F. J. OAKES.

COAL CUTTING CHAIN.

APPLICATION FILED NOV. 18, 1919.

1,332,745.

Patented Mar. 2, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

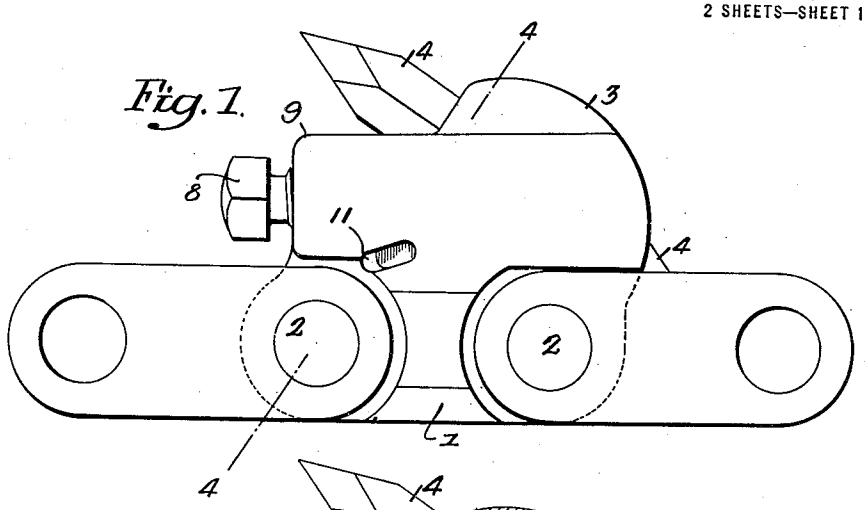


Fig. 2.

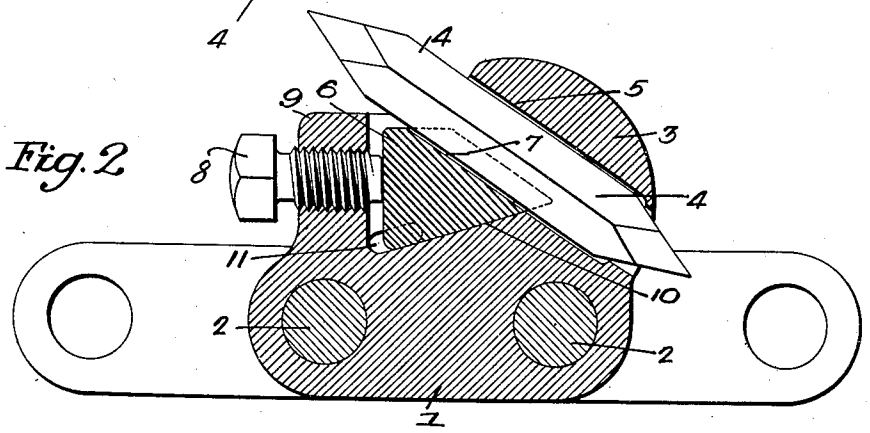
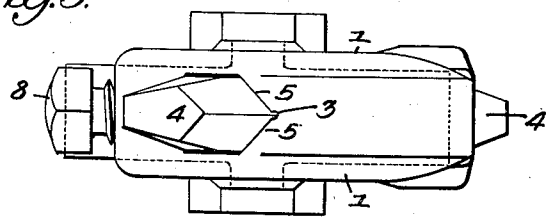


Fig. 3.



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by his Attorneys—

Simon & Simon

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2 SHEETS—SHEET 2.

Fig. 4.

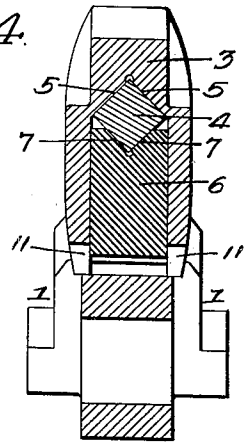


Fig. 5.

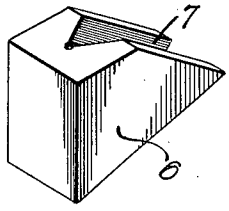


Fig. 6.

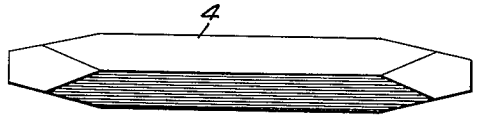


Fig. 7.

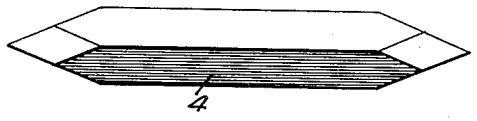


Fig. 8.

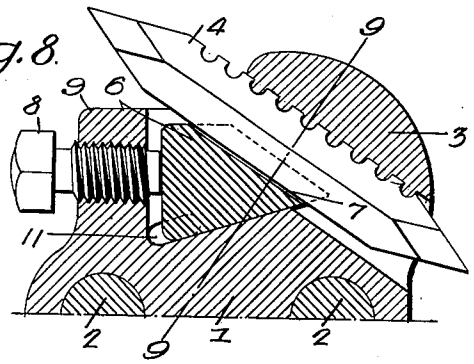
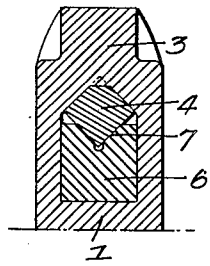


Fig. 9.



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by his Attorneys.
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UNITED STATES PATENT OFFICE.

FRANK J. OAKES, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO LINK-BELT COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

COAL-CUTTING CHAIN.

1,332,745. Specification of Letters Patent. Patented Mar. 2, 1920.

Application filed November 18, 1919. Serial No. 338,876.

To all whom it may concern:

Be it known that I, FRANK J. OAKES, a citizen of the United States, and a resident of Indianapolis, county of Marion, State of Indiana, have invented certain Improvements in Coal-Cutting Chains, of which the following is a specification.

My invention relates to certain improvements in a type of cutting chain, which consists of a series of links spaced apart having movable cutting bits, which are clamped to certain links of the chain.

My invention is an improvement on the construction illustrated in Patents No. 971,345, Sept. 27, 1910, and No. 1,078,082, Nov. 11, 1913, granted to C. N. Barton.

The object of the present invention is to provide means for clamping the bit to the link of the chain more rigidly than heretofore and to simplify the construction of the bit.

This object I attain in the following manner, reference being had to the accompanying drawings, in which:

Figure 1 is a side view of sufficient of a chain to illustrate the cutting bit in position;

Fig. 2 is a longitudinal sectional view;

Fig. 3 is a plan view;

Fig. 4 is a sectional view on the line 4—4, Fig. 1;

Fig. 5 is a perspective view of the clamp block;

Fig. 6 is a side view of a chisel edge cutting bit;

Fig. 7 is a side view of a pointed cutting bit;

Fig. 8 is a view illustrating a modification of the invention; and

Fig. 9 is a sectional view on the line 9—9, Fig. 8.

Referring to the drawings, 1 is a link of a chain having openings for the pivot pins 2, which connect the link to the other links of the chain. The links 1 are located at given intervals in the chain. In each link 1 is an inclined socket 3 for the reception of a cutting bit 4. The two sides of the fixed wall of the socket are arranged at an angle to each other, forming a V-shaped groove, and the bit 4 is rectangular in cross section so that two of its sides rest against the walls 5 of the socket. 6 is a sliding block having a V-shaped groove 7 in its bearing edge, the walls of the groove being at right angles to each other, in the present instance, so as to fit the other two sides of the bit 4, as clearly shown in Fig. 4. In order to force the block 6 firmly against the bit, I provide a set screw 8, which passes through a threaded opening in the portion 9 of the link, as clearly shown in Fig. 2. The block is adapted to an inclined way 10 forming an integral part of the link. The link is slotted at 11.

In making the bits rectangular in cross section and forming a V-shaped groove in the permanent wall of the socket and a V-shaped groove in the block, the bit will be held more firmly than heretofore, as all four sides of the bit are gripped. I find that I can dispense with recesses in the bit to be engaged by projections on the link, and, consequently, a plain bit, such as shown in Figs. 6 and 7, can be made, greatly reducing the cost of manufacture of these bits.

Furthermore, a bit made with teeth adapted to fit corresponding shapes in the socket must fit accurately in order to prevent chatter of the parts.

In Fig. 6, I have shown a bit rectangular in cross section, having a chisel point.

In Fig. 7, I have shown a bit having a sharp pick point.

By the above construction, the bit can be turned so as to bring any of the faces in line with the fixed walls of the socket and can be inverted end to end.

If it be desired to provide teeth on the socket to engage recesses in the bit, I may form the recesses on the edge of the bit, as clearly shown in Figs. 8 and 9, which will lock the bit in the position to which it is adjusted.

I claim:

1. The combination in a chain for mining machines, of a link having a socket therein, one wall of the socket being fixed and the other wall being movable, each wall having a V-shaped groove therein; a rectangular bit adapted to the socket; and means for forcing the movable wall of the socket against the bit to clamp it in contact with the fixed wall.

2. The combination in a chain for mining machines, of a link having an inclined socket therein, the fixed wall of the socket having a V-shaped groove; an adjustable block mounted in the socket and having a V-shaped bearing face; a rectangular bit adapted to the V-shaped groove of the socket

and the block; and a screw for forcing the block into contact with the bit.

3. The combination in a chain for mining machines, of a link having an inclined socket therein, the fixed wall of the socket having a V-shaped groove; a link having an inclined surface; a block arranged to slide on said inclined surface and having a V-groove in its clamping face so that a rectangular bit located in the socket will be clamped in the two V-shaped grooves; and means, back of the block, for forcing the block in contact with the wedge.

4. The combination in a chain for mining machines, of a link having an inclined socket therein, the fixed wall of the socket having a V-shaped groove, the link having an inclined surface; and a sliding block arranged to slide on said inclined surface and having projections on each side, the link being slotted to receive the projections, the clamp face of the block having a V-shaped groove therein so that a rectangular bit mounted in the socket will be clamped firmly therein; and a set screw extending through a portion of the link and bearing against the rear of the block.

FRANK J. OAKES.