

No. 607,577.

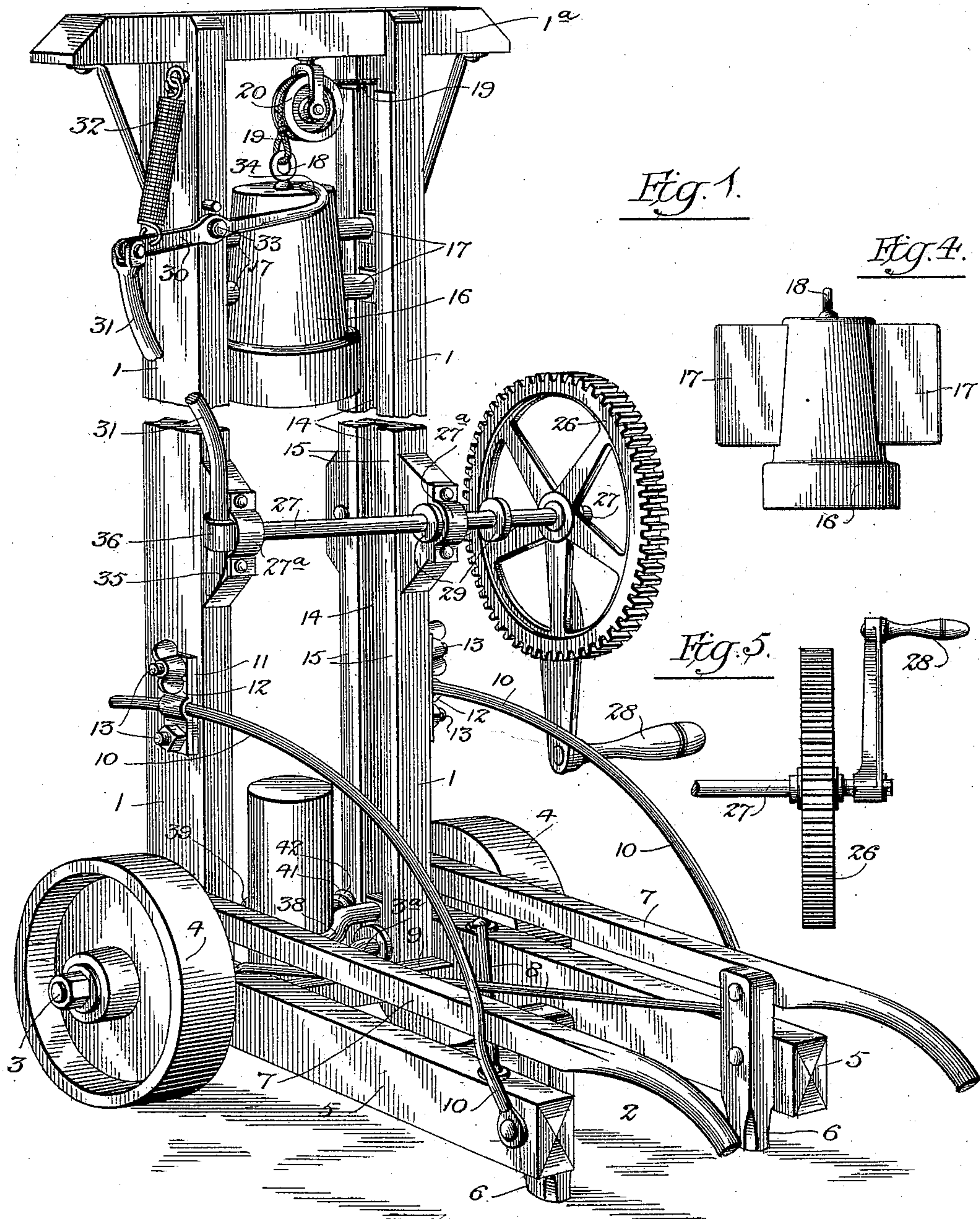
Patented July 19, 1898.

G. W. TIPTON.
POST DRIVER.

(Application filed Oct. 5, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:-

Louis M. Whitehead.

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By His Attorneys,

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Inventor:-
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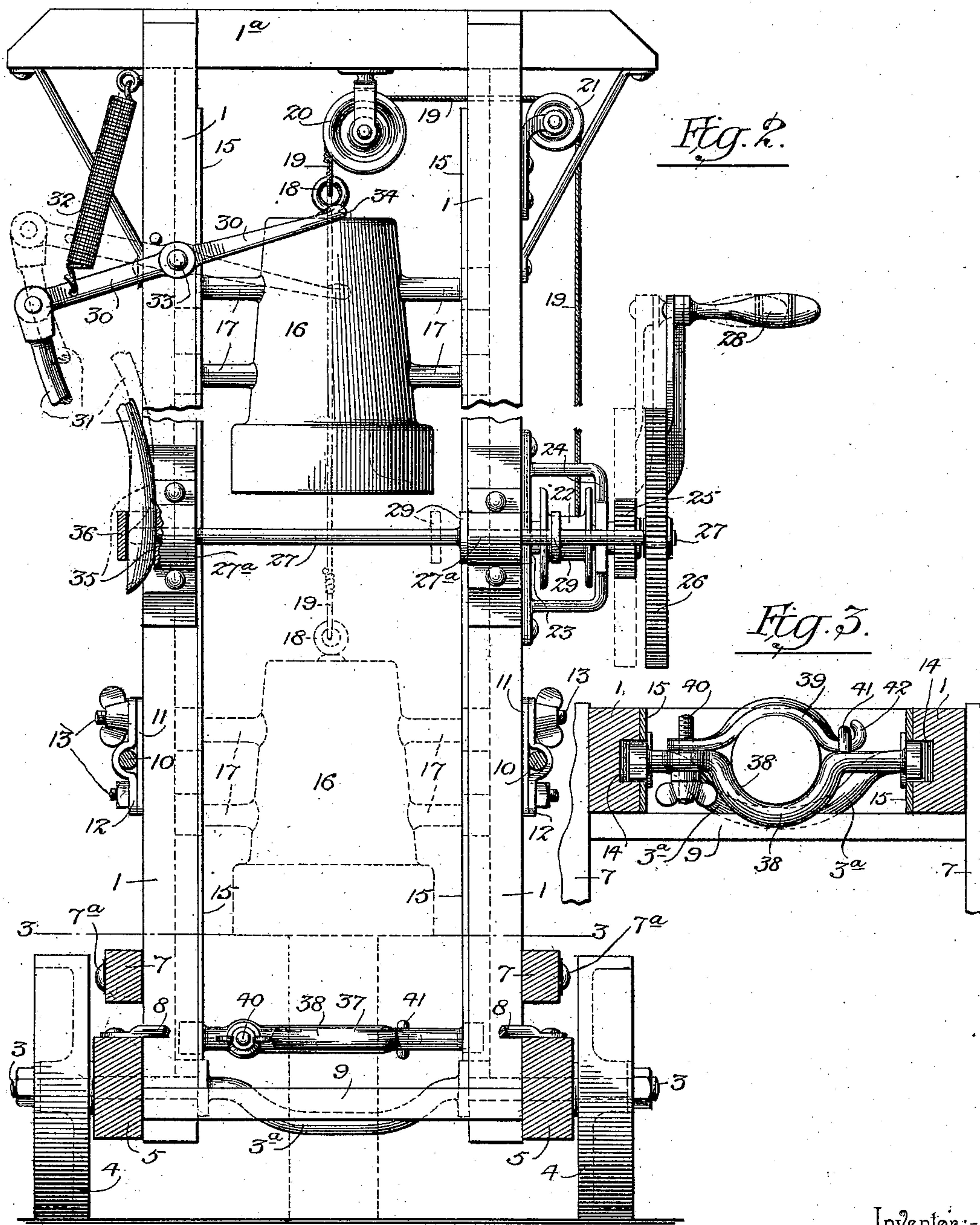
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H. B. Benson.

By *his* Attorneys,

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Inventor :-
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UNITED STATES PATENT OFFICE.

GEORGE W. TIPTON, OF HOWARD, PENNSYLVANIA.

POST-DRIVER.

SPECIFICATION forming part of Letters Patent No. 607,577, dated July 19, 1898.

Application filed October 5, 1897. Serial No. 654,130. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. TIPTON, a citizen of the United States, residing at Howard, in the county of Centre and State of Pennsylvania, have invented a new and useful Post-Driver, of which the following is a specification.

My invention relates to improvements in machines for driving posts; and the object that I have in view is to provide a simple machine which may be readily moved from one place to another for driving fence-posts in the ground or for resetting old fence-posts in order to save the wire or other fencing material.

A further object of the invention is to provide an improved construction by which the machine is held firmly and steadily in place and by which it is adapted for service equally as well on hillsides as on level ground.

A further object of the invention is to provide an improved form of trip mechanism which shall be simple in construction and positive and efficient in operation.

A further object of the invention is to provide an improved holder for the fence-post, which holder may be easily adjusted to the post and is slidably fitted in the machine to sustain the post in proper position beneath the drop-weight.

To the accomplishment of these ends my invention consists in the novel combination of elements and in the construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand my invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of my improved machine especially adapted for driving fence-posts. Fig. 2 is a sectional elevation of the machine, the plane of section being taken through the machine at one side of the upright leads or guides. Fig. 3 is a horizontal sectional view on the plane indicated by the dotted line 3 3 of Fig. 2, showing the slidable post-holder in position within the upright leads or guides. Fig. 4 is a detail view of the drop-weight, showing the preferred construction of the guide-lugs there-

on. Fig. 5 is a detail view of the power-shaft, the master-gear, and a detachable crank.

Like numerals of reference denote corresponding parts in all the figures of the drawings.

I construct my machine, especially designed for driving fence-posts or for resetting old fence-posts, with the upright leads or guide-timbers 1 1 and with a horizontally-arranged holding-frame 2, which is adjustably attached to the transverse axle 3, that sustains the carrying-wheels 4. The horizontal holding-frame consists of the timbers 5, the legs 6, the braces 7, the transverse stays 8, and the tie-bar 9, all of which are suitably united together in a substantial manner. The braces 7 are arranged above the horizontal timbers 5, and the short legs 6 are bolted to the timbers and the braces, near the ends of the latter, said braces 7 being extended beyond the posts to form the handle-bars by which the machine may be guided in moving it from one place to another. The timbers 5 are loosely fitted at their inner ends on the axle 3, between the carrying-wheels 4 and the upright leads or guide-timbers 1, and the braces or handle-bars 7 are pivotally attached to the upright leads or guide-timbers 1 by means of the bolts 7^a. The horizontal frame 2 is thus pivotally attached to the upright leads to enable the frame to be raised or lowered so as to adapt the machine for service either on level ground or on a hillside. The holding-frame is maintained in its adjusted position by the stay-rods 10, curved throughout their length and attached at one end to the timbers 5 of the holding-frame. The other ends of the stay-rods are confined on the upright leads or timbers 1 of the machine-framing by the adjustable clamps consisting of the base-plates 11, the curved clamping-plate 12, and the nutted bolts 13, whereby the clamps operate to hold the stay-rods 10 firmly in place, and they may be released to enable the curved stay-rods to be moved through the same to allow of the proper adjustment of the holding-frame 2, after which the clamps are tightened to firmly grip the stay-rods and hold the latter and the frame 2 in rigid relation to the upright timbers 1 of the machine-framing.

The ground-wheels 4 may be of any suit-

able construction, and they are supported on the axle 3 outside of the timbers 5 of the holding-frame. This axle is extended, preferably, between the upright leads or guide-timbers 1 of the machine; and to bring the axle out of the path of the post I bend or deflect the same between the upright leads or timbers 1, as shown at 3^a in Fig. 3 of the drawings.

10 The upright leads or guide-timbers 1 are joined at their upper ends by a headpiece 1^a, and in the opposing faces of said leads are formed the guideways 14, said leads or timbers being faced with wear-plates 15 to re-

15 duce the wear on the parts to a minimum. The drop-weight 16 is arranged to slide freely between the leads or timbers 1, and said weight is provided with horizontal arms 17, which project laterally from the weight

20 so as to fit in the guideways of the leads. To the eye 18 of the drop-weight is attached a rope or cable 19, which passes over a guide-sheave 20, suspended from the headpiece 1^a.

This rope or cable passes through an opening 25 in the upper part of one of the timbers or leads 1 and over another guide-roller or sheave 21, attached to the outside of the lead or timber through which the rope passes.

The end of the rope or cable is fastened to, 30 and adapted to be coiled on, a drum 22, the shaft of which is journaled at one end in a bearing 23 on the machine-framing, the other end of said shaft being journaled in a bracket 24, attached to the side of the lead or timber

35 and projecting laterally therefrom. The shaft of the winding-drum 22 is provided, outside of the bracket 24, with a gear-pinion 25, which is adapted to mesh with a master-gear 26 on one end of the shiftable power-shaft 27. This

40 power-shaft 27 is loosely fitted in boxes or bearings 27^a, fastened to the upright leads or timbers 1, so that the shaft may be free to rotate in said bearings and to have an end-

wise or sliding movement therein; and one 45 end of this shaft is equipped with a hand-crank 28, by which the shaft may be conveniently rotated in order to wind the cable or rope on the winding-drum when the shaft

50 is in position for its master-gear 26 to mesh with the pinion 25 of said drum. The end-wise movement of the shaft is limited by the stop-collars 29 29, which are fast with the shaft in positions thereon to abut against one

55 of the boxes or bearings 27^a in order that the shaft may be confined by one collar when the gears 25 26 are in mesh to make the shaft 27 actuate the drum 22 to wind up the cable or rope and raise the weight, as well as to have

60 the other collar limit the play of the shaft 27 under the impulse or action of the trip mechanism.

My trip mechanism is exceedingly simple in construction and it is combined directly 65 with the shiftable power-shaft 27. The trip mechanism consists of a lever 30, a trip rod

or bar 31, and a holding-spring 32. The trip-lever is hung or fulcrumed at an intermediate point of its length, as at 33, on one of the upright leads or guides of the machine-framing, and one end of this trip-lever is bent, as at 70 34, to lie in the path of the weight. To the other end of the trip-lever is connected by a pivot the vertically-disposed rod or bar 31,

and the lower end of said bar or rod is formed with a cam-shaped wedge 35, arranged to im- 75 pinge directly against one end of the shiftable shaft 27. This wedge or cam formed end of the trip rod or bar is fitted loosely in a suitable guide 36, attached to one of the boxes or

bearings of the shaft 27, and thus the bar or 80 rod 31 is maintained in operative relation to the shaft 27 in order to have its wedge or cam force the shaft 27 in one direction when the trip-lever is actuated by the weight on

its ascent. The spring 32 is preferably of the 85 coiled variety, and one end of this spring is attached to the upright guide lead or timber, while its other end is attached to the lever 30

at or near the point where the rod or bar 31 is attached to said lever. 90

The post to be driven is held in proper position beneath the drop-weight by employing the holder 37, which is constructed to be re- 95 moved easily from the upright leads 1 and to have free sliding movement therein, as well as to be clamped rigidly to the post. The

holder consists of a bar or rod 38, a clamping-plate 39, and an adjusting-bolt 40. The bar 100 or rod is curved at an intermediate point of its length to provide a seat for the post to be fitted in the holder, and this bar or rod is

made of such length that its ends may be fitted in the guideways of the leads or tim- 105 bers 1 in order to fit the holder detachably in place and to enable it to slide freely between the leads as the post is forced down under

the blows of the drop-weight. The bar or 110 rod 38 is provided at one side of the post-seat with an eyebolt 41 and on the other side of the post-seat with a transverse opening, through which passes the clamping-bolt 40.

The clamping-plate 39 is shaped to fit to the post, and at one end it has a hook 42, and at 115 its other end it is furnished with an opening adapted to aline with the opening in the bar or rod 38, to provide for the passage of the bolt 40. The hook of the clamping-plate fits

in the eye of the bolt 41, and the holder may be easily fitted around the post, after which 120 the bolt 40 is passed through the openings in the bar and the plate, so that its nut may be tightened to make the holder embrace the

post tightly. In lieu of using a bolt with a nut I may provide a threaded orifice in the plate 39 and use a thumb-bolt with washers, 125 as shown.

This being the construction of my improved machine, the operation may be described as follows: The machine is moved to a position 130 adjacent to the post to be driven, and the

holder 38 is adjusted around the post and fitted to the leads or timbers of the framing. The shaft 27 is now moved to a position where its gear 26 meshes with the gear 25, and the shaft is rotated to drive the drum 22 and wind the cable or rope thereon. As the weight reaches its highest point it strikes against the bent end of the lever 30 to turn the same against the tension of its spring 32, and this movement of the lever operates the rod or bar 31 to force its wedge or cam formed end against the end of the shaft 27, thus moving the latter endwise in a direction to throw its gear 26 out of mesh with the gear 25, thereby releasing the winding-drum and allowing the drop-weight to fall upon the post. The spring 32 returns the trip device to its normal position, and the operator again moves the shaft 27 into gear with the winding-drum shaft, and the operation is repeated to enable the drop-weight to drive the post into the ground the desired distance. The holder 38 maintains the post in the proper position beneath the weight, and it slides in the frame or the leads 1 thereof as the post is gradually driven under the blows of the weight. The holding-frame 2 may be easily adjusted to enable the machine to stand in proper relation to the post, either on level ground or on a hillside, and this frame serves to steady the machine so that the weight can deliver its blows to good advantage.

I am aware that changes in the minor details of construction may be made without departing from the spirit or sacrificing the advantages of my invention, and I therefore reserve the right to make such modifications as fairly fall within the scope of the invention.

One of the important advantages of my machine is that I provide a slidable holder which serves to keep the post in position below the hammer-weight and also prevents the post from splitting under the impact or blow of the hammer-weight. The holder is constructed for application to a post in a manner to embrace the same tightly, thus reducing to a minimum all tendency of the post to split, and said holder also engages with the upright guide-frame to keep the post from getting out of line with the hammer-weight, thus holding the post in position to insure its proper driving by the hammer-weight.

In Figs. 1 and 2 I have shown the hammer-weight as provided with a pair of spaced arms on both sides thereof; but I prefer to employ the construction of hammer-weight shown by Fig. 4. This figure illustrates the hammer-weight cast in a single piece with an elongated guide-arm provided on each side of said weight. These elongated guide-arms project laterally from the weight to properly fit in the guideways of the upright frame, and said guide-arms are of sufficient length

to properly retain the hammer-weight in position.

The crank and handle 28 is shown in Figs. 1 and 2 as attached to the master-gear; but this is an obvious expedient. One change in this part of the machine which will readily suggest itself to a skilled mechanic is to make the crank separate from the master-gear and fit the crank detachably on the power-shaft, as indicated by Fig. 5. It is also evident that a suitable ratchet and pawl may be used to hold the drop-weight from falling while the post is being placed in position.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a post-driving machine, the combination with a drop-weight, of a winding-drum, a cable between said weight and drum, a shiftable power-shaft adapted to be geared to the drum, a trip-lever fulcrumed at an intermediate point of its length and having one end thereof in the path of said weight, a spring, and a trip rod or bar connected to the other end of the trip-lever and having a cam-formed end to impinge against one end of the shiftable power-shaft, as and for the purposes described.

2. In a post-driving machine, the combination with a drop-weight, a winding-drum, and a cable or rope, of a shiftable power-shaft adapted to be geared to said drum, a trip-lever in the path of said weight, a trip bar or rod attached at one end to the lever and having a cam-formed end arranged to impinge directly against one end of the shiftable power-shaft, a guide in which the free end of the rod or bar plays, and a spring to return the trip-lever and trip-bar to their normal positions, as and for the purposes described.

3. In a post or pile driver, the combination with an upright guide-frame for the weight-hammer, and a wheeled axle, of the holding-frame attached to the axle and having the short posts, 6, the handle-bars pivoted to the upright frame and to the short posts, the sectional clamps having their base-plates fixed to the upright frame and their adjustable plates bolted to said base-plates, and the stay-rods attached to the holding-frame and adjustably confined by the clamp, substantially as described.

4. In a post or pile driver, the combination with an upright guide-frame having the grooves in the opposing faces of its side pieces, of a slidable post guide and clamp comprising a bent bar provided with the heads which are fitted loosely in said grooves and with an eye at a point intermediate of its length, a clamping-plate loosely fitted in said eye, and a bolt which unites the bar and plate detachably together, substantially as described.

5. In a post-driving machine, a slidable post-holder consisting of a guiding bar or rod

provided with a post-seat and with a trans-
verse bolt-hole at one side of said seat, an
eyebolt attached to the bar or rod on the other
side of the post-seat, a clamping-plate having
5 a hook which loosely engages the eyebolt, and
a clamping-bolt passing through the perfora-
tions in the guiding bar or rod and the clamp-
ing-plate, as and for the purposes described.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in 10
the presence of two witnesses.

GEORGE W. TIPTON.

Witnesses:

WARD V. SCHENCK,
MAUD SCHENCK.