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H. M. SHERIDAN
TOOL BIT AND HOLDER THEREFOR
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Fig. 1.

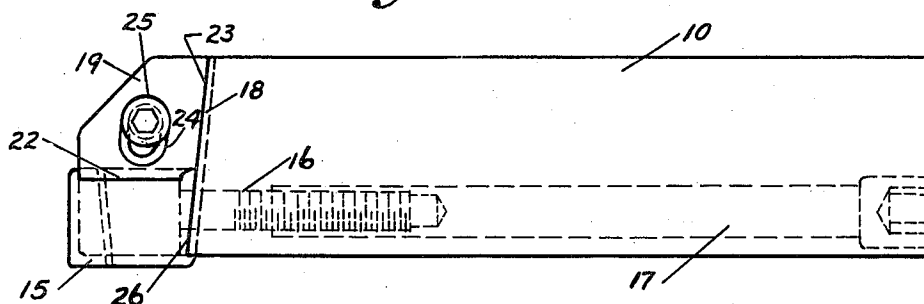


Fig. 2

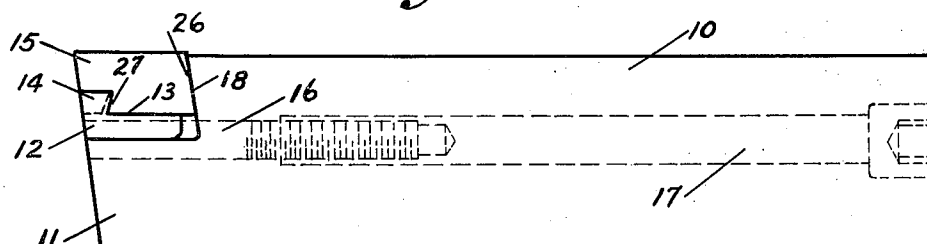


Fig. 3.

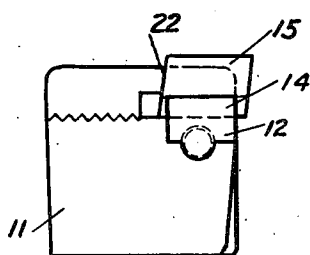


Fig. 4

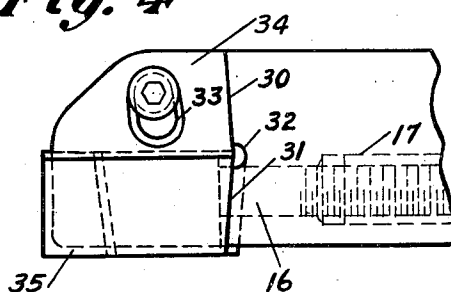
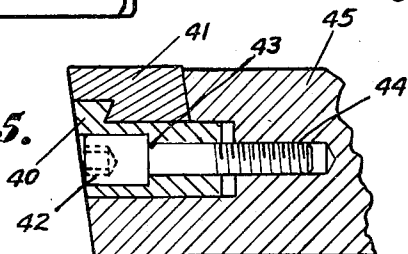


Fig. 5.



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TOOL BIT AND HOLDER THEREFOR

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5 Claims. (Cl. 29—96)

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This invention relates to tool bits and holders therefor, and is particularly concerned with screw lock holders in which at least one adjustment of the securement of the bit is made by application of a wrench to a longitudinally extending screw rotation of which moves a bit securing element.

The prime object of the invention is to provide a new and improved tool bit holder which will provide a maximum rigidity between the bit and its holder and which will permit easy insertion and removal of the bit from the holder and which lends itself to easy and accurate adjustment of the bit in the holder.

Another object of the invention is to provide a holder so formed as to secure the bit in a manner such that the cutting strains applied thereto will be translated from the pure transverse or longitudinal and thus be dissipated through the head with a minimum of strain to the securing bolts.

A further object of the invention is to provide a holder of the type referred to in which supplemental clamping and adjusting means are provided to preclude accidental transverse movement of the bit within the holder.

A still further object of the invention is to provide for a novel and improved cooperation between a pair of separately secured and adjusted bit clamps so that a chatterless mounting for the bit may be provided.

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 device as shown in Figs. 1 and 2;

Fig. 4 is a modified form of the invention shown in Figs. 1 through 3, and

Fig. 5 is a fragmentary sectional view of a further modification of the inventive concept.

The invention may be defined in general terms as comprising a holder body having a tool seat adapted to be drawn towards a bit by a bolt extending longitudinally of the holder body and further including a separate bit clamp adjustably secured to the tool head for separate adjustment whereby the seat and clamp cooperatively engage the bit and retain it securely in the holder.

More specifically as may be noted by reference to the Figs. 1 through 3 of the drawings, the invention comprises a body 10 which may be of

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elongated rectangular configuration as here shown or may be angularly disposed with respect to its head 11 or otherwise arranged for mounting advantageously within a machine tool. The head 11 which is here shown as merely the extended left end of the body 10 is provided with an adjustable tool seat 12 including a bit table 13 which is formed by a plain transverse surface below the top surface of the body and having a vertically and transversely inclined bit engaging shoulder 14. If desired the table 13 may be provided with serrations with which like serrations of tool bit 15 may cooperate. The tool seat 12 is mounted for longitudinal adjustment on the head 11 by virtue of a threaded shank 16 which extends into the body 10 and engages a draw bolt 17 which may be conveniently actuated from the rear of the holder. Thus the seat may be moved towards and from a vertically and transversely inclined end wall 18 of the body.

For assisting the tool seat 12 in rigidly securing the bit 15 fixedly with respect to the head 11 a clamp 19 is provided, the upper surface of which may advantageously be parallel to the upper surface of the body 10. The under surface of the clamp 19 is preferably cut away to provide a clearance with the lower inner side edge of the bit 15. The remainder of the under surface rests upon a side platform adjacent the surface 13, these surfaces being preferably serrated as shown in Figs. 2 and 3. The inner longitudinal bit containing wall 22 of the clamp 19 is vertically inclined to lie over and engage the oppositely inclined side wall of the bit 15, while the transverse end or body contacting surface 23 of the clamp is both transversely and vertically inclined to conform with the inclination of the wall 18. The clamp 19 is provided with an elongated and inclined slot 24 which receives there-through a securing bolt 25. The inclination is such as to permit simultaneous transverse and longitudinal movement of the clamp so that it may be adjusted along the surface 18.

The bit 15 is provided with an inner end surface 26 which is vertically and transversely inclined in conformity to the inclination of the wall 18 and is further provided with an inclined shoulder 27 which conforms to the combined vertical and transverse inclinations of the portion 14 of the bit seat.

From this construction, it will be seen that the inward thrust by the shoulder 14 will have both a longitudinal and transverse component thus urging the bit against the clamp surface as well as against the surface 18 while both the sur-

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faces 18 and 22 will hold the bit down upon the surface 13. Thus it will be seen that the various inclinations of the elements combine and cooperate to bring about rigid and vibrationless locking of the bit in the holder.

In that form of the invention shown in Fig. 4, there is a double transverse inclination of the end wall of the holder thus providing angularly related surfaces 30 and 31 which may be joined by a radius 32. In this instance, since the inclination of surface 30 is opposite to that shown in Fig. 1, the slot 33 of the clamp 34 is inclined oppositely from the slot 24 of the clamp 19. It will be readily seen that in this instance the transverse adjustment of the clamp is accompanied by any inward movement and the thrust of the clamp therefore assists in urging the bit 41 firmly against the surface 31.

By reference to Fig. 5, it will be noted that the invention is not limited to the use of a draw bolt actuated from the rear and in this instance the seat 40 is adjusted toward and from the bit 41 by a front actuated bolt 42, the shoulder 43 of which engages the seat 40 while the shank 44 is threadably adjustable within the head 45. If desired, the bolt 42 may have oppositely or differently pitched threads in engagement with the seat so as to enhance the accuracy of its adjustment upon manipulation of the bolt.

It will, of course, be understood that in all forms of the invention numerous changes and modifications may be resorted to without departure from the spirit or scope of the invention as outlined in the appended claims.

What I claim is:

1. A tool holder having a body with a head thereon, a bit seat movably mounted on said head and presenting a bit supporting table, a clamp mounted on said head and movable to alternative positions with respect to said body and head for varying the position of a tool bit located on said table, said bit seat, body and clamp having cooperating bit retaining surfaces thereon, and means for moving said bit seat with respect to said body to hold a tool bit in engagement with said surfaces.

2. A tool holder having a body with a head thereon, a bit seat movably mounted on said head and presenting a bit supporting table, a clamp mounted on said head and movable to alternative positions with respect to said body and head for varying the position of a tool bit located on said table, said bit seat and body each having an inclined bit retaining surface positioned to overlie a tool bit located on said table, and means for moving said bit seat with respect to said body to hold a tool bit in engagement with said surfaces.

3. A tool holder having a body with a head thereon, a bit seat movably mounted on said head

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and presenting a bit supporting table, a clamp mounted on said head and movable to alternative positions with respect to said body and head for varying the position of a tool bit located on said table, said bit seat, clamp and body each presenting an inclined bit engaging surface positioned to overlie a tool bit located on said table, and means for moving said bit seat with respect to said body to hold a tool bit in engagement with said surfaces.

4. A tool holder having a body with a head thereon, a bit seat movably mounted on said head and presenting a bit supporting table, a clamp mounted on said head and movable to alternative positions with respect to said body and head for varying the position of a tool bit located on said table, said bit seat, clamp and body each presenting an inclined bit engaging surface positioned to overlie a tool bit located on said table, the bit engaging surfaces of said bit seat and body being oppositely inclined in a direction transverse of said table, and means for moving said bit seat with respect to said body to hold a tool bit in engagement with said surfaces.

5. A tool holder having a body with a head thereon, a bit seat movably mounted on said head and presenting a bit supporting table, a clamp mounted on said head and movable to alternative positions with respect to said body and head for varying the position of a tool bit located on said table, said bit seat, clamp and body each presenting an inclined bit engaging surface positioned to overlie a tool bit located on said table, the bit engaging surfaces of said bit seat and body being oppositely inclined in a direction transverse of said table, and spaced apart a greater distance adjacent said clamp than at points remote therefrom, and means for moving said bit seat with respect to said body to hold a tool bit in engagement with said surfaces.

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