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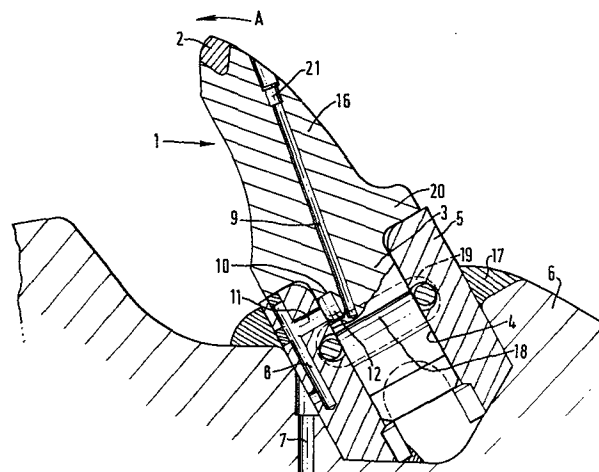
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**Improvements in or relating to mineral cutter tools.**

(57)

A mineral cutter pick adapted to be mounted on a mineral mining machine and to cut during translational movement in an endless path thereon which pick comprises a body having a parallel sided shank of rectangular cross-section for accommodation in a corresponding shaped recess on a support on a mineral cutting machine to mount the pick on the machine the body having a forward end carrying a cutting tip and said body having a passage therethrough for liquid which leads from an inlet in a wall of the shank to at least one liquid outlet adjacent to the cutting tip, the shank being formed with a recess for accommodating a latch for securing the pick to its support, the arrangement being such that the liquid inlet in the pick shank is disposed between the latching recess and the forward end.



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TITLE: IMPROVEMENTS IN OR RELATING TO MINERAL CUTTER  
TOOLS

DESCRIPTION

The invention relates to mineral cutter tools and more particularly but not exclusively to coal cutter picks of the kind adapted to be mounted on coal cutting machinery such as disc shearer drums, road heading machines  
5 or cutter chains.

It is now common practice in underground mining to provide water sprays close to the point of contact of the pick and the material being cut to suppress the formation of dust and to prevent sparking. It is known  
10 for the water spray to be supplied via a passage extending through the body of the pick and such arrangements are described in GB Patent Specification No. 1144340 of Austin Hoy & Company Limited and U.S. Patent Specification No. 3273940 of Charbonnages De France. Since it is  
15 usual for the pick to be replaceable most designs currently in use rely on some form of mechanical water seal, e.g. a rubber O-ring between the pick and its support to prevent, as far as possible, the escape of water other than through the passage leading to the  
20 water spray outlet.

The arrangements described in GB Patent Specification No. 1144340 necessitate the use of a wide pick body and consequently a wide cutter tip is required to cut clearance for the body. In some mining conditions  
25 wide cutter tips are undesirable and accordingly it is an object of the invention to provide an arrangement which permits the use of narrow cutter tips.

A serious disadvantage of known mineral cutter tools incorporating internal passages through which  
30 water is supplied to the cutter tip is that if the water outlet in the pick body becomes obstructed and the water pressure is maintained, there is a danger that the build up of water pressure will tend to force the tool from its support, which would reduce the efficiency of the mining  
35 machine and which could also constitute a hazard to safety.

It is an object of the invention to provide an arrangement in which this danger is obviated.

5 In GB 1062041 of Coal Industry (Patents) Limited it has been proposed to provide a mining cutter tool having a tapered rectangular shank which is secured in position in its holder by means of a wedge, the front face of the tool shank being formed near to its end with a bore through which water is fed to the cutting face of the tool and a resilient sealing ring surrounding the bore to  
10 seal the bore against the holder.

The invention provides a mineral cutter pick adapted to be mounted on a mineral mining machine and to cut during translational movement in an endless path thereon which pick comprises a body having a parallel sided shank of  
15 rectangular cross-section for accommodation in a corresponding shaped recess on a support on a mineral cutting machine to mount the pick on the machine, the body having a forward end carrying a cutting tip and said body having a passage therethrough for liquid which leads  
20 from an inlet in a wall of the shank to at least one liquid outlet adjacent to the cutting tip, the shank being formed with a recess for accommodating a latch for securing the pick to its support, the arrangement being such that the liquid inlet in the pick shank is disposed  
25 between the latching recess and the forward end.

Preferably, the inlet in the pick shank accommodates a resilient sealing member, e.g. of neoprene which provides a seal between a corresponding water passage opening into the socket and the pick shank, but whereas one might  
30 expect the mating passages in the socket and in the pick shank to be positioned such that they are forced together during use by the cutting forces e.g. in the position shown in GB 1062041, we prefer to position the liquid inlet high up on the front face of the pick shank  
35 (considered in the cutting direction of the pick) to keep

the water passage through the pick as short as possible to avoid unnecessarily weakening the pick shank. The resilient sealing member preferably comprises a cylindrical portion formed at one end with an outwardly extending part spherical portion, the sealing member being pierced by an axial bore. The inlet in the pick shank preferably communicates with a longitudinally extending passage in the pick shank which emerges in the vicinity of the cutting tip. For example the passage may be arranged to emerge from the pick body immediately behind the cutting tip: If desired the longitudinally extending passage may be terminated by a member, e.g. of plastics, which forms the liquid into a jet or spray.

From another aspect the invention comprises the combination of a mineral cutter pick as described above and a holder therefor.

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

Figure 1 is a cross-sectional side elevation of a mineral cutter pick in accordance with the invention, mounted in a holder on the face disc of a shearer drum mineral mining machine, and

Figure 2 is a side view of a resilient sealing member.

In the drawings there is shown a semi-forward attack coal cutter pick 1 comprising a body formed at its forward end 16 with a cutting tip 2 of a hard material such as tungsten carbide, the body being formed with a parallel sided rectangular section shank 3 arranged for reception in a correspondingly shaped socket 4 in a support 5 welded at 17 to the vane 6 of a mineral shearer drum (not shown). The pick 1 is held in the socket 4 by a latching retainer generally indicated at 19, and as described in GB Patent Specification No. 1373655 of Austin Hoy & Company Limited, and for this purpose the opposite side faces of the pick shank are formed with transverse latching recesses 18.

A water conduit 7 is provided extending through the vane 6 of the mineral shearer drum, the conduit connecting with a conduit 8 which extends longitudinally through the holder 5 and connects with a transverse bore 11 which emerges into the socket 4 at a position near the top of the socket and in the front wall thereof, considered in the cutting direction of the pick indicated by the arrow A. The mineral cutter pick 1 is formed with a transversely extending bore 10 in its shank 3 at a position between the latching recess 18 and the forward end 16 of the pick, which bore 10 aligns with the bore 11 in the holder when the pick is fully inserted in the socket so that shoulders 20 on the forward end 16 abut the holder 5. The bore 10 connects with a longitudinally extending bore 9 in the pick which extends forwardly into the vicinity of the cutting tip 2 and emerges from the body of the pick behind the cutting tip 2, again considered in its direction of cutting. The bore 10 is relatively large compared with the bore 11 to facilitate alignment therewith and also to accommodate a resilient neoprene sealing member 12 which comprises a cylindrical portion snugly received in the bore 10 and a part spherical end portion 14 which seals against the wall of the socket 4, the sealing member 12 being formed with an axial bore 15 through which the liquid passes between the bore 11 in the holder and the bore 10 in the pick.

The outer end of the bore 9 is provided with a nozzle 21 so that liquid issuing therefrom is formed into a jet or spray as desired.

CLAIMS

1. A mineral cutter pick adapted to be mounted on a mineral mining machine and to cut during translational movement in an endless path thereon which pick comprises a body having a parallel sided shank of rectangular cross-section for accommodation in a corresponding shaped recess on a support on a mineral cutting machine to mount the pick on the machine the body having a forward end carrying a cutting tip and said body having a passage therethrough for liquid which leads from an inlet in a wall of the shank to at least one liquid outlet adjacent to the cutting tip, the shank being formed with a recess for accommodating a latch for securing the pick to its support, the arrangement being such that the liquid inlet in the pick shank is disposed between the latching recess and the forward end.

2. A mineral cutter pick according to claim 1, wherein the inlet in the pick shank is positioned on the front face thereof.

3. A mineral cutter pick according to claim 1 or claim 2, wherein the inlet in the pick shank accommodates a resilient sealing member which provides a seal between the wall of the socket and the pick shank.

4. A mineral cutter pick according to claim 3, wherein the resilient sealing member comprises a cylindrical portion arranged to be accommodated in the inlet and a part spherical portion adapted to seal against the wall of the socket in the holder, the sealing member being pierced by an axial bore.

5. A mineral cutter pick according to any preceding claim, wherein the liquid outlet is terminated by a member which forms the liquid into a jet or spray.

6. The combination of a mineral cutter pick according to any preceding claim and a holder therefor having a parallel sided rectangular section socket arranged snugly to receive the pick shank, a recess

intersecting the socket for accommodating latch means,  
and a liquid passage extending through the holder and  
emerging into the socket between the said latch  
accommodating recess and the top of the socket.

