Jan. 5, 1971 R. L. YEAMAN ET AL 3,552,239

PORTABLE DRILL PRESS

Filed June 12, 1968

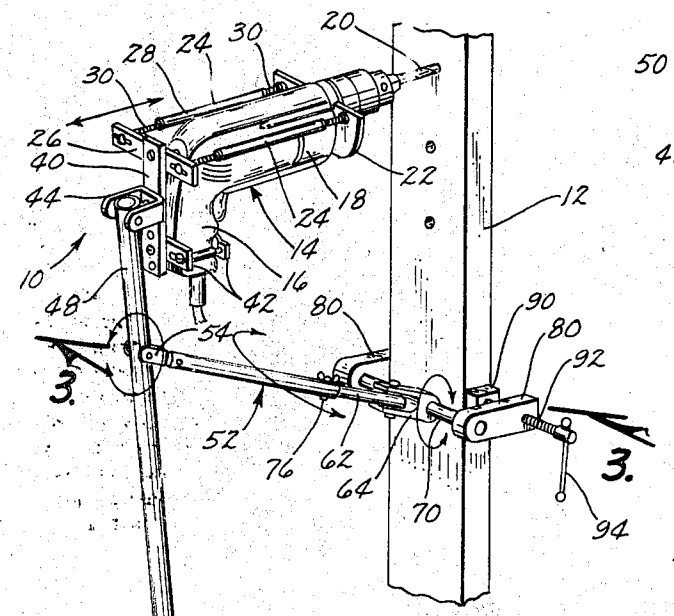


Fig. 1

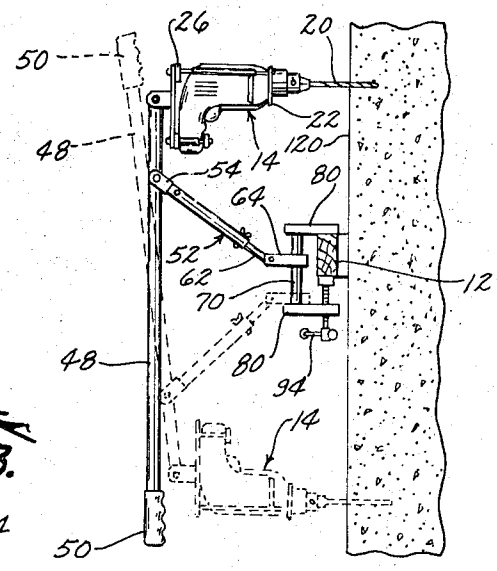


Fig. 2

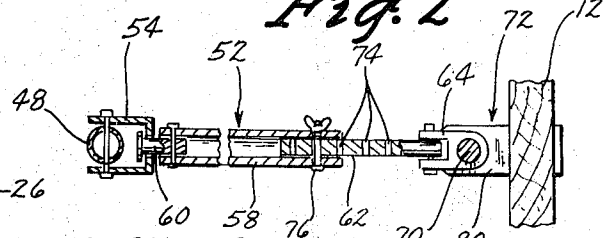


Fig. 3

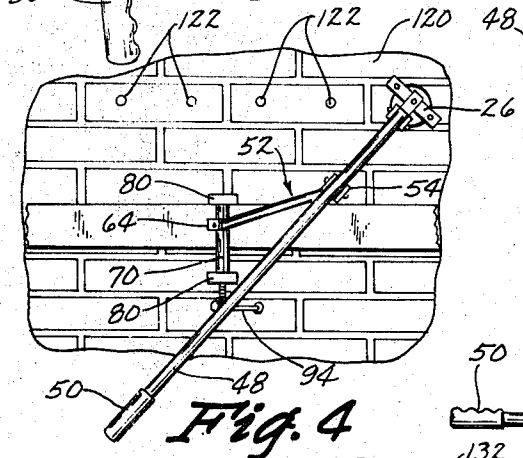


Fig. 4

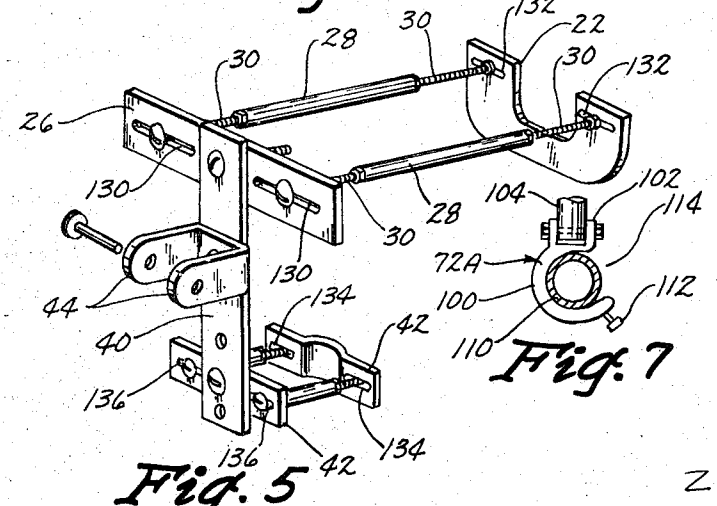


Fig. 5

Fig. 7

Fig. 6

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PORTABLE DRILL PRESS

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ABSTRACT OF THE DISCLOSURE

A device for securing a portable drill to the material being worked upon and providing leverage through a fulcrum for applying pressure to the drill. The fulcrum is extendable and slidably and pivotally connected to the stationary base support while the lever is pivotally and rotatably connected to the fulcrum. The drill attachment means is rotatably and pivotally connected to the lever outwardly of a handle means thereon oppositely disposed from the fulcrum.

In using a power drill it is often difficult to apply pressure to it which is required to drill holes in certain materials because they are hard such as metal or are inconveniently located for the operator of the drill. Also it is frequently difficult to maintain drill alignment with the work product throughout the drilling operation.

The portable drill press of this invention is universal in its application by its being supported on a versatile standard. Through pivoting, sliding and rotating of the components of the standard it is possible to position the drill in almost any desired position for a drilling operation. Moreover, it is possible to obtain the desired drill pressure for the drilling operation. The standard provides a most desirable guide for maintaining drill alignment with the work product.

The standard of this invention for the portable drill is simple in its construction involving a minimum number of parts which include a clamp for securing the standard to a stationary base support, a fulcrum member is connected to the clamp and a lever arm is connected to the fulcrum member and to an attachment means which is connected to the portable pistol-type drill.

These and other features and advantages of this invention will become readily apparent to those skilled in the art upon reference to the following description when taken into consideration with the accompanying drawings, wherein:

FIG. 1 is a perspective view of the portable drill press of this invention;

FIG. 2 is a side elevation view of the drill press showing it in alternate positions 180 degrees apart;

FIG. 3 is a cross-sectional view taken along line 3—3 in FIG. 1;

FIG. 4 is a front elevational view of the portable drill press in use;

FIG. 5 is a perspective view of the drill attachment means;

FIG. 6 is a side elevation view of an alternate clamp means for securing the drill standard to a base support; and

FIG. 7 is a cross-sectional view taken along 7—7 in FIG. 6.

The portable drill press of this invention is referred to in FIG. 1 generally by the reference numeral **10** and is shown mounted on a work product **12** of metal or like material.

A pistol-type drill **14** having a handle **16** and a drill **18** engages the work product **12** through a drill bit **20**. An attachment assembly or harness is mounted on the

drill body and includes a front yoke plate **22** extending under the front end of the barrel **18**. A pair of connecting rods **24** extend rearwardly on opposite sides of the barrel body **18** for connection with a rear plate **26**. The rods include intermediate sleeve portions **28** and threaded bolt portions **30** in the opposite ends for selective adjustment in clamping the yoke **22** and the rear plate **26** to the drill body.

A back plate **40** is bolted at its top end to the rear plate **26** and is bolted to a back plate of a pair of clamping plates **42** engaging the lower end of the drill handle **16**.

A U-shaped clevis **44** is rotatably connected intermediate the ends of the back plate **40** and pivotally receives one end of a lever arm **48** having a handle **50** at the opposite ends on the opposite side of a fulcrum arm **52** pivotally connected thereto through a clevis **54**.

The lever arm **52** as seen best in FIG. 3 includes a sleeve **58** rotatably connected to the clevis **54** through a pin **60** and telescopically connected at the opposite end to a shaft **62** which in turn is pivotally connected to a clevis **64** slidably and pivotally mounted on a shaft **70** of a clamping device **72**.

The fulcrum **52** is extendable by provision of a series of holes **74** in the rod **62** for alignment with a pin **76** extending through the sleeve **58** and the appropriate opening or hole **74**.

The clamp device **72** includes a pair of end members **80** connected rigidly to the shaft **70**.

As seen in FIG. 1, an adjustable jaw **90** is carried on a threaded element **92** extending through the end member **80** for engagement with one side of the work product **12** while the other end member **80** engages the opposite side thereof. A handle **94** on the threaded element **92** provides for manual vise-type clamping of the jaw element **90** and the outer end member **80** onto the work product member **12** as seen in FIG. 2.

In FIGS. 6 and 7 an alternate base clamp means **72A** is provided which includes a hook-shaped element **100** which is provided with a clevis-like end **102** for pivotal connection to the lower end of a pipe **104** which may be of any desired length. The pipe **104** is threadably connected to a coupling element **106** which in turn is threadably connected to a shaft or rod **62A** telescopically engaging the sleeve **58**. The hook **100** is shown mounted on a tubular element **110** of a scaffold (not shown in detail). A clamping lock and set screw **112** extends through the free end portion of the hook for direct engagement with the exterior of the pipe **110**. Accordingly the hook **100** is slidably and rotatably connected to the pipe **110** just as the clevis **64** is slidably and rotatably connected to the shaft **70** in FIG. 3 for example. The hook **100** may be mounted on the pipe **110** by passing the pipe **110** into the hook through the mouth **114**.

Thus it is seen in operation that the portable drill press employing the versatile standard shown and described is capable of an infinite number of uses since it may be positioned almost anywhere as desired. In FIG. 1 the clamp **72** is secured to the work product **12** which is being drilled by the drill **14** while in FIG. 2 the drill is repositioned relative to the stationary base support member **12** such that the drill bit **20** engages a concrete wall **120** and is capable of drilling a series of longitudinally arranged holes **122** as seen in FIG. 4.

In FIG. 6 the drill **14** is positioned on a pipe **110** of a scaffold and is shown drilling a work product **130**.

In FIG. 1 it is seen that the drill may pivot back and forth relative to the work product member **12** and also slide from side to side because of the clevis **64** interconnecting the lower end of the fulcrum **52** to the clamp shaft **70**. Moreover the drill may be rotated through 360 degrees by virtue of the clevis **54** interconnecting the

outer end of the sleeve **58** of the fulcrum **52** to the lever **48**. Additionally the drill is adjustably positioned close to or far away from the work product **12** by virtue of the extendable fulcrum **52** as seen best in FIG. 3.

Further, the drill **14** may pivot and rotate relative to the outer end of the lever **48** because of the clevis connection **44**.

The attachment means shown in FIG. 5 for mounting on the drill **14** is adaptable to practically all drills and is appropriately adjustable by provision of such features as elongated slots **130** in the rear plate **26**. Similar slots **132** are provided in the yoke plate **22** while slots **134** and **136** are provided in the clamping plates **42**.

Some changes may be made in the construction and arrangement of our portable drill press without departing from the real spirit and purpose of our invention, and it is our intention to cover by our claims, any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

We claim:

1. An electric drill holder and work clamp comprising,
an attachment means adapted to be secured to a drill,
a lever arm pivotally connected to said attachment means and said lever arm having a handle means,
a fulcrum arm pivotally attached to said lever arm intermediate its ends between said attachment means and said handle means, and
anchoring means for securing said fulcrum arm to a support base member,
said lever arm being rotatably connected to said fulcrum arm,
said fulcrum arm being slidably connected to said anchoring means,
said fulcrum arm being pivotally secured to said base support means,
said fulcrum arm being extendable,
said attachment means being rotatably secured to said lever means, and
said attachment means including a front yoke for engagement with the front end of the barrel of a pivotal-type drill, a pair of oppositely disposed parallel plates adapted to engage the handle of a pistol drill, a pair of fastener rods extending rearwardly from said yoke and engaging a rear plate, a back plate interconnecting the rear of said pair of plates and said rear plate, and said lever being pivotally connected to said back plate of said attachment means.

2. The structure of claim **1** wherein said base support means includes a detachable clamp means for engagement with a support means.

3. The structure of claim **2** wherein said clamp means is a hook means adapted to engage a tubular support means, and a lock set screw is movable on said hook means to engage said tubular support means and lock said hook means thereto.

4. The structure of claim **1** wherein a clevis connects each of said attachment means to said lever, said lever to said fulcrum, and said fulcrum to said base support means.

5. An electric drill holder and work clamp comprising,
an attachment means adapted to be secured to a drill,
a lever arm pivotally connected to said attachment means and said lever arm having a handle means,
a fulcrum arm pivotally attached to said lever arm intermediate its ends between said attachment means and said handle means, and
anchoring means for securing said fulcrum arm to a support base member,
said lever arm being rotatably connected to said fulcrum arm,
said anchoring means including an elongated member extending perpendicular to the longitudinal axis of said fulcrum and said fulcrum having a connecting means slidably, rotatably and pivotally connecting said fulcrum to said elongated member,
said fulcrum arm being extendable, and
said attachment means being rotatably secured to said lever means.

6. The structure of claim **5** wherein said connecting means is further defined as being a hook means and said elongated member is tubular in shape.

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U.S. Cl. X.R.

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