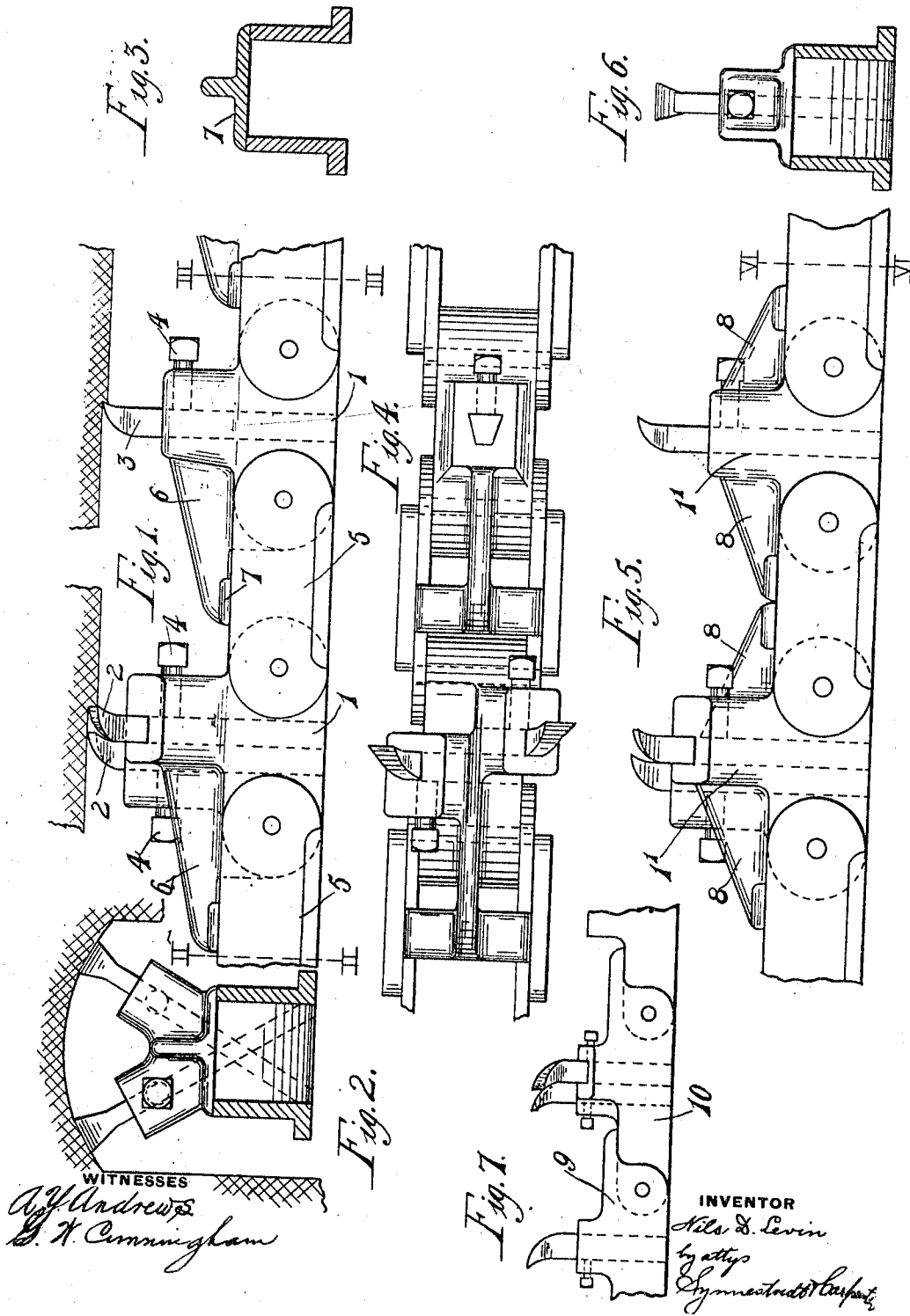


N. D. LEVIN.
CUTTER CHAIN.
APPLICATION FILED MAY 6, 1908.

945,335.

Patented Jan. 4, 1910.



UNITED STATES PATENT OFFICE.

NILS DAVID LEVIN, OF COLUMBUS, OHIO.

CUTTER-CHAIN.

945,335.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed May 6, 1908. Serial No. 431,154.

To all whom it may concern:

Be it known that I, NILS D. LEVIN, 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 Cutter-Chains, of which the following is a specification.

The invention relates to chains for supporting coal bits and similar cutting members. The invention has for its primary objects; the provision of improved means for preventing the bits from tilting backwardly during the cutting operation, and of means whereby the cutters may be held in a predetermined position relative to the material to be cut. One embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of the chain.
Figures 2 and 3 are sections on the lines II—II and III—III respectively of Figure 1.

Figure 4 is a plan view of the chain.
Figure 5 is a side elevation of a modified form of chain.

Figure 6 is a transverse section through Figure 5 on the line VI—VI, and
Figure 7 is a side elevation of another modified form of chain.

Referring first to the construction shown in Figures 1, 2, 3 and 4, 1—1 are the cutter supporting links or blocks, which blocks carry the bits or cutters 2—2 and 3, 4 are the set screws for holding the cutters in position, 5 are the side plates constituting the links intermediate the cutter supporting blocks 1, and 6 are bracing struts preferably made integral with the cutter blocks and extending rearwardly therefrom, which struts are provided with the transverse end pieces 7 for engaging the top of the adjacent links 5—5.

It will be seen that in the operation of the chain, the resistance of the material being cut tends to tilt the cutters 2—2 and 3 backwardly especially when an unusually hard body of material is encountered. In such backward tilting the block moves about a pivot-point located behind the cutter, which causes the bit to rise and dig into the coal and break. The purpose of the rearwardly extending struts 6 is to prevent this backward tilting of the cutters, and so insure

a more rapid and uniform reduction of the material operated upon, and prevent undue strain on the chain bits and other parts of the machine.

It will also be seen that by oppositely disposing certain of the cutters in pairs, each one of which is equidistant from the vertical axis of the cutter block, in combination with the bracing struts referred to, balances the chain in such a manner that not only is rearward but also sidewise tilting obviated, and the entire series of cutters held in a predetermined position relative to the material to be cut.

In Figures 5 and 6 a modified arrangement is shown wherein additional bracing struts 8 projecting from the front sides of the cutter blocks 1' are provided. The ends of both the forwardly and rearwardly extending struts are provided with cross pieces 7' corresponding to the members 7 in the other form of device, and in other respects the construction is similar to the construction of Figures 1, 2, 3 and 4.

In Figure 7 another modified arrangement is shown wherein the bracing strut 9, preferably made integral with the cutter block and extending rearwardly therefrom, rests upon the top of the following cutter block, 10.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent is the following:—

1. In combination in a cutter chain, a plurality of links, cutter blocks intermediate the links and having projecting portions extending out past the outer edges of the links, bracing struts on the projecting portions extending rearwardly therefrom and engaging the outer edges of the links, and cutters mounted in the cutter blocks.

2. The combination with a chain comprising blocks each carrying an outstanding cutter and pairs of opposing side bars constituting intermediate links, of bracing means for the cutter blocks comprising rearwardly extending struts with engaging portions at their rear ends in position to engage the outer sides of both of the opposite side bars.

3. The combination with a chain having cutter supporting links and pairs of opposing side bars constituting intermediate links,

of forwardly and rearwardly extending
bracing means on each cutter supporting
link with engaging portions at their ends
adapted to engage the upper sides of both
5 of the opposing side bars between their ends.

4. In combination in a cutter chain, bit
blocks, connecting links alternating with the
bit blocks pivotally jointed to the ends of the
blocks, bits in the blocks, between the piv-
10 otal connections thereof, and bracing means
independent of the joints extending from

the blocks to the tops of the connecting
links.

In testimony whereof I have hereunto
signed my name in the presence of the sub- 15
scribing witnesses.

NILS DAVID LEVIN.

Witnesses:

G. W. CUNNINGHAM,
ALEXANDER P. LINDSAY,
PAUL CARPENTER.