

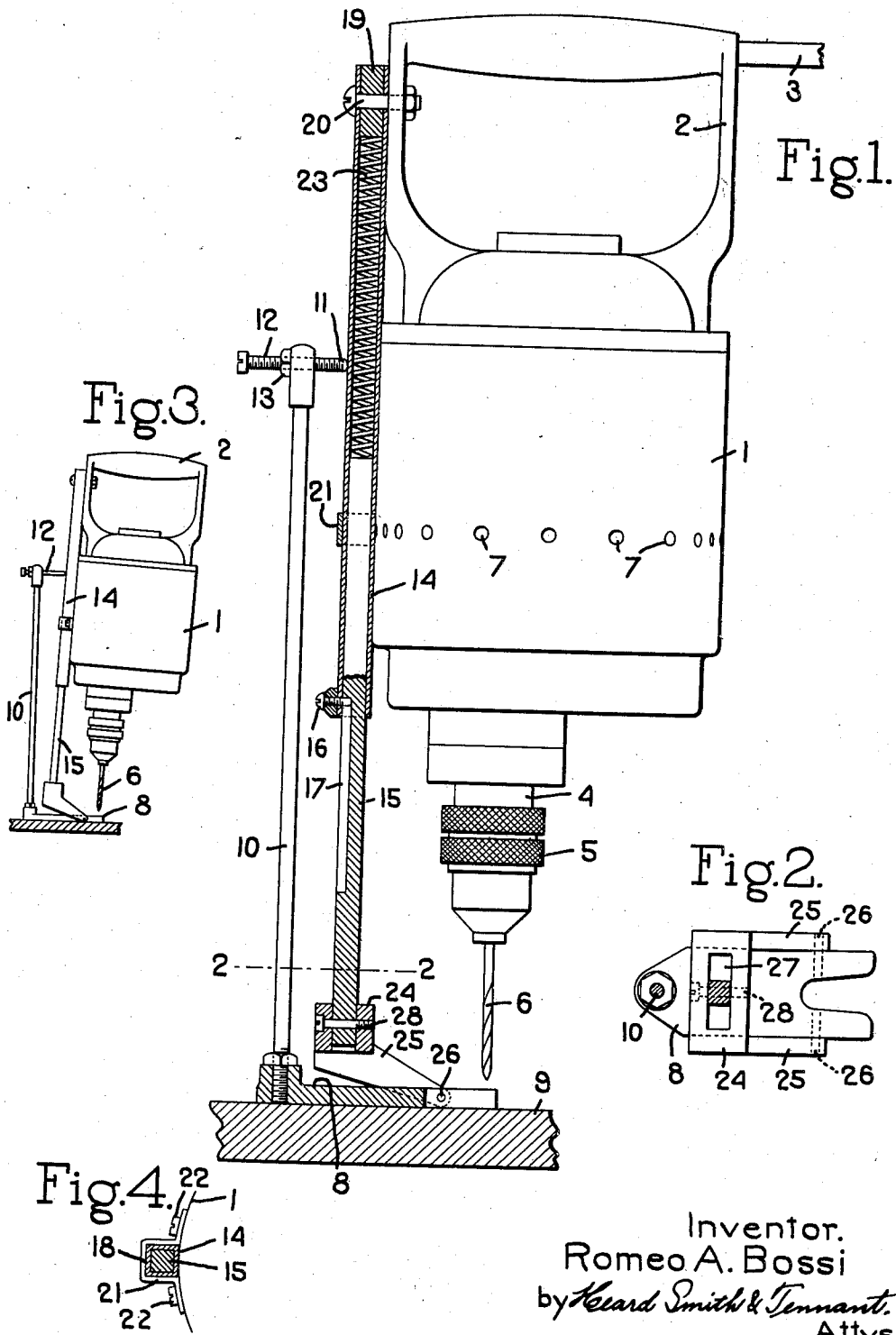
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DRILL POSITION INDICATOR

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DRILL POSITION INDICATOR

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This invention presents a drill position indicator for use in combination with portable drilling tools operated either by power or manually.

The object of the invention is to provide a simple and efficient means by which the workman may readily insure and maintain the correct angular relation of the drill to the work under all conditions.

Such drilling tools are employed in a wide variety of positions and in places of varying accessibility and it is often exceedingly difficult for the workman to ascertain if the drilling tool is operating at the required angle, usually a right angle, to the surface of the work. If a positioning base having a fixed relation to the drilling tool is employed, it must be of limited area and is readily rocked with respect to the surface of the work so that it cannot be depended upon to secure accuracy of the required angular relation of the drilling tool to the work.

The present invention has for its object to provide a simple and efficient means by which a relatively small base is held firmly seated against the work irrespective of the angular relation of the drill to the work while at the same time there is presented a means for accurately indicating to the workman the required angular relation.

The object of the invention is further to provide such a device which may readily be attached to existing drilling tools.

These and other objects and features of the invention will appear more fully from the accompanying description and drawing and will be particularly pointed out in the claims.

The device of the present invention may be used upon practically any type of portable drill whether operated electrically, by compressed air, by other power means, or manually and is shown in the drawing as combined with an electric drill of an ordinary type.

While the indicating device may be constructed as a part of the drill, it is preferably an independent device mounted upon or secured to the body of the drill and thus may readily be attached to any existing drilling tool.

The drawing discloses a simple and preferred embodiment of the invention in which:

Fig. 1 is a side elevation, partially broken away, of an electric drilling tool, together with a preferred embodiment of the present invention connected thereto.

Fig. 2 is a view in horizontal cross section taken on the line 2-2 of Fig. 1.

Fig. 3 is a small illustrative view illustrating

the device shown in Fig. 1 adjusted for operation at an angle other than a right angle to the work.

Fig. 4 is a detail in horizontal cross section showing one of the means for connecting the device to the drill body.

The electric drill shown is of an ordinary type presenting the body 1 which contains the motor and a rigid operating handle grip 2 from which the conductor cable 3 leads. From the lower end of the body extends the usual rotating spindle 4 having the chuck 5 in which is mounted a twist drill 6. The body of this type of drill is usually provided with a circumferential row of ventilating holes 7, two of which are here conveniently used for attaching the device of the invention to the drill.

The device as illustrated comprises a flat base 8, the lower face of which may be provided with a friction surface to prevent slipping upon the surface of the work 9 to be drilled. This base 8 is preferably bifurcated to allow the drill to work between the bifurcations. At the end opposite the bifurcations there is rigidly connected to the base and extending upward therefrom a post 10. Preferably the post is a firm rod screwed into the base as illustrated and extending at right angles to the base. At its upper end the post is provided with an indicator projecting laterally from the post and having a point 11. This indicator is conveniently a screw 12 threaded through the post and provided with a lock nut 13.

A leg is mounted on the drill body to permit rectilinear movement of the drill body toward and from the work and means are provided yieldingly resistible to this movement of the drill body toward the work. This leg presents an outer surface one element of which constitutes a guiding element and this guiding element is located parallel with the axis of the drill. The leg is also pivoted at its lower end by a universal joint to the base. While the leg as thus defined may vary in construction, it is preferably constructed as illustrated. That is, the leg comprises two telescoping members, the upper of which is a hollow square tube 14 and the lower of which is a square rod 15 telescoping within the upper member and limited as to its telescoping movement by a screw 16 mounted on the member 14 extending into a slot 17 in the member 15. The upper member 14 presents an outer flat surface 18, the central longitudinal element of which is the guide element, and the leg is so mounted on the drill that this guide element extends parallel with the axis of the drill. Any suitable means may be employed for mounting the leg upon the body of the drill

in the required relation. As shown, the upper end of the member 14 is filled with a block 19 and a bolt 20 passes through this upper end and through the handle grip. Near the lower end of the member 14 a clamp 21 surrounds the member and is secured in place by screws or bolts 22 passing through a pair of the holes 7 in the drill body.

The yielding feature is here provided by an expansible spring 23 in the hollow member 14 between the upper end of the member 15 and the block 19.

At its lower end the leg is connected by a universal joint to the base. Such a joint is shown as formed by a foot 24 having bifurcations 25 straddling the base and pivoted thereto at 26 and with the lower end of the leg member 15 passing through a slot 27 and pivoted to the foot at 28 at right angles to the pivot 26. With this preferred construction, the point where the leg is actually pivotally connected to the base is offset from the leg toward the axis of the drill so that pressure is applied to the base fairly near the drilling point.

It will thus be seen with this construction there is provided a yieldingly compressible rectilinearly telescoping leg having its upper member rigidly secured to the drill body and presenting an outer surface having a guide element extending parallel with the drill axis while the lower end of the lower member is pivoted by a universal joint to the base.

The point 11 of the indicator is positioned by the post 10 so as to be in a plane containing the axis of the drill and the guide element of the surface 18. Hence when the indicator is adjustable, as is preferred, the adjustment must maintain the point in the said plane.

When the drill is pressed toward the work, compressing the spring 23, the base will be held firmly seated against the work irrespective of the angular relation of the drill axis to the work. But at all times the operator of the drill is enabled to ascertain and maintain the required angular relation during the drilling operation simply by bringing the guide element of the outer surface of the leg into contact with the point of the indicator.

Usually the drill will be operated at right angles to the work as illustrated in Fig. 1 and the indicator 12 will be set for that position. When, however, it is desired to drill the hole at an angle to the surface of the work, the indicator may be adjusted with respect to the post to cause the guide element to be positioned at the required angle as shown in Fig. 3.

The device therefore enables the workman to

drill with accuracy under all conditions and affords a very simple and efficient means for securing that result.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is:

1. The combination with a drilling tool of a base adapted to seat firmly against the work, a post rigidly connected to and extending upward from the base, a yieldingly compressible rectilinearly telescoping leg having its upper member rigidly secured to the drill body and presenting an outer surface having a guide element parallel with the drill axis and having the lower end of its lower member pivoted by a universal joint to the base, and an indicator at the upper end of the post projecting laterally therefrom with its point in a plane containing the axis of the drill and the said guide element, in which when the drill is pressed toward the work, yieldingly compressing the leg, the base will be held seated irrespective of the angular relation of the drill axis to the work and a required angular relation may be maintained during the drilling operation by bringing the guide element and the indicator point into contact.

2. The combination as defined in claim 1, in which the indicator is adjustable with respect to the post to position its point toward and from the axis of the drill thus to adjust the angular relation of the drill axis to the work.

3. The combination as defined in claim 1, in which the point of connection of the leg to the base is offset from the axis of the leg toward the axis of the drill.

4. The combination with a drilling tool of a base adapted to seat firmly against the work, a post rigidly connected to and extending upward from the base, a leg mounted on the drill body to permit rectilinear movement of the drill body toward and from the work and presenting an outer surface having a guide element located parallel with the drill axis and having its lower end pivoted by a universal joint to the base, means yieldingly resistible to movement of the drill body toward the work, and an indicator at the upper end of the post projecting laterally therefrom with its point in a plane containing the axis of the drill and the said guide element, in which when the drill is pressed toward the work the base will be held seated irrespective of the angular relation of the drill axis to the work and a required angular relation may be maintained during the drilling operation by bringing the guide element and the indicator point into contact.

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