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J. TOTH, SR

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TOOL

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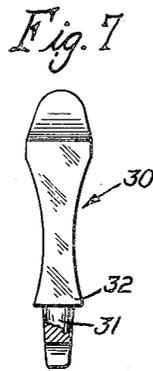
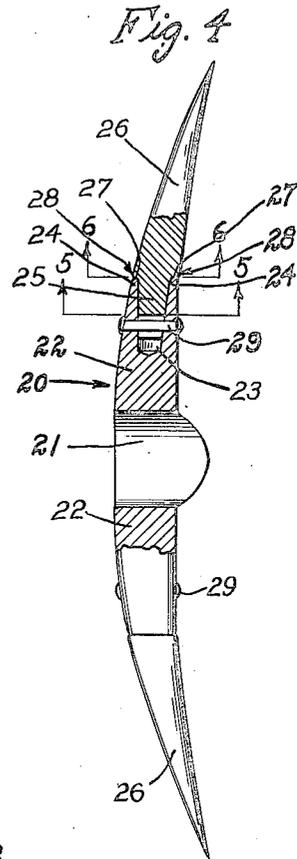
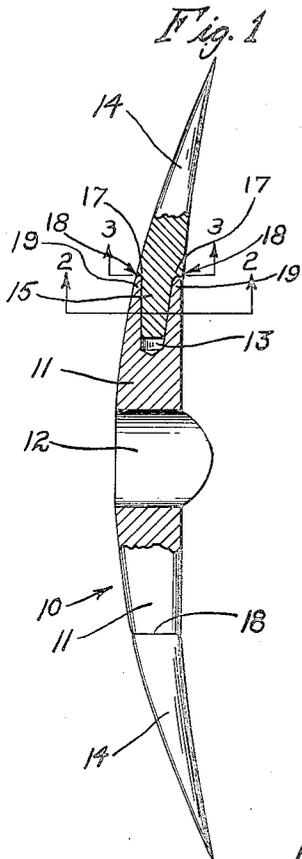
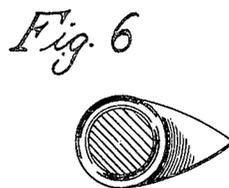
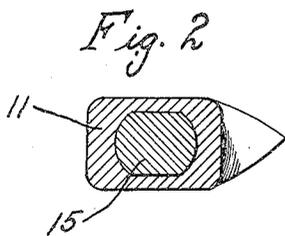
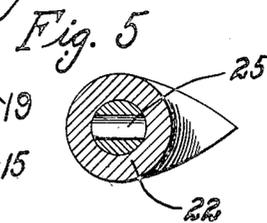
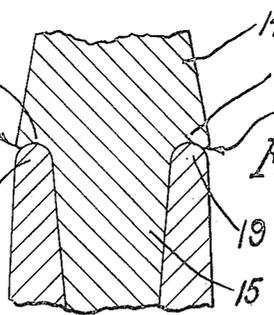
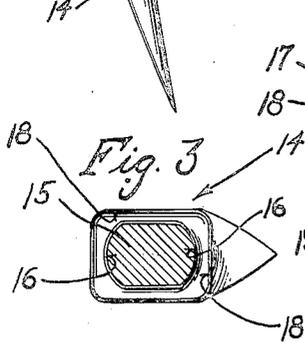


Fig. 8



INVENTOR
Joseph Toth, Sr.
BY *Johann, Kleinsch and Kessel*
ATTORNEYS

UNITED STATES PATENT OFFICE

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TOOL

Joseph Toth, Sr., Fairfield, Conn., assignor to
John J. Toth and Joseph Toth, Jr., Bridgeport,
Conn.

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This invention relates to earth-working tools such as pickaxes and pick-like tools of the type having heads with removable points or bits.

An object of the invention is to provide an improved pick head and removable bit connected by a taper and socket, wherein jamming of the taper in the socket is limited to such an extent that the bit may be removed from the head without the use of wedges, drift pins and the like.

Another object of the invention is to provide a pick head and removable bit as above, having simple and effective means by which spreading of the mouth of the socket is prevented.

A further object of the invention is to provide a pick head and removable bit with the above characteristics, which is extremely simple in construction and economical to manufacture.

In accomplishing these objects there is provided by the invention a tool having a novel structure comprising a head part and a bit part, one of said parts having a taper and the other part having in its end a socket receiving the said taper. The part of the tool having the taper has a shoulder or flange with an axially projecting edge portion, the said flange extending around the base of the taper and embracing and nesting the end of the socket to prevent the latter from spreading.

The flange is so located on the taper that it assumes a substantial portion of the thrust force between the parts of the tool, thereby limiting the jamming of the taper in the socket and making possible removal of the bit part without resorting to wedge pins or the like.

In one illustrated embodiment of the invention the taper and socket have a substantially rectangular cross-section which thereby automatically prevents turning of the bit part while supported on the head part. In another embodiment of the invention the taper and socket are of circular cross-section, and the end of the taper, which is on the bit, is bifurcated to accommodate a pin which extends transversely across the bottom of the socket in the head and is anchored to the latter. In this construction the positioning of the point or bit is maintained by engagement of the pin with the bifurcated end of the taper.

Other features and advantages will hereinafter appear.

In the accompanying drawings:

Figure 1 is a side view of a pick structure made in accordance with the invention, part of the structure being shown in section.

Fig. 2 is a section taken on the line 2-2 of Fig. 1.

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Fig. 3 is a section taken on the line 3-3 of Fig. 1.

Fig. 4 is a fragmentary side view of a modified pick structure made in accordance with the invention, a portion of the structure being shown in section.

Fig. 5 is a section taken on the line 5-5 of Fig. 4.

Fig. 6 is a section taken on the line 6-6 of Fig. 4.

Fig. 7 is a side view of a tamping bit made in accordance with the invention, and

Fig. 8 is a fragmentary view, enlarged, of the taper and socket connection between the head and bit of the pick structure of Fig. 1.

Referring to Figs. 1, 2 and 3, the pick structure illustrated comprises a head 10 having a pair of arms 11 and having, intermediate the arms, a socket 12 for receiving a handle. The arms 11 are provided with tapered recesses or sockets 13 which extend inwardly from the ends of the arms, toward the handle-receiving socket 12.

Removably carried by the arms 11 are points or bits 14, having shanks or tapers 15 which extend and fit into the tapered sockets 13 so as to support the bits 14 in operative position.

As shown in Figs. 2 and 3, the tapers 15 may be substantially rectangular in cross-section, as well as the sockets 13, opposite sides 16 of the tapers and sockets being rounded substantially to facilitate their fabrication.

According to the present invention the arms 11 and bits 14 are so constructed and arranged that the ends of the arms are prevented from spreading during use of the tool, and jamming of the tapers 15 is limited so that the bits 14 may be removed from the arms without the use of drift pins, wedges, and the like. Accordingly, the bits 14 are provided with shoulders or flanges 17 extending around the base portions of the tapers 15, the said flanges having peripheral or edge portions 18 which project axially in the direction of the tapers, thus providing an annular groove in the face of each of the flanges 17.

As shown, the groove in the flange 17 may be concave, that is, the face of the flange may present a concave annular surface to the end 19 of the arm 11. Preferably the arm end 19 is formed with a convex surface so that it embraces and nests within the flange 17 of the bit 14.

Also, the flange 17 is so located, with respect to the taper 15, that the flange assumes a substantial part of the thrust load or force existing between the bit 14 and the arm 11 during use of the tool.

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As a result of this construction, the flange 17 effectively prevents the end 19 of the arm 11 from spreading, and also effectively limits the amount of jamming of the taper 15 in the socket 13. Consequently, when it is desired to remove a bit 14 for replacement or sharpening etc., this may be easily and quickly done without restoring to such devices as drift pins, wedges, or the like, which devices were heretofore required in tools of this character. During attachment of a bit 14 to an arm 11, the flange 17 of the bit engages the end 19 of the arm only after a small amount of jamming of the taper 15 in the socket 13 has taken place, and thereafter, further jamming of the taper is prevented, since the flange assumes a very substantial part of the thrust load of the bit.

Ordinarily, when it is desired to remove a bit 14 from an arm 11, a few sharp lateral raps or blows on the bit will serve to loosen it sufficiently so that it may be withdrawn from the arm by a moderate pull.

Due to the substantially rectangular cross-section of the taper 15 and the socket 13, the bit 14 is prevented from turning or otherwise shifting out of its working position.

It will be noted that spreading of the end 19 of the arm 11 is prevented without resorting to thickening of the end portion, and therefore not only is a saving effected in the amount of material used, but the operations of fabricating the head 10 are simplified and made less costly. Also, the wedging action of the taper 15, which action tends to spread the arm end 19, is reduced considerably due to the jamming of the taper being limited by the flange 17 assuming much of the thrust load. As a result, the edge portion 18 of the flange 17 adequately controls and opposes any tendency which the end 19 of the arm may have, to spread.

A modification of the invention is shown in Figs. 4, 5 and 6. Referring to Fig. 4, the pick head 20 has a handle-receiving socket 21 and arms 22 one of which is shown as having a tapered socket 23 extending from the end 24 of the arm inwardly toward the handle-receiving socket 21.

The tapered socket 23 is of circular cross-section, as shown in Fig. 5, and receives a taper 25 also of circular cross-section, the taper having a pointed bit 26.

Around the base of the taper 25 the bit 26 has a circular flange 27 having an edge portion 28 which projects axially in the direction of the taper 25.

Preferably the face of the flange 27 is made concave, so as to form an annular groove in the flange. The end 24 of the arm 22 is provided with a convex end portion which fits and nests into the flange 27, and the latter is so located with respect to the taper 25 that, as mentioned above, the flange assumes a substantial part of the thrust load transmitted by the bit 26.

For the purpose of preventing the bit 26 from turning out of its operative position, the arm 22 is provided with a pin 29 extending transversely across the bottom of the socket 23 and anchored in the arm, and the end of the taper 25 is bifurcated to accommodate the pin 29. Thus, engagement of the bifurcated portion of the taper with the pin 29 prevents turning of the bit.

Removal of the bit 26 from the arm 22 is accomplished in a manner similar to that already described in connection with Figs. 1, 2 and 3, a

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few sharp raps on the bit laterally thereof being generally sufficient to loosen the taper 25 from the socket 23 so that the bit may be pulled away from the arm.

The invention is not to be limited to the specific pointed bits shown in Figs. 1 and 4, since bits having other types of working surfaces may be employed with the taper and flange structure of the invention. For instance, as shown in Fig. 7, a tamping bit 30 may be used with the pick head 20, the bit 30 having a taper 31 and flange 32 similar to the taper and flange of the bit 26.

Variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

I claim:

1. In a pick structure or the like, a head part; and a bit part attachable to and removable from the head part, one of said parts at its end having a tapered socket having a convex end surface therearound and the other part having a taper portion extending into the said socket, the part with the taper portion having, completely around the base of the taper portion, a flange having an outer edge portion projecting axially in the direction of the taper portion and an inner edge merging with said taper portion, the said flange embracing and nesting the end of the socket and holding the end against spreading.

2. In a pick structure or the like, a head having a tapered bore extending inwardly from one end; and a pick point attachable to and removable from the head, said point having a taper portion extending into the bore of the head, and having a flange completely around the base of the taper portion, the said flange having a concave surface merging with the taper portion and embracing the end of the head, and the said end of the head around the socket having a convex surface nesting in the flange and being held by the latter against spreading, the location of the flange being such that it assumes a substantial part of the thrust to which the pick point is subjected, and limits jamming of the said taper portion.

JOSEPH TOTH, Sr.

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