

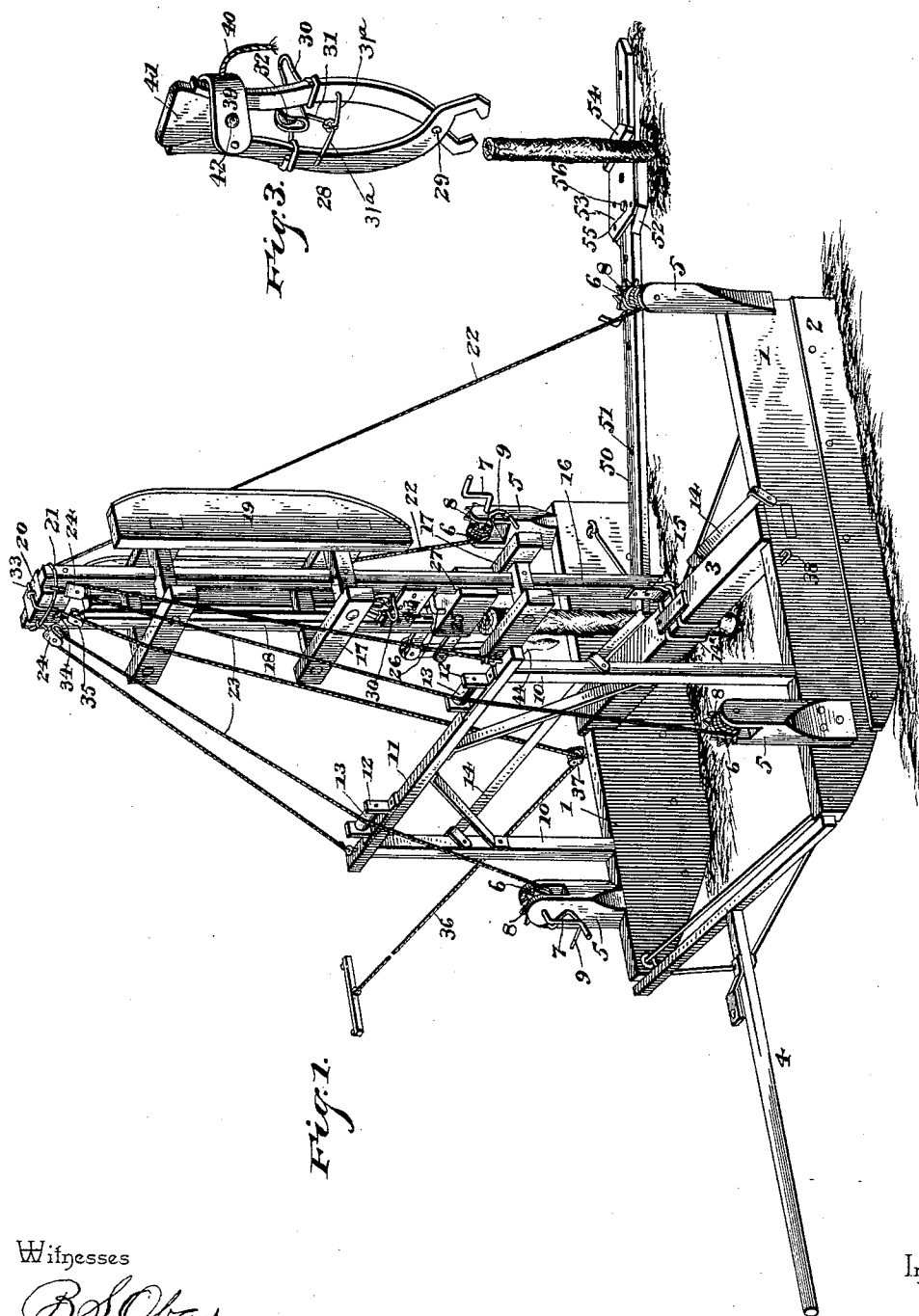
(No Model.)

2 Sheets—Sheet 1.

L. H. KETCHAM.
FENCE POST DRIVER.

No. 500,138.

Patented June 27, 1893.



Witnesses

B. S. Ober
W. S. Duval

Inventor

By his Attorneys, *Lincoln H. Ketcham,*

C. A. Snow & Co.

(No Model.)

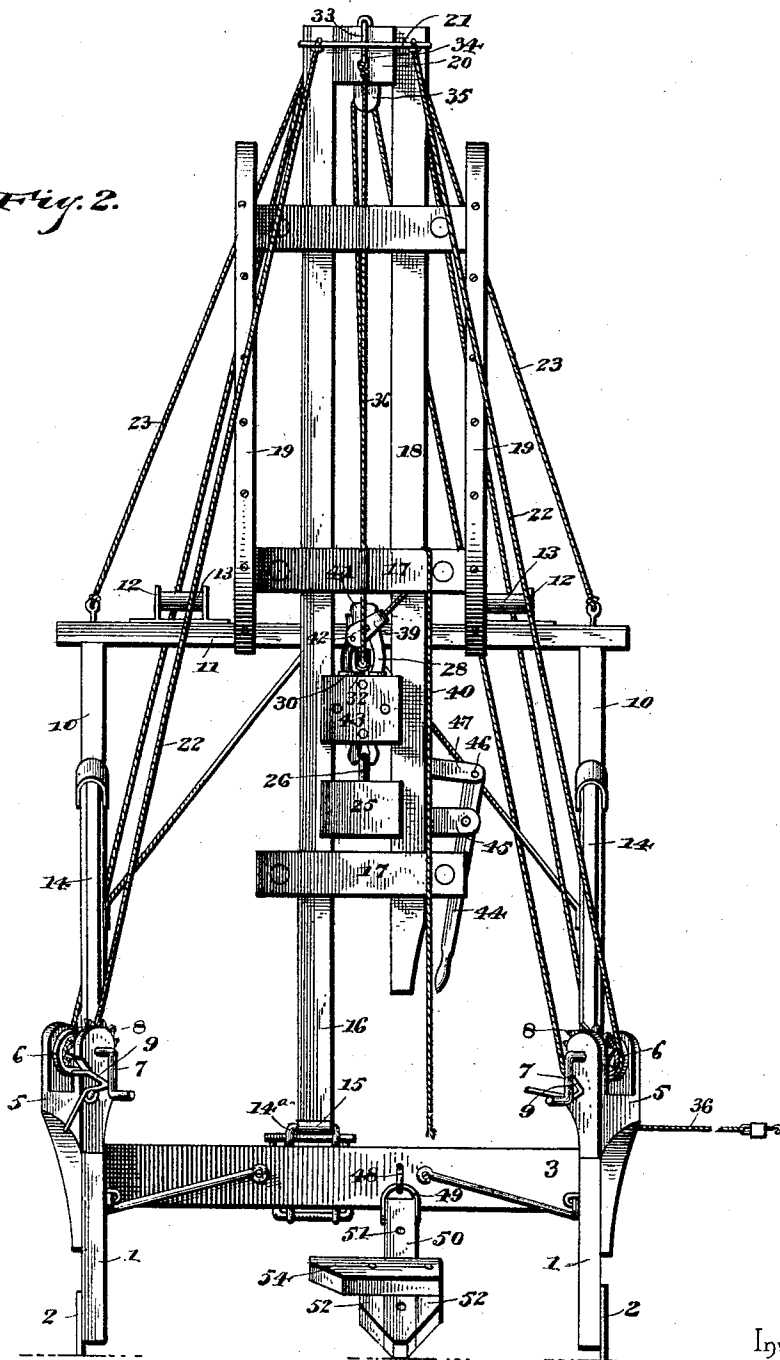
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Fig. 2.



Witnesses

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By his Attorneys,

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UNITED STATES PATENT OFFICE.

LINCOLN H. KETCHAM, OF COMLEY, OHIO.

FENCE-POST DRIVER.

SPECIFICATION forming part of Letters Patent No. 500,138, dated June 27, 1893.

Application filed January 31, 1893. Serial No. 460,288. (No model.)

To all whom it may concern:

Be it known that I, LINCOLN H. KETCHAM, a citizen of the United States, residing at Comley, in the county of Perry and State of Ohio, have invented a new and useful Machine for Driving Fence-Posts, of which the following is a specification.

My invention relates to machines for driving fence and other posts; the objects in view
10 being to construct a machine adapted to be drawn over the ground to and from the point of building the fence, and to conveniently drive the post into the ground; and to gage the distance between the same, whereby they
15 may be uniform. Furthermore to so construct the machine as to adapt it to drive the posts vertically regardless of the undulations or rolling character of the surface of the ground upon which the machine is operating.
20 With these and other objects in view the invention consists in certain features of construction hereinafter specified and particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a
25 perspective view of a machine constructed in accordance with my invention, the same being in the act of driving a post. Fig. 2 is a rear elevation of the machine. Fig. 3 is a perspective view in detail of the hammer-engaging tongs.

Like numerals of reference indicate like parts in all the figures of the drawings.

1—1 designates a pair of opposite runners, though it may be ordinary sills of a suitable frame to be mounted on a truck to render the machine portable. I, however, prefer the
35 runners, and provide the same at their lower edges with metal anchoring flanges 2, which protrude beyond the lower edges of the runners and are designed to cut into the ground,
40 whereby the machine is rendered more stable in operation than were it mounted upon a portable wheeled truck. The runners are connected at about their centers with a transverse beam 3, and at other points by suitable tie-bars. At their front ends there is located
45 a draft-pole 4, the same being of ordinary construction and requiring no specific description. At the opposite ends of the runners
50 are located posts or standards 5, each of which is bifurcated, and has journaled between its

bifurcations a small winding drum 6, operated by a crank-handle 7. Each drum carries a ratchet-wheel 8 fast therewith, and pivoted pawl-levers 9 of bell-crank shape are located
55 at the sides of the post 5, and are designed to engage removably with the teeth of the aforesaid ratchet-wheels, whereby the latter are prevented from rotating in one direction.

Uprights 10 rise from each of the runners 1 in rear of the front pair of posts 5, and the same are crowned and connected by a cross-bar 11. Upon the cross-bar 11 near the ends thereof pairs of bearings 12 are located, and
65 in these bearings are journaled pulleys or loose rollers 13. The inverted U-shaped frame thus described is braced on its rear side by a pair of inclined braces 14 whose extremities are clipped or otherwise conveniently secured to the upper edges of the runners and to the standards 10.

A stirrup-iron of inverted U-shape and designated as 14^a is secured to the center of the beam 3, and to this there is connected loosely
75 through the medium of a strap-eye 15 a vertical swinging mast 16. Rectangular frames 17 embrace the mast at intervals and are secured thereto at one end, while to the opposite ends of said frames there is secured a
80 shorter mast 18, which is parallel to the mast 16, said masts being preferably rectangular in cross-section and forming opposite guides, whose purpose will be hereinafter described. Secured to the rear sides of the two upper-
85 most frames 17 is a pair of runners 19, which, when the masts lie in their lowered positions serve to support the same, and are designed to be dragged over the ground after the machine.

Interposed between the guide-masts 16 and 18 is a crown or head-block 20, and the same is encircled by a metal band 21. A rear pair of guy-ropes 22 are connected at their upper ends to the metal band surrounding the head-
95 block, and at their lower ends are secured to and wound upon the rear pair of drums 6. The front pair of guy-ropes 23 are secured to the cross-beam 11 of the inverted U-shaped frame, extend up and through sheaves 24, 100 which are suspended from the front side of the said metal band, depend from the same,

running over the loose guide-rollers 13, and have their remaining ends made fast to the front pair of winding-drums 6. It will be observed that by operating the front pair of drums the masts may be swung up or down and locked at any elevation; or, furthermore, by reason of the loose connecting strap-eye 15 between the main guide-mast and the stirrup the said masts may be swung laterally so that they may assume a vertical position regardless of the character or inclination of the surface upon which the machine sits.

25 designates a hammer, and the same is provided upon its upper side with a staple or eye 26, and at its opposite edges with vertical grooves 27, said grooves receiving the masts 16 and 18, whereby the hammer is maintained in position and adapted to slide vertically within said masts. Inasmuch as the mast 16 is connected to the stirrup a slight distance in rear of the transverse beam 3 it will be apparent that the path of the hammer in a vertical direction is clear and unobstructed, so that an object lying below the hammer may be struck when the latter falls.

28 designates a pair of tong-members, and they are pivoted together at 29 and have their lower extremities beveled so as to engage over the eye of the hammer, and have their upper extremities provided upon their inner faces with inclined or converging surfaces. A spring 30 connects the upper portions of said members, and therefore serves to normally close them at their lower ends, but in a yielding manner. A staple or link 31 is connected to the inner ends of a pair of loose links 31^a, the ends of which are connected to the tongs, and in the same is mounted a pulley 32. A suspension-rod 33 is curved over and supported upon the head-block and terminates at its ends in hooks 34. To the front hook there is connected a pulley-sheaf 35, while to the rear hook there is secured one end of the elevating-rope 36, the remaining end of said rope depending and being passed under the pulley 32, up through the pulley 35, and thence depends, and is passed through a pulley 37, which is designed to be connected removably to the hooks 38 located at each side of the machine and projecting from the runners. To this rope there is secured a single-tree or other mode of draft-appliance, and through the medium of a horse started from the machine at either side thereof, it will be seen that the hammer being engaged by the tongs may be elevated to the upper end of the guide frame which the masts form. A U-shaped link 39 embraces the two upper ends or terminals of the tong-members, and has its terminals pivoted near their extremities to one of said members. From the center of this link extends an operating rope 40. Located within the said link and between the upper inclined faces of the members is a wedge-shaped weight 41, and to the same the opposite members or terminals of the link are

connected or pivoted as at 42. Opposite face-plates 43 are secured to the tongs and embrace the front and rear faces of the guide-masts, whereby said tongs are maintained in position between the masts.

A lever 44 is fulcrumed upon a short standard 45, and at its lower end it is shaped to form a convenient handle. The upper end of the lever is pivoted, as at 46 to a transverse bolt 47 located in an opening in one of the masts. By operating the lever in one direction it will be seen that the bolt may be projected into the path of the hammer, and by operating the lever in the opposite direction the inner end of said bolt will be withdrawn from the path of said hammer.

A staple 48 is secured to the rear side of the transverse beam 3 a short distance out of alignment with the masts, and loosely connected thereto by means of a strap-eye 49 is a gage-bar 50. This gage-bar 50 is provided with a series of adjusting holes 51, and upon the gage-bar there is mounted a sliding gage-head or block. This sliding gage-head or block consists of opposite side pieces 52, which embrace the sides of the gage-bar and are connected upon their upper and lower sides by metal plates 53. The side pieces 52 are furthermore connected by a superimposed transversely-disposed gage-arm 54. The plates 53 have aligning perforations 55, and by moving the head along the bar the perforations 55 may be brought into alignment with any one of the adjacent perforations of said bar, and through the medium of a pin 56 passed through the perforations, the said head may be secured at any point upon the bar.

This completes the construction of the machine, and I will now briefly describe the operation thereof:—

A team of horses being attached to the draft-beam, the machine is dragged to the point at which it is desired to begin the building of the fence. If desired the same team of horses may be employed for raising the hammer, though I prefer to employ three horses in order to expedite matters, two of said horses serving to drag the machine, and the other horse to elevate the hammer. The posts, it will be understood, are previously sharpened at their lower ends in order to facilitate driving, and in this condition one is placed under or in the path of the hammer, it being understood that prior to such location of the post the several drums had been operated so as to bring the guide-masts to a vertical position regardless of the undulations of the surface of the soil. The lever 44 is then operated so as to withdraw the bolt from the path of the hammer and permit the same to drop upon the post and start the same, after which the tongs are dropped and engage with the eye of the hammer. The horse is now started, and the hammer and tongs rise until the wedge 41 comes in con-

tact with the head block at the upper end of the guide-masts, when being forced down between the upper ends of the terminals of the tongs it will be seen that said tongs may be opened against the tension of the spring 30, and thus the hammer will be liberated and permitted to fall and deliver its blow upon the top of the post. The horse at this moment is turned and brought back to the starting place, whereby the tongs descend, and at the same time the operator grasps the rod that is connected with the link and aided by the spring which has a tendency to draw the upper ends of the tongs together, is enabled to elevate the wedge from its wedging position, and thus permit the tongs when lowered to snap over the eye of the hammer, so that the horse when started again serves to elevate the hammer, and the operation is thus continued indefinitely, or until the post has been driven a desired depth. When this has been accomplished the lever 44 is operated to again lie in the path of the hammer and the gage-head is fixed upon the gage-bar at such a point from the front end thereof as agrees with the desired distance between the posts of the fence, the machine is then started in the line the fence is to be built, and the edge of the bar 50 rides over the side of the post that has just been driven, the machine continuing until the arm 54 of the gage-head reaches or contacts with the post thus driven, when the machine is brought to a stand-still, a new post inserted, and the operation repeated. Through the medium of the gage bar and head it will be seen that the posts may be planted and driven at a uniform distance apart. After the posts have all been planted or set the drums are operated so as to lower the masts to their rearmost positions, wherein the runners 19 rest upon the ground and support the same, and the machine is then dragged from the point of operation.

Various changes of the details of my invention, without departing from the spirit thereof, may be made, and I would therefore have it understood that I do not limit the same in this regard, but hold that I may vary the same and to any extent within the knowledge of the skilled mechanic.

Having described my invention, what I claim is—

1. In a machine of the class described, the combination with a portable frame, of an inverted U-shaped guide-frame supported thereby, one of the terminals of said guide-frame being shorter than the other to form an opening for the admission of a post to the space between the terminals, a hammer arranged in said guide-frame, and means for operating the same, substantially as specified.

2. In a machine of the class described, the combination with the portable frame, the guide-mast loosely connected thereto and provided upon its rear side with a pair of runners, a drop-hammer located in the guide-

frame, and means for operating said hammer, of drums located at the opposite corners of the frame, cranks for operating the drums, means for locking the same, and guy-ropes connected to the drums and to the upper ends of the hammer-supporting frame, substantially as specified.

3. In a machine of the class described, the combination with the opposite runners, the transverse connecting beam, the inverted U-shaped vertical frame in front of said beam, guide-rollers supported thereby, a movable hammer-supporting frame carried by the transverse beam, and runners secured to the under side thereof, of guy-ropes secured to the upper end of the guide-frame, front and rear pairs of drums connected to the guy-ropes, cranks for operating the drums, and means for locking the same, substantially as specified.

4. In a machine of the class described, the combination with a frame, and a hammer-supporting frame carried thereby, of a gage-bar loosely connected to the frame and provided with adjacent holes, and a gage-head comprising opposite side pieces engaging the bar, metal-plates having perforations connecting the side pieces, a gage-arm extending from the side pieces, and an adjusting pin for locking the head and bar together, substantially as specified.

5. In a machine of the class described, the combination with a frame, a guide-frame located thereon, and a hammer mounted for movement in the guide-frame, of staples located at opposite sides of the first-mentioned frame, a pulley at the upper end of the guide-frame, an elevating rope connected with the hammer and passed over the pulley and provided at one end with a draft device, and a sheave or pulley-block mounted on the elevating rope and adapted to engage either one of the said staples, substantially as specified.

6. In a machine of the class described, the combination with opposite runners, a transverse beam, a stirrup-bar mounted on the beam and extending in rear of the same, of a mast, a strap-eye loosely engaging the lower end of the mast with the stirrup, a parallel shorter mast, devices for securing the same to the main mast, a hammer located between the masts, and means for raising and lowering the same, substantially as specified.

7. In a machine of the class described, the combination with a guide-frame, a hammer recessed at opposite sides and mounted for reciprocation in the guide-frame and provided upon its upper side with an eye, and a head located at the upper end of the guide-frame, of a pair of tongs comprising opposite pivoted members adapted at their lower ends to engage with the eye of the hammer, a spring for normally pressing the lower ends of the tongs together, converging faces at the upper ends of the tongs, a U-shaped link pivoted at its extremities to one of the members of the tongs

and embracing the other, an operating rope leading therefrom, a wedge embraced by the link and inclined faces of the tong members, and an operating rope leading from the pivot
5 of the tongs, substantially as specified.

8. In a machine of the class described, the combination with a guide-frame, a hammer mounted therein and provided with an eye, of a pair of pivoted tong-members spring-
10 pressed together at their lower ends, a wedge located between the tong-members, a stop lo-

cated in the path of the wedge above the same, and means for raising and lowering the tong-members and elevating the wedge, substantially as specified.

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:

JOSEPH A. SIEMER,
HIRAM KETCHAM.