R. E. NOBLE.

CUTTER CHAIN.

APPLICATION FILED OCT. 14, 1907.

921,728.

Patented May 18, 1909.

Fig. 1

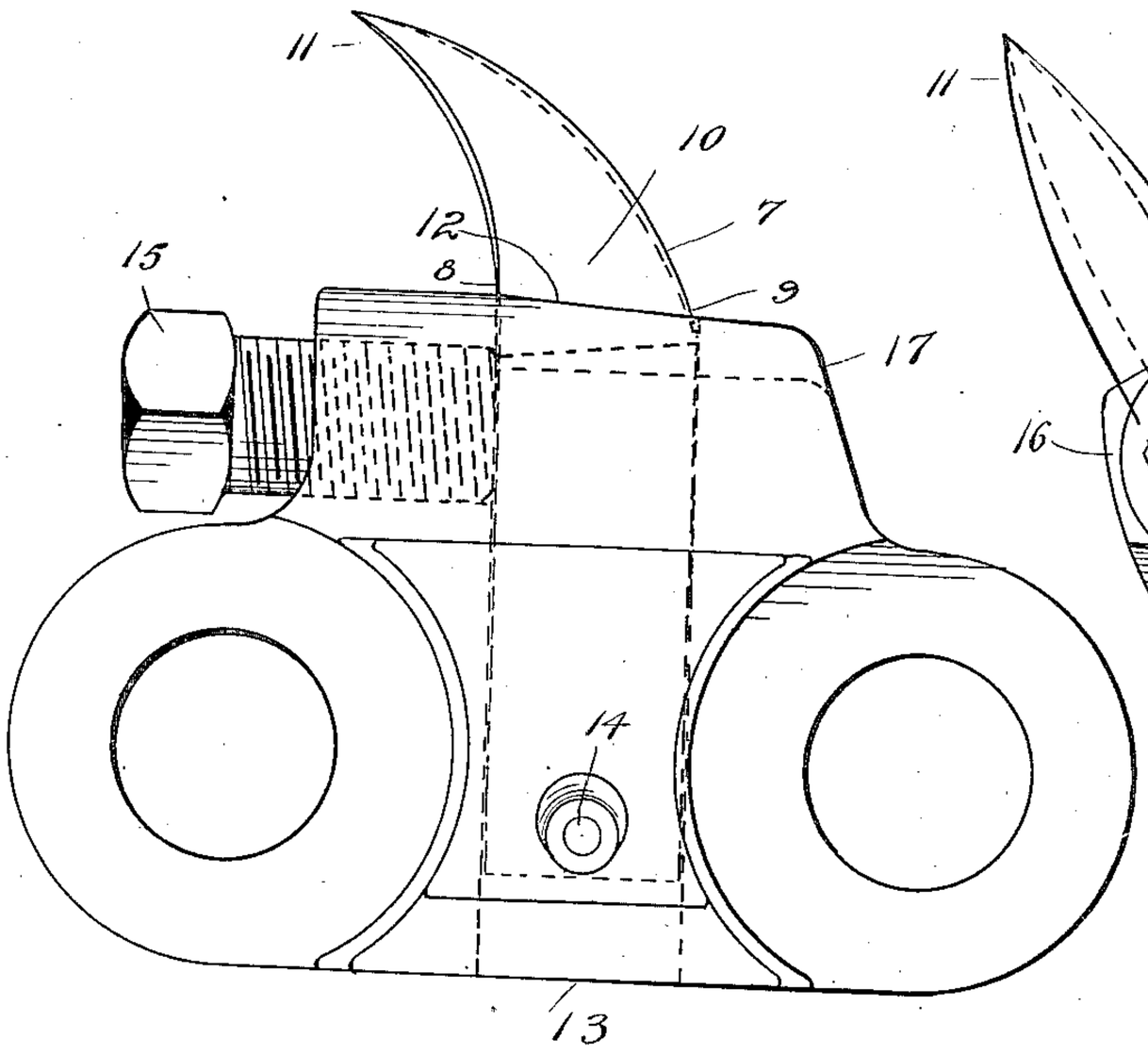


Fig. 2

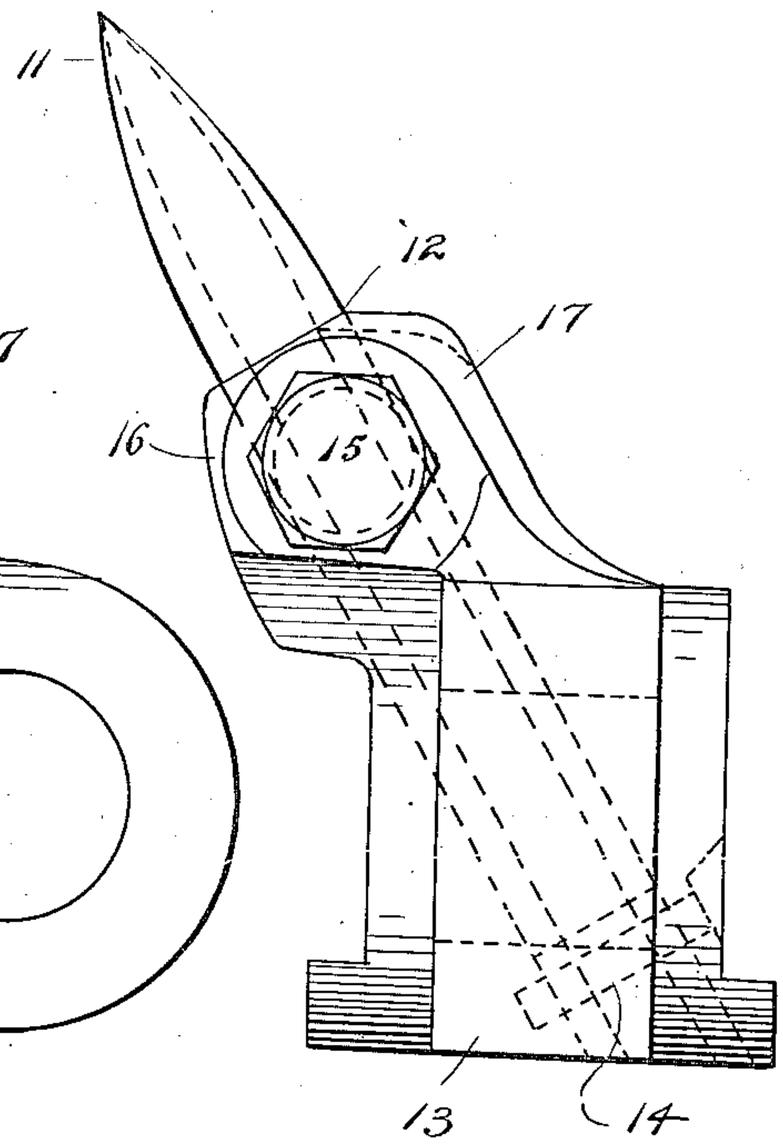


Fig. 3

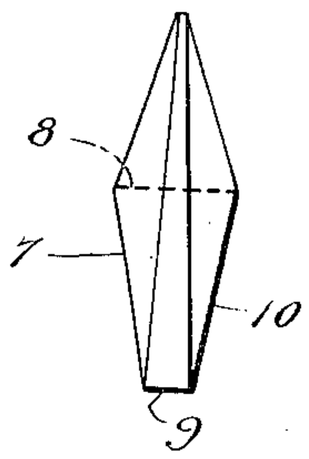


Fig. 4

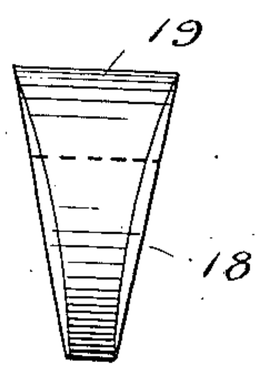


Fig. 5

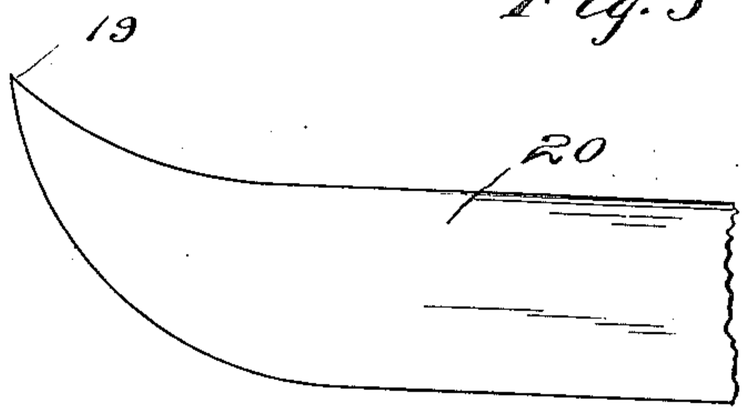
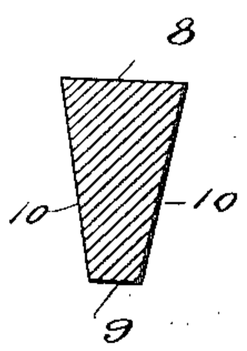


Fig. 6



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UNITED STATES PATENT OFFICE.

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CUTTER-CHAIN.

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Application filed October 14, 1907. Serial No. 397,348.

To all whom it may concern:

Be it known that I, RALPH E. NOBLE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cutter-Chains, of which the following is a specification.

This invention relates more particularly to the chains and bits used in mining machines for cutting coal or the like, and its objects are particularly to provide a novel form of bit which will obviate certain disadvantages in the bits heretofore used, which will be easily and economically constructed, and which will be effective in operation; and to combine said bit with a suitable link for holding the same, said link also containing certain improvements which will be pointed out hereinafter.

I have illustrated my invention in the accompanying drawings, in which:

Figure 1 represents a side-view of a link provided with a pick-point bit embodying this invention; Fig. 2 is an end-view of the same; Fig. 3 is an end-view of the bit shown in Figs. 1 and 2; Fig. 4 is an end-view of a chisel bit also embodying certain features of this invention; Fig. 5 is a side-view of the chisel bit; and Fig. 6 is a cross-section of the bit-shank.

Heretofore, mining machine bits have generally been made from stock of square or rectangular cross-section; but when such bits are forged or bent up to form a point, as shown in the drawings, there is a tendency to thicken the metal or cause it to bulge out along the sides of the bit adjacent to the cutting point or edge, and when in operation, these bulged sides will frequently bear against the wall which is being cut, to such an extent as to spring the bits or links, or to otherwise injure the cutting chain. In order to avoid this objection and to furnish sufficient clearance in cutting, I have devised the bit shown in the drawings, which not only has these advantages, but is stronger than the ordinary rectangular bit and requires less labor in sharpening.

As shown in the drawings, 7 represents a pick-point bit having a body or shank portion formed with two parallel faces 8 and 9 as indicated in Fig. 6, and with rearwardly inclined or converging sides 10 so arranged that the widest face 8 will be toward the front when the tool is in operative position. When the point 11 is formed, the inclined or converging sides 10 which recede from the front face 8, will clear the wall which is being cut, and there will be no tendency to crowd the bit out of cutting position or to spring the chain-links. This tapered form of shank or body furthermore assists in holding the bit firmly in position in the socket 12 in the link 13, this socket being preferably formed to correspond in shape with the shank of the bit, therefore, when pressure is exerted on the cutting point, there will be a tendency to wedge the bit firmly in the socket. The socket 12 is provided at one end with a pin 14 to prevent the shank of the bit from being forced too far through the link, and the bit is further held in position by means of a set-screw 15. The socket in the link 13 may of course be arranged so that the bits will project laterally in a plane passing through the center of the link, or obliquely thereto, as shown in the drawings. When the bit is arranged obliquely, I have found it preferable to have the point of the bit extend beyond the outer side 16 of the lug 17 which projects from the body of the link 13 to form a longer bearing for the bit and to receive the set-screw 15. The side 16 is also curved so that it will not engage with, or rub against the wall of the kerf cut by the chain.

Figs. 4 and 5 show a chisel-pointed bit when made from the same stock or with the same form of body as the bit above described, and this bit also has the advantages arising from being made from the tapered stock or with a tapered body. As shown in Fig. 4, it will be noted that the sides 18 adjacent to the cutting edge 19 of the bit 20, recede from such edge so that there will be no tendency toward rubbing on the kerf; consequently, the bit will cut a clear, sharp channel, with the least amount of power and without unnecessary friction on the walls and without injury to the cutter-chain. It will be noted that other changes in the exact shape or form of the bits may suggest themselves as coming within the scope of this invention, and therefore I do not wish to be limited to the exact forms of bits shown and described herein.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A bit for mining machines, having a

cutting portion curved outwardly and forwardly from the body portion, said body portion being tapered back from the front or cutting face and the cutting portion also converging backwardly from the cutting face.

2. In a cutter chain for mining machines, the combination of a bit tapered to form a cutting portion, this tapered portion of the bit being bent forwardly out of alinement with the main body of the bit, said bit being tapered backwardly in cross-section whereby the body of the bit recedes or narrows back from the cutting face, a chain link having a hole therein to receive the body portion of said bit, and means for holding said bit in position in said link.

3. A pick-point bit for mining machine chains, comprising a bar of metal having parallel faces and rearwardly converging sides; and having one end curved forwardly to form a relatively sharp cutting point, the sides also converging backwardly from said cutting point in order to give clearance for the cutting portion of the bit.

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