E. A. KEELER.

PILE EXTRACTOR.

APPLICATION FILED MAR. 15, 1916.

1,200,504.

Patented Oct. 10, 1916.

Fig. 1.

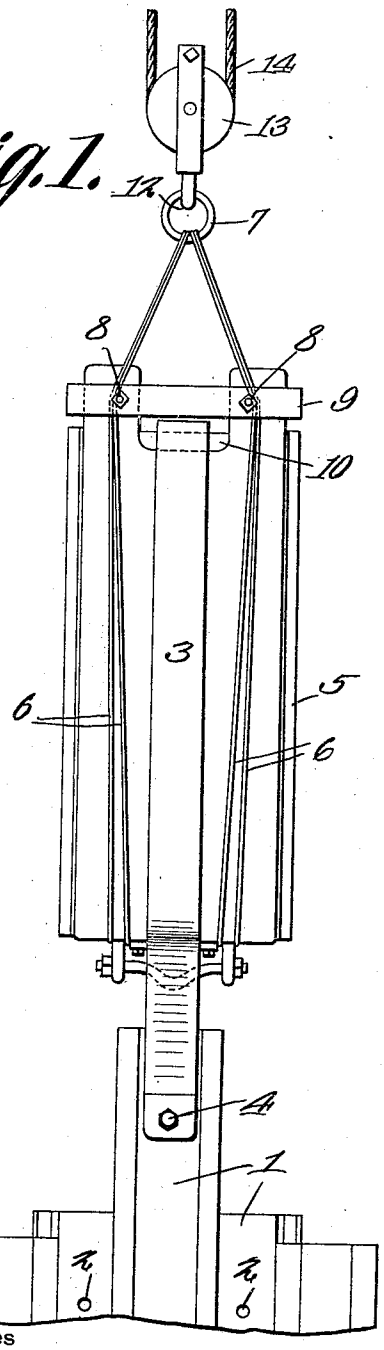
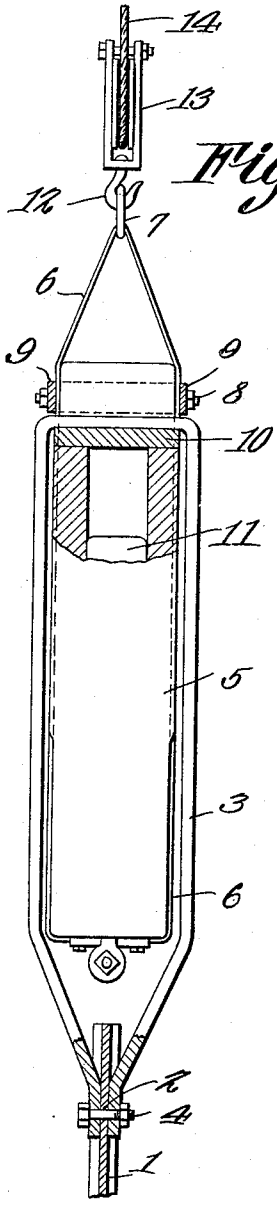


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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PILE-EXTRACTOR.

1,200,504. Specification of Letters Patent. Patented Oct. 10, 1916.

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To all whom it may concern:

Be it known that I, EDWARD A. KEELER, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented a new and useful Pile-Extractor, of which the following is a specification.

The present invention appertains to pile extractors, and aims to provide a novel and improved, yet simple and efficacious means for extracting steel, wood or other sheet piling. Ordinarily, piles are extracted from the ground by a pulling process, which requires considerable power, and which is objectionable for well known reasons.

It is the object of the invention to provide means whereby a steam, compressed air or other pressure fluid hammer can be utilized for extracting piles. An ordinary pile driving hammer is used, the same being inverted, and operating to impart an upward driving force to the pile, whereby it is literally driven out of the ground. By this method, the pile is extracted in a more satisfactory manner, less power being necessary, due to the vibration of the hammer, and the successive blows thereof.

Another object of the invention is the provision of novel means for suspending the hammer, and for connecting it with the pile.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of the appliance as in use. Fig. 2 is a side elevation, the line of view being at right angles to the line of view in Fig. 1, and portions being broken away.

In the drawing, there are illustrated the upper ends of steel piles 1, although it is to be understood that the present apparatus can be used for extracting various piles, posts and the like with equal success. The piles 1 are provided, as usual, with apertures 2 adjacent their upper ends for convenience in extracting them.

In carrying out this invention, there is provided a double bar 3 providing a loop-shaped frame, the terminals of the bar being lowermost and converging toward one another. The lower end of the frame 3 is readily assembled with the pile which is to be extracted, by slipping the terminals of the frame astride the upper end of the pile, and inserting a bolt 4 or equivalent securing element through the apertured terminals of the frame 3 and the aperture 2 of the pile, whereby to anchor the frame to the pile. This frame is readily applied to and removed from the successive piles. Disposed within the frame 3 is an ordinary pile driving hammer 5 utilizing steam, compressed air, or other motive fluid. The detail construction of the hammer need not be discussed, since it forms no part of the present invention.

As a means for suspending the hammer 5, there are provided cable bridles 6 of steel or other material of sufficient strength, in which bridles the hammer 5 is slung, the lower end of the hammer seating upon the lower portions of said bridles. The upper ends of the bridles are engaged through a ring 7 or equivalent supporting element. A pair of bolts or rods 8 are engaged through the upper end of the hammer 5, to hold the bridles 6 separated, and said bridles are clamped against the hammer by transverse bars or straps 9 engaged upon the bolts 8. The bars 9 hold the bridles assembled with the bolts 8, and said bars also extend across the upper end of the frame, thereby assisting in holding the frame and hammer properly assembled. The driving plate 10 of the hammer rests against the upper portion or bend of the frame 3, and the plunger or driving rod 11 of the hammer 5 is arranged to impinge against the plate 10 by an upward movement, the hammer being in inverted position. The bridles 6 can be suspended by any suitable mechanism, such as a derrick, frame, or the like. As illustrated, the ring 7 is engaged with the hook 12 of a pulley block 13 which is suspended from the cable 14 of a derrick, although the bridles can be suspended in any other suitable manner. When the hammer 5 is operated, the blows thereof are exerted upwardly against the plate 10, and the force of said blows will be transmitted through the frame 3 to the pile 1, whereby sharp upward impulses are

given the pipe to extract it by a "driving" action, instead of by a straight pulling action. As the pile is raised, the hammer is raised accordingly by raising the bridles 6.

Having thus described the invention, what is claimed as new is:

An extracting device comprising a frame embodying a doubled bar having its terminals lowermost and adapted for attachment with an object to be extracted, a pressure fluid hammer within said frame having a driving plate resting against the upper end of said frame, cable bridles in which said hammer is slung, bolts carried by the upper end of the hammer for holding the bridles separated, and transverse bars engaged upon the bolts to hold the bridles assembled therewith and extending across the upper end of said frame.

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

EDWARD A. KEELER.

Witnesses:
E. M. SHAFFER,
M. EBEL.

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