A. R. CUTHBERTSON.

PILE EXTRACTING MECHANISM.

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1,173,780. Patented Feb. 29, 1916.

Fig. 1.

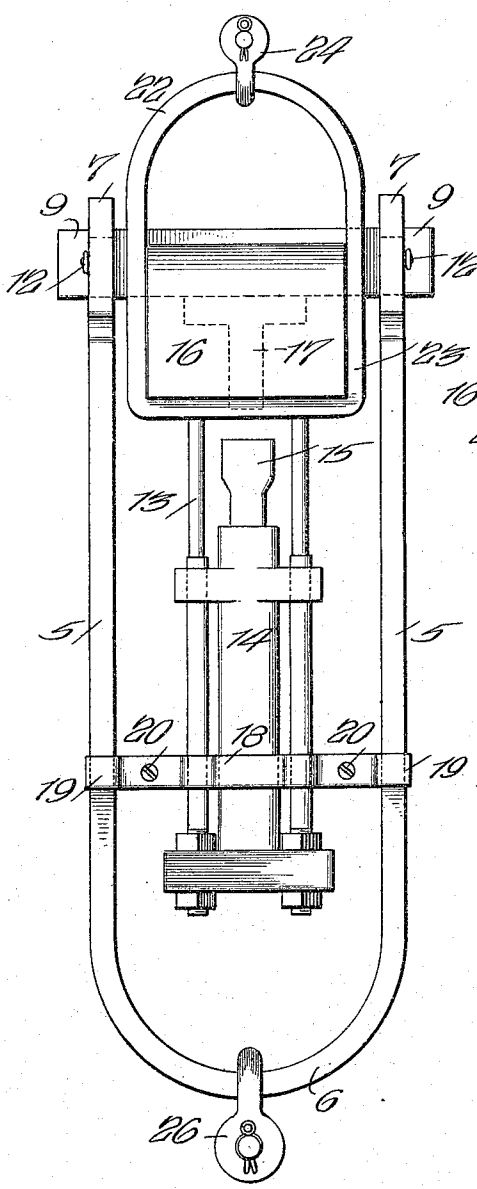


Fig. 2.

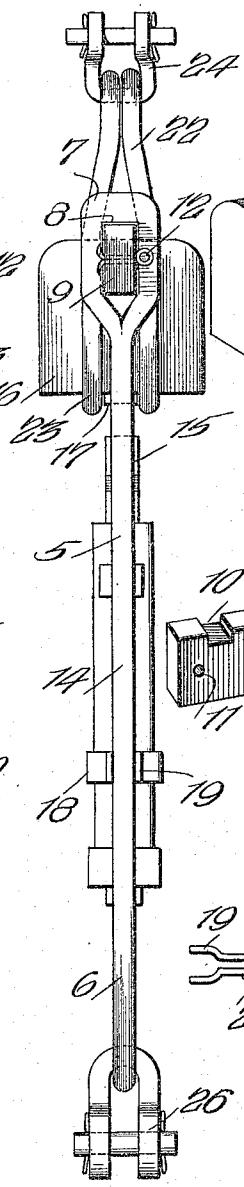


Fig. 3.

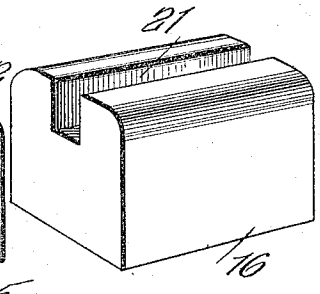


Fig. 4.

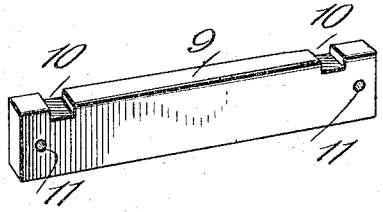
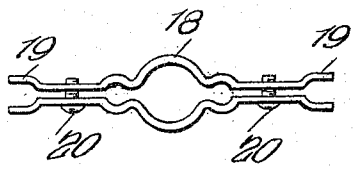


Fig. 5.



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PILE-EXTRACTING MECHANISM.

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Application filed February 27, 1915. Serial No. 10,986.

To all whom it may concern:

Be it known that I, ALEXANDER R. CUTHBERTSON, a subject of the King of England, and a resident of Turners Falls, in the county of Franklin and State of Massachusetts, have invented a certain new and useful Improvement in Pile-Extracting Mechanism, of which the following is a specification.

This invention relates to an improved mechanism for extracting or withdrawing piles, sheeting, and the like.

One of the principal objects of the invention is to provide such a mechanism whereby a continuous and an intermittent pulling force may be applied simultaneously to the pile or sheeting whereby to withdraw the same.

Another object of the invention is to provide a pile extracting device consisting of a mechanism adapted to be attached at one end to the pile to be drawn, and at the other end to a derrick or crane whereby a continuous pull may be imparted to the pile, the device further contemplating means for supporting a steam or pneumatic hammer whereby intermittent blows may be imparted to the pile at the same time that the force of the continuous pull is exerted thereon.

A further object of the invention is to provide a device of the character described in the form of a yoke or frame having means for supporting a hammer, and having means whereby it may be attached to a pile and to a derrick or crane.

Still another object is to provide a device of the class described which will be extremely simple, durable, efficient in operation, and inexpensive to manufacture, and one which may be installed or set up in a minimum space of time and with a minimum amount of labor.

With these and other objects in view which will become apparent as the description proceeds, the invention resides in the construction, combination, and arrangement of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawing in which like characters of reference indicate like parts throughout the several figures, of which—

Figure 1 represents a view in side elevation of a device constructed according to my invention, showing a steam hammer mounted therein; Fig. 2 represents a view in elevation of the device looking toward one edge thereof; Fig. 3 represents a view in perspective of the hammer head detached; Fig. 4 represents a view in perspective of the striking bar; and Fig. 5 represents a plan view of the clamp detached.

In carrying out my invention I provide a yoke or frame constituting side bars 5 which are disposed in parallel relation and which at their lower ends are connected by the curved portion 6. The upper ends of bars 5 are provided with an eye 7 having a preferably rectangular opening 8 therein. A striking bar 9 is adapted to be passed through eyes 7. This bar is preferably rectangular in cross section and is provided on its upper edge near its end with the recesses 10 adapted to engage the upper portions of eyes 7. The bar is provided near its ends with openings 11 for the reception of pins or other suitable retaining elements 12.

Within the frame is adapted to be supported a hammer of a well known type. This hammer mainly constitutes a framework consisting of side bars 13 between which is secured the hammer cylinder 14. A piston reciprocates within the latter and operates a driving head 15. The hammer head is indicated at 16 and is suitably connected to the ends of side bars 13. Within the head 16 is carried a hitting or striking block 17. The latter is adapted to be intermittently struck by the hammer head 15 as the latter is operated.

As shown more clearly in Fig. 1, the hammer mechanism is adapted to be disposed within the yoke or frame. In order to partially maintain this mechanism in place, I provide a clamp 18 consisting of a pair of bars of suitable strength so formed as to embrace between them the hammer cylinder 14 and the rods 13, the ends of the clamp bars engaging around the side bars 5 of the yoke or frame, as indicated at 19. Suitable tightening elements such as screws or bolts 20 are provided and are disposed in the clamp bars between the yoke bars 5 and the hammer mechanism, and by tightening these elements, the clamp bars may be drawn together for maintaining the hammer mechanism in fixed relation relatively to the yoke or frame.

In applying the device to my invention, the hammer head 16 is provided with a transversely extending slot or groove 21. This slot is of a width substantially equal to the width of the striking bar 9, so that

the latter may fit within the groove in the hammer head, as indicated clearly in Fig. 1. When in this position, the striking or hitting block 17 bears against the lower edge of striking bar 9, and it will of course be understood that any blows given to the striking block by the hammer, will be imparted to the striking bar. In order that the hammer head may be maintained against the striking bar, I provide the rings 22. The latter are squared at their lower portions as at 23, and are of such dimensions as to fit snugly around the hammer head 16 in the manner indicated in Fig. 2. The upper portions of rings 22 are preferably rounded, although they may of course be squared, or of any other suitable configuration, and they are maintained in close proximity to each other, through the medium of a shackle 24. This shackle, in addition to serving as means whereby the rings are maintained against each other so as not to become easily separated, also serves as means whereby the device may be connected to a derrick or crane (not shown). The lower portion of the yoke or frame is provided with a similar shackle 26 whereby the mechanism may be connected in any suitable manner with the pile or sheeting to be withdrawn.

When the device is in operation, the pull imparted by the derrick or crane maintains the hammer head and striking block tightly up against the striking bar 9 and also imparts a pull through the frame to the pile or sheeting to be extracted. Simultaneously with this continuous pull the hammer is operated so as to intermittently strike the block 17 thus imparting blows to the striking bar and the force of these blows is in turn imparted through the yoke to the pile so that the latter is gradually withdrawn from its position.

Although I have described the preferred embodiment of my invention I may desire to make such changes in the construction, combination and arrangement of parts thereof, as do not depart from the spirit of the invention, and the scope of the appended claims.

I claim:—

1. In a pile extracting mechanism, the combination of a U-shaped frame, a striking bar carried transversely of the frame at one end thereof, a head having a channel within which the striking bar rests, a hammer adapted to be arranged within the frame for imparting blows to the head, means for maintaining the hammer in place within the frame, a pair of rings having lower portions adapted to fit and engage the hammer head on opposite sides of the striking bar, means connecting the upper ends of the rings together and to which a derrick may be connected, and means connected to the frame whereby a pile may be connected to the device, substantially as described.

2. In a device of the class described, the combination of a U-shaped frame, a striking bar carried transversely thereof at one end, a hammer adapted to be disposed within the frame and having a grooved head fitting hammer within the frame, a pair of rings engaging the hammer head on opposite sides of the striking bar for holding the hammer head thereagainst, means for connecting said rings together, said means adapted to serve as a connection between the device and a derrick, and means for connecting the frame to a pile, substantially as described.

3. The combination with a hammer having a channeled head, of a frame within which the hammer is disposed, a striking bar carried by the frame and fitting within the channeled head, means for connecting the frame at one end with a pile, a pair of rings engaging the hammer head at opposite sides of the striking bar and adapted to be connected with a derrick, said rings further maintaining the hammer head in engagement with the striking bar, substantially as described.

4. In a pile extracting mechanism, the combination of a frame having a striking bar, a head fitting against the bar, a hammer arranged in the frame and adapted to deliver blows to the head, means for maintaining the head in engagement against the bar, said means serving to connect the mechanism with a lifting device, and means for connecting the frame with an object to be extracted.

5. A pile extracting mechanism including a frame having a striking bar, and adapted to be connected to an object to be extracted, a head fitting against the bar, rings engaging the head on opposite sides of the bar and adapted to be connected with alifting device, and a hammer arranged in the frame and adapted to impart blows to the head.

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