March 1, 1932. E. L. OLDHAM 1,847,135

SHEATHING DRIVER

Filed May 14, 1930

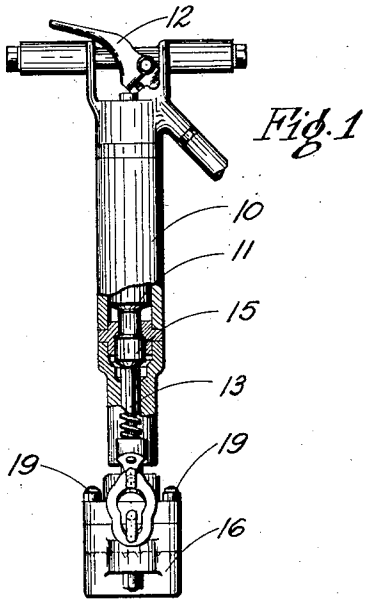


Fig. 1

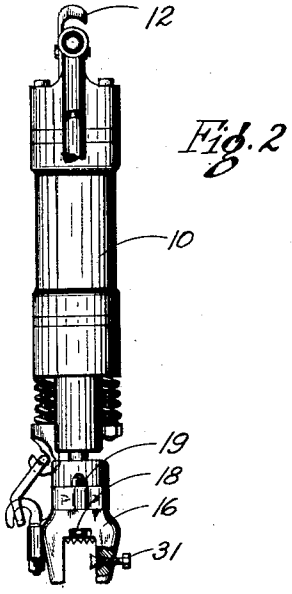


Fig. 2

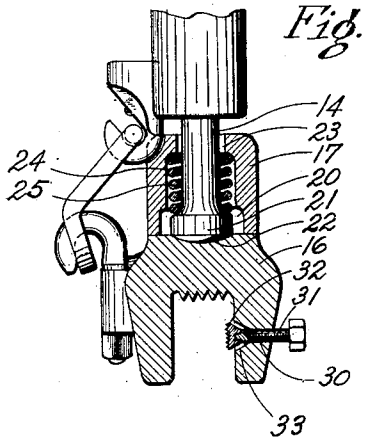


Fig. 3

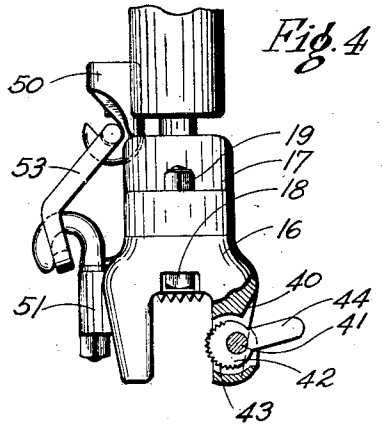


Fig. 4

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UNITED STATES PATENT OFFICE

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SHEATHING DRIVER

Application filed May 14, 1930. Serial No. 452,491.

This invention relates to improvements in tools for driving pilings of planks and similar sheathing especially adapted for use with fluid actuated machines such as rock drills of the hammer type.

One object of this invention is to maintain the working face of the anvil of the tool in intimate engagement with the end of the pile or sheathing being driven to insure at all times a full flat contact between the anvil and the end of the pile.

Another object of this invention is to resiliently press the cooperating surfaces of the anvil and tool arm together to return the same to proper alinement and contact after any separation that might be caused by reaction to the blows of the reciprocating hammer. Another object is to provide means for producing this result which permit limited universal movement between the tool arm and the anvil.

Other objects and advantages more or less ancillary to the foregoing and the manner in which the various objects are attained will appear in the following description in the accompanying drawings.

Fig. 1 is a side elevational view of a pile driving device, a portion thereof being shown in section;

Fig. 2 is a view taken at right angles to Fig. 1 a part of the anvil being shown in section;

Fig. 3 is a view of the lower end of the device showing the anvil in cross-section; and

Fig. 4 is a view similar to Fig. 3, except that only part of the anvil is shown in section, showing a modified form of the invention.

Referring to the drawings, the rock drill consists of a cylinder 10 having a piston hammer 11 therein arranged to be reciprocated in the usual manner by pressure fluid controlled by the throttle valve 12. A tappet 15 is retained in the forward end of the cylinder and is arranged to receive the blows of the piston hammer 11. The pile driving tool consists of an anvil 16 and a tool arm 14 having a shank 13 adapted to be received in the front head of the drill in place of the conventional drill steel. The tool arm 14 is arranged to receive the blows of the tappet and transmit the same through the anvil 16 to the pile or sheathing being driven.

A housing 17 having a recess 20 is secured to the top of the anvil 16 by means of bolts 18 and nuts 19. The recess 20 is adapted to receive an enlarged head portion 21 of the tool arm 14. The head 21 has a spherical butt end for engagement in a complementary depression 22 in the top of the anvil. A hole 23 is formed in the top of the housing to permit the passage therethrough of the arm 14 and is smaller than the head 21 to prevent separation of the anvil and arm. This connection between the arm 14 and the anvil 16 permits the arm to be tilted in any direction with the respect to the axis of the anvil.

The hole 23 is also smaller than the recess 20 in the housing thus providing a shoulder 24 on the inside of the housing. Interposed between this shoulder and the enlarged head 21 of the tool arm 14 is a coil spring 25 for maintaining the head 21 within the depression 22 and also for cushioning the reactive movement of the arm away from the anvil to prevent the head 21 striking the shoulder 24 during such movement. This cushioning by the spring prevents premature wear and breakage of the parts.

The lower end of the anvil is forked, as shown, to receive between the prongs thereof the pile to be driven. One of the prongs has a tapped hole 30 for the threaded engagement therewith of a cap screw 31. Rotatably mounted on the inner end of this screw is a clamping jaw 32 having a serrated face which can be projected or withdrawn from the inside of the anvil prong by turning the cap screw one way or the other. When the pile driver is not in use the jaw will be withdrawn from between the prongs of the anvil and seated in the recess 33 provided therefor. When the driver is to be put into use it is placed upon the piling to be driven with the piling between the two prongs of the anvil. The jaw 32 is then projected inwardly to securely grip the piling by screwing the cap screw inwardly. The piling can then be driven with the assurance that the anvil will

remain in full flat contact with the end of the piling during the operation.

In Fig. 4 is shown a modified form of clamping device. In this form of clamping device a slot 40 is provided in one prong of the forked anvil, and pivotally mounted therein on the pin 41 is an eccentric or cam 42. The cam face is serrated as at 43 for approximately 180 degrees of its circumference and opposite the serrated face and extending to the outside of the anvil prong is a lever arm or handle 44 for operating the cam. It will be evident that by raising the lever 44 the serrated face of the cam will be withdrawn from between the prongs of the forked anvil and that by depressing the lever the serrated face will be projected to firmly grip a piling during operation of the driver.

Means are also provided to prevent separation of the tool from the rock drill. This means consists of a hook 50 secured to the front head of the rock drill, a hook 51 secured to one side of the anvil and a keeper link 53 engaging the two hooks.

In operation, if the piling being driven should become tilted, it may be readily straightened by moving the drill past the axis of the piling and thereby exerting a side thrust on the piling to return the same to its correct position. After each blow delivered by the piston hammer 11, the spring 25 checks the reactive movement of the head 21 and returns the same to the depression 22 before the next blow is delivered, so that all the parts are in contact and are capable of delivering the full force of the impact of the piston hammer to the piling.

Although the foregoing description is necessarily of a detailed character, it is to be understood that the specific terminology is not to be construed as restrictive or limiting, and it is to be further understood that various modifications and rearrangements of parts may be resorted to without departing from the spirit and scope of the invention as claimed herein.

I claim:

1. A pile driving tool, adapted to be actuated by a pneumatic drill, including an anvil, means to secure said anvil to a member to be driven, and means carried by said anvil and adapted to be inserted in a portable pneumatic drill to receive the blows of the hammer thereof and transmit the same to said anvil.

2. In combination with a percussive machine, an anvil, means for securing said anvil to a member to be driven, an arm carried by said anvil and adapted to receive the blows of said machine and transmit the same to said anvil, means resiliently maintaining said arm in contact with said anvil, and means for preventing operation of said anvil from said percussive machine.

3. A driving tool adapted to be actuated by a percussive machine of the rock drill type and including an anvil, means for securing said anvil in fixed position on a member to be driven, an arm having a shank thereon receivable in the percussive machine and adapted to receive the blows thereof and transmit the same to said anvil, and means resiliently maintaining said arm in contact with said anvil.

4. A pile driving tool including an anvil having a surface to engage an end of a pile to be driven, a member on said anvil to engage a side of said pile, means for clamping said pile against said member, an arm carried by said anvil and adapted to transmit driving force thereto, and means resiliently maintaining said arm in contact with said anvil.

5. The combination with a percussive machine, of the rock drill type, of a pile driving tool including an anvil having a fork-shaped end adapted to receive a pile between the prongs thereof, said anvil having a serrated portion at the base of the prongs of said fork and extending between the same, a member extending through one of the prongs of said fork for clamping the pile against a side of the other fork, an arm carried by said anvil and adapted to be received in the percussive machine to receive the blows of the hammer thereof and transmit the same to said anvil, means carried by the anvil for urging said hammer against said anvil.

6. A pile driving tool adapted to be actuated by a pneumatic drill and comprising an anvil and a shank loosely carried by said anvil for transmitting driving force thereto, said shank being adapted to be received in the head of a portable pneumatic drill to receive the blows of the hammer thereof.

7. The combination with a percussive machine, of the rock drill type, of a pile driving tool including an anvil having a fork shaped end adapted to receive a pile between the prongs thereof, said anvil having a serrated portion at the base of the prongs of said forks and extending between the same, a member extending through one of the prongs of said fork for clamping the pile against the side of the other fork, said anvil being provided with a body portion having a chamber therein, and an arm slidably mounted in said chamber and projecting therefrom and adapted to be received in the percussive machine to receive the prongs of the hammer thereof, to transmit the same to said anvil and a coil spring disposed in said chamber and bearing against said arm to normally urge the same against said anvil.

In testimony whereof I hereunto affix my signature this 8 day of May, 1930.

EDWARD L. OLDHAM.