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A. SNIPE

3,268,259

COAL CUTTER PICKS

Filed March 7, 1963

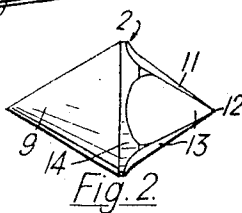
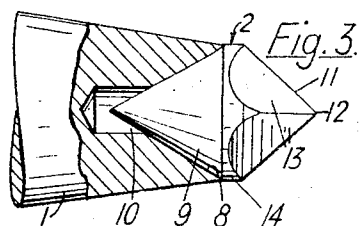
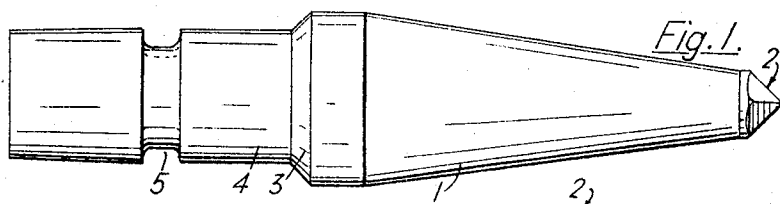


Fig. 2.

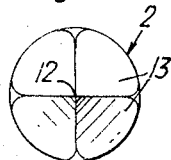


Fig. 4.

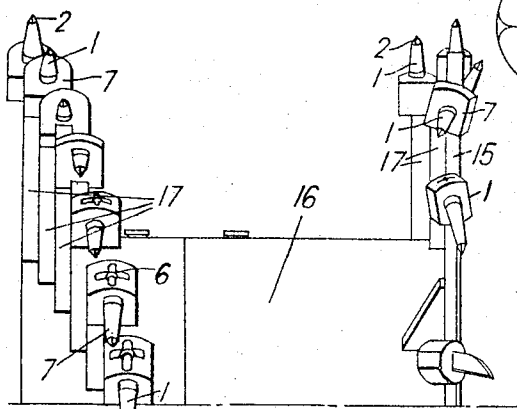


Fig. 5.

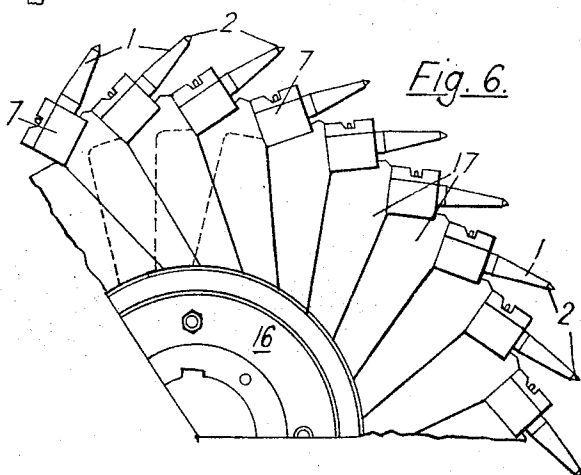


Fig. 6.

Inventor

Arthur Snipe
By *Waters, Cole, Lindley & Waters*
Attorneys

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COAL-CUTTER PICKS

Arthur Snipe, Doncaster, England, assignor to
Mining Supplies Limited

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16,105/62

2 Claims. (Cl. 299—91)

This invention relates to coal-cutter picks of the "point-attack" type, i.e., having a body protruding forwardly in line, or generally so, with a shank to be received in a mounting box on a rotary cutting head or drum, and having the body terminate in a tip of "hard metal" (usually tungsten carbide) pointing in the line of the body.

According to the present invention, a point-attack coal-cutter pick has a conical socket in the protruding end of its body, and a tip with a corresponding conical base secured in the socket.

When secured in the socket, as by the usual brazing, the tip is directly and uniformly supported by the steel of the body behind the whole surface of the socket, the conical formation of which centralises the transmission of thrust to the body from the tip that makes the actual attack upon the coal.

The included angle of the socket and the tip base is not critical in amount, but advantageously is in the range 60° to 110°.

The forward end of the tip may also be conical, but it may also be faceted, e.g., as a pyramid, the point of the tip being co-axial with the conical base. Again, its included angle is not critical in amount, but preferably it is 90° or substantially so.

A conical or pyramidal forward end on a pick having a cylindrical shank in line with the body is operative whatever the orientation of the shank in the cylindrical bore of a mounting box for the pick, so that the shank may be held in the box by a locking member driven transversely of the box to engage in a circumferential groove round the shank however the shank is oriented, when inserted into the box.

The invention will now be further described with reference to the accompanying drawings, in which:

FIGURE 1 is a side elevation of a tipped point-attack pick;

FIGURE 2 is a view, to a larger scale, of the tip alone of FIGURE 1;

FIGURE 3 shows the tip, viewed from above in FIGURE 2, with the end of the pick body in section;

FIGURE 4 shows the tip as seen from the right of FIGURE 3;

FIGURE 5 is a side elevation of one-half of a coal-cutter head showing picks mounted round an end disc of the head and also round a helix of the head; and

FIGURE 6 is an end elevation of part of the head of FIGURE 5 as seen from the left.

FIGURE 1 shows a pick body 1 tapering to a tip 2 from a shoulder 3 at one end of a cylindrical shank 4 having a circumferential groove 5 for engagement by a locking member 6 (FIGURES 5 and 6) by which the shoulder 3 can be drawn to one end of a mounting box 7 into which the shank 4 is inserted.

The end of the body 1 has a conical socket 8, here shown as of 60° included angle, to receive the correspondingly conical base 9 of the tungsten carbide tip 2. A small pilot hole 10 in the socket 8 receives the pointed end of the base 9 and this ensures that the conical end 9 of the tip beds accurately into the socket, so that when it

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is brazed to the body 1 in the usual way it is firmly supported, co-axially with the body. The thrust applied along the body 1 to drive the tip is thus transmitted all round the conical base 9 from the surface of the socket 8, and thence into the protruding end 11 of the tip.

The point 12 of the end 11 is co-axial with the body 1, and is formed as the apex of a pyramid produced by four facets 13 extending from a short cylindrical part 14 of the tip immediately outside the body 1. The part 14 forms a protective rim for the end of the body 1 immediately behind it against the direct abrasive action of the coal into which the tip is driven. The part 14 may indeed be widened to a greater diameter than the mouth of the socket 8, to assist this protective action.

FIGURES 5 and 6 show the point-attack pick bodies 1 protruding forwardly from the mounting boxes 7 secured in appropriate positions to the end disc 15 of a coal-cutter head 16 and to plates 17 overlapping to form a helix along the head 16. At the disc 15, the pick bodies may protrude to one side or the other of the disc or in the plane of the disc; round the helix plates 17 the bodies are shown protruding in the planes of the plates. Whatever the direction of protrusion, the tips 2 receive cutting thrust applied lengthwise of the bodies, so that the tips are powerfully supported in applying their cutting action.

What I claim is:

1. A point-attack coal-cutter pick comprising a shank and integrally therewith a lengthwise extending body formed at its end remote from the shank with a co-axial conical socket having an included angle in the range of substantially 60° to 110°, and a hard tip having a conical base of corresponding included angle for transmission of the working thrust between said socket and said tip, said tip being brazed co-axially in the socket and having a forwardly protruding point co-axial with the pick body, said tip occupying the entire frontal area of the forward end of the body.

2. A point-attack coal-cutter pick comprising a shank and integrally therewith a lengthwise extending body of conical form tapering to a forward end remote from the shank, the body being formed at its forward end with a co-axial conical socket having an included angle in the range of substantially 60° to 110°, and a hard tip having a conical base of corresponding included angle for transmission of the working thrust between said socket and said tip, said tip being brazed co-axially in the socket and having a cylindrical rim and a forwardly protruding point co-axial with the pick body, said rim being formed between said base and said point of the tip, and having substantially the same diameter as the forward end of the body so that the tip occupies the entire frontal area of the forward end of the body.

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ERNEST R. PURSER, *Primary Examiner*.

BENJAMIN HERSH, CHARLES E. O'CONNELL,
Examiners.