B. L. WILLIS.

POST DRIVER.

APPLICATION FILED JULY 20, 1911.

1,021,121.

Patented Mar. 26, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

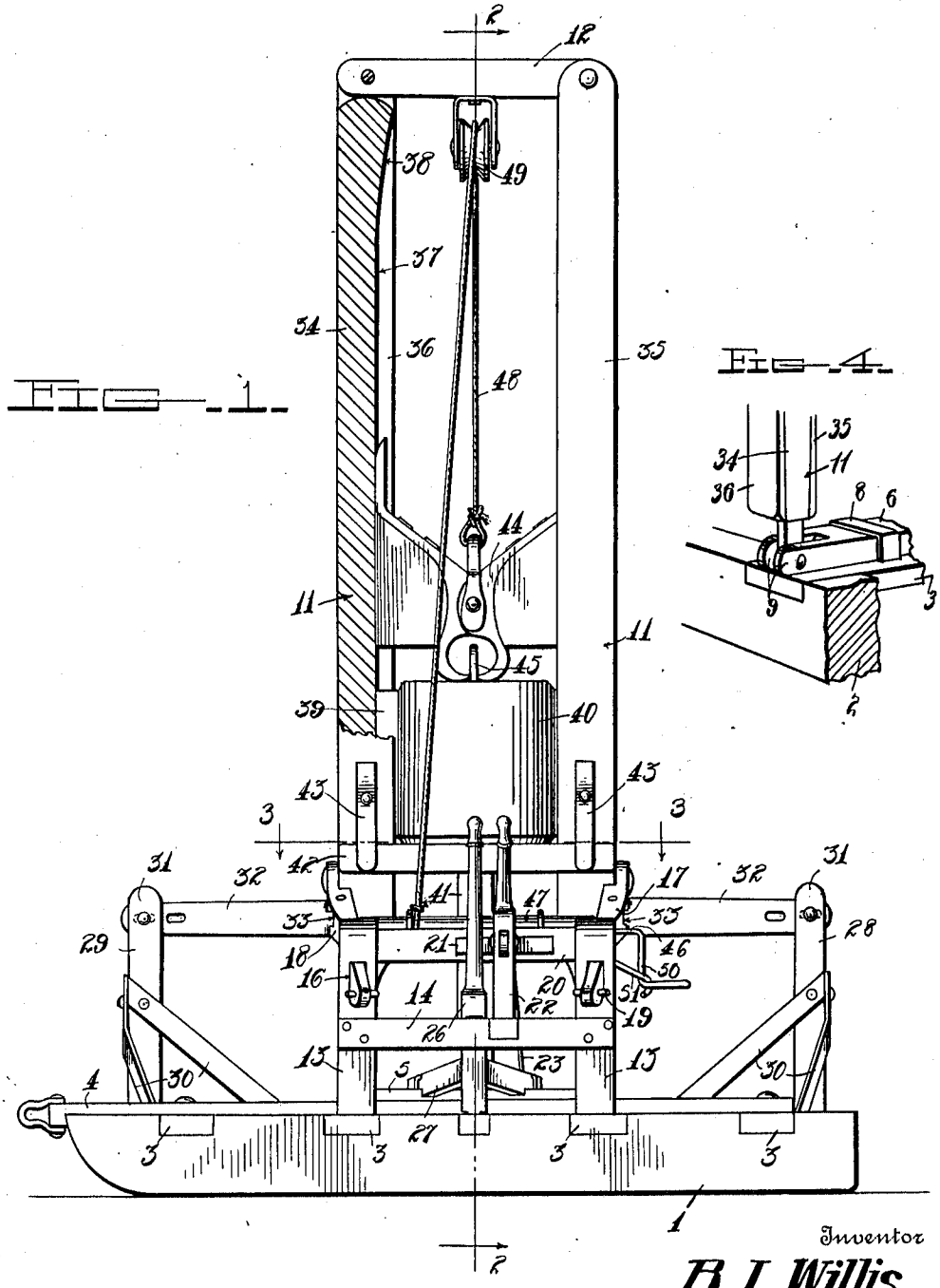


Fig. 4.

Witnesses

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2 SHEETS—SHEET 2.

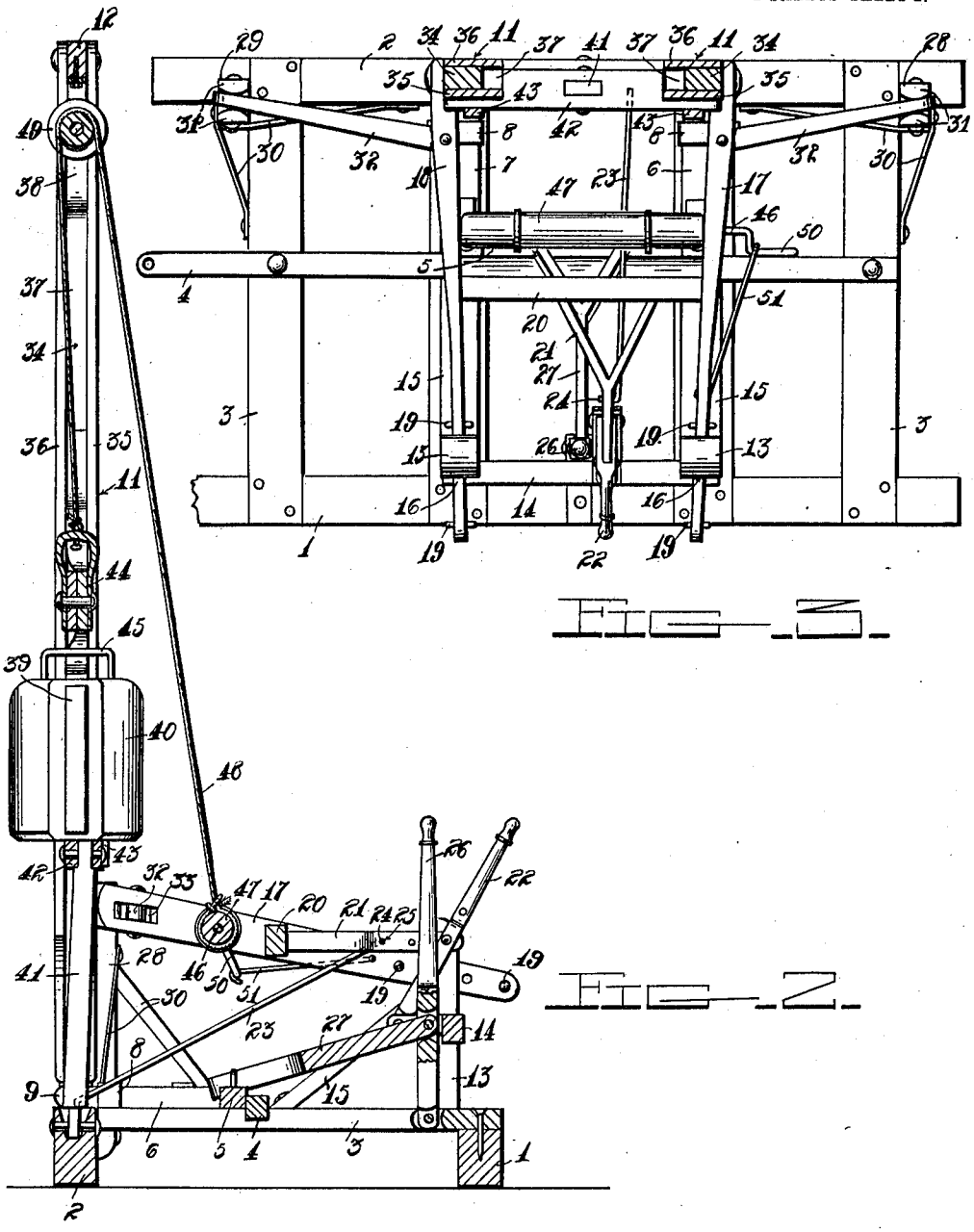


FIG. 2.

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POST-DRIVER.

1,021,121. Specification of Letters Patent. Patented Mar. 26, 1912.

Application filed July 20, 1911. Serial No. 639,583.

To all whom it may concern:

Be it known that I, BANISTER L. WILLIS, a citizen of the United States, residing at Milan, in the county of Sullivan, State of Missouri, have invented certain new and useful Improvements in Post-Drivers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to new and useful improvements in post drivers and more especially to portable machines for use in driving fence posts and the object of my invention is to improve the construction and increase the efficiency of machines of the above described type.

A further object of my invention is to so mount the driving mechanism upon the sled or other vehicle by which it is transported that it may be driven along parallel with the fence and the posts driven one after the other without at any time having the sled within the line of the fence, thus adapting the device for driving additional posts in a fence already built.

The driving mechanism proper of my improved device consists of a pair of spaced apart upwardly extending guide members in which is slidably mounted a driving weight, the driving being accomplished by raising the weight to the top of the guides at which point it is automatically released and falls upon the end of the post thereby driving the same. A further object of my invention therefore is to provide a means for moving these guides outwardly from the side of the sled, thus avoiding the necessity of driving directly along the line of the fence. And a still further object of my invention is to provide means for adjusting the guides angularly with respect to the sled by means of which they may be disposed in such a manner as to give an absolutely vertical drop to the driving weight irrespective of the slope of the ground upon which the sled rests.

With the above and other objects, my invention will be more fully described, illustrated in the accompanying drawings which show a preferred embodiment of the device and then specifically pointed out in the claims which are attached to and form a part of this application.

In the accompanying drawings, Figure 1 is a front elevation partially in section of the post driver. Fig. 2 is a vertical longitudinal section on the line 2—2 of Fig. 1. Fig. 3 is a top plan view of the machine, the weight guides being shown in section on the line 3—3 of Fig. 1. Fig. 4 is a fragmentary detail showing the pivotal connection between the yoke and one of the uprights of the hammer guides.

Referring more specifically to the drawings, on which similar reference numerals designate corresponding parts throughout, I have shown my improved device mounted upon a sled of the customary form having runners 1 and 2 connected by transverse braces 3 and provided with the customary form of draft tongue 4. It will be understood however that the mechanism may be mounted upon any suitable form of vehicle without in the slightest degree departing from the spirit of my invention.

Mounted upon the sled and transversely slidable thereon is a yoke or slide 5 the side members 6 and 7 of which are each secured to the cross members 3 of the sled by means of loops or guide ways 8 through which they slide. In the inner position of the yoke the free ends of these side members are flush with the outer face of the runner 1 and these free ends are bifurcated as shown to form forked arms 9 between which are pivotably mounted by means of bolts or other suitable pivot pins the lower ends of guide members, which as a whole are designated by the numeral 11.

The guide members, which as a whole have been designated by the numeral 11 each consist of a member 34 the lower end of which is pivoted to the slide and outer and inner members 35 and 36 one upon either side of the member 34 and extending inwardly beyond the same throughout their length to form a channel or guide way 37. As shown the upper inner portions of each of the members 34 is provided with an inwardly extending head member having an arcuately curved face 38 the purpose of which will be hereinafter fully explained. These guide members being connected at their upper ends by a transversely extending bar 12 by means of which they are maintained in parallel spaced apart relation. Secured upon the sled directly opposite these guides is a frame consisting of a pair of vertically extending spaced apart posts 13 braced together intermediate their length by a cross bar 14 which serves to maintain them in spaced re-

lation and also additionally secured to the frame by means of the diagonally extending braces 15. As shown the upper end of each of these posts is provided with a transversely extending slot 16 and arms 17 and 18 are slidably mounted in these slots by one end while their free ends are pivotably secured to the sides of the guide members 11. As a means for limiting the motion of these arms through the slots 16 I have provided them each with a pair of spaced apart transversely extending pins 19 positioned one upon either side of the posts and adapted to engage against the sides of the same and thus act as checks, the length of the arms and the positioning of the pins being such as to allow either a slight outward or inward inclination of the guide members for a purpose which will be hereinafter explained. As a means for regulating this tilting motion of the guides and also as a means for holding them in adjusted position I have connected the arms intermediate their length by a transversely extending bar 20, extending from which bar is an arm 21 the free end of which is pivotably connected to a hand lever 22 the lower end of which is in turn pivotably connected to the cross bar 14. A rod 23 is secured by one end to the runner 2 and extends transversely of the sled terminating in a lateral extension 24 adapted to be received by one of the transverse bores 25 formed in the arm 21. When so positioned it acts as a lock for holding the guides in their adjusted position. The arm 21 is also provided with a transversely extending bore adapted to receive this terminal and when seated therein it will be readily seen that the guide arm will be held in vertical position.

As a means for actuating the yoke or slide 5 by means of which the lower ends of the guide members are moved outwardly from the sled I have provided a hand lever 26 the lower end of which is pivoted to the runner 1, as shown, while a connecting rod 27 is pivotally secured by one end to this lever intermediate its length and its other end is secured to the yoke. As will be readily seen the swing of the hand lever will cause the yoke to slide in and out of its guides thereby positioning the guides with respect to the runner.

As a means for bracing the guides against lateral motion I have provided upwardly extending posts 28 and 29 secured one adjacent each end of the runner 2 and suitably braced to the sled by means of the diagonally extending braces 30. The upper ends of these posts are bifurcated to form spaced apart ears 31 as shown and loosely pivoted by one end between the ears of each of these posts are braces 32 the free ends of which are pivotally secured in slots 33 formed in the arms 17 and 18. By this means the outward tilting of the guide members is freely permitted and also the outward motion of the slide upon which they are supported while at the same time the guide members are firmly held against movement lateral thereto.

Slidably mounted between these guideways and supported in place by means of longitudinally extending flanges 39 is a driving weight 40. By this means the weight is adapted to slide up and down between the guides but is absolutely held against displacement therefrom. Pivotally mounted by its lower end to the runner 2 intermediate between the guides is an upwardly extending supporting post 41 secured to the upper end of which is a transversely extending bar 42 upon which the weight is adapted to rest when not in use, this support being held in place beneath the weight by locks 43 of the turn-button type which are secured to the guide members and it will be readily seen that when the weight is to be employed in driving a post these buttons may be turned to release the supporting member which may then be swung from under the weight. Slidably mounted in the guides and above this weight is a grapple head 44, which as shown is of the customary automatic release type and therefore need no further description, the release of the grapple being accomplished by means of arcuate faces located in the guide channels previously described. Secured to the upper face of the driving weight is a hook 45 by means of which it is engaged by the grapple.

Journaled in the arms 17 and 18 is a shaft 46, secured upon which is a winding drum 47 and secured to this drum and adapted to be wound thereon is a cable 48 which extends upwardly to pass over a pulley block 49 carried by the cross bar 12 and then downwardly and is secured by its free end to the grapple. One end of the shaft extends beyond the arm in which it is journaled and is provided with a hand crank 50 by means of which the drum may be rotated to wind the cable and raise the driving weight. Secured to the arm 17 is a hook 51 which is adapted to engage the hand crank and hold the same against rotation when desired.

From the foregoing description the operation of my post driving mechanism will be plain and requires but little description. When operating upon level ground the sled is drawn to a point adjacent the spot where the post is to be driven, the weight supporting member is swung out of the way, the hand lever 26 is then actuated to move the slide 5 outwardly until the weight is positioned directly over the post to be driven and the post is then driven in the customary manner by raising the weight and allowing

the same to fall back upon the post, this operation being repeated a sufficient number of times to drive the post to the required extent.

When working upon a side hill where the sled is tilted at an angle the operation is identical with that above described with the exception that the lever 22 is actuated to tilt the guides at such an angle to the sled as to cause the weight to fall vertically by means of which its driving force is undiminished and its lower face is level whereby the post may be driven vertically irrespective of the inclination of the ground.

From the above description it will be apparent that my improved device is extremely simple and effective in operation and because of its various adjustments far superior to devices of a like character now on the market.

By positioning the driving mechanism at one side of the sled instead of directly over or at one end thereof it is possible to drive posts in a fence already constructed without requiring extreme care in the positioning of the sled such as backing up to the fence and the like. It will also be seen that the operating mechanism of the device is so positioned as to leave sufficient room upon the sled for the carrying of posts to be driven without having them interfere in any way with the mechanism while in operation.

What I claim is:—

1. In a device of the character described the combination with a supporting vehicle, of a yoke slidably mounted transversely of said vehicle, upwardly extending guide ways pivoted by their lower ends to said yoke, a driving weight slidable in said ways, braces for said ways, means for actuating said yoke to extend the ways beyond the vehicle, and means for tilting said ways.

2. In a device of the character described, the combination with a supporting vehicle, of a yoke slidably mounted transversely of said vehicle, upwardly extending guide ways pivoted by their lower ends to said yoke, a driving weight slidable in said ways, vertically extending slotted posts secured to said vehicle, arms pivotally secured by one end to the guide ways intermediate their length and with their other ends slidably mounted through the slots of the posts, means for reciprocating said arms in said slots to tilt the ways, means for bracing said arms against lateral movement, and means for actuating said yoke to extend the ways beyond the vehicle.

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

his
BANISTER L. × WILLIS.
mark

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."