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2,680,897

TOOLHOLDER

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FIG. 1

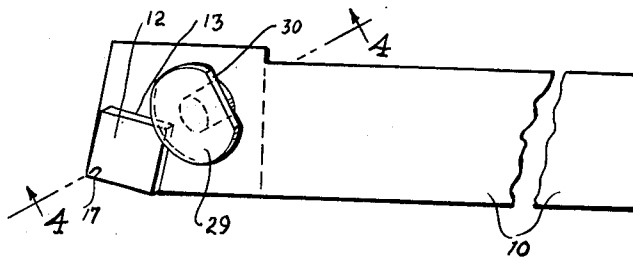


FIG. 2

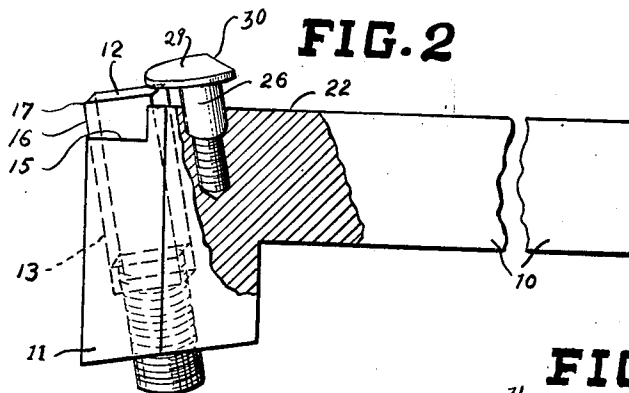


FIG. 5

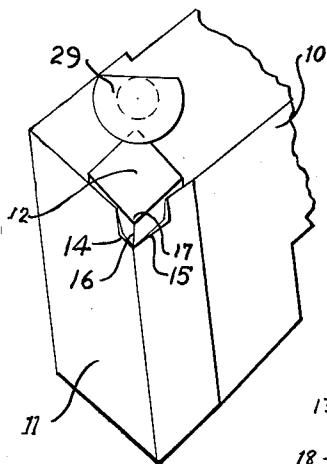


FIG. 3

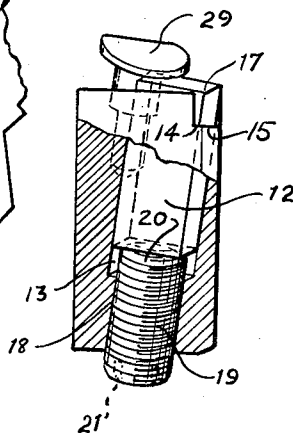
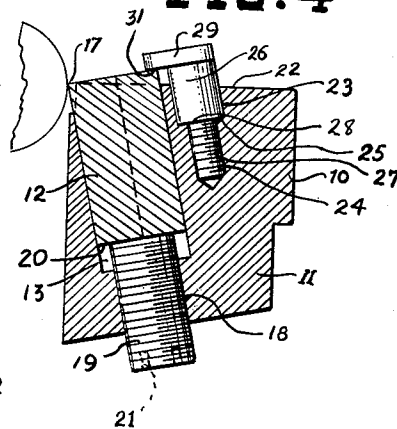


FIG. 4



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TOOLHOLDER

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3 Claims. (Cl. 29—96)

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This invention relates to a tool holder. In common with several other tool holders, the present invention utilizes a cutting bit which can be reversed end for end so that when one end is dull the other end may be used. Also since the bit is polygonal in cross-section, each vortex or corner thereof provides a cutting corner, so that when the ends are squared each corner in succession may be utilized until it is dull, the bit being advanced from corner to corner so that the cutting corner always has predetermined disposition relative to the tool whereby when the tool is once adjusted the cutting edge or corner replacement may readily be effected without change of tool adjustment. Also, as the bit wears it may be easily sharpened by square or face grinding and by an adjustment on the tool, readily disposed, regardless of variation in length (shortening due to sharpening), in position for cutting.

Such a holder and bit reduces set up time. It also increases tool life and reduces tool inventory. It also results in the holder holding the bit more rigid, thus insuring more accurate work and reducing or eliminating tool chatter which reduces or eliminates vibration incident thereto and in the machine to which the tool is applied.

The bit is further characterized by being interchangeably receivable by right and left hand holders. For purposes of illustration the bit is shown as of square cross-section and the holder of left hand type. The chief feature of the invention resides in the cocking in a holder of a bit in predetermined position and securing such bit in the holder by two longitudinally disposed, bit parallel or coincident bolts, one for stop purposes and the other for clamping purposes.

Other objects and features of the invention will be set forth more fully hereinafter.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims.

In the drawings—

Fig. 1 is a top plan view of a tool holder embodying the invention and with a square sectioned bit therein.

Fig. 2 is a side elevation of such holder and cooperating parts and the bit, a portion of the holder being broken away and shown in section.

Fig. 3 is a front elevation of such holder and bit.

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1 and,

Fig. 5 is a perspective view of the bit end of the tool holder.

Since bit holders are broadly well known in

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the art and the mounting thereof in a machine for work cutting is also well known, no further illustration or description of such a machine is believed necessary. The tool comprises a holder having shank 10 and head 11. Disposed in the latter is an elongated bit 12, herein of square cross-section.

The invention resides in the means for and the manner of mounting and retaining said bit in said head. A bit socket 13 is pitched as illustrated. It conforms in cross-section to the cross-section of the bit and the latter is presented lengthwise or longitudinally thereto. From the mouth of the socket it inclines away from the adjacent faces of the head and towards the interior of the head.

The socket at the mouth is cut away at two adjacent faces as at 14 and 15. This presents or exposes edge 16 of said bit 12, said edge terminating in cutting point 17. The root of socket 13 has aligned therewith the threaded hole 18. Threaded therein is clamp screw 19 having the bit engaging end 20 and the head exposed, tool-engageable end 21.

Upon the top face 22 and in close proximity to bit socket 13 there opens a parallel bore 23. An extension 24 thereof is threaded and between the two is formed shoulder 25. A stop screw or bolt is used which comprises a shank 26 with threaded extension 27. At the junction is shoulder 28 adapted to engage bore shoulder 25. The holder exposed end of shank 26 is provided with head 29 which is cut away as at 30.

When the cut away portion is disposed in registration with the socket the bit therein may be removed and turned end for end, or turned step by step for new corner utilization. When the head 29 laps over the socket it bears on the end face of the bit but holds it in the socket.

The relative location of the two shoulders aforesaid with respect to the under face of the stop screw or bolt (head 29) is such that the latter (the under face 31) if projected forwardly intersects with bit cutting corner 17.

Initially the stop screw is disposed so cut away portion 30 is disposed adjacent socket 13. Bit 12 is then inserted. The stop screw is screwed down until shoulders 25—28 contact and head 29 overhangs the exposed end of the bit. This positions the bit in proper position, regardless of bit length when the clamp screw 19 is screwed into clamping engagement upon the socket end of the bit.

In tightening up, the clamp screw is always the last tightened and for replacement, etc. the clamp screw is always the first to be unthreaded.

While the invention has been illustrated and

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described in great detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character.

The invention claimed is:

1. A polygonal bit holder comprising a shank, 5
a head having an inclined polygonal bit receiving socket formed therein opening on the upper face thereof, a polygonal bit positioned within said socket, a portion of the upper socket-defining walls of said head being relieved to expose 10
a cutting edge of said bit, adjustable clamping means carried by said head and being operable to engage the bottom end of said bit for longitudinal adjustment thereof within said socket, 15
said head having a threaded bore formed therein adjacent to and parallel with said socket, said bore including a peripheral shoulder defining an upper bore portion and a lower bore portion of lesser diameter, and means cooperable with 20
said clamping means for retaining said bit and its exposed cutting edge in a predetermined cutting position, said last mentioned means comprising a member having a head portion and a 25
shank portion, said shank portion having a peripheral shoulder engageable with said bore shoulder, said head portion being normally engageable with the upper end of said bit for retaining it in a predetermined cutting position 30
and having a segment thereof omitted whereby upon rotation of said member said head portion thereof clears said bit to permit removal thereof from said socket.

2. A polygonal bit holder comprising a shank, 35
a head having an inclined polygonal bit receiving socket formed therein opening on the upper face thereof, a polygonal bit positioned within said socket, a portion of the upper socket-defining walls of said head being relieved to expose 40
a cutting edge of said bit, adjustable clamping means carried by said head and being operable to engage the bottom end of said bit for longitudinal adjustment thereof within said socket, said head having a threaded bore formed therein adjacent to and parallel with said socket, and

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means cooperable with said clamping means for retaining said bit and its exposed cutting edge in a predetermined cutting position, said last mentioned means comprising a member having a head portion and a shank portion, said shank portion having a shoulder engageable with a shoulder of the holder to position the head portion of said clamping means, said head portion being normally engageable with the upper end of said bit for retaining it in a predetermined cutting position and having a segment thereof omitted whereby upon rotation of said member said head portion thereof clears said bit to permit removal thereof from said socket.

3. A polygonal bit holder comprising a shank, 5
a head having an inclined polygonal bit receiving socket formed therein opening on the upper face thereof, a polygonal bit positioned within said socket, a portion of the upper socket-defining walls of said head being relieved to expose 10
a cutting edge of said bit, adjustable clamping means carried by said head and being operable to engage the bottom end of said bit for longitudinal adjustment thereof within said socket, 15
said head having a threaded bore formed therein adjacent to and parallel with said socket, and means cooperable with said clamping means for retaining said bit and its exposed cutting edge in a predetermined cutting position, said last 20
mentioned means comprising a member having a head portion and a shank portion adjustable longitudinally in said threaded bore, said shank portion having a shoulder engageable with a 25
shoulder of the holder to position the head portion of said clamping means, said head portion being normally engageable with the upper end of said bit for retaining it in a predetermined cutting position and having a segment thereof omitted whereby upon rotation of said 30
member said head portion thereof clears said bit to prevent removal thereof from said socket.

No references cited.