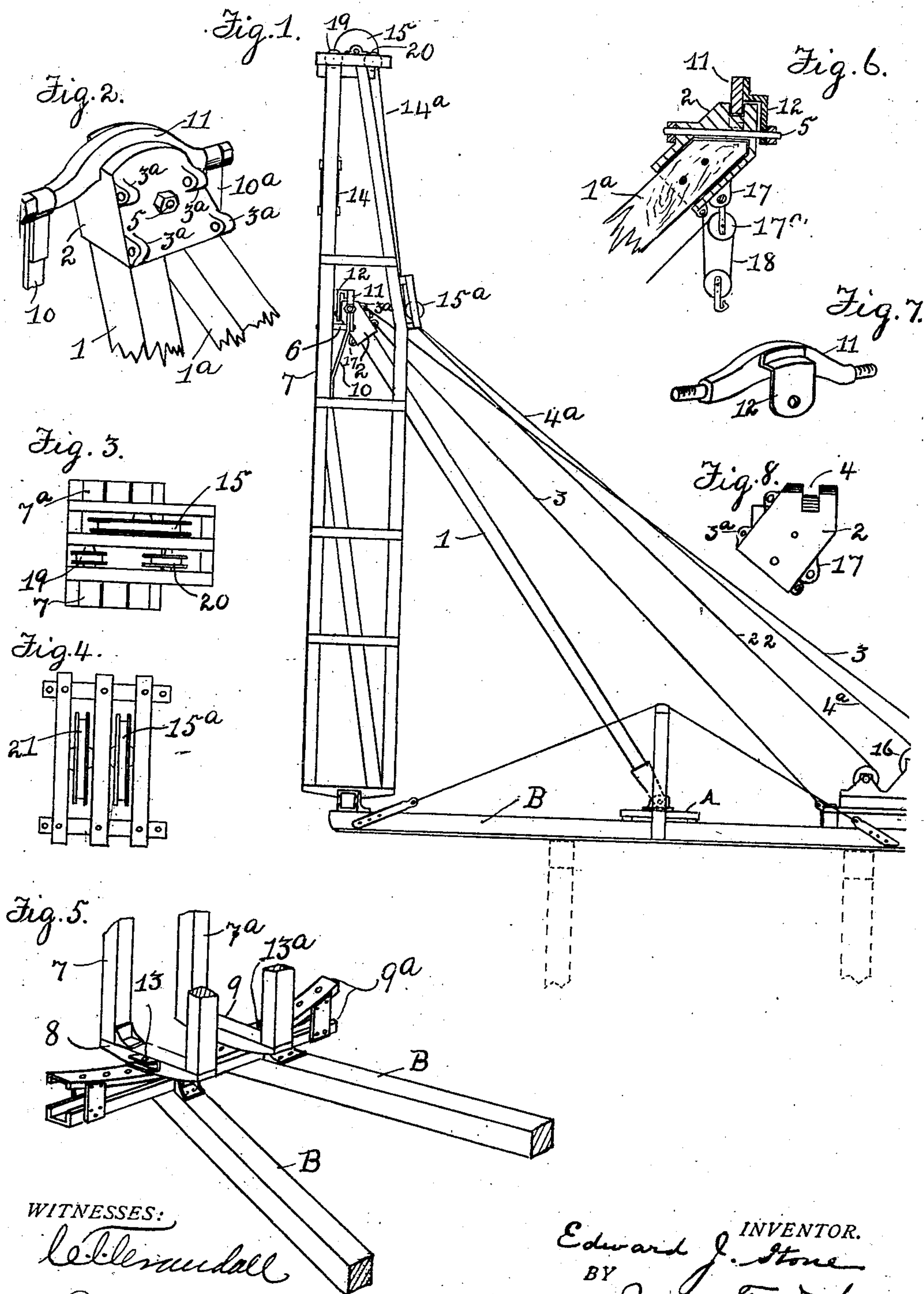


925,440.

E. J. STONE.
PILE DRIVER.
APPLICATION FILED MAR. 30, 1908.

Patented June 15, 1909.



WITNESSES:

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EDWARD J. STONE, OF DULUTH, MINNESOTA.

PILE-DRIVER.

No. 925,440.

Specification of Letters Patent.

Patented June 15, 1909.

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To all whom it may concern:

Be it known that I, EDWARD J. STONE, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Pile-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 pile drivers and has for its object the provision of means for pivotally connecting the leads to a shear leg or other suitable brace or support, so as to enable the feet of the legs to be swung in an arc.

With this and other objects in view, it consists of the constructions, combinations and arrangements of parts hereinafter described and claimed.

In the drawings, Figure 1 is a fragmentary side elevation of a pile driver showing one form of my invention. Fig. 2, is a fragmentary perspective view from the rear of the shear leg, cap, yoke and yoke straps embodied in my invention. Fig. 3 is a plan view of the upper end of said pile driver. Fig. 4 is a rear elevation of cable guide, pulleys and support. Fig. 5 is a fragmentary perspective view, from the rear, of the base of said pile driver. Fig. 6, is a central, vertical, longitudinal view of a portion of the shear leg support and cap embodied in my invention. Fig. 7 is a perspective view from the front of a yoke embodied in my invention. Fig. 8 is a side elevation of a shear leg cap embodied in my invention.

In the drawings, 1 and 1^a are shear legs supported in any suitable manner upon a suitable base, as A, said legs diverging from each other at their lower ends and converging at their upper ends, said upper ends being held together by suitable holding means, as by a cap 2. Suitable guy lines, as 3 are connected at their upper ends to lugs 3^a, formed on said cap, and are secured at their lower ends to any suitable anchorages in rear of the vertical transverse plane of the lower ends of the shear legs. Said cap preferably has formed in the upper surface thereof, a vertically curved transverse groove 4, adapted to receive the yoke hereinafter described. A bolt 5 is projected longitudinally through said cap concentrically with the arc of said groove and below the same. Leads

comprising the legs 7 and 7^a are held parallel to each other in any suitable manner and by such suitable means well known to the art. Said leads are preferably supported at their bottoms on feet 8 and 9, which extend longitudinally of the machine and are curved or bent longitudinally on arcs struck from the eyes of the yoke straps hereinafter described. Said feet rest upon a transverse way, or sill, 9^a, which is fixed to the base B, and is bent upwardly on an arc struck from said bolt 5, the construction preferably being such that the lower ends of the leads may be swung to either side or to the front or rear, or both, without being deprived entirely of their under foot support. Intermediate of the ends of said leads, are positioned brackets, or yoke straps, 10 and 10^a, extending rearwardly, and journaled in said brackets, or pivotally supported thereon, is a yoke bar 11. 6 is a strut positioned between the strap and the lead. Said bar 11 is, intermediate of its ends, adapted to rest in said groove in said cap and is at its lower edge, therefore, preferably arched or concaved on an arc struck from said bolt 5. In order to retain said yoke bar in said groove, other than by gravity, and to prevent it from jumping therein, I secure to the front face thereof, above the upper face of the cap 2, a plate 12, which extends forwardly and downwardly in front of the front face of said cap and is provided with a suitable aperture for the passage of said bolt 5. Said yoke is designed to bear all, or the major part, of the weight of said leads and of the derrick ladder, hammer, and parts permanently carried by said leads.

It will be observed that the leads may swing forwardly or rearwardly by reason of the journaled connection of the yoke bar with the yoke straps, and that said leads may swing sidewise by reason of the pivotal connection of said yoke arm with said cap, but said swinging of the leads may be prevented by suitable removable stop pins as 13, 13^a, extending through brackets on the feet 8 and 9 and through the fixed sill 9^a. The leads may thus be held in a vertical, or an inclined position, and piles may be driven vertically or at an incline, as desired. A suitable driving weight or hammer, as 14, is mounted in said leads and is adapted to be operated by a hoisting rope as 14^a, extending over a pulley 15, and thence, indirectly down by way of the guide pulley 15^a to the hoist-

ing drum 16. Said cap is preferably provided upon its lower face with an apertured lug 17 adapted to receive the suspending hook of a pulley 17^a, over which may be rove a hoisting rope 18 for lowering said leads when it is desired to knock down said machine for transportation to a distant location, or for lifting said leads when it is desired to assemble or to reassemble the parts thereof. Pulleys 19, 20 and 21 are mounted in suitable positions for supporting and guiding a hoisting cable 22, used for lifting piles into position between the leads. To lower the leads, they should be disconnected from the sill 9^a; the bolt 5 should then be withdrawn from either direct or intermediate connection with the yoke. The free end of the rope 18 should then be connected to the leads and said leads slightly lifted, if necessary, to enable the yoke to clear the groove in the cap 2. The upper ends of the leads then swing, or are pushed, outward so that the yoke will clear the cap and the leads are then lowered. This action is reversed in raising the leads to operative position. By means of my invention, much valuable time and labor may be saved in taking the machine apart for transportation and in putting it together again, and the leads may be inclined with great convenience and a minimum of labor and lost time, to permit the driving of piles at an incline. In other respects, as for example in the construction of the base, and the hoisting engine, and the method of securing the lower ends of the shear legs and guy lines, any suitable method or means well known to the pile driver or derrick constructor's art may be employed, and it is not thought necessary to describe the same herein in detail. It will be observed that the yoke preferably remains always connected to the leads, by means of the straps.

What I claim is:—

1. In a pile driver, the combination of a suitable base, shear legs mounted thereon, a cap mounted on the upper ends of the said shear legs, a yoke pivotally connected to said cap, a concave sill mounted on said base,

leads erected on said sill, and straps secured to said leads and journaled on the ends of said yoke.

2. In a pile driver, the combination of a suitable base, shear legs mounted thereon, a cap mounted on the upper ends of said shear legs, said cap having a horizontally directed bolt hole extending therethrough, said cap having formed in its upper face a transversely directed groove on the arc of a circle concentric with said bolt hole, a concave sill mounted on said base, leads adjustably erected on said sill, straps secured to said leads, a yoke journaled in said straps and adapted intermediate of its ends to rest in said groove, a plate secured to said yoke and adapted to extend forwardly and downwardly in front of said cap, said plate having an aperture formed therein adapted to register with said bolt hole, and a bolt adapted to extend through said bolt hole and through the aperture in said plate.

3. The combination with a shears, of a cap mounted on the upper end thereof, a yoke above said cap and resting thereon and pivoted intermediate of its ends to said cap, brackets journaled on the opposite ends of said yoke and extending forwardly at an angle thereto, and leads secured to said brackets.

4. In a pile driver, the combination of a suitable support, a sill mounted thereon, feet extending across said sill, and adapted to slide thereon in the arc of a vertical circle, means for holding said feet stationary at various points along their paths of travel, upwardly extending oscillatable leads mounted on said feet and means for pivotally supporting said leads intermediate of their ends, the axis of oscillation of said leads being concentric with said circle.

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

EDWARD J. STONE.

Witnesses:

JAMES T. WATSON,
PAUL THOMPSON.