B. M. W. HANSON.

HOLDER FOR TURNING AND SHAPING TOOLS.

APPLICATION FILED AUG. 9, 1905.

927,527. Patented July 13, 1909.

Fig. 1.

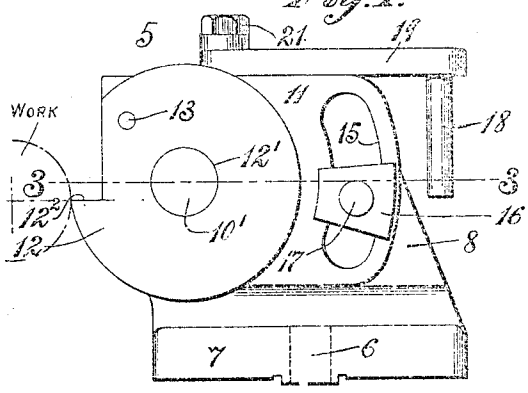


Fig. 2.

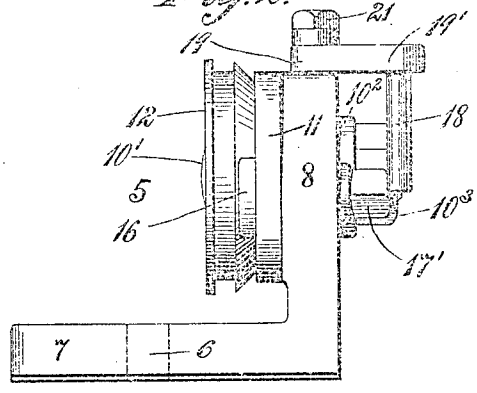


Fig. 3.

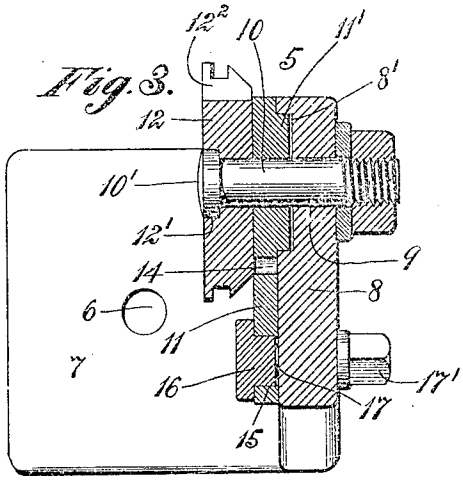


Fig. 4.

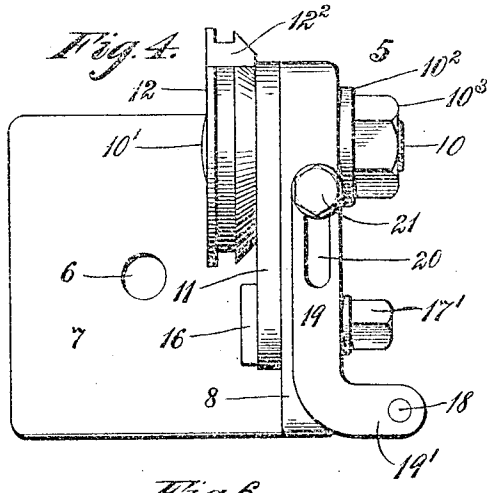


Fig. 5.

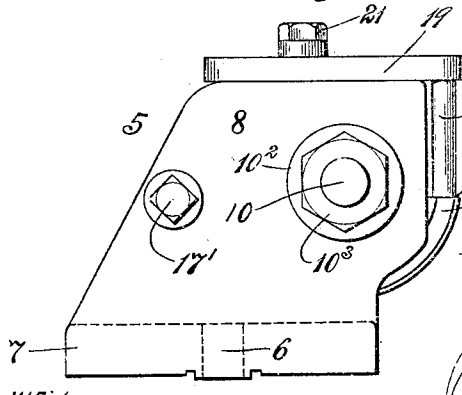


Fig. 6.

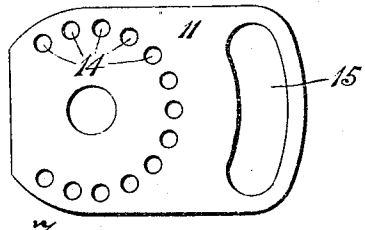
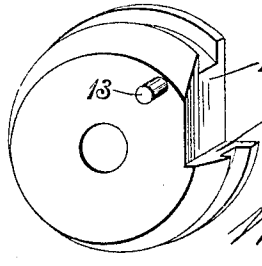


Fig. 7.



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UNITED STATES PATENT OFFICE.

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HOLDER FOR TURNING AND SHAPING TOOLS.

No. 927,527. Specification of Letters Patent. Patented July 13, 1909.

Application filed August 9, 1905. Serial No. 273,478.

To all whom it may concern:

Be it known that I, BENGT M. W. HANSON, a citizen of Sweden, (who has declared his intention of becoming 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 Holders for Turning and Shaping Tools, of which the following is a specification.

This invention relates to turning and shaping tools, such as are used in automatic metal-working machines, and has for its object the provision of improvements, whereby precisionized setting and resetting of the tool are readily accomplished.

A further object of the invention is the provision of means for securing the tool rigidly in position against all possibility of displacement.

A further object of the invention is the provision of a perforated and slotted plate to which the tool is secured, and by means of which it may be held in the required position after repeated grindings.

A further object of the invention is the provision of a movable stop-pin, which serves as a gage by which the cutting edge of the tool may be set in its proper position with relation to the stock.

Other objects of the invention will be set forth in the following description.

In the accompanying drawings, Figure 1 is a side elevation of the invention. Fig. 2 is a rear end view. Fig. 3 is a plan view in section on line 3, 3 of Fig. 1. Fig. 4 is a plan view. Fig. 5 is a side elevation of the tool opposite to that shown in Fig. 1. Fig. 6 is a detail view of an adjusting plate; and Fig. 7 is a detail view of one of the cutters.

Like numerals designate similar parts throughout the several views.

Referring to the drawings, the tool-post is designated in a general way by the numeral 5, and is secured to the carriage of the machine by a bolt (not shown) passing through a perforation 6 in the base 7.

Rising from one side of the base 7 is a standard 8, perforated at 9 to receive a bolt 10, upon which is pivotally mounted a plate 11 carrying the tool 12, said tool being counterbored at 12′ to receive the head 10′ of the bolt 10 provided at its opposite end with a washer 10^2 and nut 10^3. Projecting from the inner side of the tool 12 is a pin 13 serving as a guide or stop to limit the reduction of the cutter by sharpening, and adapted to enter any of the perforations 14 in the plate 11, thereby affording means whereby said tool may be located approximately in its proper position, the exact, precisionized position being then obtained by arcuate adjustment of the plate 11. Tools of this character require repeated sharpening, and to enable this sharpening operation to be carried out it is important for the sake of economy to utilize as much as possible of the body of the tool, and to enable this to be accomplished, the locking-pin heretofore described is located adjacent to the cut-away edge of said tool, thereby enabling the tool to be practically used up by the reducing-operations due to repeated grinding of its cutting-edge without the necessity of substituting a new tool for the one in use.

Formed in the standard 8 is a recess 8′ to receive the hub 11′ of the plate 11. To permit of the arcuate adjustment of this plate a slot 15 is provided in one end thereof, and fitted in this slot is a flanged binding-nut 16, threaded to receive a screw 17, which passes through the standard 8. For the reception of a wrench the screw 17 is provided with an angular head 17′.

From what has been stated it is obvious that the tool 12 is rigidly secured against independent movement by the pin 13, and is, therefore, not dependent on the clamping-action of the bolt 10 to prevent it from slipping.

Designated by 18 is a gage-pin carried in an offset end 19′ of an arm 19, said arm being provided at the other end with a slot 20 through which passes a bolt 21 which adjustably secures said arm to the top of the standard 8.

In the operation of the invention the tool 12 is primarily adjusted by loosening the nut 10^3, moving said bolt endwise, turning the tool on said bolt, and then pushing it back until the pin 13 enters the desired hole of the series 14 in plate 11, after which the nut is tightened, and the tool is rigidly clamped to said plate 11. Should the tool not be in accurate position after this adjustment, a further adjustment is now made by loosening the bolt 17, and nut 16, and swinging the plate 11, carrying the tool, on the pivot-bolt, 10, and when the cutting-edge of said tool has by this auxiliary means been properly

located the nut 16 is again tightened by said bolt 17, thus rigidly securing the tool in place until a new adjustment due to the wear of the tool or other causes, is required. Properly to determine the position of the cutting-edge of the tool in the adjustment last mentioned, the arm 19 is swung around on bolt 21 to the position shown in Fig. 5, and the plate 11 is turned until the flat surface 12^2 just back of the cutting-edge comes into contact with the stop-pin 18, when the tool will be properly set, after which the arm is returned to the normal position illustrated in Figs. 1, 2 and 4, and is clamped in such position by the bolt 21.

In a general way a turning-tool of the character above described has long been known, great advantage residing in the fact that said tool when dulled by use may be repeatedly sharpened without changing its form. Owing, however, to the lack of means for effecting a precisionized adjustment of the tool, and for rigidly securing it against movement on its supporting bolt or arbor, time has been wasted in effecting the proper location of the cutting-edge of said tool. By the construction above described the defects in the old manner of securing and adjusting the tool are obviated, and it may be accurately set to any position required with relation to the work, and may then be rigidly clamped in position with no possibility of movement or of the springing or yielding of the elements by which it is supported.

As will be observed from Figs. 1 and 7, the locking-pin 13 is located adjacent to the vertical cut-away portion of the tool 12, and by thus disposing said pin it will be obvious that the flattened surface or cutting-edge 12^2 may be repeatedly ground until the body of the tool is so reduced that said edge will be immediately back of said locking-pin 13,—thus enabling the tool to be used much longer than those commonly employed before a new tool is required.

While a common type of tool is shown and described it is distinctly to be understood that the invention is not limited thereto, for other tools may be substituted for that shown, if found desirable or convenient. Furthermore changes may be made in the various details shown and described for effecting the compound adjustment of the tool, and means different from those shown for supporting the tool may be employed without departure from the invention.

It will be obvious that my cutting tool is imperforate so that I can secure the advantage of strength for if the said tool has a series of perforations it would be so materially weakened thereby as to render it inoperative or ineffective for ordinary metal working uses especially when it is considered that the stock cut by such an implement is very hard; in addition to this the stop-pin 13 is so located that the tool can be practically ground down to the point at which said pin is disposed. Of course the pin 13 fits a perforation but this perforation when the tool is in use is closed so that I consider the term imperforate as quite apt in view of this consideration even though in some instances the pin 13 be removable which of course it is not in the present case as it has been described as being rigid which feature is one of utility as there is no part of the cutter apt to be lost or mislaid.

Having thus described my invention, what I claim is:

1. A tool-holder comprising a base having a standard, a plate pivoted to said standard, a tool secured to said plate, an arm pivoted to the standard, and a gage depending from said arm.

2. A tool-holder comprising a base having a standard, a tool-holding plate pivotally mounted upon said standard, a tool fitted for rotary adjustment on the plate, means for securing the plate in different positions of adjustment, and a gage mounted for swinging and sliding movement on the standard.

3. A tool-holder comprising a base having a standard, a pivot carried by the standard, a tool mounted on the pivot, means for securing the adjustment of the plate in different positions of adjustment, and a swinging and longitudinally adjustable gage on the standard.

4. The combination with a base having a standard, of a slotted arm pivoted to said standard and having a gage-pin, a cutter mounted on the standard for arcuate adjustment, and means whereby said cutter may be adjusted in an arcuate path to engage said pin.

5. The combination of a cutting tool and a swinging carrier therefor, the latter having a series of perforations disposed in arcuate order and concentric with the axis of motion thereof and the cutting tool being turnable about said axis and having a rigid pin, said tool and carrier being relatively laterally movable to adapt said pin to be interchangeably fitted in said perforations.

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

BENGT M. W. HANSON.

Witnesses:
F. E. ANDERSON,
FRANCES E. BLODGETT.