Sept. 21, 1948. H. M. SHERIDAN 2,449,823

TOOL BIT AND HOLDER THEREFOR

Filed June 7, 1945

Fig. 1.

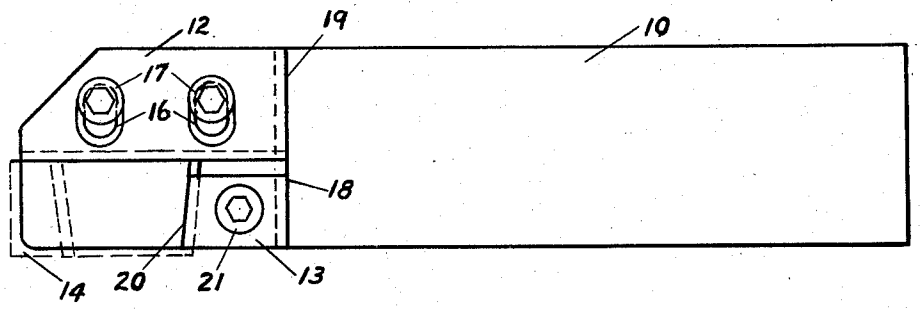


Fig 2.

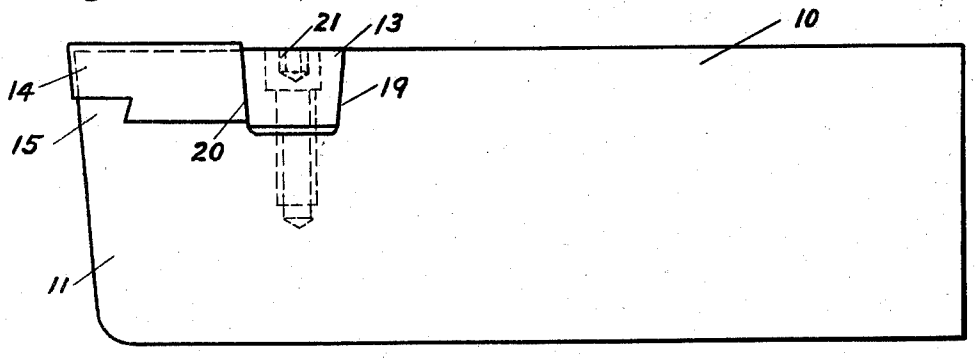


Fig 3.

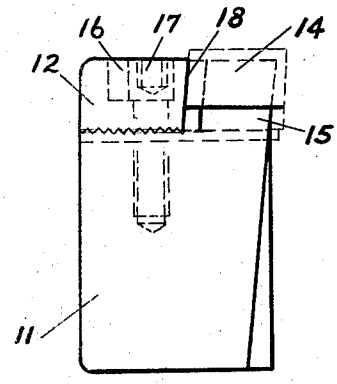
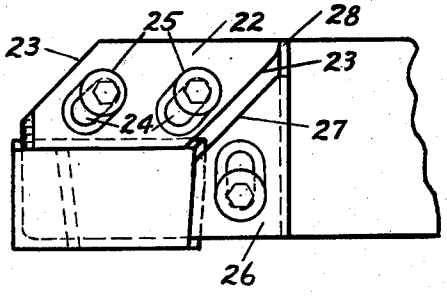


Fig 4



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Patented Sept. 21, 1948

2,449,823

UNITED STATES PATENT OFFICE

2,449,823

TOOL BIT AND HOLDER THEREFOR

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Application June 7, 1945, Serial No. 598,040

4 Claims. (Cl. 29—96)

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This invention relates to replaceable tool bits and holders therefor.

The objects of the invention include the provision means for removably securing cutting tips of carbide cobalt or the like in a tool holder so as to avoid the expense of a solid one piece tool.

Another object of the invention is to provide a tool holder having new and improved locking means whereby the bit may be rigidly secured within the holder without danger of accidental displacement or vibration with respect to the holder.

A further object of the invention is to provide a holder in which independent securing clamps are each provided with means to relieve the cutting thrust applied thereon.

Another specific object of the invention is to provide a new and improved cooperation between holders, clamps and bits thus to achieve a more positive and rigid securement of the bit in its adjusted relation to the holder.

Other objects and features of the invention will be apparent from a consideration of the following specification taken in conjunction with the accompanying drawing, in which:

Fig. 1 is a top plan view of one of the preferred embodiments of the present invention.

Fig. 2 is a side elevation of that form of the invention shown in Fig. 1;

Fig. 3 is an end elevation of the bit and holder shown in Figs. 1 and 2, and

Fig. 4 is a detailed top plan view of a modified form of the invention.

The herein disclosed embodiment of the present inventive concept may be generally defined as comprising a shank terminating in a bit platform provided with an integral raised bit seat and a pair of bit clamps independently secured to the shank. The inner face of the platform being defined by a wall formed by the shank which is angularly disposed transversely in a vertical plane. At least one of the clamps abut the angular surface whereby a wedging action is imparted to the clamp to assist in the securement of the bit.

In the drawings, the present embodiment of the invention comprises a body or shank 10 here shown as of simple rectangular formation. One end of the body constitutes a bit holding head indicated by the member 11. The upper surface of the head 11 is stepped down from the upper surface of the body 10 and constitutes a pair of parallel coplanar surfaces, one being a bit table while the other may be serrated, preferably longitudinally as shown in Fig. 3 and receives the longi-

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tudinal clamp of a pair of longitudinal and transverse clamps 12 and 13, respectively. A bit 14 is adapted to be mounted on the bit table. The bit is recessed to receive a bit seat 15, the internal face of which is angularly disposed both in a vertical and transverse plane thereto engage the bit to secure the same against accidental outward movement either transversely or longitudinally from the table.

The longitudinal clamp 12 which preferably conforms in configuration to the surface of the head not occupied by the bit is provided with a pair of elongated transverse slots 16 through which securing screws 17 extend and threadedly engages the head 11 to secure the clamp in adjusted position. The heads of the screws 17 are preferably seated within an enlarged portion of the slots so as to leave the upper surface of the assembly free from projection. However, securing screws extending upwardly through the head 11 to engage the clamp may be used as an equivalent securing means. The longitudinal inner face 18 of the clamp 12 is vertically inclined to cooperate with and retain thereunder a similarly inclined inner longitudinal side face of the bit 14. The inner transverse end of the clamp 12 is also inclined to conform with a similar inclination formed by the end face of the shank above the bit table and clamp surface so that the end face of the clamp 12 similarly overlies the cooperating inclined face 19.

The transverse clamp 13 which is of a length substantially equal to the width of the bit 14 is also provided with an inner end face vertically inclined to conform with the surface 19. Its opposite or bit engaging surface 20 is similarly inclined vertically to lie over and secure the similarly inclined inner face of the bit. The surface 20, however, is also inclined transversely as well as vertically and engages a similar inclination transversely of the inner end face of the bit. A bolt 21 is provided for securing the clamp 13 in adjusted position.

From this construction, it will be seen that the bit 14 is securely locked in position in the holder, the overhanging bevels of each clamp provide a camming action resisting an upward thrust which may be imparted to the bit and at the same time locking the bit against the shoulder 15. It will also be noted that the transverse angularity of the front surface of the clamp 13 and the transverse angularity of the shoulder 15 will be effective in biasing any direct inward thrust towards the side clamp 12. The adjustability of the side clamp by virtue of its slots 16 and the serrations permits a

transverse adjustment of the bit to compensate for wear and repeated grindings.

In that form of the invention shown in Fig. 4, the longitudinally extending clamp **22** terminates in obliquely inclined ends **23** and is provided with similarly obliquely inclined slots **24** through which the securing screws **25** extend. The transverse clamp **26** is also provided with one cooperating inclined end **27**. In this interpretation of the inventive concept the longitudinal clamp **22** does not abut the inclined wall **28** of the head, however, a forward thrust is imparted to this clamp by the slots **24** and thus the same biasing of a direct transverse inward thrust is achieved whereby such thrust will have imparted thereto a longitudinal force vector.

In carrying out the present invention, it will be understood that many various modifications may be resorted to. For instance, it may in some instances be desirable to extend the shank angularly with respect to the head and it may be also desirable to provide various types of ribs or serrations between the tool bit and the clamps or the tool bit and the head or between the clamps and the head. It will also be understood that various modified types of securing means may be used for attaching the clamp to the head. Such departures from the specific exemplification of the present invention are not deemed a departure from the spirit or scope of the invention as outlined in the appended claims.

What I claim is:

1. In a tool holder, a solid elongated substantially rectangular shank, a seat at one end of said shank having an inner end defined by a transverse shank wall, a bit shoulder formed on said seat and extending in a transverse crosswise direction thereof and spaced outwardly from said transverse shank wall, and a pair of independently mounted and independently secured first and second bit clamps positioned on said seat, said first clamps having a straight longitudinal face adapted to engage the side wall of a tool bit and an inner end face engaging said transverse shank wall, said second clamp having an outer end face disposed towards and facing the bit shoulder and an opposite inner end face engaging said transverse shank wall, said seat shoulder and clamps being constructed and arranged to secure a bit between the shoulder and said second clamp and against the longitudinal face of said first clamp.

2. A holder as defined in claim 1 in which the coating faces of the bit shoulder and the outer end face of the second clamp are oppositely inclined with respect to each other to define therebetween a dovetail pocket for securing the tool bit.

3. A holder as defined in claim 1 in which the coating faces of the bit shoulder and the outer end face of the second clamp are each oppositely inclined with respect to each other in both longitudinal and transverse directions to define therebetween a downwardly opening and inwardly opening pocket dovetailed in both longitudinal and transverse directions.

4. A holder as defined in claim 1 in which the straight longitudinal face of the first clamp is inclined outwardly from top to bottom to overlie a tool bit mounted on said seat.

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