

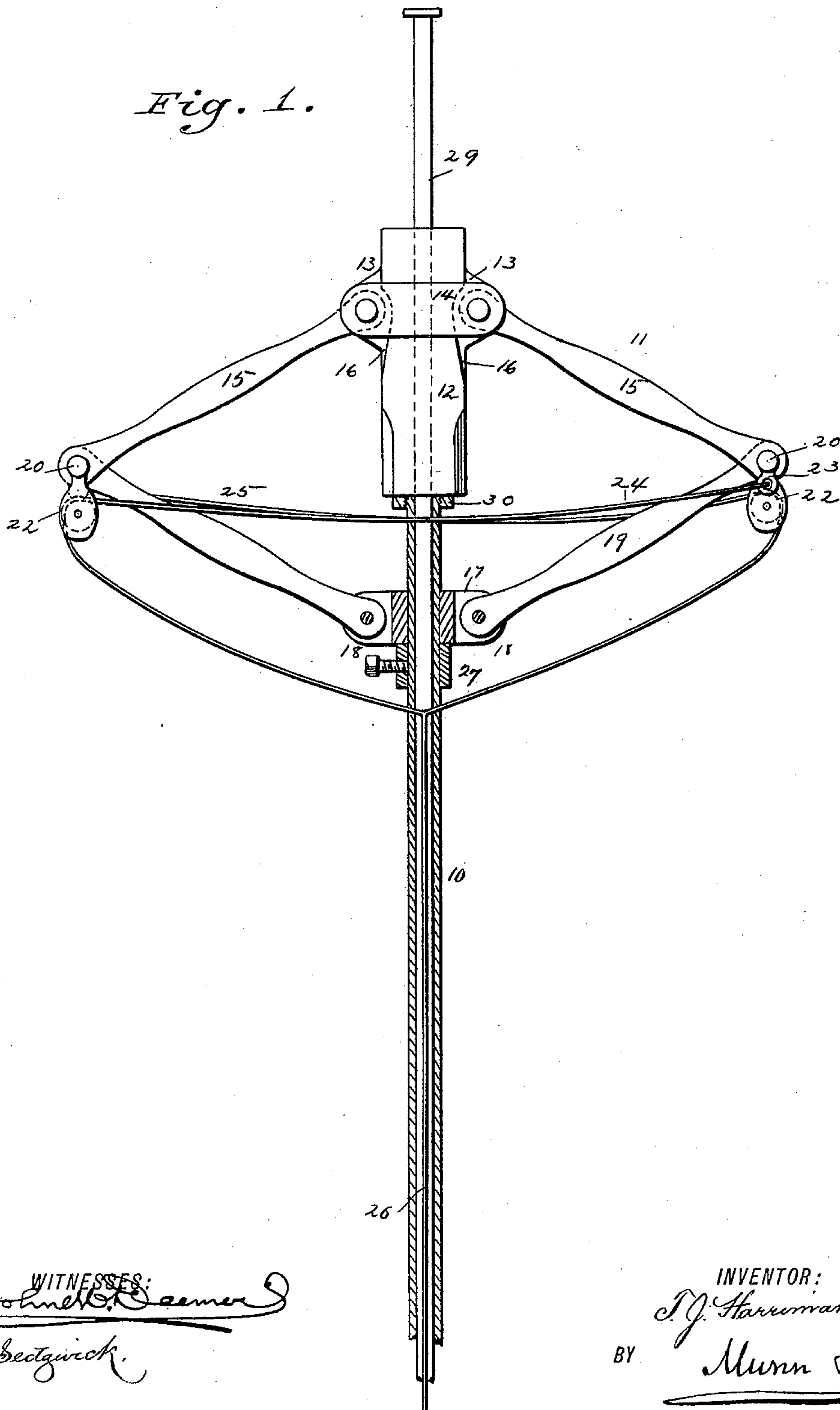
(No Model.)

2 Sheets—Sheet 1.

T. J. HARRIMAN.
DRIVE APPARATUS FOR PILES, &c.

No. 401,031.

Patented Apr. 9, 1889.



WITNESSES:
John B. Deemer
C. Sedgwick

INVENTOR:
T. J. Harriman
BY *Munn & Co*
ATTORNEYS.

(No Model.)

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Fig. 2.

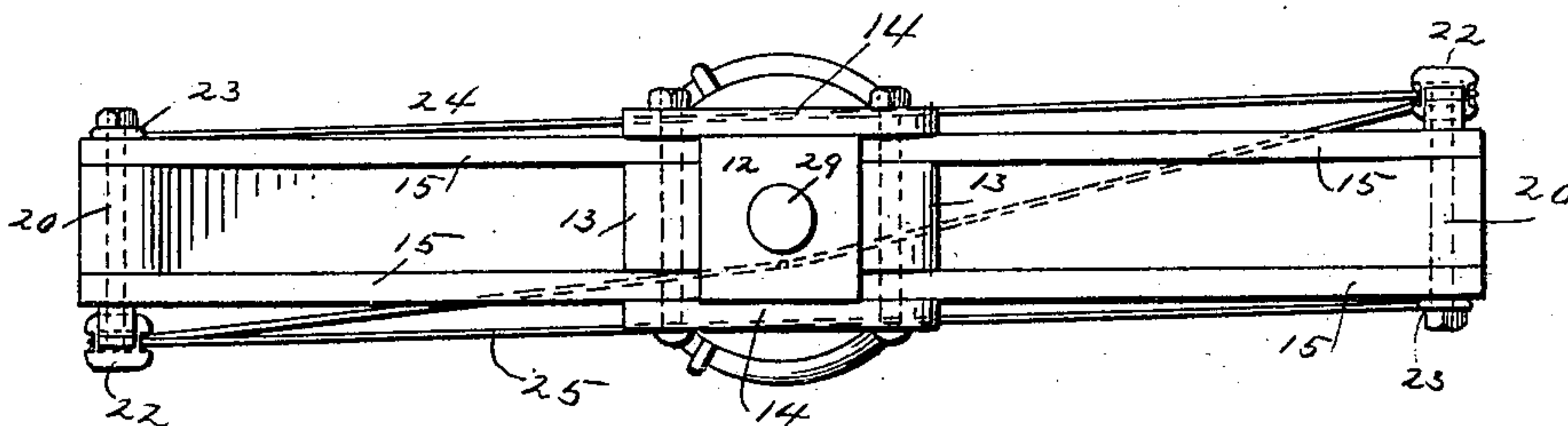


Fig. 3.

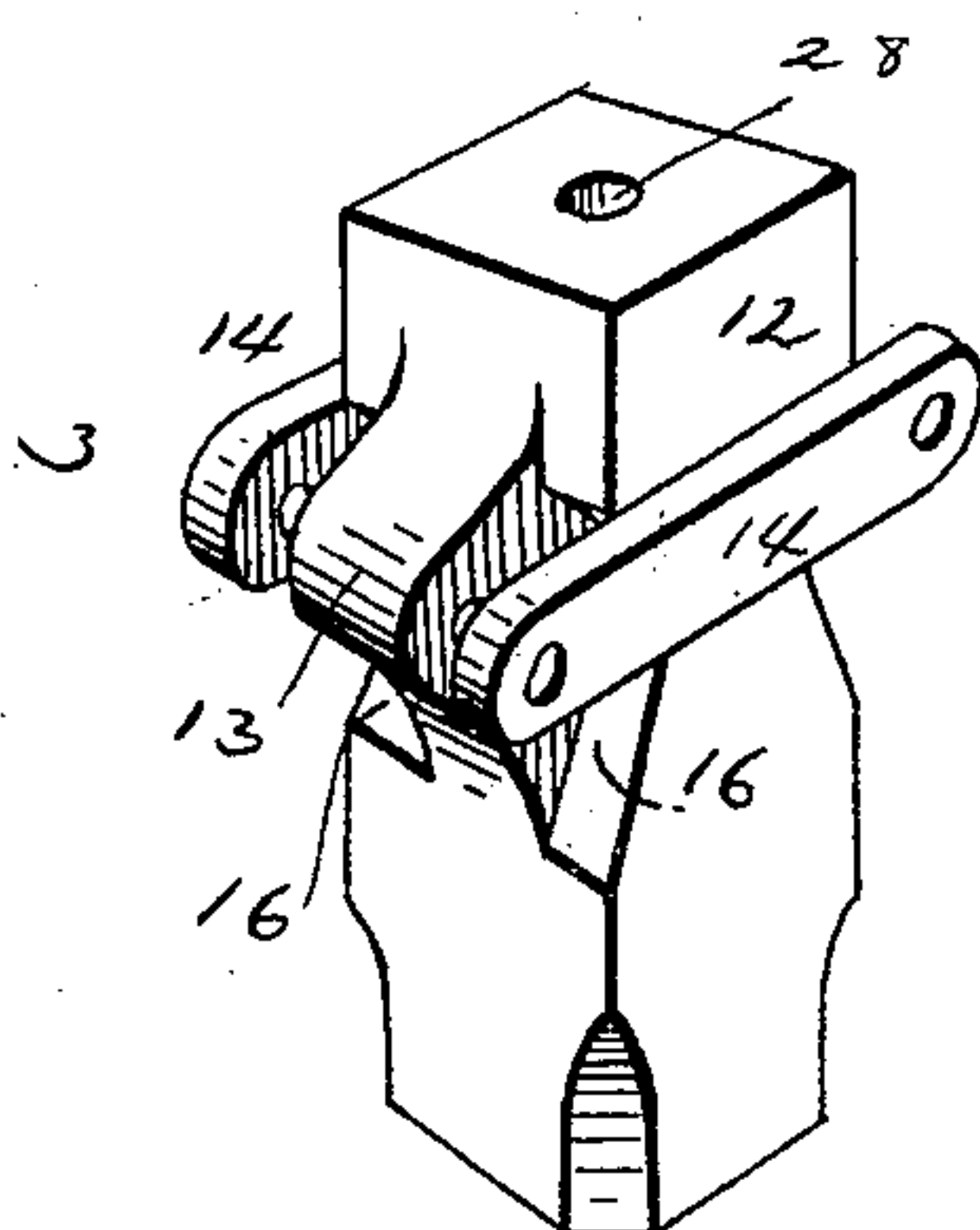


Fig. 4.

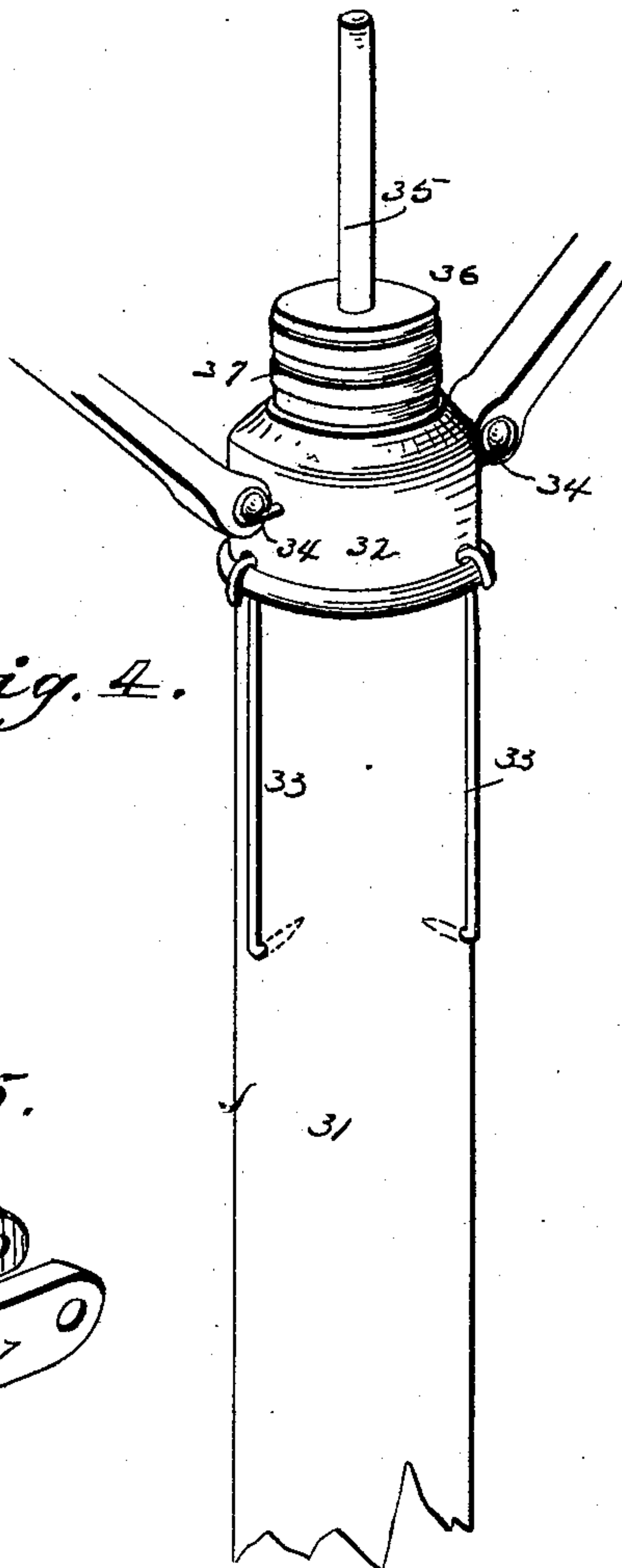
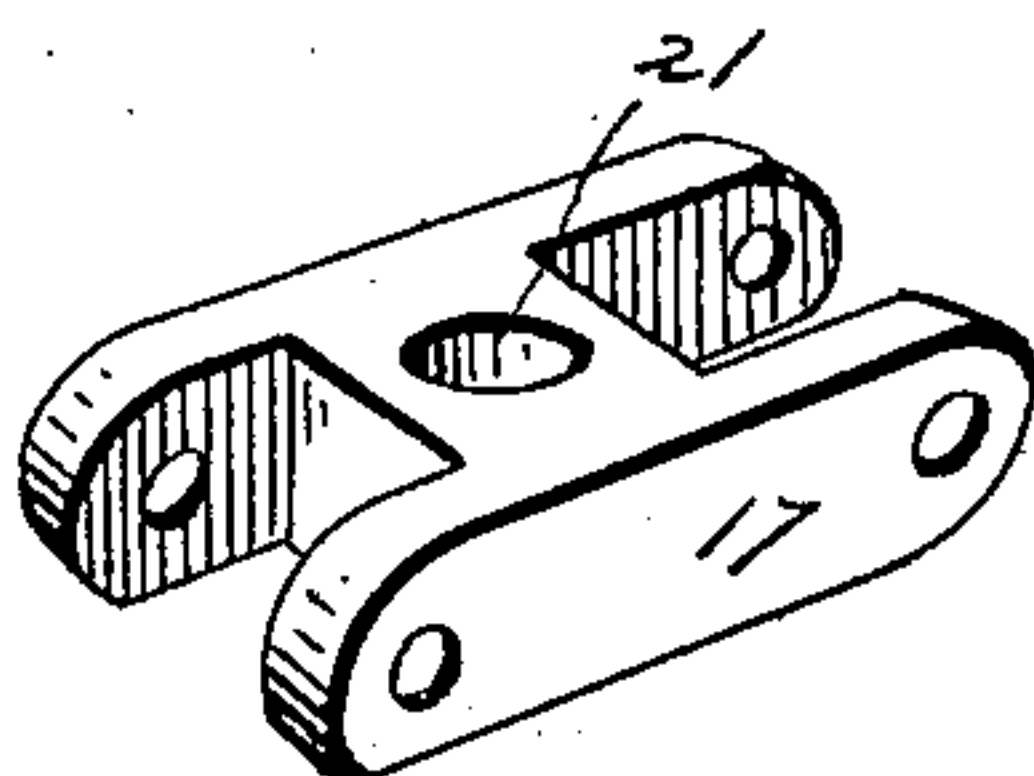


Fig. 5.



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UNITED STATES PATENT OFFICE.

THOMAS JEFFERSON HARRIMAN, OF NEW PARIS, INDIANA.

DRIVE APPARATUS FOR PILES, &c.

SPECIFICATION forming part of Letters Patent No. 401,031, dated April 9, 1889.

Application filed July 14, 1888. Serial No. 279,939. (No model.)

To all whom it may concern:

Be it known that I, THOMAS JEFFERSON HARRIMAN, of New Paris, Elkhart county, Indiana, have invented a new and Improved
5 Drive Apparatus for Pipes, Piles, and Fence-Posts, of which the following is a full, clear, and exact description.

My invention relates to an improvement in an apparatus for driving pipes, piles, and
10 fence-posts, and has for its object to provide a simple and effective machine which may be quickly, conveniently, and readily applied and effectively manipulated; and the further object of the invention is to provide an ap-
15 paratus which will at all times strike the pile squarely upon the top and never miss a stroke by reason of the pile getting out of line.

The invention consists in the construction and combination of the several parts, as will
20 be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate
25 corresponding parts in all the views.

Figure 1 is a side elevation of my device, partially in section, illustrating the application of the same to a tube. Fig. 2 is a plan view of the same. Fig. 3 is a perspective view
30 of the hammer. Fig. 4 illustrates the application of the device to a fence-post, and Fig. 5 is a perspective detail view of a cross-head.

In carrying out the invention the pipe 10 in Fig. 1 is adapted to represent one section of a pipe which is to be driven, for instance, to
35 obtain water or oil.

The apparatus 11, adapted for attachment to the pipe and to drive the same, consists of a hammer, 12, which may be constructed of
40 wood or iron—in this instance preferably of wood—which hammer is provided upon two opposing sides with a central projection, 13, and at the front and rear with transverse cross-bars 14, one cross-bar being provided
45 for each face, the ends whereof extend beyond the sides of the hammer, preferably in transverse alignment with the center of the projections 13. Between the contiguous faces of the projections 13 and the cross-bars 14,
50 at each side of the hammer, one end of spaced

arms 15 is pivoted, the hammer being provided with side recesses, 16, as best shown in Fig. 3, to permit the said arms 15, when the hammer is elevated, to assume an essentially-
vertical position. Below the hammer 12 a 55 horizontal cross-head, 17, is pivotally connected with the parallel arms 15. To this end the cross-head is provided at each end with slots 18, in which slots the end of an angle-arm, 19, is pivoted, the opposite end of 60 which arm 19 is carried upward and pivotally secured between the spaced arms 15 through the medium of a bolt, 20, or equivalent locking device. In the cross-head 17, at or about the center, a vertical aperture, 21, is formed, 65 for a purpose hereinafter set forth.

The several bolts 20, connecting the upper and lower arms, 15 and 19, are provided upon opposite ends, respectively, with a block, 22, and an eye, 23, the said blocks and eyes be- 70 ing so arranged that the blocks will be at opposite ends upon opposite sides, as best illustrated in Fig. 1.

A cord, rope, or chain, 24, is attached to one of the eyes 23 and carried over the block 22 75 upon the same side of the device. A second rope, 25, is attached to the eye upon the opposite side, which rope is also carried over the pulley upon the same side and downward to a connection with the other rope, 24, where- 80 by a single strand, 26, leads downward to the ground.

In attaching the device to a tube, as illustrated in Fig. 1, for the purpose of driving the same, the cross-head 17 is slid upon the 85 tube and made to rest upon the collar 27, which collar is held in engagement with the tube by a set-screw or other well-known device. The position of the collar 27 upon the tube regulates the stroke of the hammer. 90

The hammer 12 is provided with a central and longitudinal bore, 28, adapted to receive the drill 29, which drill is provided with a suitable head purposed to engage or rest upon the top or upper end of the hammer. The 95 drill 29, passing down through the hammer, also passes down through the tube. The upper end of the tube to be driven is provided with a detachable drive plate or cap, 30.

Thus in operation of driving, the cord, 100

rope, or chain 27 is reciprocated, whereby the hammer 12 is elevated, which movement also elevates the drill. As the hammer falls, the drill, also descending by gravity, performs its functions with respect to the pipe. When the blow is to be given to drive the pipe, the hammer is carried up to its utmost and permitted to drop. It will be observed that in this case the drill forms a fulcrum or pivot for the hammer, around which it may be freely turned, and that the cross-head 17 may also freely turn upon the pipe, whereby the entire device may be rotated while in operation, and the blow of the hammer will always fall directly upon the upper end of the pipe under all circumstances, as the said hammer is guided by the drill.

In Fig. 4 I have illustrated the application of the device to a fence-post. In this event the cross-head 17 is substituted by a cap, 32, which cap is adapted to embrace or surround the head of the fence-post or pile to be driven. From the lower end of the cap 32 a series of vertical dogs or claws, 33, are projected, having their ends turned inward at right angles and sharpened to enter the sides of the said post or pile. The lower arms, 19, are pivoted in suitable bearings, 34, formed upon opposite sides of the cap, and a perpendicular spindle or guide-rod, 35, is made integral with the top of the cap at the center. The hammer 12, in this instance, is preferably made of metal, and in order that the cap may not be battered or injured by the metal hammer coming in contact with the same a circular packing or interposed block, 36, is provided, consisting of a very hard wood or veneers of hard wood braced or strengthened by suitable bands or annular stays, 37, which block is centrally bored to receive the spindle. The lower face of the block rests upon the upper end of the cap 32, the upper face being adapted to receive the stroke of the hammer. The upper end of the pile or post to be driven is made to fit as closely as possible to the top of the cap, and after the claws or dogs 33 have been driven into the pile or post the same may be surrounded by a ring to prevent the inserted ends of the said dogs or claws from being forced out of contact with the article to be driven by reason of the concussion. The arms 15 and 19 may be made of wood or metal, and if of the latter said arms may be tubular or solid.

If the pipe to be driven extends to a great distance above the ground, any ordinary tripod may be used to steady the same. It will be observed that it matters not how high the pipe may be in the air, it may be readily manipulated from the ground through the medium of the rope or chain 27.

I do not confine myself to the particular rigging of the blocks and eyes, as in tubular wells the ropes may be run the reverse of those illustrated and be operated from above by derricks, as is customary when manipulating machinery for producing tubular wells.

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

1. The combination, with a tube, post, pile, or similar article and a perpendicular guide, of a hammer reciprocating upon said guide, spaced arms pivoted to opposite sides of said hammer, a single arm pivotally connected between the extremities of the upper or spaced arms, a reciprocating guide bar or cap pivoted to the lower ends of the said single arms, and means, substantially as shown and described, for extending the pivoted arms, whereby the hammer is reciprocated upon the guide-rod, as and for the purpose specified.

2. The combination, with a perpendicular guide-rod, of a hammer reciprocating upon the said rod, spaced arms pivotally connected to opposite sides of said hammer, single lower arms pivoted between the outer extremities of the spaced arms, a guide bar or cap pivoted to the lower ends of the single arms, and means, substantially as shown and described, for contracting and extending the arms, as and for the purpose specified.

3. The combination, with a perpendicular guide-rod, of a hammer reciprocating upon said rod, spaced arms pivoted to opposite sides of said hammer, lower single arms pivoted between the outer extremities of the said spaced arms, a guide bar or cap pivoted to the lower ends of the said single arms, blocks and eyes secured to the pivotal connection of the upper and lower arms upon opposite sides at opposite ends, and a rope or chain secured to said eyes and passing over said blocks, substantially as shown and described, and for the purpose specified.

4. The combination, with a tube, post, or pile and a perpendicular guide-rod, of a hammer reciprocating upon said guide-rod, spaced arms pivoted to opposite sides of said hammer, lower single arms pivoted between said spaced arms, a sliding block or cap connecting the lower extremities of the single arms, blocks and eyes secured, respectively, to the pivotal connection of the arms upon opposite sides at opposite ends, ropes secured to said eyes passing over said blocks, and means, substantially as shown and described, for clamping the said pile, post, or tube, as and for the purpose specified.

5. The combination, with a reciprocating hammer, spaced arms pivoted to opposite sides of said hammer, and single arms pivoted between said spaced arms, of a cap uniting the said single or lower arms, a perpendicular guide-rod secured to said cap, adapted to pass through the hammer, and means, substantially as shown and described, for securing a post, pile, or tube to said cap, and for reciprocating the hammer, as and for the purpose specified.

THOMAS JEFFERSON HARRIMAN.

Witnesses:

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HENRY WANNER.