Sept. 2, 1941. W. T. McCULLOUGH 2,254,747

CUTTER CHAIN

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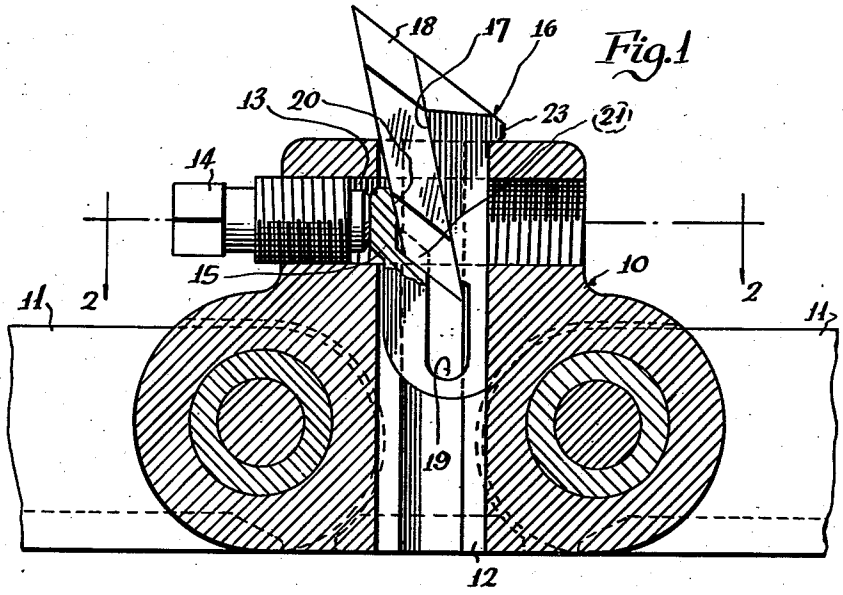


Fig. 1

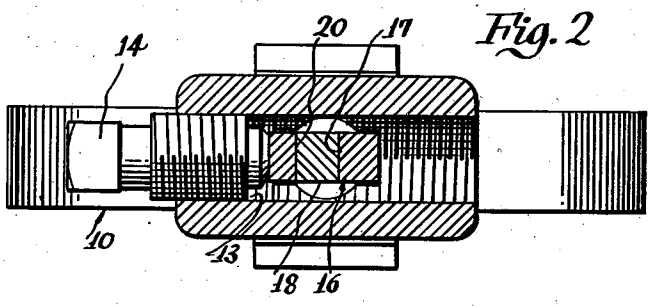


Fig. 2

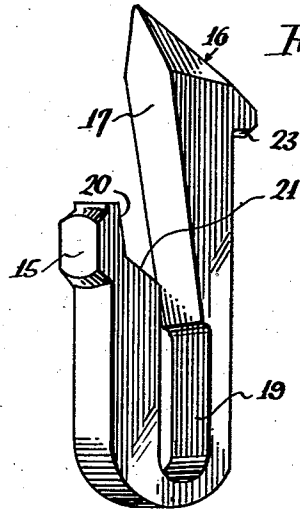


Fig. 3

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CUTTER CHAIN

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4 Claims. (Cl. 262—33)

This invention relates to improvements in cutter chains for kerf-cutting machines of the type adapted to cut coal in mines, and more particularly relates to a novel and improved form of holder for holding the cutting bit in the cutter chain block.

Heretofore, mining machine cutter chains have been provided with bits of the type which have cutting points at each end thereof and which are relatively short, so they can economically be thrown away when dull. Various types of holders have been provided for holding and adapting these bits for use in the standard form of cutter chain blocks, but difficulty has been encountered in providing a removable bit holder for holding the short throw-away cutter bits in the standard type of cutter chain, in such a manner that the holder will not be thrown or lost from the cutter chain block in cases where the bit is out of its bit holder and the chain continues to be driven about the cutter bar.

The principal objects of my invention are to provide a novel bit holder for cutter chain bits of the class described, so arranged as to hold the cutting bit in position in the cutter chain block at the required gauge, and also so arranged that the holder cannot be removed from the block except at the will of the operator.

Other objects of my invention will appear from time to time as the following specification proceeds and with reference to the accompanying drawing wherein:

Figure 1 is a longitudinal sectional view taken through a portion of a cutter chain, showing a bit holder constructed in accordance with my invention in position in the cutter chain block;

Figure 2 is a horizontal sectional view taken along line 2—2 of Figure 1; and

Figure 3 is an enlarged isometric view of the bit holder shown in Figures 1 and 2.

Referring now in particular to the drawing, a portion of a cutter chain for a mining machine is shown. The chain is of an ordinary construction and may be made up of a series of chain blocks 10, 10 pivotally connected together by a series of parallel spaced straps 11, 11. Said chain is driven by a sprocket (not shown) and is guided in a guide channel extending around a cutter bar (not shown), for cutting the coal as the cutter bar is sumped into the coal face and fed thereacross.

The chain block 10 is of a usual construction well known to those skilled in the art, and is provided with a bit receiving aperture 12 extending therethrough in a plane parallel to the plane of travel of said chain. Said bit receiving aperture is intersected by a threaded aperture 13 extending along said chain block in a direction parallel to the direction of travel of said chain. Said threaded aperture is adapted to have a set screw 14 threaded therein, the end of which is adapted to engage a projecting portion 15 of a bit holder 16, adapted to be detachably mounted within the aperture 12.

The bit holder 16 is provided with a forwardly facing abutting surface 17 and a forwardly spaced engaging surface 20. Said surfaces are inclined at the angle it is desired the cutter bit be positioned, and the space between said surfaces is adapted to receive a cutter bit 18 in such a manner that the forward and rear sides of said cutter bit will be abutted by said surfaces. Said bit holder is longitudinally slotted as indicated by reference character 19. Said slot opens to the surfaces 17 and 20 of said bit holder to form a generally U-shaped member, to permit one portion of said bit holder to be yieldably moved towards the other portion thereof, so the set screw 14 may hold said bit in said bit holder when in engagement with the projecting portion 15, and so said bit holder may also open to permit ready removal of the bit, when said set screw is backed away from said projection.

Said bit holder may be constructed from steel or any other suitable metal having enough resiliency to cause said bit holder to open when said set screw is backed away from said bit holder, to permit ready removal of the cutter bit from its holder and to cause the projecting portion 15 to extend into the aperture 13, to lock said bit holder in said chain block so it cannot accidentally be lost.

A V-shaped recessed portion 21 is provided just beneath the engaging surface 20 and is adapted to have the lower end of the bit rest thereon, to limit downward movement of said bit in said bit holder, to insure the setting of said bit to the proper gauge. The portion of said bit holder just behind the cutter bit is formed as a continuation of said bit so it may be cleared by said bit during cutting. Said portion is provided with a rearwardly projecting shouldered portion 23 adapted to engage the top surface of the cutter chain block. Said shouldered portion besides limiting downward movement of said bit holder with respect to said block also serves as an abutment against which said bit holder may react during cutting.

When it is desired to insert said bit holder in the cutter chain block 10, it is placed in the bit

receiving aperture 12 and the face 20 is drawn towards the face 17 by pressure on the top of said bit holder, to permit the projection 15 to pass through said slot and register with the threaded aperture 13, the resiliency of said bit holder locking said projection in registered engagement with said aperture, to lock said bit holder in said block. When said bit holder is so positioned in said block, the cutter chain bit may then be placed in position in said bit holder and firmly clamped in position therein by turning of the set screw 14 against the projection 15.

The bit holder may be removed from said cutter chain block by first backing the set screw 14 from the projecting portion 15 and removing the bit 18, and then tightening said set screw to compress said bit holder and permit the projecting portion 15 to clear the inner end of the aperture 13, so said bit holder may be drawn from said cutter chain block.

It may be seen from the foregoing that a simplified form of bit holder for a cutter chain bit of the throw-away type has been provided, which is so arranged as to permit the bit to be accurately set to the correct cutting gauge and positively hold said bit in said position, and which is also so arranged as to lock itself in the cutter chain block so it cannot accidentally be thrown from said block upon removal of the bit from said bit holder.

While I have herein shown and described one form in which my invention may be embodied, it will be understood that the construction thereof and the arrangement of the various parts may be altered without departing from the spirit and scope thereof. Furthermore, I do not wish to be construed as limiting my invention to the specific embodiment illustrated, excepting as it may be limited in the appended claims.

I claim as my invention:

1. A holder for holding a cutter bit in a cutter chain block, including a member adapted to fit in an aperture in a cutter chain block, said member being constructed from a yieldable metal and being slotted in a longitudinal direction to permit one side thereof to be yieldably drawn towards the opposite side thereof, for clamping a bit in the space between said sides, and the portion of said bit holder on one side of said slotted portion having a forwardly projecting portion adapted to be engaged by a set screw in said chain block and adapted to be engaged with the aperture in which said set screw is mounted by resiliency of said bit holder, to prevent the throwing of said bit holder from said chain block when said bit has been removed therefrom.

2. A holder for holding a cutter bit in a cutter chain block including a member adapted to fit in an aperture in a cutter chain block, said member being constructed from a yieldable metal and being slotted in a longitudinal direction to permit one side thereof to be yieldably drawn towards the opposite side thereof, one side of said slotted portion leading to an inclined surface adapted to be engaged by the rear surface of said bit and the other side of said slotted portion leading to an inclined bit engaging surface adapted to be engaged with the forward face of said bit, and a projection extending from the side of said bit holder opposite said bit engaging portion, said projection being adapted to be engaged with the aperture within which the set screw for the cutter chain block is threaded by the resiliency of said bit holder, and being adapted to be engaged by said set screw, to engage said engaging surface with the forward face of the cutter bit, to hold said bit in said bit holder.

3. In a cutter chain, a chain block, a cutter bit, an aperture in said block extending in a direction perpendicular to the plane of travel of said chain, a threaded aperture intersecting said first mentioned aperture, a set screw adapted to be threaded within said threaded aperture, and a bit holder for holding said bit in said first mentioned aperture, said bit holder being longitudinally slotted to permit one side thereof to be yieldably moved towards the opposite side thereof by said set screw and having an inclined surface adapted to be engaged by the rear face of said bit and an engaging surface adapted to be engaged with the forward face of said bit by said set screw, and a projection from said bit holder adapted to be engaged with the aperture for said set screw, to cause said bit holder to be held in said cutter chain block by resiliency of said bit holder.

4. A holder for holding a cutter bit in a cutter chain block, including a member adapted to fit in an aperture in a cutter chain block, said member being constructed from a yieldable metal and being slotted in a longitudinal direction to permit one side thereof to be yieldably drawn towards the opposite side thereof, for clamping a bit between said sides, and said member having a projecting portion adapted to be engaged with an apertured portion of said cutter chain block by resiliency of said member, to prevent the throwing of said member from said chain block when said bit has been removed therefrom.

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