Jan. 17, 1956 O. HAMRAN 2,730,972

TRACTOR MOUNTED BLASTING PUNCH

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FIG. 1.

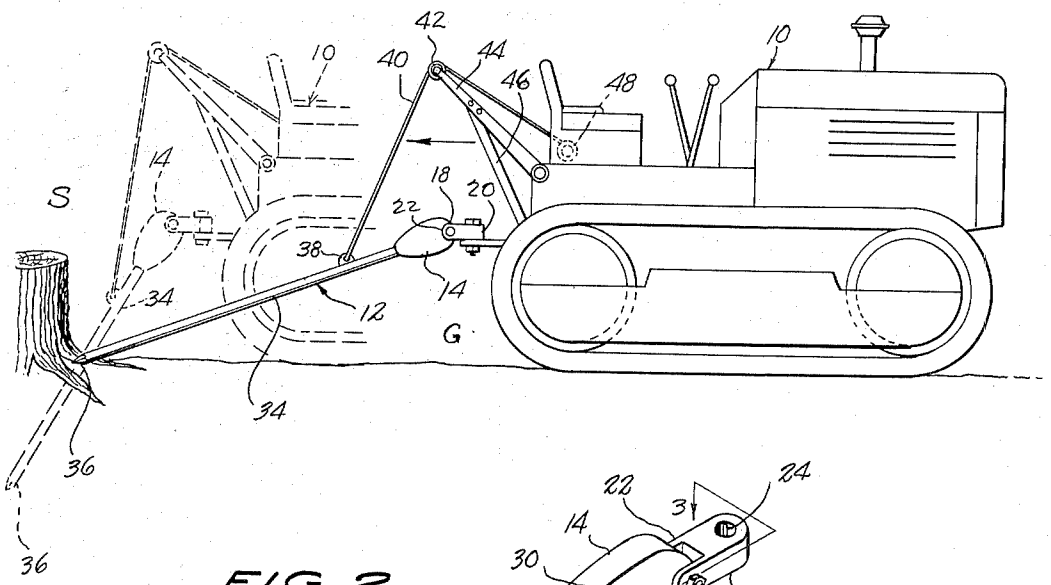


FIG. 2.

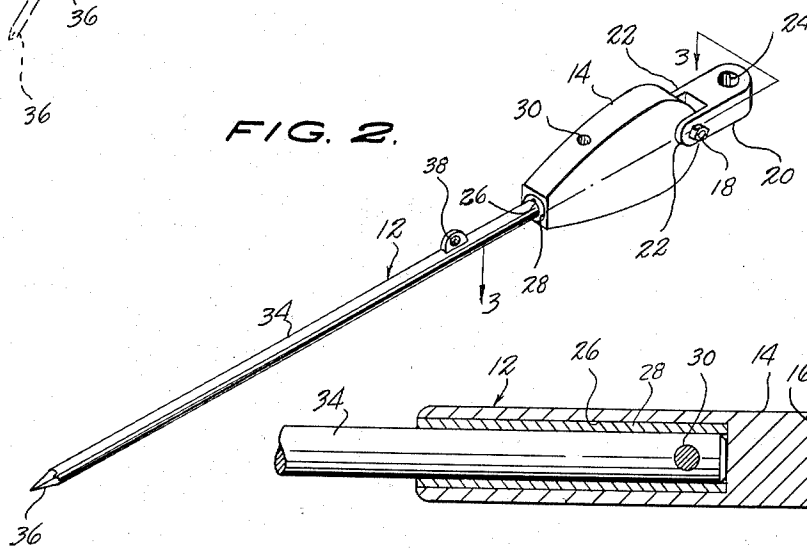


FIG. 3.

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TRACTOR MOUNTED BLASTING PUNCH

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2 Claims. (Cl. 111—89)

This invention relates to a device attachable to a tractor, earth working machine, or like vehicle, which device will be specifically designed to form a hole in the earth in which an explosive charge can be subsequently inserted.

Various means have previously been devised for forming a hole in the earth, in which a stick of dynamite or other explosive charge can be positioned, but to my knowledge, it has not heretofore been proposed that such means be mountable upon a tractor, with the means being adjustably positioned preliminary to forcing of the same into the earth, the tractor being adapted to supply the power whereby the hole forming assembly can be extended into the earth a selected distance.

The broad object of the present invention is to provide a tractor mounted means that will function in the manner described above. More particularly, it is an object of the present invention to provide a blasting punch that, summarized briefly, includes an elongated, pointed rod removably anchored in a vertically swinging body, said body being pivotally connected to a horizontally swingable clevis that is attachable to a conventional tractor, earth working machine, or like vehicle. It is proposed, by forming a blasting punch in the manner stated, to allow forward or backward movement of the vehicle to provide the power necessary to form a deep, small diameter hole in the earth, which hole will be specifically designed to allow an explosive charge to be located at a selected depth, and at a selected angle, relative to an object to be dislodged.

Another object is to provide a blasting punch of the type stated which, when not in use, can be readily positioned inoperatively, in an out-of-the-way location, where it will not interfere with regular use of the tractor or similar vehicle.

Yet another object is to provide, in a blasting punch as stated, means whereby a tractor mounted winch can be readily used for shifting the blasting punch to a selected angle relative to the earth surface.

A further object of importance is to provide a blasting punch as described wherein the hole-forming rod can be removed from the structure supporting the same, for substitution of another rod of different length.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawing, in which like reference characters designate like parts throughout the several views, and wherein:

Figure 1 is a side elevational view of a blasting punch formed in accordance with the present invention, mounted upon a conventional tractor, the dotted lines showing a second position of the punch and tractor after the hole has been formed;

Figure 2 is an enlarged perspective view of the blasting punch per se; and

Figure 3 is an enlarged, detail sectional view taken on line 3—3 of Figure 2.

The reference numeral **10** has been applied generally in the drawing to designate a conventional tractor or similar vehicle, such as a bulldozer. It will be understood, in this regard, that the blasting punch can be mounted upon any vehicle of the general nature illustrated.

The device constituting the invention has been designated generally by the reference numeral **12**, and includes, at one end, a plate-like tapering body **14** in the larger end of which a transverse opening is formed, receiving a connecting bolt **18**, that passes through transversely aligned openings formed in the forked arms of a clevis **20**. Clevis **20**, at that end thereof remote from the bifurcated portion, has a transverse bore **24** extending at right angles to the connecting bolt **18**. The opening or bore **24** is adapted to receive a second connecting bolt, whereby the clevis is attached to the drawbar of the tractor for horizontal swinging movement.

Formed in the smaller end of the body **14** is an axial recess **26**, and welded or otherwise fixedly secured within said recess is a sleeve **28**. The sleeve **28**, at its inner end, has a transverse opening registering with a transverse bore formed in the mid-length part of the body **14**, and extending through the aligned openings of the sleeve and body is a cross pin **30**. Cross pin **30** is tightly fitted in its associated, registering openings of the sleeve and body, but it will be understood that the cross pin can be forced out of said openings whenever desired.

An elongated rod **34** is pointed at one end, as at **36**. At its other end, the rod **34** has a transverse opening receiving the cross pin **30**. In this way, the rod **34** is removably but fixedly anchored within the socket of the body. The purpose of the removable connection is to allow a rod of different length to be substituted, as and when desired.

Rod **34**, adjacent the inner end thereof, has an upstanding, apertured ear **38**, and connected to said ear is one end of a winch cable **40**, trained about an idler pulley **42** rotatably mounted at the outer end of an inclined arm **44** secured to the tractor and held in position by a brace **46**. Cable **44** is wound about the drum of a winch **48** mounted on the tractor.

By reason of the arrangement illustrated and described, operation of the winch is effective to swing the rod **34** and the body **14** upwardly or downwardly, as the case may be, to selected angles relative to the ground surface G. Thus, the winch can be used to dispose the rod **34** at the angle at which the rod is shown in full lines in Figure 1, relative to a stump S to be blasted. Further, the clevis can be horizontally swung if necessary to shift the rod **34** horizontally, should it not be possible to dispose the vehicle in longitudinal alignment with the rod.

In any event, after the rod has been properly positioned as shown in full lines in Figure 1, the tractor can be put in reverse, so as to move to the dotted line position in Figure 1. This will cause the rod **34** to be initially rocked upwardly on its pointed tip, after which the weight of the tractor and the tractor movement will combine to force the rod in the direction of its length into the earth, to the dotted line position shown in Figure 1. There is thus formed a hole specifically designed to receive a stick of dynamite or similar explosive charge, used for blasting the stump S.

When the device is not in use, it can of course be swung upwardly to an inoperative position in which it will not interfere with regular use of the tractor or similar vehicle.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles of operation and the means presently devised to carry out said principles, it being

considered that the invention comprehends any minor change in construction that may be permitted within the scope of the apended claims.

What is claimed is:

1. A blasting punch comprising: a clevis adapted for attachment to a tractor or like vehicle; a plate-like body having a socket, said body being pivotally connected to said clevis for vertical swinging movement; an elongated rod having one end removably engaged in said socket, said rod having its other end pointed for forcing of the pointed end of the rod into the earth, thereby to form a hole for receiving an explosive charge; means extending through the body and the first named end of the rod for detachably anchoring the first named end of the rod in said socket; and means extending between the rod and tractor for swinging the rod and body to selected positions of vertical adjustment, preliminary to forcing of the pointed end of the rod into the earth.

2. A blasting punch comprising: a clevis adapted to be attached to a tractor or like vehicle for swinging movement in a horizontal plane; a plate-like body having a socket, said body being pivotally connected to said clevis for vertical swinging movement; a sleeve fixedly engaged

in said socket; an elongated rod having one end removably fitted in said sleeve, said rod having its other end pointed for forcing of the pointed end of the rod into the earth, thereby to form a hole for receiving an explosive charge; means for detachably anchoring the first-named end of the rod in said sleeve, said means comprising a cross pin extending transversely through the body, sleeve, and rod; and means extending between the rod and said vehicle for swinging the rod and body to selected positions of vertical adjustment, preliminary to forcing of the pointed end of the rod into the earth.

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