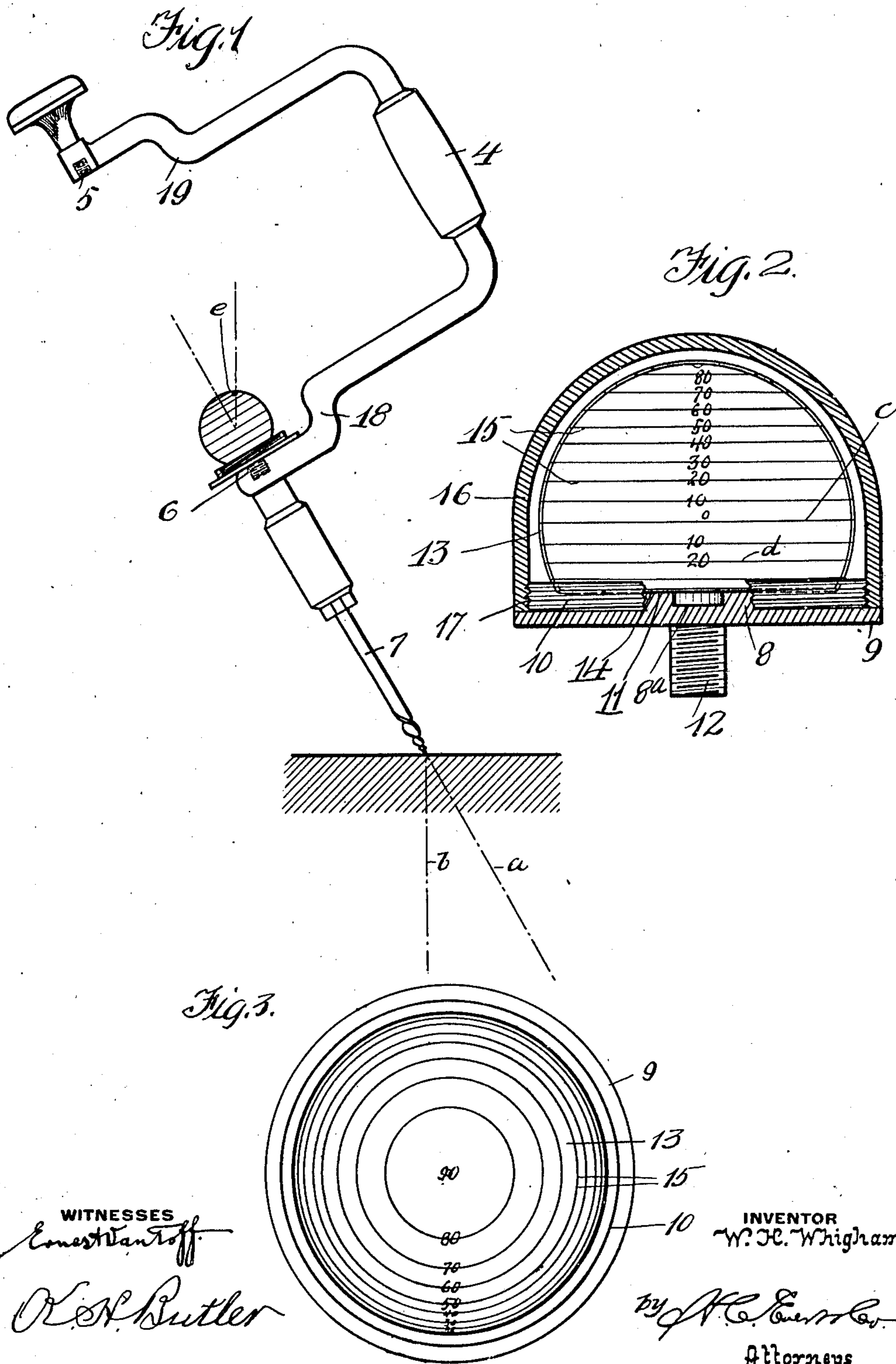


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 ANGLE GUIDE ATTACHMENT FOR BORING TOOLS.  
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WITNESSES  
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# UNITED STATES PATENT OFFICE.

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ANGLE GUIDE ATTACHMENT FOR BORING-TOOLS.

970,360.

Specification of Letters Patent. Patented Sept. 13, 1910.

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To all whom it may concern:

Be it known that I, WILLIAM H. WHIGHAM, a citizen of the United States of America, residing at California, in the county of Washington and State of Pennsylvania, have invented certain new and useful Improvements in Angle Guide Attachments for Boring-Tools, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to an angle guide attachment for boring tools, particularly for a bit brace stock, and the object thereof is to provide an attachment for tools of such class for indicating the position of the boring tool to assist the operator to guide it properly when boring vertically or angularly, and the device furthermore enables the boring to be had at any angle, horizontally or vertically, without the employment of a guide such as a square or bevel.

Further objects of the invention are to provide an angle guide attachment for boring tools, particularly a bit brace or stock, which can quickly and conveniently be set up to cooperate with the boring instrument, which is comparatively simple in its construction and arrangement, strong, durable, efficient in its use, and inexpensive to manufacture.

With the foregoing and other objects in view the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described and illustrated in the accompanying drawing wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations, and modifications can be resorted to which come within the scope of the claim hereunto appended.

In the drawings, wherein like reference characters denote corresponding parts throughout the several views, Figure 1 is an elevation of a bit brace showing the adaptation therewith of an angle guide attachment in accordance with this invention, Fig. 2 is a sectional elevation of the attachment, and Fig. 3 is a top plan with the cover removed.

Referring to the drawings in detail, 4 denotes a brace provided with a pair of screw-threaded sockets as at 5, 6 respectively. Each of said sockets has the axis thereof in alinement with the axis of the bit 7. In Fig. 1 of the drawing the bit as well as the

brace is shown disposed at an angle for boring out an angle of  $15^{\circ}$  as indicated by broken lines as at *a* with respect to the vertical, as indicated by broken lines as at *b*.

The angle guide attachment which is adapted to be secured in the socket 5 when boring overhead or at an upward angle of more than  $20^{\circ}$ , or to be secured in the socket 6 when boring downwardly or horizontally, consists of a base plate 8 which is flanged as at 9, and screw-threaded as at 10, and provided with a pocket as at 11. Formed integral with and projecting from the outer face of the base 8 is a threaded stem 12 which is adapted to engage in either of the screw-threaded sockets 5, 6 for coupling the attachment to the brace as clearly shown in Fig. 1.

Snugly fitting into the pocket 11 and coupled with the base 8 by an extension 8<sup>a</sup> is a receptacle 13 constructed of transparent material and in the form of a spherical segment, the flattened portion or bottom 14 of the receptacle engaging the bottom of the pocket 11. The inner as well as the outer face of the receptacle 13 is perfectly true and upon the outer face of the receptacle 13 is a series of circular lines 15 which are spaced accurately apart and indicate degree lines, starting at  $90^{\circ}$  at the top of the receptacle down to zero as at *c* and continuing from zero to  $20^{\circ}$  as at *d*. The receptacle 13 is filled with any well known liquid used in a spirit level, in such a manner as to provide the air bubble *e*.

When the attachment is not used it is inclosed by a cover 16 which is interiorly threaded as at 17 for engagement with the threads 10 and abuts against the flange 9 as clearly shown in Fig. 2. The cover 16 acts as a shield to prevent the breaking of the transparent receptacle 13.

It is evident, by providing an attachment in the manner as hereinbefore set forth and connecting it to the brace 4, that a guide is provided for any desired angle, and in this connection it will be stated that by holding the brace so that the bubble will be on any desired line the angle for boring will be set and when turning the brace the bubble can be caused to follow the desired degree line whereby the hole will be accurately bored.

To prevent the operator's hand from interfering with the arrangement, the brace is

offset at each side as at 18, 19 respectively, and this will prevent the operator engaging the attachment when turning the brace.

What I claim is:

- 5 An angle guide attachment for boring tools comprising a base plate, a threaded stem projecting from one face thereof, said base plate having a pocket in its other face, a transparent receptacle in the form of a
- 10 spherical segment snugly extending in and snugly engaging the walls of said pocket and provided with a plurality of parallel

degree lines and containing a body of liquid, said base plate further provided with a flange and a series of threads, and a cover abutting against said flange and engaging said threads and whereby said receptacle is inclosed.

In testimony whereof I affix my signature in the presence of two witnesses.

WILLIAM H. WHIGHAM.

Witnesses:

ALBERT D. COATSWORTH,  
FRED W. WHIGHAM.