C. L. KENTON.

MINING MACHINE CHAIN.

APPLICATION FILED MAY 3, 1920.

1,435,309. Patented Nov. 14, 1922.

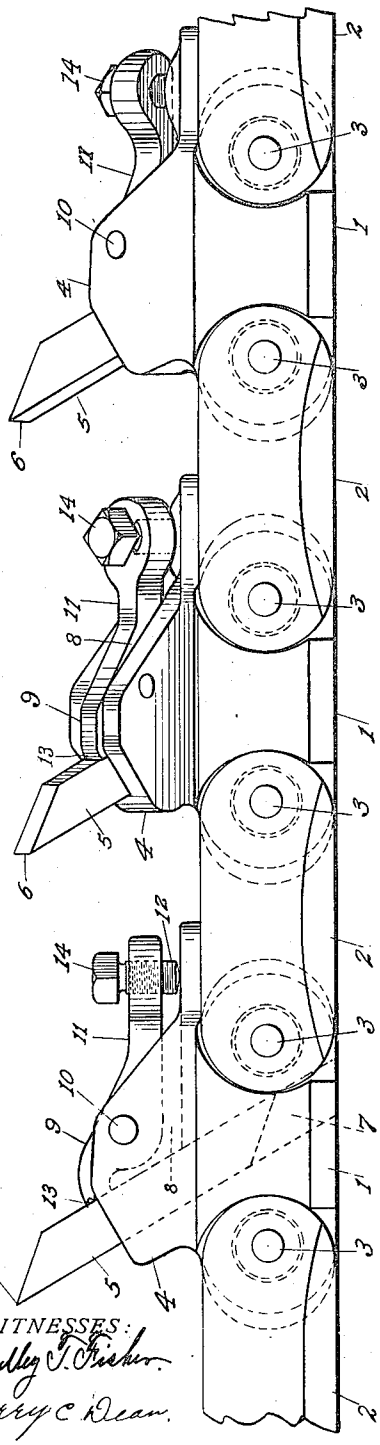


Fig. 1.

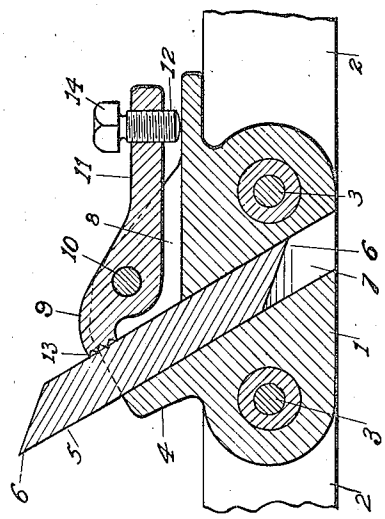


Fig. 3.

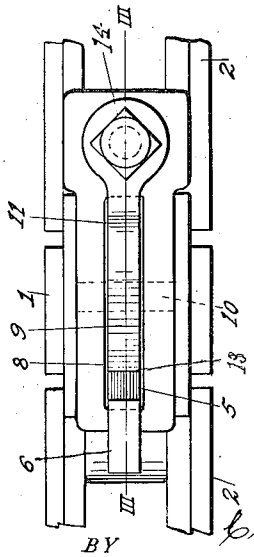


Fig. 2.

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UNITED STATES PATENT OFFICE.

CLYDE L. KENTON, OF COLUMBUS, OHIO, ASSIGNOR TO THE JEFFREY MANUFACTURING COMPANY, OF COLUMBUS, OHIO, A CORPORATION OF OHIO.

MINING-MACHINE CHAIN.

Application filed May 3, 1920. Serial No. 378,518.

To all whom it may concern:

Be it known that I, CLYDE L. KENTON, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Mining-Machine Chains, of which the following is a specification, reference being had therein to the accompanying drawing.

The present invention relates to certain new and useful improvements in cutter chains for coal mining and other similar machines.

The especial object of this invention is to provide a chain of strong and simple construction comprising means for securely holding the renewable cutter bits during operation of the machine which will permit of expeditious and convenient replacement and adjustment of said bits.

The means by which I attain this object are fully set forth in the following specification and illustrated in the accompanying drawings of which—

Fig. 1 is a side elevation of a portion of a chain embodying my invention.

Fig. 2 is a plan view of the links shown in Fig. 1.

Fig. 3 is a longitudinal section taken along the line III—III of Fig. 2.

Like numerals refer to similar parts in the several figures.

In the mining of coal, as commonly practiced, kerfs are cut in the coal body to permit a sufficient distortion of the material adjacent said kerfs to dislodge fragments for transportation from the mine. The machines most commonly used for the formation of said kerfs are provided with cutting tools removably attached to suitable chains by the movement of which said tools are forced into the coal to cut it. Tools so used become dull, requiring renewals which occasion interruptions of the operation of the machine at more or less frequent intervals depending upon the character of the material being mined. I am aware that many devices have been proposed for attaching the cutter bits to mining machine chains which, while securely holding them in correct position during operation, will permit their quick and easy replacement and adjustment. However all such devices with which I am familiar possess certain inherent defects which it is the object of the present invention to overcome.

In the drawings I have illustrated a mining machine chain composed of a series of block links 1 connected by strap links 2 and pintles 3. The block links 1 are extended upwardly to form sockets 4 adapted to hold the cutter bits 5 in operative position in the manner well understood in the mining machine art. The cutter bits 5 are preferably straight pieces cut from steel bars of rectangular cross sections, the cut ends of which are inclined to produce the cutting edges 6, one at each end of the bit. The bits 5 are longitudinally slidable in apertures 7 of the sockets 4, which are proportioned to form a snug sliding fit adapted to hold the bits against angular displacement while permitting their convenient longitudinal adjustment. Formed in the upper part of the socket 4 is a slot 8 extending longitudinally of the link rearwardly from the aperture 7, and in this slot is mounted a grip jaw 9 adapted to rotation about its fulcrum pin 10. Formed integral with the jaw 9 is a rearwardly extending lever 11 which is pierced near its free end by a set screw 12 the point of which engages the upper surface of the block links 1. When the set screw 12 is screwed downwardly against the surface of the link the lever 11 is forced upwardly to press the jaw 9 into engagement with the cutter bits 5 to clamp it against longitudinal movement. Formed on the contacting face of the jaw 9 are teeth 13 adapted to bite into the metal of the bit to prevent its slipping over the surface of the jaw. The set screw 12 extends substantially at right angles to the length of the chain and is provided with the usual square head 14 adapted to be engaged by any suitable wrench. When it is desired to remove the cutter bits 5 from the chain it is only necessary to loosen the set screw 12 thereby permitting the depression of the lever arm 11 to withdraw the teeth 13 from contact with the bit leaving it free for longitudinal movement in the aperture 7. When a new bit has been placed, or the old one adjusted to the desired position, the set screw 12 may be again tightened to cause the jaw 9 to engage and securely clamp the bit in the desired position. The location and direction of the set screw 12

renders it readily accessible in all positions of the cutter chain, and the proportion of the lever 11 to the jaw 9 permits great clamping pressure to be applied to the bits without subjecting the set screw to excessive strains.

What I claim is:

1. In a cutter chain for mining machines, the combination with a block link having a transversely extending aperture, a cutter bit longitudinally movable in said aperture, a rotatable gripping device arranged to engage the bit to hold it against movement relative to the link, and a screw arranged to rotate the gripping device into bit engaging position.

2. In a cutter chain for mining machines, the combination with a block link having a transversely extending aperture, a cutter bit longitudinally movable in the aperture, a lever fulcrumed adjacent the aperture, a jaw formed on one arm of said lever, and a screw engaging the other arm of the lever to move the jaw into contact with said bit to hold it against movement relative to said link.

3. In a cutter chain for mining machines, the combination with a block link having a transversely extending aperture, a cutter bit longitudinally movable in the aperture, a screw adapted to secure said bit against movement relative to said link, and a lever interposed between said bit and said screw to multiply the effective pressure of the screw upon the bit.

In testimony whereof, I affix my signature, in the presence of two witnesses.

CLYDE L. KENTON.

Witnesses:
HARRY C. DEAN,
ANNA M. FENLON.