beam 3 to the rear ends of the diverging side bars 1 for imparting the requisite strength to the truck.

The mast 9 is approximately square in cross-section, and is provided in its forward face with a vertically-extending groove 10, in which is supported a plumb-bob 11 on a plumb-line 12 secured in place near the upper end of said groove. An elongated staple 13, through which the plumb-line passes, serves to keep the bob in place. By means of the plumb-bob a visible indicator is provided by which the angle of the mast may be observed and regulated for bringing said mast into a vertical position regardless of the undulations or character of the surface of the ground upon which the machine stands. A lever 14 is also pivoted within said groove 10 and provided with a sliding finger 15 passing through a perforation 16 in the rear face of the mast for a purpose which will appear.

The mast 9 is pivoted at its lower end to the transverse beam 3 in any convenient manner, and at its upper end has a head-block 17 secured thereto on its rear face. An encircling band 18 surrounds the mast and head-block 17 and supports a series of pulley-blocks, as shown. From a pulley-block 19 on the forward face of the mast a rope 20 passes to a drum 21 attached to the upper face of the forward transverse bar 2 of the truck-frame, and from similar pulley-blocks 22 and 23 on the rear face of the mast guy-ropes 24 and 25 extend to similar drums 26 located on the rear ends of the diverging side bars of the truck.

Near the forward end of the truck-frame is pivoted an inverted-V-shaped frame 27 swiveled on the short transverse shaft 28 and carrying at its upper end a pulley 29 mounted in a U-shaped bracket secured to said frame. An inclined brace 30 attached at its lower end to the transverse beam 3 and detachably connected at its upper end with said V-shaped frame serves to thoroughly brace the frame 27. The guy-rope 20 is fastened at one end to a staple 31 on the frame 27, passes upward through the pulley-block 19, downward through and over the pulley 29, and thence

to the winding-drum 21, which is provided with a ratchet-disk at one end and a retaining-pawl for holding the same from turning when desired. The rear guy-ropes 24 and 25 are rigidly attached near the rear ends of the bars 1, extend upwardly over or through the pulley-blocks 22 and 23, and thence down to the ratchet-drums 26.

By means of the construction just described the mast 9 may be brought into vertical position and so held, no matter what the undulations or character of the surface of the ground may be. The upper end of the mast 9 is also provided with a short transverse shaft 32, which carries a pair of oppositely-disposed wheels 33, which when the mast is lowered rest upon the ground and support and uphold said mast at such point.

34 designates the hammer, which consists of a solid block of metal provided with forwardly-extending arms 35, which embrace the sides of the mast and receive between them at their forward edges a connecting-plate 36 secured thereto in any convenient manner. The hammer is thus caused to entirely surround the mast 9, and is provided on its upper face with a lifting-eye 37 adapted to be engaged by a pair of tong members 38 notched at their lower ends for the purpose and centrally pivoted at 39 in a vertically-sliding guide-bracket 40 surrounding the mast and provided with a pair of parallel plates 41 perforated to receive a pivotal pin 39. The tong members converge toward their upper ends and receive a U-shaped pivoted link 42 hinged to one of said members and striding the other, and also carrying a pivoted wedge-shaped plate 43 interposed between the upper flaring ends of said tong members.

A cord 44 attached to the outer end of the pivoted link 42 enables the operator to rock said link at any time and to force the wedge 43 down between the upper ends of the tong members, thereby opening the lower ends of the tong members for releasing the weighted hammer. A spiral spring 45 interposed between the tong members holds them normally closed. A pulley-block 46 located between the tong members 38, and connected to the inner adjacent ends of two pivoted links 47 attached one to each tong member, receives the hoisting-rope, one end of which is attached to the upper end of the mast, and the other end extends over a block pulley 48. To the free end of the hoisting-rope 49 is attached a cross-head or singletree to which a horse may be attached for elevating the hammer in a manner that will be readily understood.

A gage-bar 50 is pivoted to the main transverse beam 3 at its forward end, extending thence rearwardly, and provided at its rear end with a caster or small wheel 51 adapted to support the weight thereof. A gage-arm 52 mounted on a sliding block 53 embracing said gage-bar is adapted to be adjusted lengthwise of said bar by means of a removable pin 54 and a series of holes 55, by means of which the distance between the several posts to be driven is accurately regulated in the manner described in my former patent referred to. The mast 9 is provided with a series of wearing-plates in the form of long strips of metal extending nearly the entire length of the mast, and against which the movable parts thereon are adapted to rest and slide.

The operation of the device will be readily understood. The machine is drawn by a team to the place where the posts are to be driven. The mast is then elevated by the mechanism hereinabove described, until it occupies a vertical position immediately above the point where the post is to be driven. A horse is now attached to the hoisting-rope, and the weighted hammer elevated about half-way up the mast, when the lever 14 is vibrated to throw the finger 15 beneath the hammer for supporting the latter at this point while the post is being placed in position. The post, having been previously pointed at its lower end, is introduced beneath the hammer, the lower face of which is preferably slightly concaved, and the lever 14 is then operated to withdraw the finger 15, thereby releasing the hammer and starting the post into the ground. The hammer is now elevated the entire height of the mast until the wedge 43 comes in contact with the head-block 17, when the former, operating upon the tong members, will cause the hammer to be released and to descend upon the upper end of the post and drive the same downward. By backing the horse the tong members may now be lowered until they again reach and snap over the lifting-eye 37 on the hammer. This operation is repeated until the post has been driven to the required depth. The machine is now moved forward in the line in which the posts are to be driven until the gage-arm 52 comes in contact with the post just driven. The distance between the posts is thus automatically regulated and the machine is now in the proper position for driving another post. After all the posts have been driven the various drums are operated to lower the mast, when the wheel on the upper end of the mast will rest upon the ground and support the weight thereof. The machine is now ready to be hauled from the scene of operation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described this invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a post driving machine, the combination with a portable truck frame, of a mast having a longitudinal groove, a hammer slidingly mounted thereon and embracing the mast, means for elevating and releasing the hammer, a transversely movable finger located intermediate the ends of the mast and sliding through a perforation therein, and

means arranged within said groove and within the plane of the mast whereby said finger may be projected or withdrawn, substantially as and for the purpose specified.

2. In a post driving machine, a portable truck frame, a pivoted mast attached thereto and adapted to support the hammer and its operating mechanism, in combination with an inverted V-shaped frame pivoted to said truck frame and capable of being folded thereon, an inclined brace for upholding said V-shaped frame and a pulley carried in the upper end thereof, all arranged for the purpose and substantially as described.

3. In a post driving machine, a portable truck frame, a mast pivoted thereto and provided in its face with a longitudinally extending groove, in combination with a longitudinally movable hammer, means for elevating and releasing said hammer, and a plumb-bob suspended upon a plumb line within the groove in said pivoted mast, substantially as and for the purpose specified.

4. In a post driving machine, a portable truck frame, in combination with a pivoted mast attached thereto and provided with a groove in its face, a vertically movable hammer, means for elevating and releasing said hammer, a sliding finger 15 moving through a horizontal perforation in the rear face of the mast, and an operating lever pivoted to said mast and located within said groove, all arranged for joint operation, substantially as described.

5. In a post driving machine, a portable truck frame, in combination with a pivoted mast attached thereto and formed with a facial groove extending longitudinally thereof, a longitudinally movable hammer slidably mounted on said mast, means for elevating and releasing said hammer, and a plumb bob arranged within the groove of said mast, substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

LINCOLN H. KETCHAM.

Witnesses:

HIRAM KETCHAM,

MARY ELDER.