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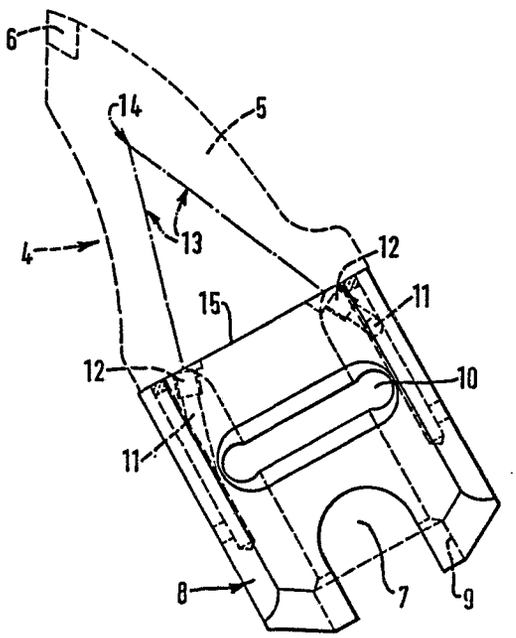
(54) Mineral cutting picks.

(57) The invention provides a method of, apparatus for, flushing with water a mineral cutter pick of the kind having a head (5) terminated with a hard cutting tip (6), in which one or more jets of water (13) are directed from nozzles (12) in the pick holder (8) at the pick at an acute angle to the head of the pick so that the water strikes (14) the pick head and is carried forward over the surface of the pick head by its own momentum into the vicinity of the cutting tip.



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TITLE: MINERAL CUTTING PICKS

Description:

The invention relates to mineral cutting picks more particularly, but not exclusively, for mining coal.

To suppress dust and sparking it is well known to spray water into the vicinity of the picks during use and it is also known either to spray the water from the picks themselves or from jets positioned adjacent to the picks. It is further known to provide water sprays comprising multiple jets.

It is an object of the invention to provide an improved method of suppressing dust and/or sparking during use of mineral cutter picks and from another aspect it is an object of the invention to provide means for carrying out the improved method.

According to the invention there is provided a method of flushing a mineral cutter pick, of the kind having a head terminated with a hard cutting tip, with water, comprising directing one or more jets of water at the pick at an acute angle to the head of the pick so that the water strikes the pick head and is carried forward over the surface of the pick head by its own momentum into the vicinity of the cutting tip.

Preferably the jet or jets of water strike the head near to the cutting tip. Preferably the jets

are arranged in pairs disposed in front of, or behind, the pick head the jets in each pair being directed such that they strike the opposite sides of the pick head Advantageously two pairs of the jets are provided, one pair in front of and the other pair behind the pick head, the arrangement being such that the two jets on each side of the head are angled towards one another so that they meet substantially at the position at which they strike the pick head. Advantageously the jets are arranged in two pairs, one pair being disposed on each side of the pick head. In this manner substantially the whole of the cutting tip can be flushed with water.

From another aspect the invention provides means for carrying out the method described above. Preferably the flushing water is carried through a holder in which the cutting pick to be flushed is arranged to be mounted for use and the holder is formed with water outlets which form the water into the required jets. The water outlets are preferably disposed in the top of the holder. The top of the holder may be substantially rectangular and the holder may be formed with a substantially centrally disposed socket for retaining the shank of the mineral cutting pick. The water outlets may be positioned at or near each corner of the top of the holder so that they are substantially equally disposed about a pick mounted in the holder.

From yet another aspect the invention is a holder for a mineral cutting pick comprising flushing means as described above.

From still another aspect the invention is a combination of a pick holder as described above and a pick mounted therein.

The invention is diagrammatically illustrated, by way of example, in the accompanying drawings, in which:

Figure 1 is a front view of a mineral cutting pick mounted in a holder formed with means for flushing the cutting tip of the pick with water;

Figure 2 is a side view of the combination of pick and holder of Figure 1; and

Figure 3 is a top view of the combination of Figures 1 and 2.

In the drawings there is shown a coal cutter pick 4 mounted in a holder or pick box 8 which is arranged to be mounted on a mineral mining machine for example a disc or shearer drum e.g. by welding. The pick 4 comprises in conventional fashion a blade 5 terminated by a hard cutting insert 6 usually of tungsten carbide and a shank 7 of rectangular section which is disposed in a correspondingly shaped rectangular socket 9 in the holder 8. The pick 4 is retained in the holder 8 by means of a latching mechanism generally indicated at 10 which may be of any suitable kind.

The holder 8 is formed in its interior with bores

11 through which water is transmitted to jets 12 disposed in the upper face 15 of the holder, and the jets 12 are arranged so that the water issues in streams generally indicated at 13. As can be seen in the drawings the jets are arranged in two pairs, one pair being disposed on each side of the blade of the cutting pick and the jets in each pair are arranged so that the streams of water 13 converge and meet at a position 14, this also being the position at which the two streams 13 strike the pick blade. As best can be seen in Figures 2 and 3 of the drawings the angle at which the streams of water strike the pick blade is acute so that the water is impelled by its own momentum and by surface tension to travel over the surface of the blade into the vicinity of the cutting tip 6. By providing two jets on each side of the pick blade substantially the whole of the cutting tip is flushed and enveloped by water.

CLAIMS

1. A method of flushing a mineral cutter pick (4), of the kind having a head (5) terminated with a hard cutting tip (6), with water, characterised in that one or more jets (13) of water are directed at the pick (4) at an acute angle to the head (5) of the pick so that the water strikes the pick head (5) and is carried forward over the surface of the pick head (5) by its own momentum into the vicinity of the cutting tip (6).

2. A method as claimed in claim 1, in which the jet or jets (13) of water strike the head (5) near to the cutting tip (6).

3. A method as claimed in either of the preceding claims, in which there are several jets (13) arranged in pairs disposed in front of, or behind, the pick head (5), and the jets (13) in each pair are directed such that they strike the opposite sides of the pick head (5).

4. A method as claimed in any of the preceding claims, in which there are two pairs of the jets (13), one pair in front of and the other pair behind the pick head (5), the arrangement being such that the two jets on each side of the head are angled towards one another so that they meet substantially at the position at which they strike the pick head.

5. Apparatus for carrying out a mineral cutter pick flushing method as claimed in any of the preceding claims, which apparatus includes a holder (8), in which the cutting pick (4) to be flushed is arranged to be mounted for use, and wherein the holder (8) is constructed with water outlets (12) which form the water into the required jets (13).

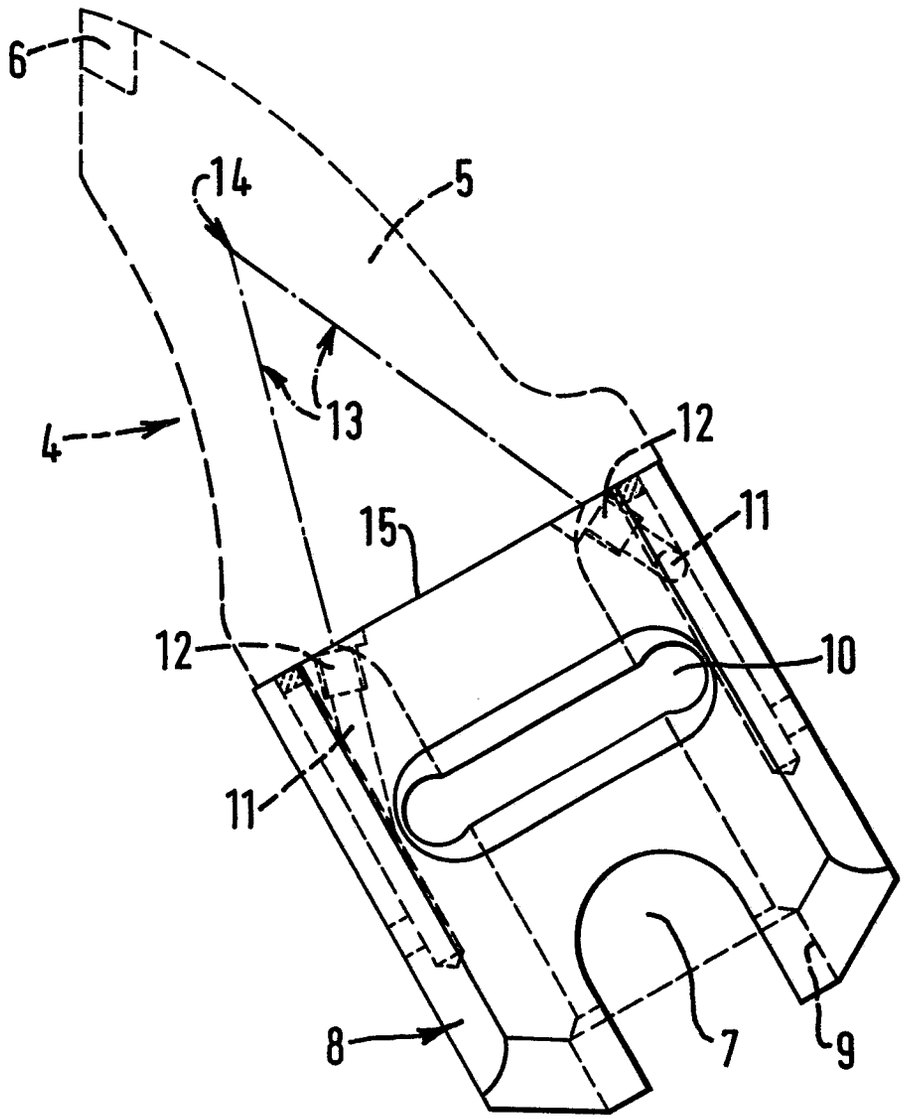
6. Apparatus as claimed in claim 5, wherein the water outlets (12) are disposed in the top of the holder (8).

7. Apparatus as claimed in claim 6, wherein the top of the holder (8) is substantially rectangular, the holder is formed with a substantially centrally disposed socket (9) for retaining the shank of the mineral cutting pick (4), and the water outlets (12) are positioned at or near each corner of the top of the holder (8) so that they are substantially equally disposed about a pick mounted in the holder.

8. A holder for a mineral cutting pick having flushing means as defined in any of claims 5 to 8.

9. A combination of a pick holder as defined in claim 8 together with a pick mounted therein.

FIG. 1.



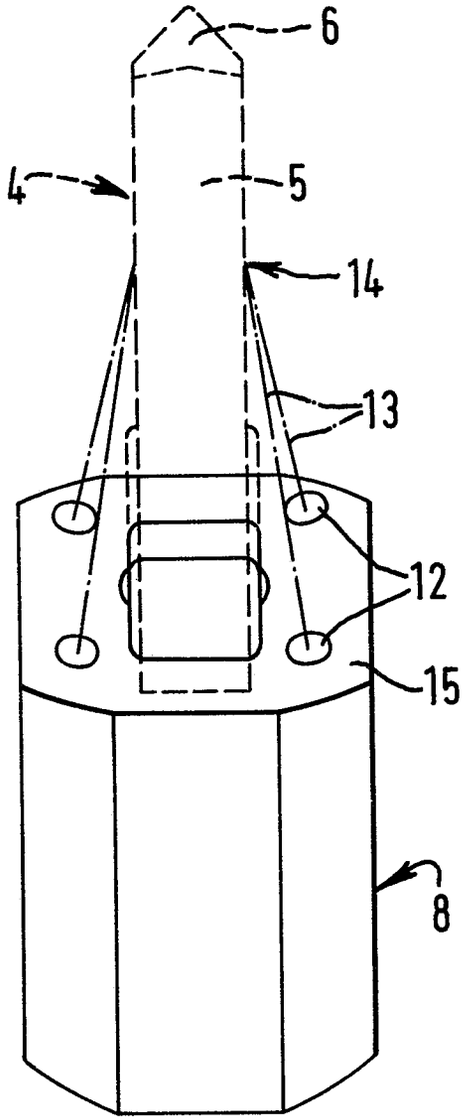


FIG. 2.

FIG. 3.