

H. B. ROBINSON.
TOOL HOLDER.
APPLICATION FILED DEC. 15, 1908.

963,068.

Patented July 5, 1910.

Fig. 2.

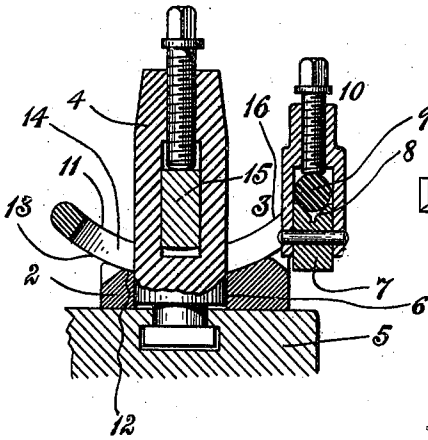


Fig. 1.

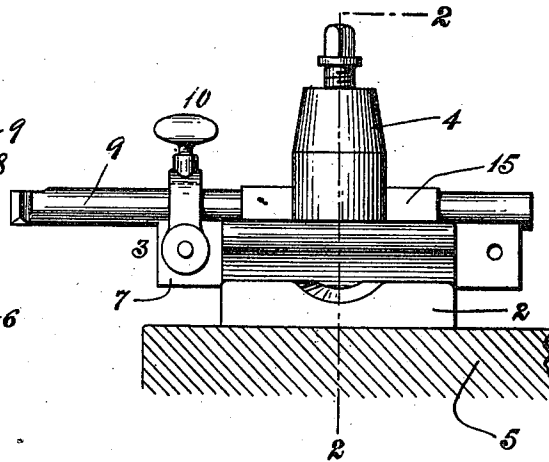


Fig. 3.

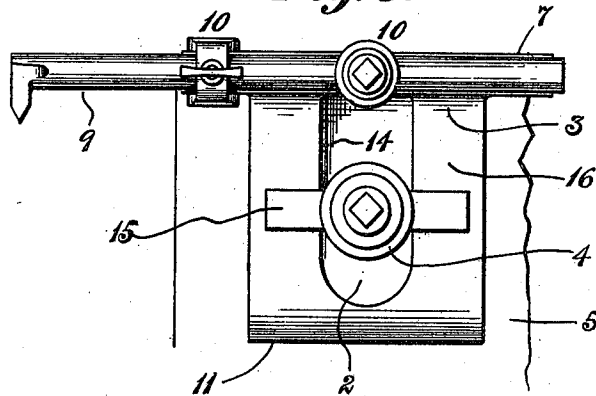


Fig. 4.

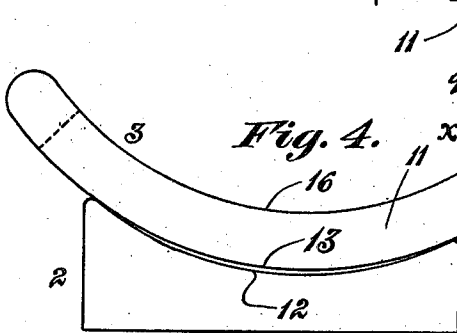
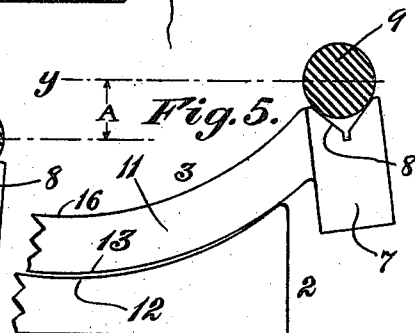


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

HOWARD B. ROBINSON, OF HARTFORD, CONNECTICUT.

TOOL-HOLDER.

963,068.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HOWARD B. ROBINSON, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Tool-Holders, of which the following is a specification.

This invention relates to tool-holders.

A tool-holder embodying my invention can be used with advantage in many different connections, for illustration in conjunction with a lathe or other metal-working machine.

One of the primary objects of the invention is to provide a simple and effective device of the character set forth wherein various adjustments can be readily and quickly effected while the different parts are substantially and solidly supported in the several adjustments.

The device possesses other features of utility which with the foregoing will be set forth at length in the following description where I shall outline in full that form of embodiment of the invention which I have selected for illustration in the accompanying drawings forming part of the present specification this being for the purpose of enabling those skilled in the art to practice said invention. The novelty of the latter will be included in the claims succeeding said description.

Referring to said drawings, Figure 1 is a side elevation of a tool-holder comprising my invention. Fig. 2 is a vertical sectional view of said tool-holder the section being on the line 2—2 of Fig. 1. Fig. 3 is a top plan view of the same, and, Figs. 4 and 5 are enlarged detail views of the device showing different adjustments thereof.

Like characters refer to like parts throughout the several figures of the drawings, which it will be perceived are on different scales.

I do not restrict myself to any particular mounting of my tool-holder although it is especially advantageous when used in connection with the tool-post of a lathe or like machine as in this case the usual tool-receiving slot of such a tool-post can receive a key or equivalent member for locking the adjustable member of said tool-holder in an adjusted position and for also securely retaining the companion member in rigid position. Said tool holder in the present case

comprises two members a base member such as 2 and a tool-carrying member such as 3. These two members may be made from any suitable material; for instance they might be cast while on the other hand they might be forged. As I indicate there is an advantage following the relation of these two elements with a lathe tool-post. A device of the latter nature is shown in the drawings being designated by 4 the supporting slide thereof being denoted by 5. As said slide and post are quite common in the metal-working art it is needless to describe them in detail especially as they form no specific part of the present invention.

The base member 2 may consist of a block or plate as illustrated and it is represented as having a flat underside which is adapted to rest solidly on the upper face of the slide 5 and as also having a substantially central perforation or hole 6 to receive said tool-post 4 the fit between the two parts being comparatively snug so as to eliminate all possibility of lateral motion of said base member 2, means hereinafter described being provided to solidly clamp said base member 2 to the slide 5.

The upper member of the device comprises in its make-up a tool-support or holder proper as 7 which is shown as consisting of an elongated bar preferably channeled as at 8 on its upper side throughout the length thereof to receive the tool as 9, it being customary to make said channel of V-form although of course this is not essential. Said tool-support 7 is represented as furnished with a pair of tool-clamps each denoted by 10 and by which said tool can be firmly held in said channel 8 and against all possibility of chattering. Owing to the fact that the tool-support 7 is elongated I provide an ample and extensive support for the tool. On one side of the said tool-support the same is equipped with a lateral wing as 11 and this wing in the present case is adjustable, the means whereby this is preferably accomplished being hereinafter described. Said wing or lateral flange 11 is less in extent from front to rear than the length of the support 7 it extending from said support between the ends of the latter. The base member 2 provides an effective support for said wing 11 and owing to the manner in which said wing and base member are related I can effect the adjustment of the tool-support 7 by a simple lateral

movement of the wing as will now appear. The upper face 12 of said base member is shown as being on an arc; it is therefore concaved. On this concaved face the convex face 13 of said wing fits and slides. It therefore follows that when said wing is moved sidewise the support 7 will be raised or lowered the particular motion thereof depending upon the direction in which said wing is moved. The said wing 11 has a slot 14 therethrough which is elongated in the direction of the transverse axis of the base member 2 and this slot is intended for the passage of the tool post 4. The side walls of said slot are substantially in contact with the periphery of the tool post at all times and owing to the presence of said slot the wing can be easily adjusted while the tool-post presents a guide therefor.

It will be seen on reference to Figs. 4 and 5 that the radius of the arc defining the concave face 12 is less than that of the arc defining the convex face 13 by reason of which when the parts are unclamped there will be a space between said two faces intermediate the lines of contact thereof. This provides for the flexing or bending of the wing 11 between the sides thereof by a clamping member or otherwise so that the said wing can be brought into the firmest possible contact with the base member 2. The wing 11 can be held in an adjusted position by a key as passed through the customary tool-receiving slot of the tool-post 4 and said key may consist simply of a rectangular bar. It will be perceived that the upper face 16 of said wing 11 is also on an arc and an advantage follows this in that the key 15 can always obtain a solid bearing upon said upper face throughout the various adjustments of the wing which would not be the case were said upper face flat or substantially so. Preferably the faces 13 and 16 are in parallelism.

It will be assumed that the base member 2 is sustained upon the slide 5 surrounding the tool post 4 thereon and that the wing 11 is upon said base member and further that the key 15 is not in place. In this condition it is a simple matter to move the wing in either direction sidewise which results in either raising or lowering the tool-support 7. When the tool is properly positioned the key 15 will be introduced into the slot of the tool-post 4 and driven home. As said key is advanced it traverses the upper concave face 16 of the wing and bends said wing downward into solid engagement with the concave face 12. As the key is thus advanced the lower corners thereof both fit equally solidly against the concaved face 16 so that there is no tendency on the part of said key to disturb the adjustment. Further in view of the fact that the face 16 is arcuate instead of flat the relation between

said face and the locking or clamping key is always the same in the different adjustments of said wing which would not be so were the upper face of said wing flat. In the latter event there would be probably one position of the wing where the upper flat face would be so presented to the key as to be properly locked. When this relation, however, is varied such a flat face would be presented at an angle to the key so as to prevent the latter holding the wing in an adjusted position. Of course I do not restrict myself to having the upper face of said wing on an arc but prefer this construction in view of the fact that the advantage set forth follows the same. Owing to the fact that the engaging faces of the base member 2 and wing 11 are defined by arcs it is clear that the relation of the tool 9 as the same is raised and lowered never varies; that is to say should the tool be adjusted its angular disposition with respect to the work will be in nowise affected, which as is evident is a very important advantage.

It will be observed that the arc 12 is so formed as to make one side of the base member 2 higher than the other as best shown in Fig. 4. By reversing the said base member from the position in which it is shown in said Fig. 4 to that illustrated in Fig. 5 I can obtain a wide range of adjustment and still provide an effectual support for the wing 11 when the tool is at its maximum adjustment as will be clear on inspection of Fig. 5. For illustration were the greatest upward adjustment of the tool made with the low side of said base member next the support 7 the wing 11 would not be as substantially supported as it would be were the high side of said base member next said support 7. It is a very easy matter to turn said base member around on the tool post 4 as a pivot when it becomes desirable to do so, it being necessary of course to remove the key 15. I have illustrated by the broken lines x and y and the index symbol A the amount of adjustment which it is possible to secure, of the tool 9. While I prefer that one side of the base member 2 be higher than the other owing to the advantage obtained this is not essential. In the upper side of said base member are apertures 17 adapted to alternately receive the butt or base portion of the rear of the two clamping members 10.

I do not limit myself to the construction hereinbefore described in detail as various changes may be made within the scope of my invention as covered in the following claims. As an illustration the hole or perforation 6 can be of such a diameter as to fit tool posts which vary in diameter; in such an event the said hole would be of a size to either receive the largest or smallest size tool post and when one of the latter

kind passes through such an opening it will be clear that there would not be a snug or tight relation between the tool post and the base member 2 or its equivalent.

- 5 It will be evident that in the various adjustments of the tool-support the latter is not tipped and that therefore its relation to the work will not be varied the consequence being that the tool is always presented to
10 the work at a right angle or any other predetermined angle; that is to say the tool does not turn on its own axis nor does it dip.

What I claim is:

- 15 1. A tool-holder comprising a base member provided with an arcuate face, and a tool-support provided with a wing also having an arcuate face to slide upon said other arcuate face the said arcuate faces being upon different radii.

- 20 2. A tool-holder comprising a base member having a concave, arcuate face, and a tool-support provided with a wing having a convex arcuate face slidable upon the other arcuate face the radius of the concave
25 face being less than that of said convex face.

3. A tool-holder comprising a base mem-

ber having a concave, arcuate face and one side of said base member being higher than the other, and a tool-support provided with a rigid, lateral wing, the under face of which is defined by a convex arc and which is adapted to slide upon said first mentioned face.

4. A tool-holder comprising a base member and a tool-support the latter being provided with a rigid, laterally-extending wing slidably supported by the upper surface of said base member to permit lateral movement of said tool-support and the engaging faces of said base member and wing being on concave and convex arcs respectively to thereby raise and lower said tool-support on said lateral movement, and said base member and wing having openings for the passage of a lathe tool-post.

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

HOWARD B. ROBINSON.

Witnesses:

HEATH SUTHERLAND,
F. E. ANDERSON.