

J. W. PUTNAM.
Pile-Driver.

No. 229,461.

Patented June 29, 1880.

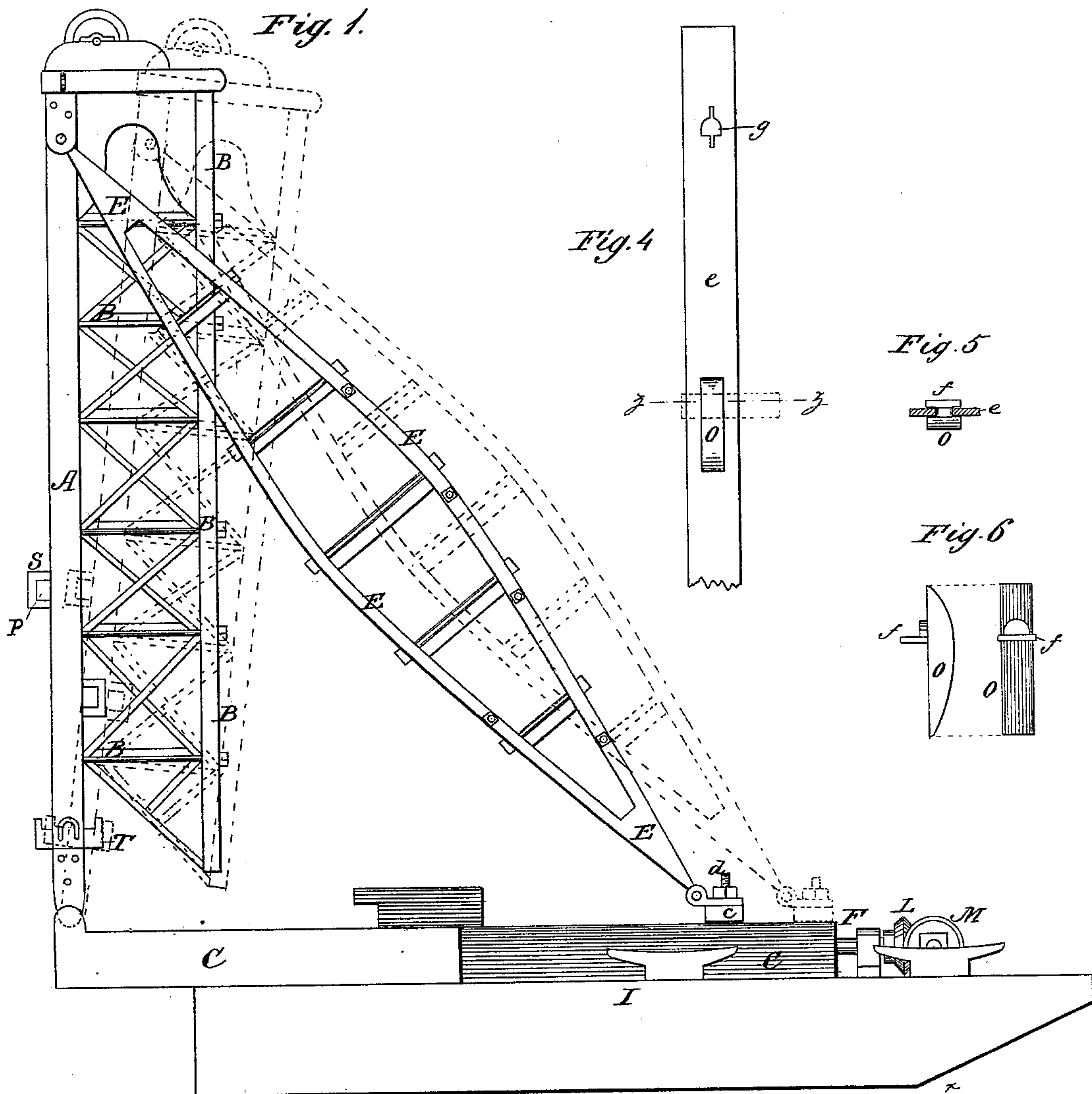


Fig. 4

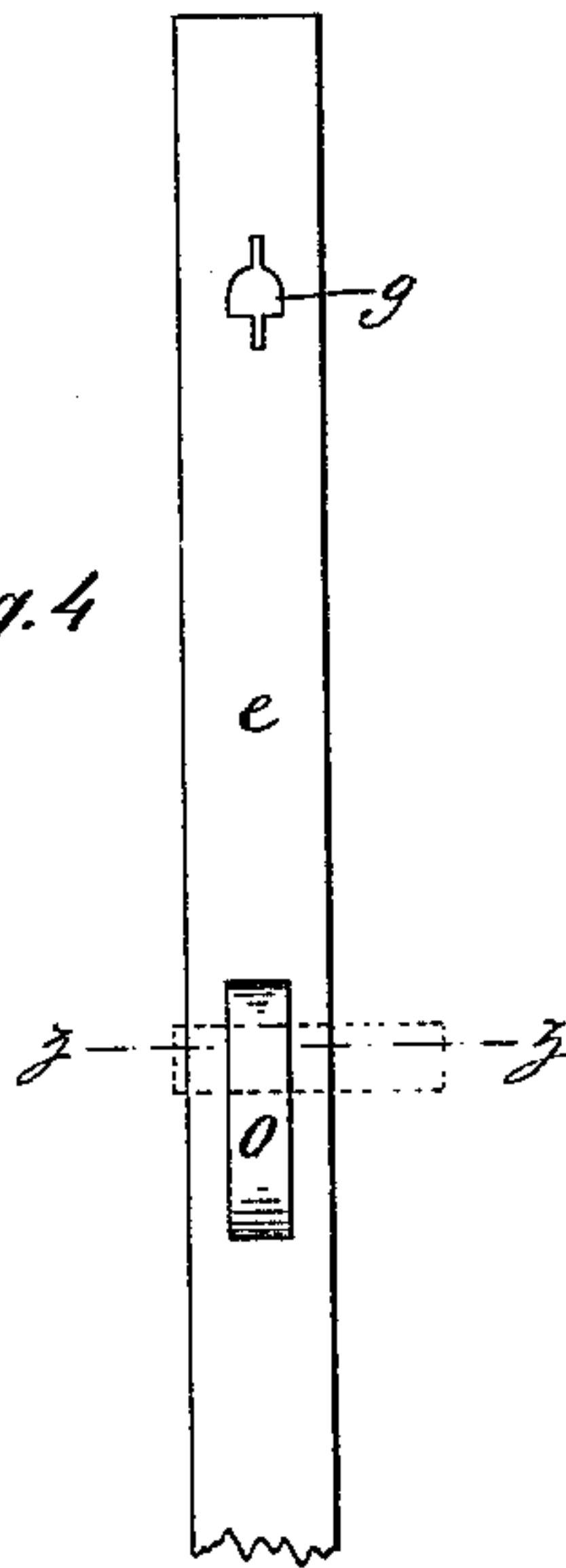


Fig. 5



Fig. 6

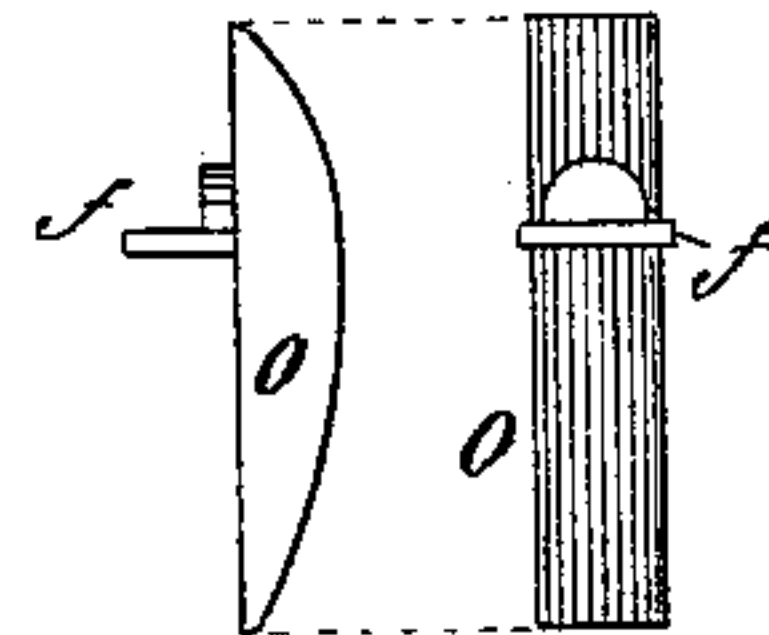


Fig. 8

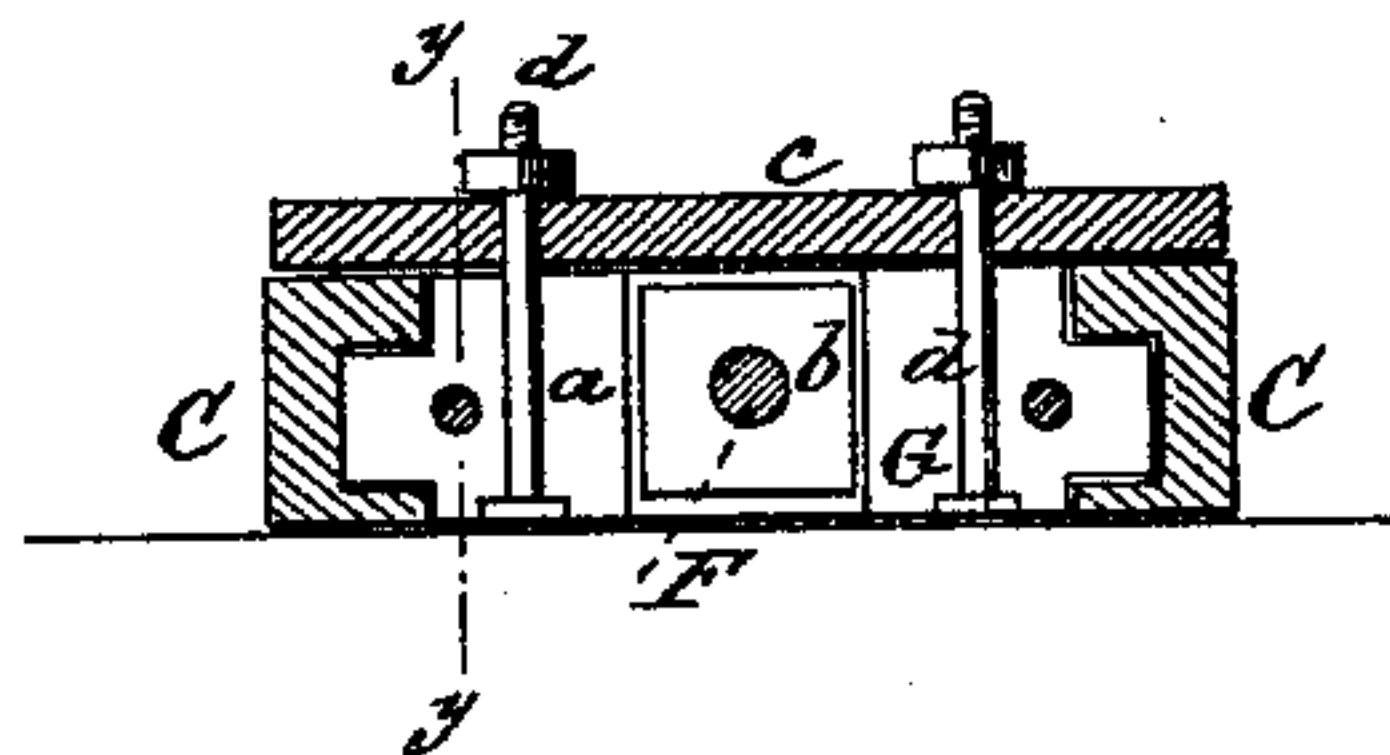
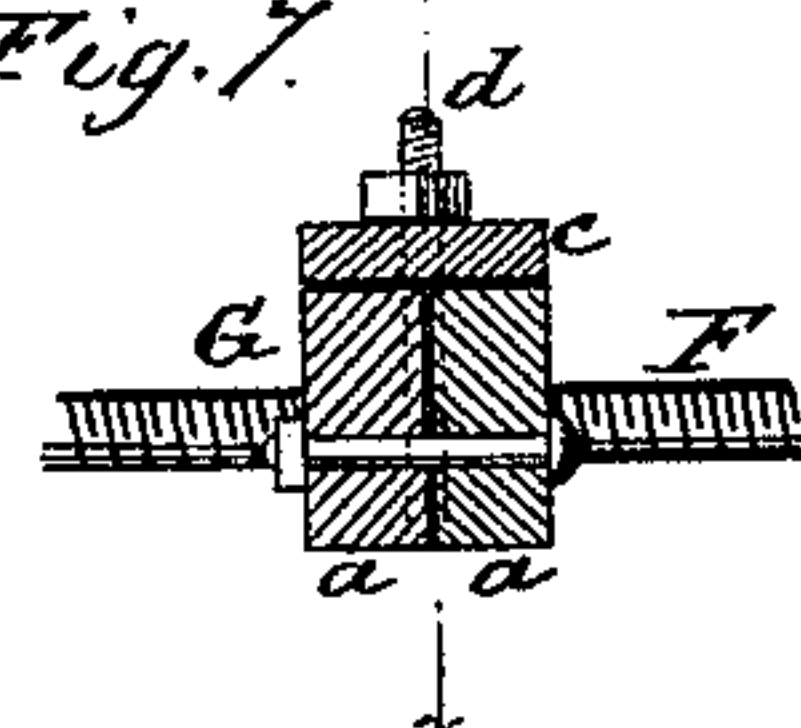


Fig. 7



WITNESSES:

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Amos W. Hart

INVENTOR:

Jos. W. Putnam

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Amos W. Hart

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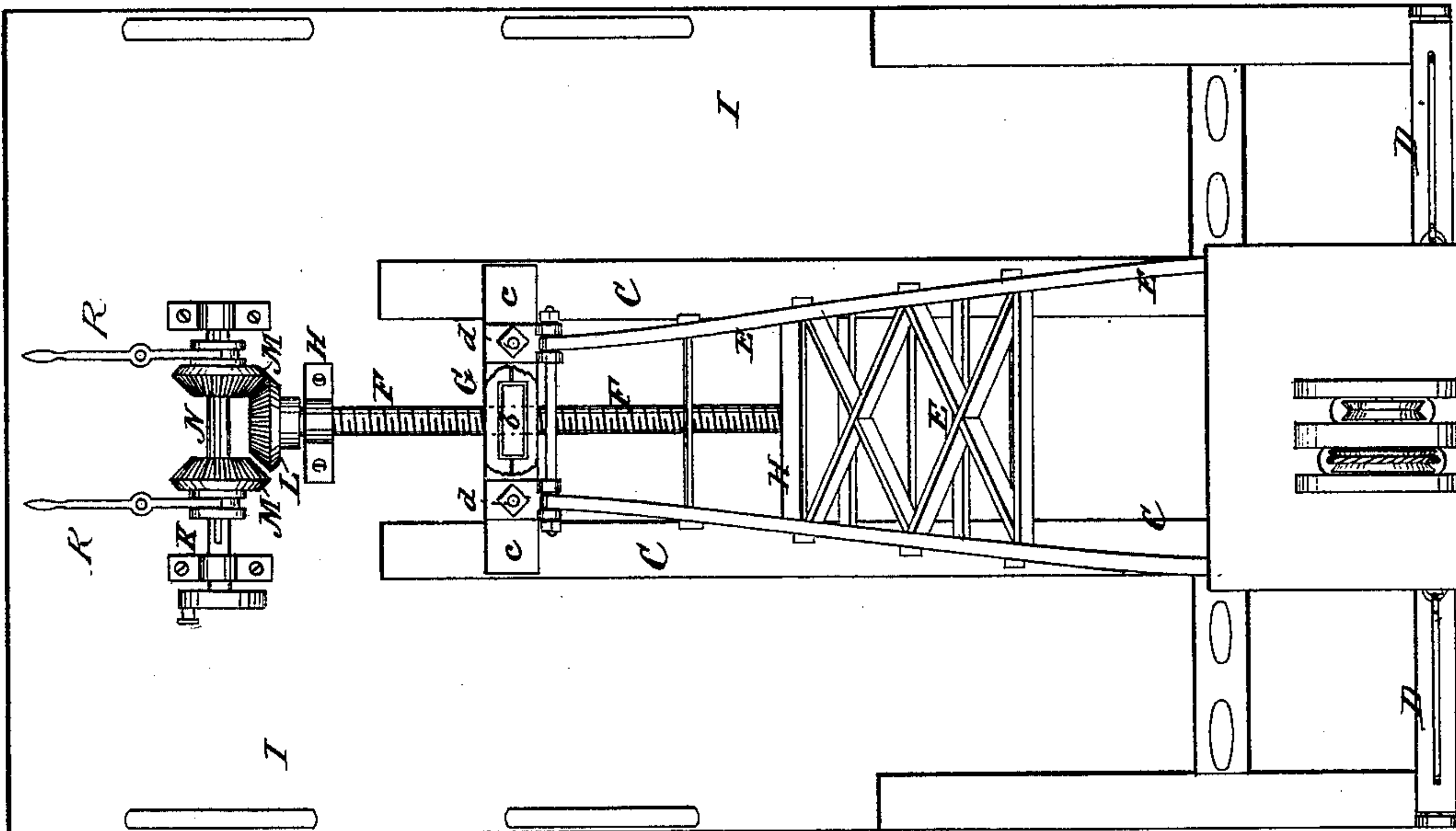


Fig. 3.

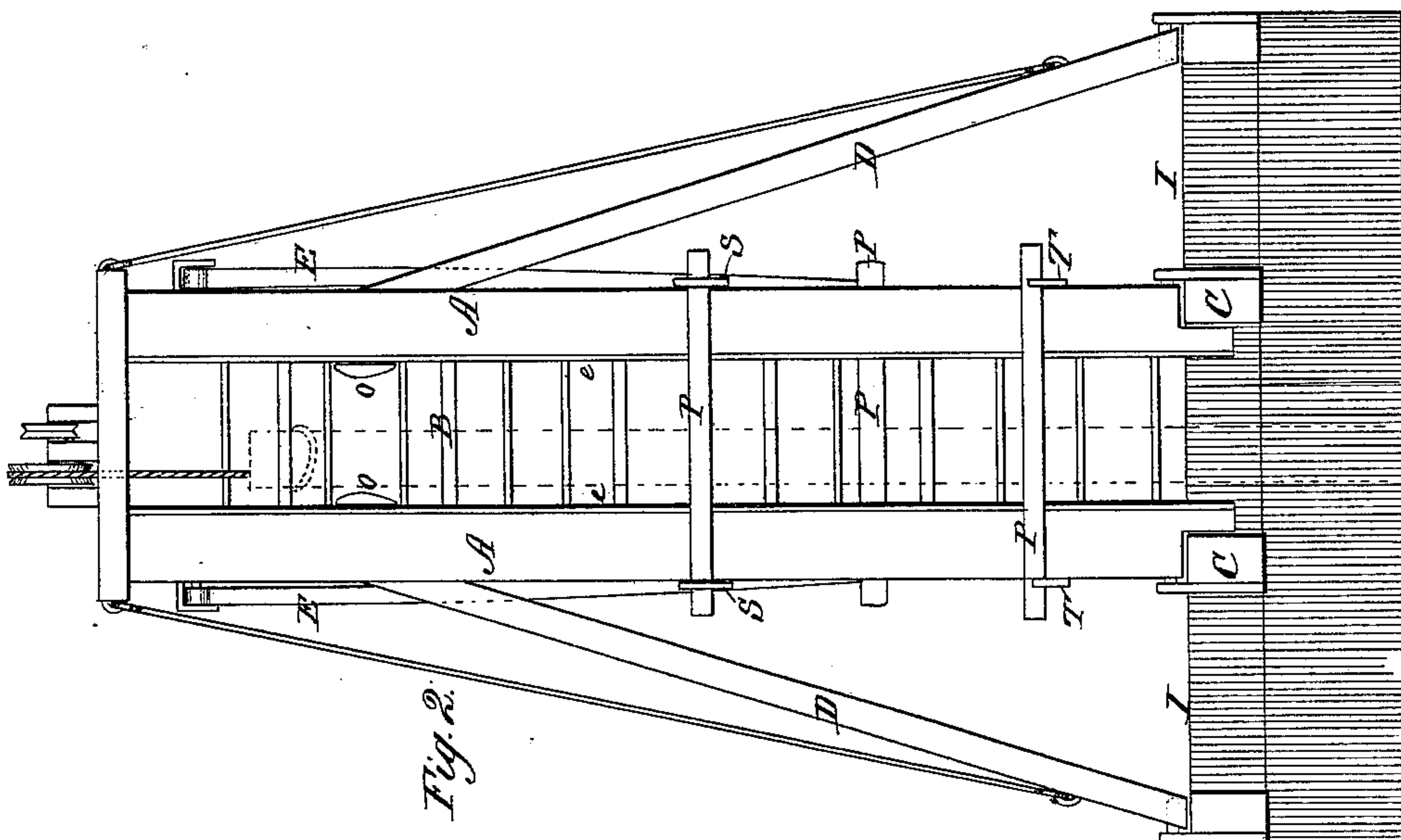


Fig. 2.

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UNITED STATES PATENT OFFICE.

JOSEPH W. PUTNAM, OF NEW ORLEANS, LOUISIANA.

PILE-DRIVER.

SPECIFICATION forming part of Letters Patent No. 229,461, dated June 29, 1880.

Application filed December 24, 1879.

To all whom it may concern:

Be it known that I, JOSEPH W. PUTNAM, of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and Improved Pile-Driver; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improvement in the class of pile-drivers in which the hammer-guides or leaders are hinged to permit their inclination, for the purpose of driving piles at various angles.

The invention is embodied in the construction and arrangement of parts, as hereinafter described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a side view of the machine. Fig. 2 is a front view. Fig. 3 is a plan view. Figs. 4, 5, 6 are detail views. Fig. 7 is a cross-section of the clamp in line *y y*, Fig. 8. Fig. 8 is a longitudinal section of same on line *x x*, Fig. 7.

The leaders or hammer-guides A A are strengthened by trusses B and hinged to the sills or bed-pieces C, as shown.

Lateral braces D are rigidly attached to the leaders and hinged in line with them to permit the adjustment at the same angle.

The leaders are adjusted for driving piles at the desired inclination by means of elliptical trussed braces E and a screw, F, which may be rotated in either direction to change the position of a clamp-block, G, to which said braces are pivoted. The clamp-block G has projections or tenons, which fit in longitudinal grooves in the bed-pieces C C, and it is made in two longitudinal parts, *a a*, which are recessed on their inner or contiguous sides to form a cavity for a nut, *b*, through which the screw F works. The latter has its bearings in blocks H, fixed on the bed I.

Rotary-motion is imparted to the screw by means of gearing which connects it with the shaft K of the engine. Said gearing consists of the bevel-gear L on the end of the screw and the bevel-gears M M on the engine-shaft. The gears M M have a spline-connection with the shaft, and are located at a slightly greater distance apart than the width of the screw-gear L, so that either gear M may be caused to mesh with the latter by sliding it on the shaft K.

The mode of operation and advantages of the machine may be briefly stated thus: In practice, the leaders A are set vertical and the pile raised and secured between them, as shown in dotted lines, Fig. 2, high enough to be clear of the bottom. The clutch-lever R is then operated to throw one of the gears M into mesh with the screw-gear L and the engine started, when the rotary motion thus imparted to the screw will move the clamp-block G, and thereby cause the truss-braces E to tilt the leaders over to the desired angle to the bed I. The pile is then dropped, and being secured by two sets of stays is held in position while it runs to the bottom, when it is ready for driving.

It will be seen that the clutch mechanism enables the screw to be rotated in either direction, so that the clamp-block may be adjusted toward or from the leaders, and the latter thereby inclined forward or backward, as required.

The truss construction of the leaders and their adjusting-braces secures the advantages of maximum strength, rigidity, lightness, durability, and economy of construction. While, therefore, the pile-driver is so light as to be adapted for easy transportation, the heaviest drop-hammer may be used without subjecting the leaders or braces to severe or injurious strain.

The clutch and screw shifting mechanism enables the desired adjustment of the leaders to be effected with celerity and steadiness, while the screw will at once lock or hold the clamp-block in any adjustment the moment the clutch is disengaged or the engine stopped.

The screw is not, however, depended upon to sustain the strain of supporting the leaders while the pile-driver is at work; but the block G is clamped to the bed pieces or ways C by means of the top plate, *c*, which is laid upon and secured to the block by means of screw-bolts *d*, and whose ends extend over the guides or ways C, so that by screwing down the nuts on said bolts *d* the ends of the block G will be clamped between the ends of the plate *c* and ledges of the bed-pieces, thereby securing the block firmly in the desired position, so that the leaders will be held as firm and steady as possible during the operation of the hammer.

The blocks O, for tripping the hammer, are detachable to adapt them for being placed higher or lower on the leaders A, according to the length of the pile or the depth to which it has been driven. They are attached to the iron plates *e* on the inner sides of the leaders A by means of lugs *f*, which have a peculiar construction, as shown in Figs. 5 and 6—that is to say, they consist of two parts, one being a thin portion or web, which extends across the inner face of the block and is notched on each side, and the other of a small abutment or projection, which is semi-cylindrical and located above and contiguous to the aforesaid notched web.

The iron leader-plates *e* are provided with holes *g* of peculiar form, as shown in Fig. 4, to adapt them to receive said lugs *f*—that is to say, the lower side of the holes is straight and horizontal and the upper side circular, while slots extend from the holes in each direction vertically.

To attach the trip-blocks O they are placed crosswise of the leader-plates *e*, Fig. 4, in which position the lugs will enter the holes *g*, and then turned one-quarter round into parallelism with said plates, when they will be held in place by engagement of the lateral ears of the lugs *f* with the sides of the holes. To detach the blocks O this operation is reversed.

The devices for holding the cross-bars P, which guide and stay the pile while being driven, or while the leaders are being adjusted from one position to another, consist of stirrups S and fixed hooks T. The stirrups S are hinged to the leaders on both front and rear sides at different elevations, while the hooks are located near the base of the leaders. The object in hinging the stirrups is to adapt them

to be turned out of the way when a pile is being drawn up into place between the leaders preparatory to being driven, and also when the pile has been driven so far that its head comes opposite the stirrups.

What I claim is—

1. The truss-leaders A B, connected at the top and hinged at the bottom, and the lateral hinged braces, combined as shown and described.
2. In combination with the leaders, the elliptical truss-braces and the adjustable clamp-block, as shown and described.
3. The device for clamping the truss-braces, consisting of the block formed in two parts, recessed to receive the nut, and the top plate and screws, all combined as shown and described.
4. The combination of the clamp-block having tenons on its ends, the grooved bed-pieces, the clamping top plate, the screw, the hinged adjusting-braces, and the hinged leaders, as shown and described.
5. The screw, the clamp-block, the hinged leaders, and adjustable braces, the bevel-gear L, the gears M M, the levers, and the engine-shaft, all combined as shown and described, to operate as specified.
6. The combination, with the leaders, of the hinged guide-stirrups fastened to the leaders for holding stays that support the piles in position while moving the leaders to the proper oblique position, or while driving the piles, as specified.

J. W. PUTNAM.

Witnesses:

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AMOS W. HART.