Feb. 24, 1931. J. G. COLLINS 1,794,149

STAND AND CONTROL MEANS FOR ELECTRIC PORTABLE DRILLS

Filed Sept. 21, 1928

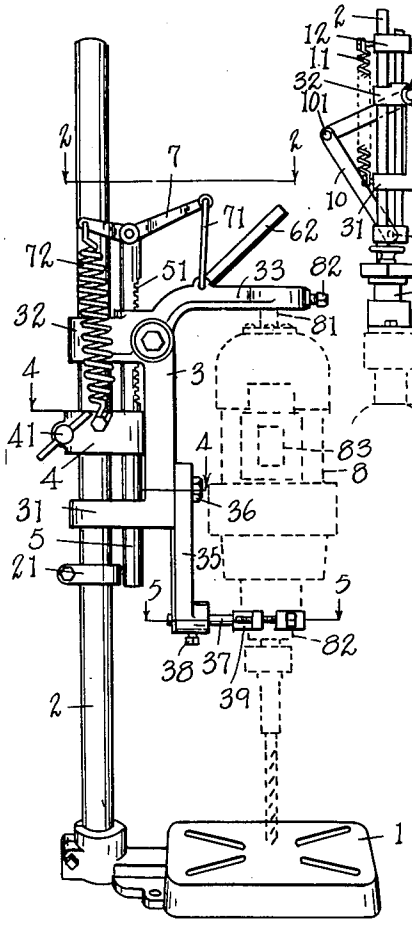


Fig. 1

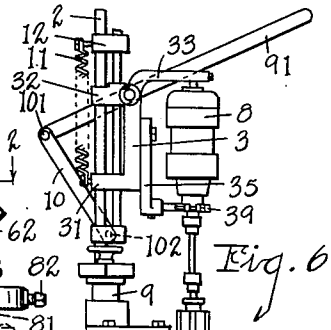


Fig. 6

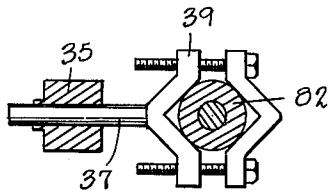


Fig. 5

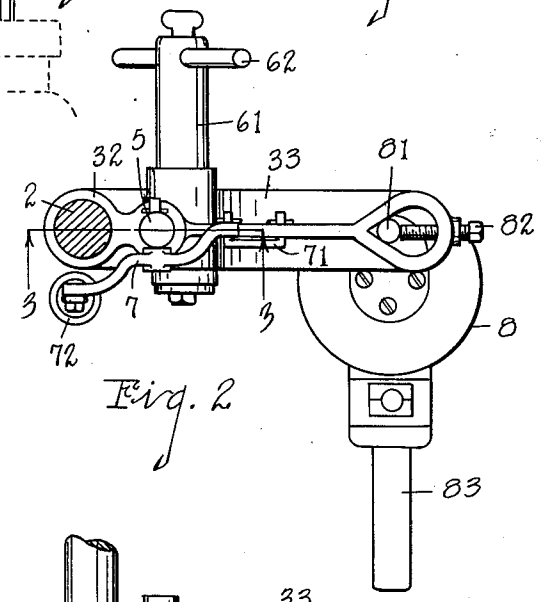


Fig. 2

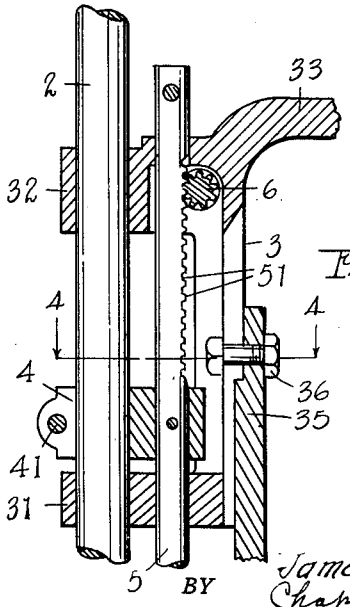


Fig. 3

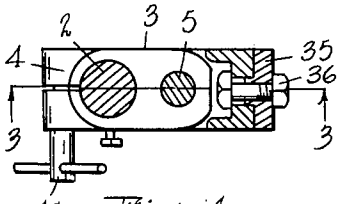


Fig. 4

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UNITED STATES PATENT OFFICE

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STAND AND CONTROL MEANS FOR ELECTRIC PORTABLE DRILLS

Application filed September 21, 1928. Serial No. 307,372.

The objects of the invention are:

First, to provide such a stand whereby the portable drill may be used as a press drill.

Second, to provide such a structure in which the portable drill may be used as a small radial.

Third, to provide such a structure which may be used for various purposes as for honing or refinishing gasoline engine cylinders.

Fourth, to provide improved means of attaching which will be useful in alining such a drill.

Objects pertaining to details and economies of construction and operation will definitely appear from the detailed description to follow. The invention is defined in the claims.

A structure which is a preferred embodiment is illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevation view of a drill stand and support embodying my invention, a portable electric drill being indicated by dotted lines.

Fig. 2 is an enlarged detail sectional plan view on line 2—2 of Fig. 1, showing the self-centering clamp means for the locating stud on the back end of a portable drill.

Fig. 3 is an enlarged detail sectional elevation view on line 3—3 of Fig. 2, showing details of the adjusting means and the guide supports.

Fig. 4 is an enlarged detail sectional plan view on line 4—4 of Figs. 1 and 3 showing the adjusting clamp means and the adjustable attaching means of the frame clamp to the standard.

Fig. 5 is an enlarged detail horizontal sectional view on line 5—5 of Fig. 1 showing details of the self-centering clamp for the front end bearing of a portable drill.

Fig. 6 is a detail side elevation view of a modification of the actuating means where the drill support is used for rapid reciprocation in the honing and finishing of engine cylinders.

The parts will be identified by their numerals of reference which are the same in all the views.

1 is the drill standard base. 2 is the cylindrical column of the usual form on such base. 21 is an adjustable collar thereon for supporting the slidable bracket when the drill is used as a radial drill. 3 is the main frame of the slidable support supplied with lateral brackets or arms 31, 32 which are provided with vertical bores and reciprocate up and down on the column 2 when the drill is used as a drill press.

33 is the fixed upper arm of the drill support provided with an apertured front extension of V-shape to receive the guide pin on the back end of a portable electric drill.

A portable drill 8 is indicated by dotted lines in Fig. 1 and by full lines in the plan in Fig. 2 and the pin on the back plate 81 there fully appears. It is retained by set screw 82.

The lower bracket 35 is adjustable by set screw 36 as seen in Figs. 1, 3 and 4 and carries the lateral adjustable arm 37 retained by set screw 38 in the bottom and carrying square jawed clamp 39 for engaging the front bearing shell 82 of the portable drill 8 as seen particularly in Fig. 5.

4 is a fixed bracket adjustably secured to the column 2 by set screw 41, see Figs. 1 and 4. This bracket carries the guide post 5 which is rigidly secured thereto and is engaged by suitable bores in the brackets 31, 32 of the frame 3. It is provided with rack teeth 51 which are engaged by adjusting pinion 6 which is on shaft 61 journalled in frame 3 and is controlled by the cross handle 62 thereon.

A counter balance lever 7 is fulcrumed to the upper end of the guide post 5. The long end is connected by link 71 to the upper frame arm 33 and the short arm is provided with counterbalance spring 72 connecting the said short arm to the main bracket 4 as clearly seen in Fig. 1.

This counterbalances the weight of the portable drill and makes its manipulation very easy and rapid, by the manipulation of the cross lever 62. 83 is the handle of the portable drill.

In Fig. 6 I show my improved drill support with modified actuating means in position on an engine block for supporting the same. The column 2 is secured by a special

bracket 9 to the cylinder head and the structure is reciprocated by the lever 9 fulcrumed at 91 and connected by link 10 pivoted at 101 to the lever 9 and at 102 to the support. The counterbalance spring 11 is connected to the fixed bracket 12 as shown.

I desire to claim my invention in the specific form shown and also broadly as pointed out in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. The combination with a suitable column of a frame with projecting brackets to receive the said column and reciprocate thereon, a clamp bracket with a guide post adjustably secured to said column between said brackets and engaging suitable bores therein to guide the said frame, the said column having rack teeth on one side, adjusting means comprising a shaft journalled in the said frame, a pinion formed on the said shaft engaging the said rack teeth, and means for manipulating the same, a counterbalance lever fulcrumed at the top of said guide post and connected by suitable link to the drill support frame and a counterbalance spring at the opposite end of the said lever connected to the attaching clamp bracket, laterally projecting fixed top arm with clamp having V-shaped aperture for attachment to the guide pin on the back end of a portable drill, an adjustable lower bracket, an adjustable lateral arm with squared jaw clamp for embracing the front bearing of a portable drill, as specified.

2. The combination with a suitable column of a frame with projecting brackets to receive the said column and reciprocate thereon, a clamp bracket with a guide post adjustably secured to said column between said brackets and engaging suitable bores therein to guide the said frame, the said column having rack teeth on one side, adjusting means comprising a shaft journalled in the said frame, a pinion formed on the said shaft engaging the said rack teeth, and means for manipulating the same, a counterbalance lever fulcrumed at the top of said guide post and connected by suitable link to the drill support frame and a counterbalance spring at the opposite end of the said lever connected to the attaching clamp bracket, laterally projecting fixed top arm with clamp having V-shaped aperture for attachment to the guide pin on the back end of a portable drill, an adjustable lower bracket with squared jaw clamp for embracing the front bearing of a portable drill, as specified.

In witness whereof I have hereunto set my hand.

JAMES G. COLLINS.