Oct. 20, 1931. N. C. SHAW 1,827,957

SHEATHING DRIVING TOOL

Filed Feb. 11, 1929

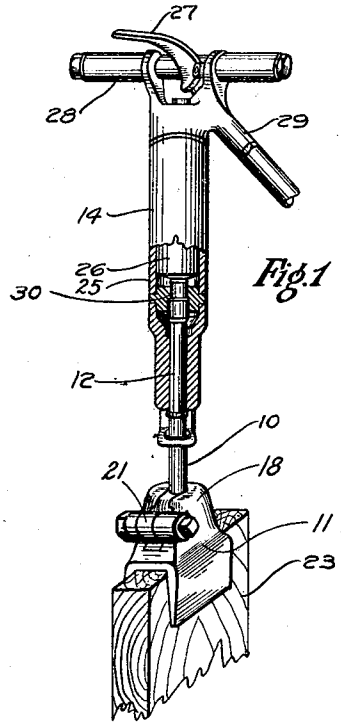


Fig.1

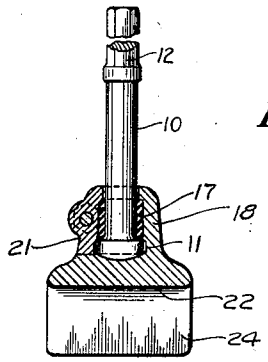


Fig.2

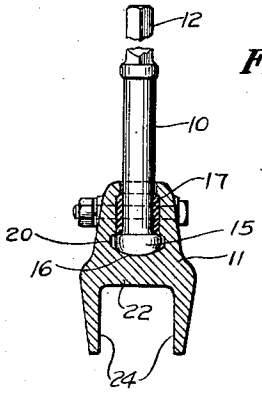


Fig.3

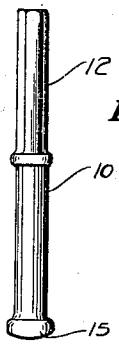


Fig.4

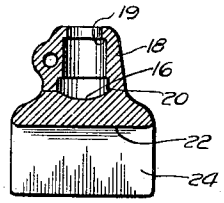


Fig.5

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UNITED STATES PATENT OFFICE

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SHEATHING DRIVING TOOL

Application filed February 11, 1929. Serial No. 339,046.

This invention relates to improvements in tools for driving sheathing and sheet piling, particularly to tools which are intended to adapt rock drills or similar percussive power operated machinery to said purposes.

It has been found that known tools of the sort are of short life, due to the continual pounding at high speed to which they are subject, for the reason that such pounding soon results in the crystalization of the metal, with consequent breakage. This difficulty is particularly frequent where it becomes necessary to use the tools with some side strain, as often must be done in straightening a sheet or a pile while being driven or in counteracting a tendency which it may show to drive crooked.

One of the objects of my invention is accordingly to produce in a tool of this character a connection in the nature of a ball and socket joint for the transmission of the driving thrust, thereby eliminating the injurious effects caused by the fatigue of the metal which results from misaligned application of the driving force.

Another object of the invention is the production of a tool of this nature which is readily accommodated to work in varied positions without undue strain either on the operator or on the mechanism. A further object is the provision of a tool which may be readily attached to or detached from a rock drill or similar apparatus of standard type, thereby adapting such portable motor driving means to a wider variety of uses.

An additional object is the production of an adapting assembly which may be readily and cheaply manufactured and the parts of which may be quickly replaced without the necessity of renewing the entire tool in case of breakage of an element thereof, the entire organization being of sturdy and simple construction.

Other objects and purposes of the invention will be readily apparent to those skilled in the art from the following specification and the accompanying drawings which illustrate a preferred embodiment of the present invention.

In the drawings—

Fig. 1 is a perspective view, wherein certain elements are shown in section, illustrating a preferred embodiment of the driving attachment connected to a rock drill and positioned upon the work;

Fig. 2 is a longitudinal cross section of the driving head showing in elevation the driving arm connected thereto;

Fig. 3 is a view corresponding to Fig. 2 but taken on a plane at right angles thereto;

Fig. 4 is an elevation of the power transmitting element or arm which connects the driving head of my improved tool with the drill; and

Fig. 5 is a detailed sectional view of the anvil on a central longitudinal plane.

The driving tool consists of a rod or arm 10, and an anvil 11. The upper portion 12 of the arm 10 forms a shank to fit the tool chuck of a rock drill or like power-applying means, and the lower end of the arm terminates in a mushroom head 15, downwardly convexed, and held in contact with a corresponding, but larger, concave surface 16 on the anvil top by a resilient collar 17, which is held within a hollow upwardly directed boss 18 by a shoulder 19 and kept in place on the arm by the head 15. The boss is counterbored at the bottom, as at 20, to enlarge the concave face 16, and the diameter of the opening defined by the shoulder 19 is greater than that of the arm 10, whereby play in any direction is possible between the anvil and the arm, although the collar 17 holds them in alignment when no side stresses are applied. Insertion and removal of the arm 10 and collar 17 is provided for by suitable means, such as a separable side piece 21, bolted into the boss 18.

The anvil 11 includes a flat driving face 22 adapted to engage the upper edge of a sheathing plank, such as 23, and two depending flanges 24—24 to hold the anvil thereon. The width of the face 22 and the spacing of the flanges 24 will ordinarily be proportioned to the size of the work, to hold the anvil securely upon the upper edge of the plank, and prevent spreading of the plank end under driving blows.

Referring particularly to Fig. 1, the rock drill 14 to which my improved driving tool is herein shown as attached is of conventional type, including a cylinder 25 in which a piston 26 reciprocated, the supply of compressed air or other actuating fluid being controlled by a valve 27 adjacent the handle 28. The usual connections are provided for the supply of compressed air or the like, such as through a suitable connection 29. The reciprocation of the piston 26 is transmitted by a tappet 30 to the driving tool.

In using my invention the anvil 11 may be adjusted upon the upper end of a sheet or plank of sheathing and the rock drill 14 set in operation irrespective of any moderate divergence or misalignment between the axis of the driving tool and the axis of the sheathing. In like manner the driving element may be inclined to one side or the other to overcome any tendency of the sheathing to drive crooked. Within the limits which are allowed by the construction of the tool any such misalignment between the piling and the driver is taken care of by the play of the arm 10 relatively to the anvil, so that the setting up of side strains or bending moments of serious consequence in the arm itself is avoided. Consequently the life of the driving apparatus is greatly prolonged for the reason that the various elements of the apparatus individually have only direct thrust to transmit.

Because my driving attachment is made in several separable and simple parts its components may be individually removed and replaced quickly and easily for renewal of the whole apparatus or sending it all to the shop.

It will be understood that the foregoing description and accompanying drawings disclose a preferred form or embodiment of the principles of my invention, but that I do not limit myself thereto and that the invention may be otherwise constructed, within the scope of the following claims:

I claim:

1. A driving tool including a driving arm and an anvil on the end thereof having a working face in fixed relation to said arm, and a limited ball-and-socket joint between said arm and said anvil, a yieldable element in operative relation to said joint permitting said relation to be altered but constantly tending to restore the same.

2. A driving tool comprising an anvil and a thrust-transmitting arm, said anvil including a work-engaging face, connecting means between said anvil and said arm, said connecting means including a resilient element tending to hold the arm normal to said face.

3. A tool for driving sheathing comprising an arm and an anvil, complemental bearing faces thereon, said faces being of unequal size to permit misalignment therebetween, a boss on said anvil, adapted to receive said arm, and a resilient collar within said boss engaging said arm and holding the same yieldably therein whereby to bring said complemental faces into opposition.

4. A driving member adapted to be attached to a percussive driving tool, comprising, in combination, a flat work-engaging head, dependent flanges on either side thereof, a concave upper face, an upstanding hollow boss above said face, a passage therethrough of less diameter than said face, a removable side in said boss and a shoulder at top of said passage, an impulse transmitting arm received in said boss, an enlarged convex head on the lower end of said arm of less diameter than said concave face, a resilient collar surrounding said arm within said boss and held in place respectively by said shoulder and said head, and a passage defined by said shoulder of greater diameter than said arm, whereby said arm is movable in said passage and said head is held in contact with said concave face but is movable in all directions with respect thereto.

5. A pile driving tool comprising an anvil adapted to contact with a member to be driven, an arm loosely carried by said anvil adapted to transmit a driving force thereto, and means for resiliently maintaining said arm in contact with said anvil.

6. In combination with a percussive machine, a pile driving tool associated therewith including an anvil adapted to contact with a pile to be driven, a member arranged to receive the blows of said machine and transmit the same to said anvil and means for resiliently maintaining said member in contact with said anvil.

7. A pile driving tool adapted to be actuated by a percussive machine of the rock drill type and including an anvil adapted to contact with a member to be driven, an arm adapted to be inserted in a percussion machine to receive the blows thereof and transmit the same to said anvil and means resiliently maintaining said arm in contact with said anvil.

In testimony whereof I hereunto affix my signature this 7th day of February, 1929.

N. CARTER SHAW.