A. H. CLERMONT & R. S. BRAYTON.

TOOL HOLDER.

APPLICATION FILED AUG. 9, 1915.

1,174,309. Patented Mar. 7, 1916.

Fig. 1.

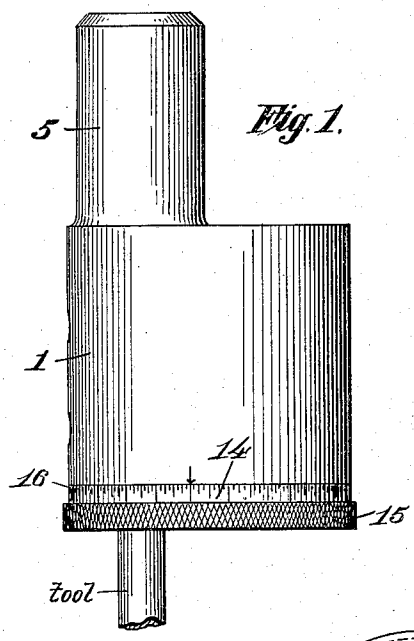


Fig. 2.

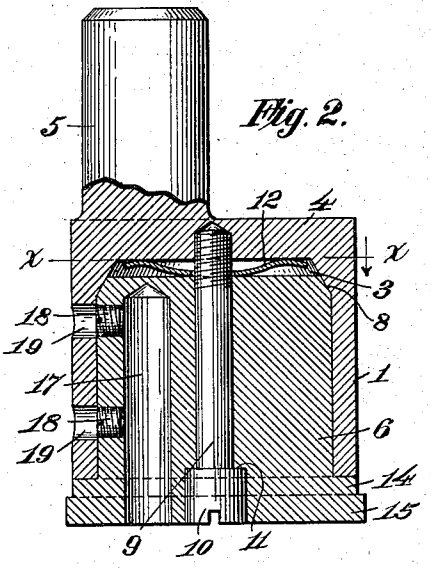


Fig. 3.

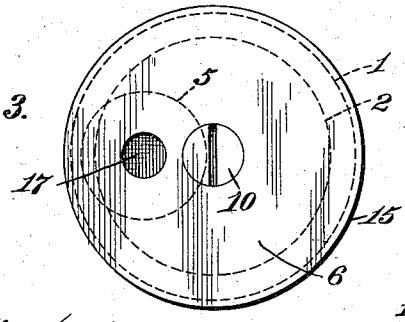


Fig. 4.

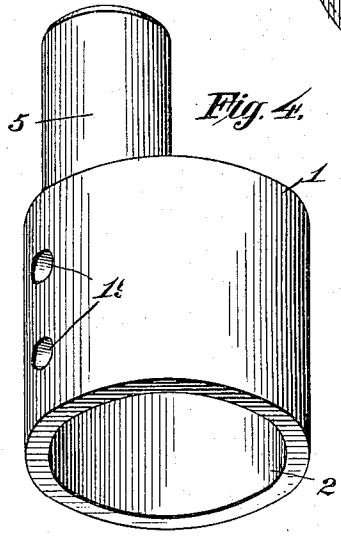


Fig. 5.

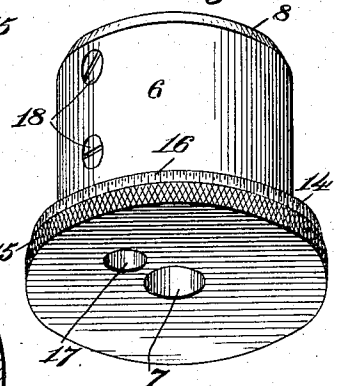
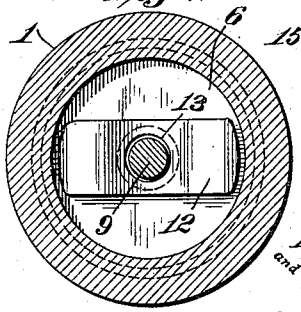


Fig. 6.



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TOOL-HOLDER.

1,174,309. Specification of Letters Patent. Patented Mar. 7, 1916.

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To all whom it may concern:

Be it known that we, ARTHUR H. CLERMONT and ROBERT S. BRAYTON, citizens of the United States, residing at Madison, county of Dane, and State of Wisconsin, have invented certain new and useful Improvements in Tool-Holders, of which the following is a specification.

Our invention relates to chucks or tool holders for boring tools and the object of our invention is to provide a device of the class mentioned adapted for use in conjunction with drill presses, boring machines, etc., which may be quickly adjusted for the purpose of boring holes of different diameters without necessitating a change in the tool.

A further object of our invention is to provide a device as mentioned adapted for use in conjunction with lathes, drill presses, boring machines or any other machine of like character equipped with a tool socket.

A further object of our invention is to provide a device of the class under consideration wherein the tool may be locked in any position throughout the range of the device and is readily unlocked for readjustment.

A further object of our invention is to provide a device of the character mentioned whereby the tool may be secured within the same or removed for grinding and repair without disassembling the device.

Further objects of our invention are to provide a device as mentioned which shall be of few parts, which shall have a wide range in proportion to its size and which may be readily carried in the tool box or kit of a mechanic without occupying much space.

Other objects will appear hereinafter.

With these objects in view our invention consists generally in an outer shell or casing provided with an eccentric shank adapted to fit within the tool holder of a machine, a rotary member or core mounted within said shell or casing and provided with an eccentrically disposed tool socket or holder, said shell and core being provided with frictional locking faces and means for holding said faces in locking engagement.

Our invention further consists in a device as mentioned further characterized by having said locking faces of conical form, a screw for normally holding said faces in engagement and a spring normally bearing against the inner end of said core to release said faces from locking engagement when said screw is loosened.

Our invention further consists in a tool holder or chuck as mentioned equipped with set screws threaded through the wall of the core into the tool socket for locking the tool therein and further characterized by providing the shell with an aperture giving access to said screw whereby the tool may be secured within the socket or released therefrom as desired without disassembling the device.

Our invention further consists in various details of construction and arrangement of parts all as will be fully described hereinafter and particularly pointed out in the claims.

Our invention will be more readily understood by reference to the accompanying drawings forming a part of this specification and in which—

Figure 1 is an elevation of a tool holder embodying our invention in its preferred form, Fig. 2 is a central longitudinal section of the same, Fig. 3 is a bottom plan view of the device, Fig. 4 is a perspective view of the outer member or shell, Fig. 5 is a similar view of the inner member or core, and Fig. 6 is a transverse section on the line *x*—*x* of Fig. 2.

Referring now to the drawings 1 indicates the outer member or shell which comprises a cylindrical member provided with a cylindrical bore 2 terminating in a frusto-conical inner portion 3. The shell 1 is provided at its closed end 4 with a shank 5 adapted to fit within the tool holder of any boring or drilling machine, lathe or the like, and arranged parallel to but eccentric with relation to the axis of the shell 1. Fitting snugly within the bore 2 of the shell 1 is an inner member or core 6 provided with an axial bore 7. The member 6 extends the full length of the cylindrical portion of the bore 2 and is provided with a frusto-conical end 8 adapted to engage and coöperate with the face 3 for frictionally locking the member 6 in position within the shell 1.

A screw 9 extends through the bore 7 and is threaded into the end wall 4 of the member 1. Said screw is provided with a head 10 fitting within the enlarged outer end of the bore 7 and against a shoulder 11 formed

therein. It is obvious that by tightening the screw 9 the head 10 by engaging the shoulder 11 will force the frictional face 8 into locking engagement with the face 3. Located between the end of the member 6 and the wall 4 of the member 1, is a leaf spring 12 extending diametrically across the device and provided at its center with a perforation 13 to receive the adjacent portion of the screw 9.

The outer end of the member 6 is provided with a head comprising a portion 14 preferably of the same diameter as the outer diameter of the member 1 and an outer portion 15 of slightly greater diameter. The outer face of the portion 14 is graduated as indicated at 16 and the periphery of the portion 15 is knurled to facilitate turning the core.

The core 6 is provided with an eccentrically positioned tool socket 17, the eccentricity of which is the same as that of the shank 5 so that the tool mounted therein may be brought into perfect alinement with the shank 5.

18 indicates set screws threaded through the wall of the member 6 to impinge against the shank of the tool within the tool socket 17; and 19 indicates apertures formed in the wall of the member 1 to give access to said screws whereby the tool may be fastened or released without disassembling the parts of the device.

In use the tool is inserted within the socket 17 and the screws 18 are tightened to hold the tool therein. By means of the knurled periphery of the portion 15 the core 6 may be rotated to position the tool at any degree of eccentricity with relation to the shank 5 and this adjustment may be accurately determined by means of the graduations 16. When the member 6 is to be rotated, the screw 9 is loosened and when so loosened the spring 12 will force the locking faces 3 and 8 out of engagement thereby permitting ready adjustment of the device. Tightening of the screw 9 will bring the conical faces 3 and 8 into locking engagement thereby firmly holding the tool in adjusted position.

It will be seen that the device above described is of simple construction, consisting of but the shell and core connected by the screw 9, and one or more set screws 18 for securing the tool within its socket and the spring 12 completes the device. With the construction set forth the eccentricity of the tool with relation to the shank 5 may be varied to such an extent that the range of the device is large in comparison to its size; that is a device of but slightly more than two inches diameter may be adjusted to bore holes from the diameter of the tool held within the socket up to two inches in diameter. Being of small size it may be readily carried in the tool box or kit of the mechanic and by means of the shank 5 may be attached to practically any boring or drilling machine.

We claim:—

1. A device of the class described comprising a shell having a cylindrical bore terminating in a frusto-conical inner end, a core rotatably mounted within said bore and having its inner end shaped to conform to the frusto-conical portion of said bore providing coöperating friction faces, a screw extending axially through said core and threaded into the end wall of said shell, a spring interposed between the end wall of the shell and the end of said core, and an eccentric shank on said shell, said core being provided with an eccentric tool socket, substantially as described.

2. A device of the class described comprising a shell, a core rotatably mounted therein, said shell and said core being provided with coöperating friction locking faces, means for securing said faces in locking engagement, means for moving said faces out of operative engagement when said securing means is released, and an eccentric shank on said shell, said core being provided with a tool socket, substantially as described.

3. A device of the class described comprising a shell, a rotary tool holding member mounted therein, means for locking the same against rotation within said shell, an eccentric shank on said shell, and a set screw threaded through said tool holding member for securing the shank of the tool therein and the wall of said shell being provided with an aperture whereby access may be had to said screw, substantially as described.

4. A device of the class described comprising a cylindrical shell, a tool holding core freely rotatable within said shell, cooperating frusto-conical friction locking faces on said shell and said core, means for holding said faces in locking engagement and an eccentric shank on said shell, said core being provided with an eccentric tool holding socket, substantially as described.

5. A device of the class described comprising a cylindrical shell provided with an eccentric shank, a core freely rotatable within said shell, said core having an enlarged portion of equal diameter with that of said shell and fitting against the outer edge of said shell, said portion being graduated and terminating in a slightly enlarged knurled portion, said core being provided with an eccentrically positioned tool socket and cooperating frictional faces on said core and shell respectively and means for locking said faces in operative engagement, substantially as described.

6. A device of the class described comprising a cylindrical shell provided with an

eccentric shank, a core freely rotatable within said shell, said core having an enlarged portion of equal diameter with that of said shell and fitting against the outer edge of said shell, said portion being graduated and terminating in a slightly enlarged knurled portion, said core being provided with an eccentrically positioned tool socket and co-operating frusto-conical frictional faces on said core and shell respectively and means for locking said faces in operative engagement, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ARTHUR H. CLERMONT.
ROBERT S. BRAYTON.

Witnesses:
S. LOEWENTHAL,
A. W. WILSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."