B. E. DOHNER AND A. J. HUFF.

FLOATING TOOL HOLDER.

APPLICATION FILED MAR. 10, 1919.

1,317,008. Patented Sept. 23, 1919.

Fig. 1.

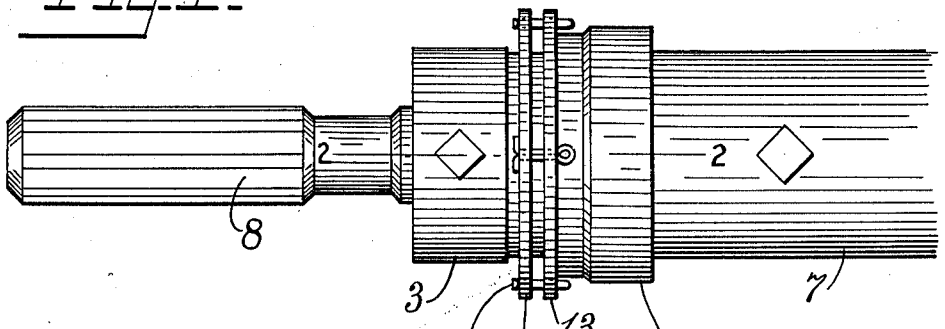


Fig. 3.

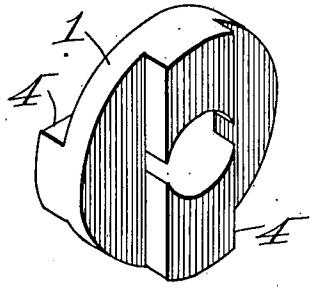


Fig. 2.

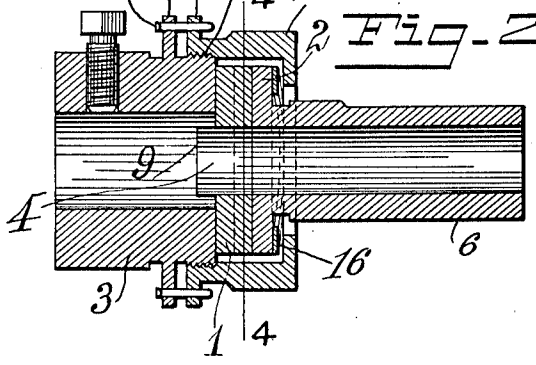


Fig. 4.

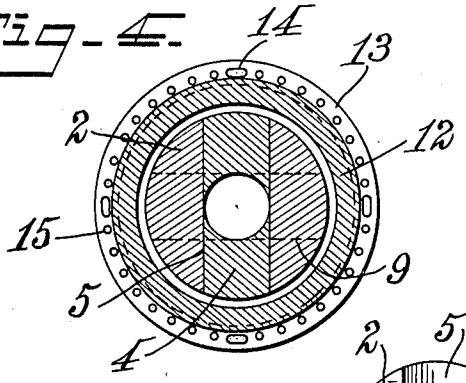


Fig. 5.

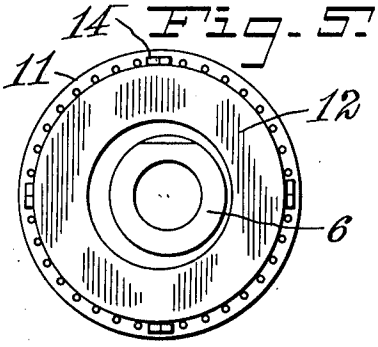
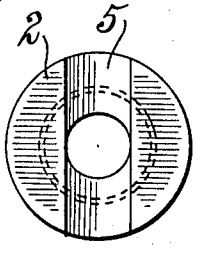


Fig. 6.



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FLOATING TOOL-HOLDER.

1,317,008. Specification of Letters Patent. Patented Sept. 23, 1919.

Application filed March 10, 1919. Serial No. 281,765.

To all whom it may concern:

Be it known that we, BURT E. DOHNER and ALBERT J. HUFF, citizens of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Floating Tool-Holders, of which the following is a specification.

Our invention consists of an adjustable floating tool holder for turret lathes, hand or automatic screw machines, or any other machines of like character where the material worked upon and the working tool are required to be in proper relative positions in order to do accurate work.

The object of the invention is to provide an adjustable floating tool holder which will readily find the proper position for the working tool relative to the work or material acted upon as will more fully appear from the description to follow.

A further object of the invention is to provide a tool holder of this character in which the tool is always in a parallel position to the axis of the tool holding shank. So far as we are aware floating tool holders as heretofore existing were devoid of this advantage which is well recognized by those familiar with the use of such class of tools.

Referring to the accompanying drawings in general terms, Figure 1 is a top longitudinal plan view of our floating tool holder. Fig. 2 is a sectional view of the same on the line 2—2 of Fig. 1. Fig. 3 is a perspective view of the intervening double acting coupling member removed from its position in the assemblage of parts. Fig. 4 is a sectional view on the line 4—4 of Fig. 2. Fig. 5 is an end view of the assembled parts, and Fig. 6 is an elevation of the coupling side of one of the outer coupling members.

In a more particular description of the invention similar reference numerals will designate corresponding parts in the several views of the drawings.

Primarily speaking the floating tool holder now to be described in detail consists of three coupling elements, to wit, 1, 2, and 3. 1 designates the intervening double acting coupling member, and 2 and 3 designate the two outer coupling members. When the three members are coupled or connected in a coöperative relation members 1 and 3 have a universal lateral sliding movement which enables them when called upon to move substantially in a circle. The intervening coupling member 1 is of a disk form with a coupling rib 4 lying across the center of each side at right angles to each other. The coupling member 2 has on the face thereof a matching groove 5 likewise extending across the face thereof and receiving one of the ribs 4 of the said intervening member. The opposite side of the said coupling member 2 has a supporting shank 6 projected from it which is clamped in the holding spindle 7 of the machine and the tool is thus held in an operative position. The coupling member 3 holds the working tool whatever character it may be. In the present instance the working tool 8 is a reamer. The said coupling member 3 has its face provided with a rib-matching groove 9 extending thereacross corresponding to the shape of the ribs 4 of the intervening coupling member 1, and the said groove 9 receives one of said ribs 4, the one lying on the side opposite that which is coupled to member 2. When the parts are thus coupled the coupling member 1 constitutes a floating part of the coupling that enables the working tool 8 to find the center of the material to be operated upon. This is clearly shown in Fig. 5 which illustration shows the shank 6 and the working tool holding member 3 to be out of alinement which indicates that the material to be worked upon is not centered with the shank 6. This range of compensatory movement of the coupling members 1 and 3 with relation to member 2 may be greater or less as expediency may require. The coupling member 3 has exterior threads 10 and a flange 11. The threads 10 engage threads on the interior of an inclosing cap 12 which fits over the coupling members and by means of a flange 13 on said cap 12 it is also held in position by a suitable number of cotter pins 14 which pass through openings 15 in the said flanges 11 and 13. A spring washer 16 seats within the said cap 12 and engages the coupling member 2 and allows a yielding sliding movement which may be varied according to the extent in which the said cap is tightened or released, the washer being similarly affected.

Our floating tool holder can be used as a solid holder by alining the tool with the work and then tightening the cap 12.

Having described our invention, we claim:

1. In a tool holder, the combination of an outer coupling member having a groove on one side thereof and a working tool holding

socket member on the other side, another outer coupling member having a groove in one side thereof and a shank projecting from the other side, an intermediate coupling member having ribs extending across the opposite sides thereof and entering the grooves in said outer coupling members, and a cap inclosing the coupled parts and having a threaded engagement with one of the outer coupling members and a loose engagement with the other of said outer coupling members.

2. In a tool holder, the combination of an outer stationary coupling member having a shank on one side and a facial groove in the other side, another outer coupling member having a facial groove in one side thereof and a socket member on the other side for holding the working tool, an intermediate coupling member having ribs on the opposite faces thereof which enter the grooves in the outer coupling members, a cap loosely inclosing the coupled parts and having an attached union with one of the outer coupling members, and a spring washer in said cap engaging the other outer coupling member.

In testimony whereof we affix our signatures.

BURT E. DOHNER.
ALBERT J. HUFF.