June 9, 1925.

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B. J. BENGTSSON

HAND BRACE AND SIMILAR TOOL

Filed June 6, 1923

Fig. 1.

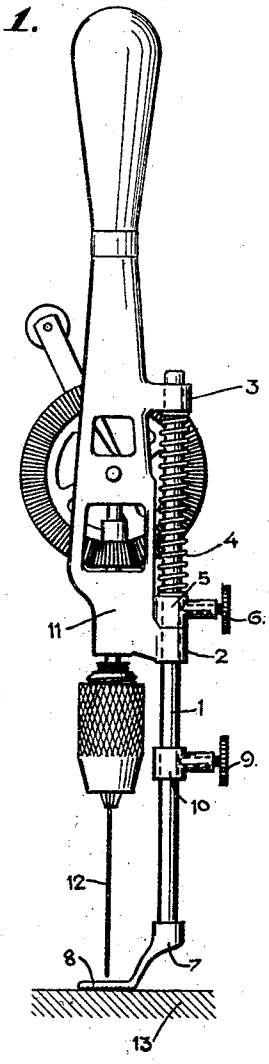


Fig. 5.

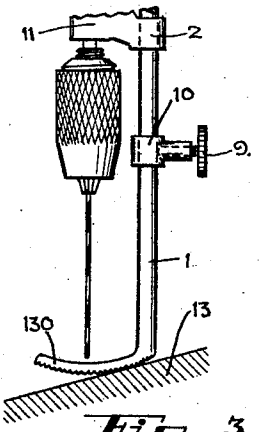


Fig. 6.

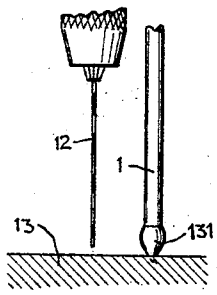


Fig. 2.

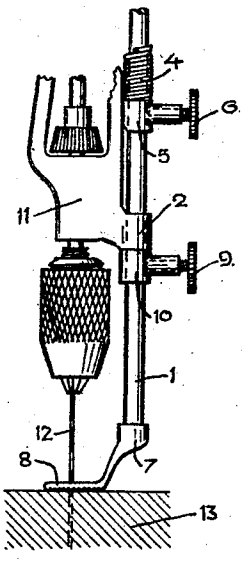


Fig. 3.

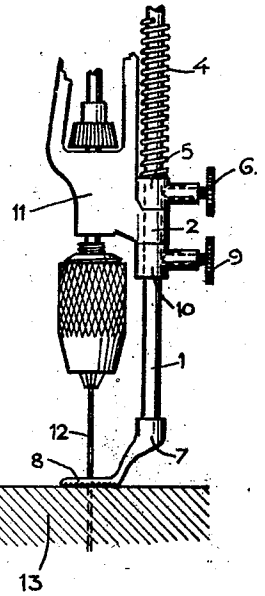


Fig. 4.



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UNITED STATES PATENT OFFICE.

BROR JOHANNES BENGTSSON, OF KALLERED, SWEDEN.

HAND BRACE AND SIMILAR TOOL.

Application filed June 6, 1923. Serial No. 643,814.

To all whom it may concern:

Be it known that I, BROR JOHANNES BENGTSSON, a citizen (or subject) of Sweden, residing at Hogbo, Kallered, Sweden, have invented certain new and useful Improvements in Hand Braces and Similar Tools, of which the following is a specification.

Hand braces or similar tools suffer as well known from the inconvenience, that when used with especially long and tiny drills, these are apt of being broken on account of the difficulty of keeping the brace exactly firm, so the drill does not need of being exposed to lateral stresses. To avoid such inconveniences it has been proposed in several devices as for instance to provide at the spot, where the drill is working, a movable support, the curved end of which embraces the edge of the workpiece, and lies close to the workpiece on the rear side thereof and thereby acts as a substitute for the table of a stationary drilling machine fastened to the wall or the floor. Such a device however can be used for drilling near the edges of the workpiece only and it is not satisfactory from the constructive point of view.

This invention comprises an improved device for such kinds of tools and has for its objects to make the supporting means quite independent of the place of the hole to be bored. Another object of the invention is to make the supporting device especially fitted for drilling what is called bottom holes which shall be given a distinct predestinated depth. A further object of this invention is to make the hand brace suited to be used in connection with a rather long drill.

This invention principally is characterized by a foot of somewhat the same nature as the pressing foot of a sewing machine adapted to be pressed against the side of the workpiece which faces the tool. The foot can also have the shape of a point, a ball or a rubber dressed foot depending on the quality of the workpiece or the inclination of the brace towards the workpiece during the boring operation. Said foot is by means of springs connected with the brace in such a way, that the foot during the boring operation against said spring action takes up the requisite pressure upon the drill, and by this means keeps the brace stationary in right position and avoids bending stresses upon the drill.

On the accompanying drawing an embodiment of the invention is shown whereby Fig. 1 shows in a side elevation a hand brace equipped according to this invention. Figures 2 and 3 show the lower portion of the tool with parts of the improved device in two different operative positions. Fig. 4 shows the foot or support from below. Figs. 5 and 6 show each the down portions of the device with the supporting member of somewhat modified embodiments. The improved device comprises a bar 1 slidable in the length direction of the drill 12 in two guides 2 and 3 projecting from the brace 11. Round the bar 1 there is provided a spiral spring 4 between the said guides 2 and 3 in such a way, that the one end of the spring lies against the down side of the upper guide 3 and the other end against an adjustable stud 5 provided round the bar on the upper side of the lower guide 2. The bar 1 furthermore is provided with an angle bent foot 7 the flattened member 8 of which to be placed against the workpiece 13 has a shape like a fork and is provided with a slot 14 or in any other way so designed as mentioned before, that the foot can be applied close to the drill 12 (see Fig. 4). Between the foot 7 and the lower guide 2 there is provided an adjustable stud 10 round the bar 1. The studs 5 and 10 are provided with set screws 6 and 9, so they can be temporarily fixed on proper places on the bar 1.

The improved device acts in the following way: The set screw 6 is loosened and the bar 1 fixed in such a way, that the foot member 8 comes in proper position in relation to the point of the drill 12 (see Fig. 1).

Now the stud 5, of the spiral spring 4 pressed against the guide 2 is locked to the bar 1 by means of the set screw 6, whereupon the stud 10 is moved to such a distance apart from the lower guide 2 which corresponds to the depth of the hole to be drilled and locked in such position to the bar 1 by the set screw 9. The foot member 8 now is set upon the workpiece 13 the drill started with the hand brace kept such as is usual with similar tools, and the boring is continued under the requisite pressure on the brace whereby the

tool descends as the drill 12 enters the workpiece, until the stud 10 at the displacement of the bar 1 arrives against the guide 2 and interrupt a further descending of the tool, and the bore has obtained its predestinated depth.

When the brace is to be used for drills of a rather great length the foot member 8 is fixed below the point of the drill 12 as mentioned before, and the stud 10 fixed on a distance apart from the guide 2 which corresponds with the largest possible compression of the spring 4 whereupon the drill is set on the workpiece, and the boring performed as mentioned before. During the descending of the drill 12 into the workpiece, the brace slides on the bar 1, so that the stud 5 is removed from the guide 2 under a compression of the spring 4 until the spring has been fully compressed or until the lower stud 10 has reached the guide 2 (Fig. 2) which both occurrences prevent the drill to be driven to a larger depth. The upper stud 5 can now be loosened by the set screw 6, and the spring 4 be slackened to its initial stress (Fig. 3), without that the pressure which the spring just before has taken up and which the tool continuously is exposed for in order to keep the drill stationary in the bore will be transported upon the drill during the mentioned shifting of the spring's stress but will be carried by the stud 10, the bar 1, and the foot 7 and member 8. When the set screw 6 has been tightened once more the set screw 9 may be loosened, and the stud 10 removed further down upon the bar 1, if the bore wants to be deeper, whereupon the set screw 9 is locked, and the drilling will be continued just as mentioned before until the drill has passed through the workpiece or been driven to the depth wanted.

The modified embodiment of the invention illustrated in Fig. 5 differs from the above described apparatus in no other parts than the foot member 130 which is curved on the surface facing the workpiece. This curved shape enables the brace 11 with the drill 12 to be tilted in relation to the work piece 13, if the hole is to be drilled at a certain angle to the surface of the work piece.

The last mentioned purpose also can be obtained, if the foot member instead of the flattened shape in Figs. 1–4 is given the form of a point 131 as shown in Fig. 6, where the connections between the brace 11 and the bar 1 have been fully omitted in the drawing, as they are of exactly the same nature as in the preparatory described embodiment.

The invention is susceptible of various changes in its form, proportions and details of the construction, and the right is herein reserved to such changes as properly fall within the scope of the following claims:

I claim:

1. A hand brace including a body portion adapted to support a drill, guides on said body portion, a bar slidably mounted in said guides, resilient means for forcing said bar outwardly, adjustable studs on the bar for regulating the yielding amplitude of the latter, and a foot provided at the outer end of the bar and adapted to bear against the face of the work piece actuated upon by the drill.

2. A hand brace including a body portion adapted to support a drill and provided with guides, a supporting bar slidably mounted in said guides and provided at its outer end with a foot adapted to bear against the work-piece actuated upon by the drill, a spring between said guides and surrounding the bar, a stop slidably mounted on the bar between said guides and engaging one end of said spring, and a second stop adjustably mounted on the bar between one of said guides and said foot.

In testimony whereof I have hereunto affixed my signature.

BROR JOHANNES BENGTSSON.