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E. W. STEVENS

SPRING HANDLE FOR DRILLS

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Fig. 3

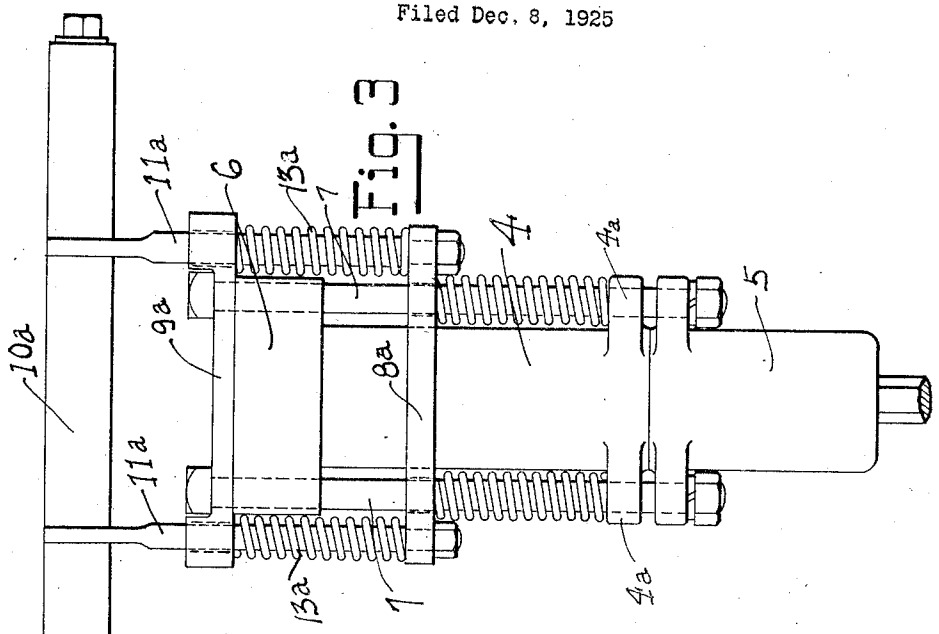


Fig. 2

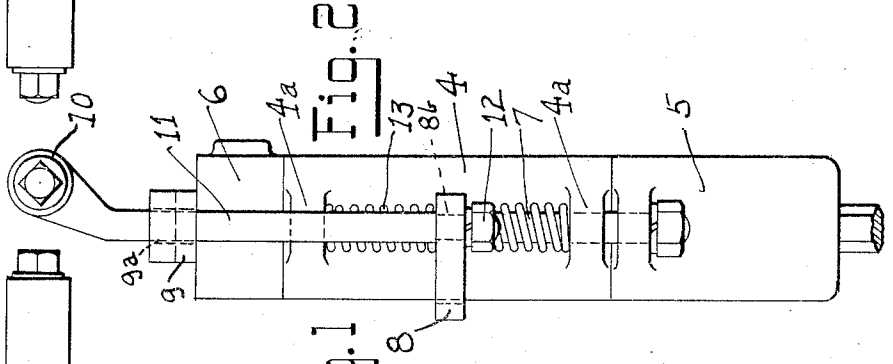
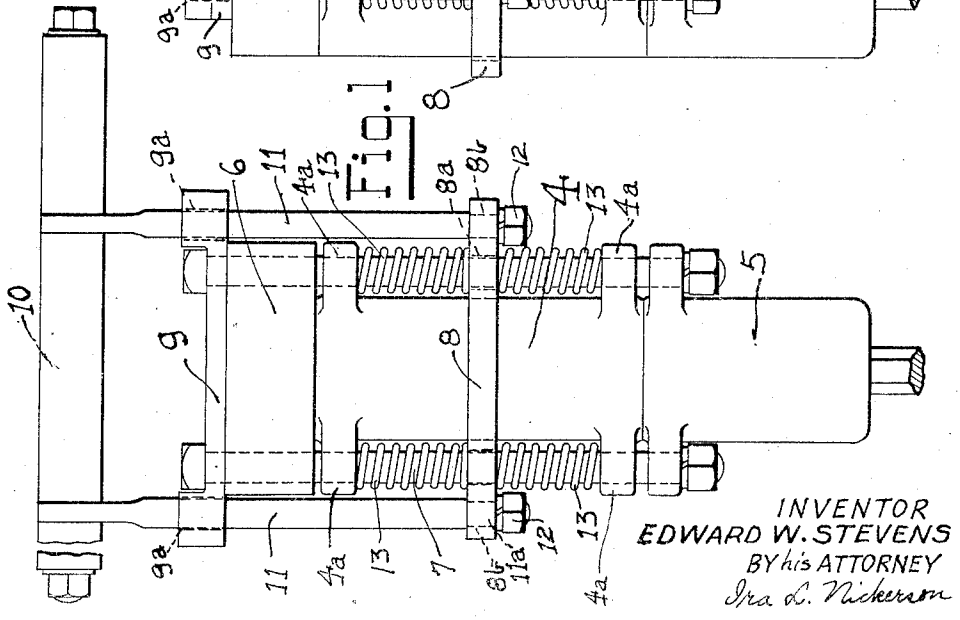


Fig. 1



INVENTOR
EDWARD W. STEVENS
BY his ATTORNEY
Ira C. Nickerson

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UNITED STATES PATENT OFFICE.

EDWARD W. STEVENS, OF DETROIT, MICHIGAN, ASSIGNOR TO CHICAGO PNEUMATIC TOOL COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

SPRING HANDLE FOR DRILLS.

Application filed December 8, 1925. Serial No. 74,028.

This invention relates to apparatus for manually supporting drilling machines. It has particular application to drills of the fluid pressure type in which the cylinder, front head, and back head are held in assembled relation by side bolts.

One object of the invention is to provide apparatus of the type described which after installing certain parts upon the drilling machine will enable the quick attachment and detachment of a handle without the removal of any parts from the drill and without making any adjustment thereof. Another object is to provide manual supporting apparatus for drills which will relieve the operator of the shocks incident to the operation of such tools. Still another object is to provide simple and cheap apparatus which can be installed upon new machines or upon old machines already in use. A still further object is to provide apparatus of this type which will not interfere with the use of the drill upon the usual cradle and shell mount. Still further objects will be apparent from the detailed description which follows:

In order to illustrate the invention concrete embodiments thereof are disclosed in the accompanying drawings in which

Fig. 1 is a front elevational view;

Fig. 2 is a side elevational view of the machine shown in Fig. 1; and

Fig. 3 is a front elevational view showing a modification.

The invention is illustrated as applied to a fluid pressure percussive machine of the rock drill type having a cylinder 4 to which the usual front head 5 and back head 6 are clamped by the side rods 7 which may be arranged to seat in guide projections 4^a on the drill cylinder. In the form of the invention shown in Figs. 1 and 2 a member 8, shaped to span the cylinder 4, is slidably mounted upon the side rods 7 which pass through openings 8^a therein. Member 8 extends laterally beyond the openings 8^a and is provided with additional openings 8^b. Upon the back head 6 of the drill is secured in any suitable manner a yoke or guide member 9 which extends beyond the sides of the drill and is provided with guide openings therethrough in alignment with the openings 8^b in member 8. A preferred manner of securing yoke member 9 in place is to have the side bolts 7 of the drill pass through openings therein thus clamping the member against the back head 6. Members 8 and 9 serve respectively as support and guide for a handle device having a grip part 10 and spaced parallel rods 11 extending therefrom. These rods are inserted through the guide openings 9^a and the reduced ends 11^a thereof extend through the openings 8^b and are secured to the member 8 by suitable means such as the nuts 12 which have threaded engagement with the ends of the rods. It will thus be evident that the handle device can move with slide member 8 axially of the drill. To maintain the handle device normally substantially centrally of its range of movement and yieldingly to resist such movement in order that the operator may not receive the vibration of the drill, slide member 8 is cushioned against movement in both directions. The preferred means for this purpose comprise coil springs 13 encircling the side bolts 7 and engaging on the one hand the opposite faces of the slide member 8 and on the other hand fixed portions of the drill such as the guide projections 4^a.

In mounting the apparatus upon old drilling machines it will be necessary to take out the side bolts 7 in order to place guide member 9 against the back head 6 and to mount the springs 12 and the slide member 8 upon the bolts between the front and back heads. Once these parts are installed the handle device comprising the grip 10 and rods 11 may be attached to or detached from the drill at will in an obvious manner.

The modifications shown in Fig. 3 differs only slightly from the form shown in Figs. 1 and 2, the difference being confined to the mounting of the springs 13^a used to resist the rearward movement of the handle device 10^a, 11^a upon the rods 11^a rather than upon the side bolts 7. The slide member 9^a and the guide member 9^b are the same as in the form of the invention first described and function in the same manner.

Since the forms of the invention herein shown and described are merely illustrative, it is to be understood that the invention is not limited to the specific details thereof but covers all forms within the scope of the appended claims.

I claim:

1. The combination with a drill having a cylinder, front and back heads, and side bolts maintaining said parts in assembled relation, of a member spanning said cylinder and slidably mounted upon said bolts, means for manually supporting the drill detachably secured to said member, and means yieldingly resisting movement of said member in at least one direction.

2. The combination with a drill having a cylinder, front and back heads, and side bolts maintaining said parts in assembled relation, of a member spanning said cylinder and slidably mounted upon said bolts, means for manually supporting the drill detachably secured to said member, and springs for yieldingly resisting movement of said member.

3. The combination with a drill having a cylinder, front and back heads, and side bolts maintaining said parts in assembled relation, of a member spanning said cylinder and slidably mounted upon said bolts, means for manually supporting the drill detachably secured to said member, and coil springs encircling said bolts for yieldingly resisting movement of said member in at least one direction.

4. The combination with a drill having a cylinder, front and back heads, and side bolts maintaining said parts in assembled relation, of a member spanning said cylinder and slidably mounted upon said bolts, a handle device secured to said member, guide means for said device at the rear of said drill, and means yieldingly resisting movement of said handle device in at least one direction.

5. The combination with a drill having a cylinder, front and back heads, and side bolts maintaining said parts in assembled relation, of a member spanning said cylinder and slidably mounted upon said bolts, a handle device comprising a grip part and rods extending therefrom, means securing the free ends of said handle rods to said member, guide means at the rear of the drill for said handle rods, and spring means yieldingly resisting movement of said member on said bolts.

6. The combination with a drill having a cylinder, front and back heads, and side bolts maintaining said parts in assembled relation, of a member spanning said cylinder and slidably mounted upon said bolts, a handle device comprising a grip part and rods extending therefrom, means securing the free ends of said handle rods to said member, a yoke member secured to the back head of the drill providing guide openings for said handle rods, and coil springs engaging opposite sides of said first-named member yieldingly to resist movement of the same and of the handle device.

7. The combination with a drill having a cylinder, front and back heads, and side bolts maintaining said parts in assembled relation, of a member spanning said cylinder and slidably mounted upon said bolts, a handle device comprising a grip part and rods extending therefrom, means securing the free ends of said handle rods to said member, a yoke member clamped against said back head by said bolts and having guide openings for said handle rods, said members being arranged to dispose said handle rods in substantial parallelism with said side bolts, and means for limiting movement of said handle device relative to the drill and for yieldingly resisting such movement.

8. The combination with a drill having a cylinder, front and back heads, and side bolts maintaining said parts in assembled relation, of a member spanning said cylinder and slidably mounted upon said bolts, a handle device comprising a grip part and rods extending therefrom, means securing the free ends of said handle rods to said member, a yoke member clamped against said back head by said bolts and having guide openings for said handle rods, said members being arranged to dispose said handle rods substantially in the plane of said side bolts, and means for limiting the axial movement of the handle device relative to the drill and for cushioning such movement comprising coil springs encircling said bolts and engaging opposite sides of said first named member.

9. The combination with a drill having a cylinder, front and back heads, and side bolts maintaining said parts in assembled relation, members engaging said side bolts at spaced points, one of said members having a fixed possition and the other being slidable on said bolts, a handle device fastened to said movable member and movably engaging said fixed member, and spring means yieldingly resisting the movement of said device.

10. A handle attachment for drills having front and back heads clamped to the drill cylinder by side bolts comprising a member adapted to span the drill cylinder and to be slidably mounted on said side rods, springs to encircle the side rods and engage opposite sides of said member, a guide member adapted to be secured to the back head of the drill, and a handle device arranged to be secured to the first named member and to be guided in limited movement axially of said drill by said guide member.

11. A handle attachment for drills having

front and back heads clamped to the drill cylinder by side bolts comprising a member adapted to span the drill cylinder and to be slidably mounted on said side rods, springs to encircle the side rods and engage opposite sides of said member, a guide member arranged to be secured to the back head of the drill, and a handle having parallel rods arranged to extend through openings in said guide member and to be secured to said first-named member.

Signed by me at Detroit, Michigan, this 4th day of December, 1925.

EDWARD W. STEVENS.