356-138 CROSS REFERENCE SEARCH ROOM

33
4.6

X 365

Feb. 11, 1958 C. I. DURST ET AL 2,822,615

DRILL ATTACHMENT PRECISION VERIFIER

Filed Sept. 13, 1956

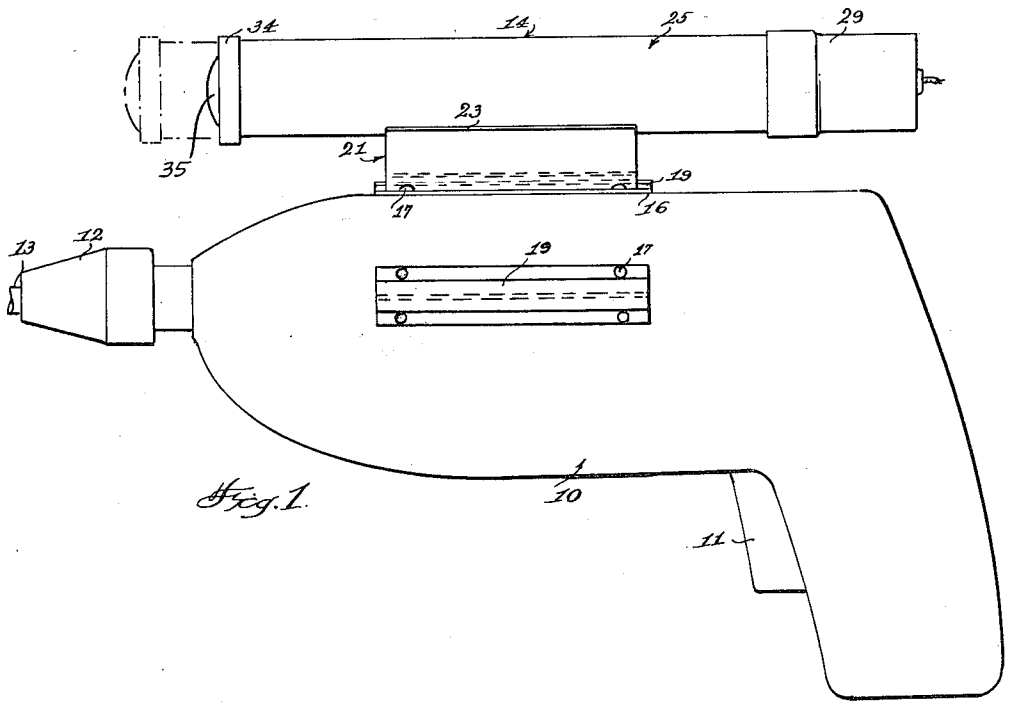


Fig. 1.

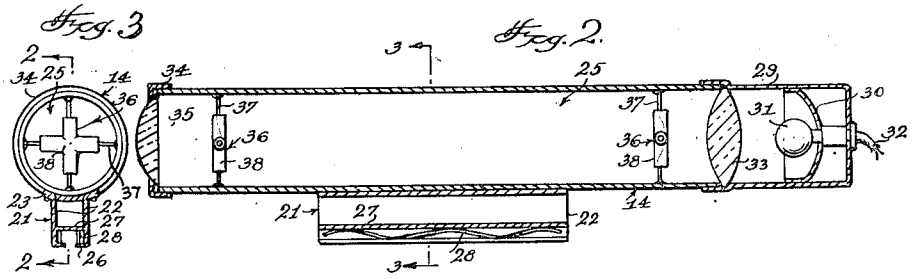


Fig. 3

Fig. 2.

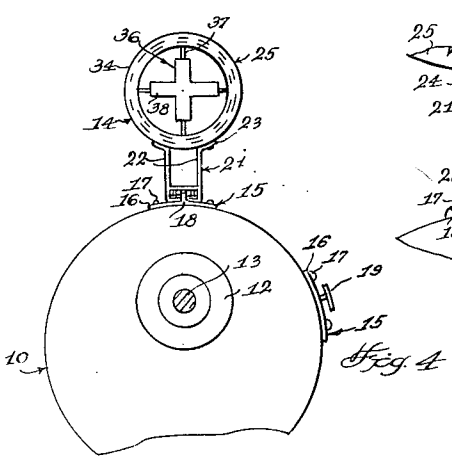


Fig. 4

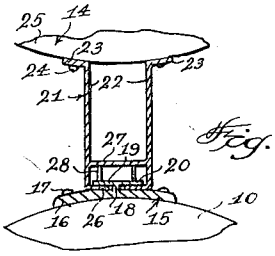


Fig. 5.

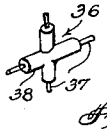


Fig. 6.

INVENTORS
CHARLIE I. DURST &
HAZEL THOMPSON
BY Victor J. Evans & Co.
ATTORNEYS

United States Patent Office 2,822,615 Patented Feb. 11, 1958

2,822,615

DRILL ATTACHMENT PRECISION VERIFIER

Charlie I. Durst and Hazel Thompson, Long Beach, Calif.

Application September 13, 1956, Serial No. 609,741

3 Claims. (Cl. 33—46)

This invention relates to a drill, and more particularly to an accessory for use with an electric drill.

The object of the invention is to provide an accessory which will permit an electric drill to be used with greater precision and facility.

Another object of the invention is to provide an attachment for use with an electric drill, the attachment including a light bulb or light source which is adapted to pass light through a housing that is detachably connected to the drill so that the job of properly lining up the drill is facilitated.

A further object of the invention is to provide an electric drill attachment which is extremely simple and inexpensive to manufacture.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application, and in which like numerals are used to designate like parts throughout the same:

Figure 1 is a side elevational view illustrating the attachment of the present invention mounted on a drill.

Figure 2 is a longitudinal sectional view taken on the line 2—2 of Figure 3.

Figure 3 is a sectional view taken on the line 3—3 of Figure 2.

Figure 4 is an end elevational view illustrating the attachment of the present invention on the drill.

Figure 5 is a fragmentary sectional view illustrating the connection of the accessory to the drill.

Figure 6 is a perspective view illustrating certain structural details of one of the sights.

Referring in detail to the drawings, the numeral 10 designates a conventional drill which includes the usual trigger 11, chuck 12 and drill bit 13.

The present invention is directed to an accessory or attachment for use with the drill 10 whereby the drill can be used with greater precision and facility. The attachment of the present invention is indicated generally by the numeral 14 and there is further provided a means whereby the attachment or accessory can be detachably connected to the drill 10. This means comprises a support member which is indicated generally by the numeral 15, and the support member 15 includes a curved flange 16 which is secured to the outer surface of the drill 10 through the medium of suitable securing elements 17.

Extending outwardly from the flange 16 and secured thereto or formed integral therewith is a rib 18 which has a tongue 19 secured thereto or formed integral therewith. The tongue 19 coacts with the rib 18 and with the flange 16 to define a pair of opposed trackways or slots 20 for a purpose to be later described.

There is further provided a body member which is indicated generally by the numeral 21, and the body member 21 is detachably connected to the support member 15. The body member 21 includes a pair of spaced parallel walls 22 which have lips or flanges 23 thereon, and the lips 23 are secured to a hollow housing 25 through the medium of securing elements 24. Extending inwardly

from the walls 22 and secured thereto or formed integral therewith is a pair of opposed fingers 26 which are slidably mounted in the trackways 20. Extending between the pair of walls 22 and secured thereto is a partition 27, and a plurality of spring members 28 are interposed between the partition 27 and the tongue 19, the spring members 28 helping to maintain the accessory immobile in its adjusted position on the drill 10.

Mounted on the rear end of the housing 25 is a cap 29 which has a reflector 30 supported therein, there being a light bulb 31 contiguous to the reflector 30. Wires 32 are provided for connecting the bulb 31 to a suitable source of electrical energy. Arranged forwardly of the reflector 30 is a lens 33. Mounted on the front end of the housing 25 is a front cap 34 which has a lens 35 arranged contiguous thereto. Mounted in the housing 25 in spaced apart relation with respect to each other is a pair of sights which are arranged in the form of a cross. Thus, each sight 36 may include wires 37 which are arranged at right angles with respect to each other, and the central portions of the wires 37 may support enlarged body pieces 38.

From the foregoing it is apparent that there has been provided an accessory or attachment which is especially suitable for use with a tool such as the electric drill 10. In use, the drill 10 is provided with the plurality of support members 15 as shown in Figure 1 so that the accessory 14 can be arranged in any one of several different positions on the drill. Thus, as shown in Figure 1 the accessory is mounted on the top of the drill, but it is to be understood that if desired the accessory can be attached to the side of the drill. To attach the device to the drill, it is only necessary to slide the body member 21 into engagement with the support member 15 so that the housing 25 will be retained in its proper position. Thus, as shown in the drawings, the body member 21 is provided with a pair of walls 22 which include the inwardly extending opposed fingers 26 which snugly project into the trackways 20 which are formed between the tongue 19 and the flange 16. The pair of spring members 28 help maintain the housing 25 immobile in its adjusted positions since the springs 28 exert pressure between the partition 27 and the tongue 19, as shown in Figure 5. Thus, when it is desired to remove the assembly 14, it is only necessary to manually slide the accessory endwise of the drill so that the housing 25 and body member 21 can be readily detached from the support member 15 when the device is not being used. Furthermore, the housing 25 includes the light bulb 31 which has its rays passing through the lens 33 and the rays of light will then pass through the housing 25 and out through the lens 35. Arranged within the housing are the pair of cross shaped sights 36 which are adapted to cast a shadow upon a suitable reference point so that the operator of the drill can readily and properly position the drill bit 13 at the proper location. Thus, since the pair of cross shaped sights 36 will cast a shadow upon a reference point, the job of properly positioning the drill bit 13 is greatly facilitated, and guess work is eliminated. The light bulb 31 can be connected to a suitable source of electrical energy by means of the wires 32, and a suitable switch can be provided for controlling actuation or energization of the bulb 31.

With the attachment of the present invention the drill 10 can be used with greater precision and accuracy. The device can be arranged on top of or at either side of the drill and when the light bulb 31 is actuated, there will appear the two shadow lines which are arranged at right angles with respect to each other. Due to the provision of the pair of sights 36, the operator can readily tell when the tool is properly aligned by observing when the shadows cast by the pair of sights coincide. As the drill

10 is moved from place to place the shadow which is cast by the sights will also move so that the drill can be used in different localities and whereby the intersection of the shadow lines can be focused on a suitable reference point which will insure that the drill bit 13 is properly positioned or aligned. The wire 32 may be connected to the same electrical power source which is used for actuating the drill 10. When the device 14 is not being used it can be readily removed from the drill.

The present invention is especially suitable for use in high tolerance work such as in aircraft assembly work wherein bolt or rivet holes must be drilled with a high tolerance. Instead of using the pair of crossed wires 37 in the sight, other types of sights can be used as for example the combination of a circular member and a crossed wire may be used. Due to the provision of the sights, in the event that the drill is moved to a position which is not perpendicular to the object being worked on, the shadow lines will so indicate so that the operator can correct the position of the drill. Thus, with the present invention it is only necessary to keep the reflected shadows in their aligned positions so that there will be no guess work involved in drilling holes properly and accurately. The device will also function efficiently on curved surfaces as well as in corners. The device is especially suitable for use in aircraft production work since it will facilitate the drilling of the holes in aluminum or the like, when such holes are to be used for receiving screws, bolts, rivets or the like. The cross wires may be of varying widths and of different shapes and sizes. The size of the parts can be varied as desired, and the device can be made of any suitable material. The support members 15 provide seats for the body member 21 which is secured to the housing 25 through the medium of the securing element 24.

We claim:

1. In combination with a tool, a support member arranged contiguous to the outer surface of said tool and including a curved flange secured to the outer surface of the tool, a rib extending outwardly from said flange intermediate the sides thereof, a tongue arranged on the outer edge of said rib and arranged in spaced apart relation with respect to said flange and coacting with said flange to define a pair of spaced apart opposed trackways, a body member detachably connected to said support member and including a pair of spaced parallel walls, opposed fingers extending inwardly from an end of said walls and seated in said trackways, a partition arranged in said body member and extending between said walls and secured thereto, resilient means interposed between said partition and tongue, a pair of spaced apart lips extending outwardly from said walls, a housing secured to said lips, a cap mounted on the rear end of said housing, a cap mounted on the front of said housing, a lens arranged in the front of said housing, a lens arranged in the rear of said housing, a reflector spaced rearwardly from said rear lens, a light bulb arranged contiguous to said reflector and adapted to be connected to a source of electrical energy, and a pair of spaced apart sight pieces mounted in said housing and secured thereto.

2. In combination with a tool, a support member arranged contiguous to the outer surface of said tool and including a curved flange secured to the outer surface of the tool, a rib extending outwardly from said flange intermediate the sides thereof, a tongue arranged on the outer edge of said rib and arranged in spaced apart relation with respect to said flange and coacting with said flange to define a pair of spaced apart opposed trackways, a body member detachably connected to said support member and including a pair of spaced parallel walls, opposed fingers extending inwardly from an end of said walls and seated in said trackways, a partition arranged in said body member and extending between said walls and secured thereto, resilient means interposed between said partition and tongue, a pair of spaced apart lips extending outwardly from said walls, a housing secured to said lips, a cap mounted on the rear end of said housing, a cap mounted on the front of said housing, a lens arranged in the front of said housing, a lens arranged in the rear of said housing, a reflector spaced rearwardly from said rear lens, a light bulb arranged contiguous to said reflector and adapted to be connected to a source of electrical energy, a pair of spaced apart sight pieces mounted in said housing and secured thereto, each of said sight pieces including a pair of wires arranged at right angles with respect to each other, and cross shaped body pieces supported by the intersecting intermediate portions of said wires, said resilient means comprising a plurality of spring members.

3. In a device of the character described, a curved flange, a rib extending outwardly from said flange intermediate the sides thereof, a tongue arranged on the outer edge of said rib and arranged in spaced apart relation with respect to said flange and coacting with said flange to define a pair of spaced apart opposed trackways, a body member detachably connected to said rib and including a pair of spaced parallel walls, opposed fingers extending inwardly from said walls and seated in said trackways, a partition arranged in said body member and extending between said walls and secured thereto, spring members interposed between said partition and tongue, a pair of spaced apart lips extending outwardly from said walls, a hollow housing secured to said lips, a cap mounted on the rear end of said housing, a cap mounted on the front of said housing, a lens arranged in the front of said housing, a lens arranged in the rear of said housing, a reflector spaced rearwardly from the rear lens, a light bulb arranged contiguous to said reflector and adapted to be connected to a source of electrical energy, a pair of spaced apart sight pieces mounted in said housing and secured thereto, each of said sight pieces including a pair of wires arranged at right angles with respect to each other, and cross shaped body pieces supported by the wires.

References Cited in the file of this patent

UNITED STATES PATENTS

1,899,249	Walliser et al.	Feb. 28, 1933
1,958,456	Warren	May 15, 1934
2,072,286	Wellington	Mar. 2, 1937
2,085,732	Baxter	July 6, 1937
2,310,165	Steiner	Feb. 2, 1943
2,407,845	Nemeyer	Sept. 17, 1946

FOREIGN PATENTS

912,868	Germany	June 3, 1954