

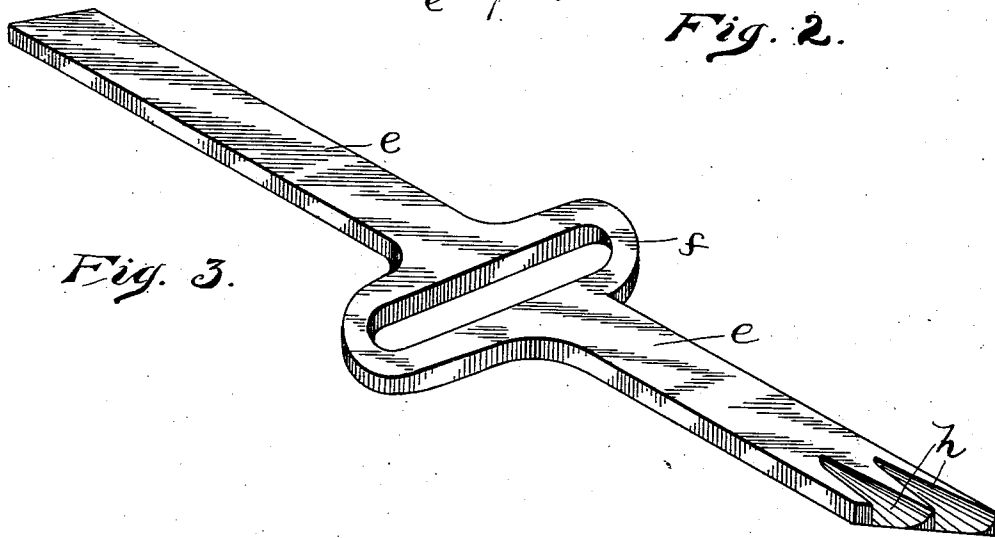
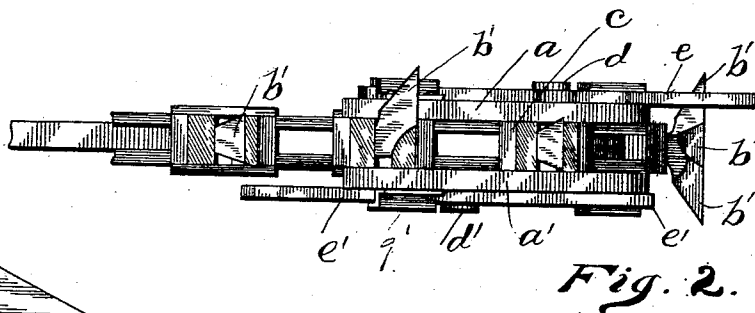
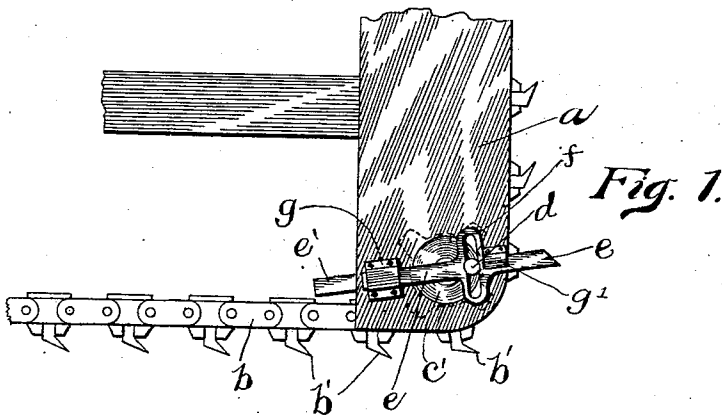
(No Model.)

W. H. SLADE.

HOLDING MECHANISM FOR MINING MACHINES.

No. 572,074

Patented Nov. 24, 1896.



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HOLDING MECHANISM FOR MINING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 572,074, dated November 24, 1896.

Application filed January 25, 1896. Serial No. 576,901. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. SLADE, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Holding Mechanisms for Mining-Machines, of which the following is a specification.

My invention relates to the improvement of mining-machines, and has particular relation to holding attachments therefor.

The objects of my invention are to provide the traveling frame of a chain-cutter mining-machine with an improved and superior holding device by means of which the machine-frame is held against lateral movement, to so construct and arrange the parts of my improved holding mechanism as to obviate the necessity of engaging the holder with the mineral wall outside of the plane of the kerf formed by the chain cutters, and to produce other improvements in details of construction and arrangement of parts, which will be more fully pointed out hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a portion of the forward end of a mining-machine frame. Fig. 2 is a side elevation of the same, and Fig. 3 is a detail view in perspective of one of my improved holding-bars.

Similar letters refer to similar parts throughout the several views.

a and a' represent, respectively, the upper and lower forward end plates of the traveling frame of a mining-machine, and b represents the cutter-chain, the latter being adapted to travel in the usual manner over sprocket-wheels c , journaled between the ends of said plates. The chain b has its alternate links provided with suitably-shaped cutting-tools b' , which are adapted in the usual manner to cut the kerf in the wall of coal or other material to be mined. Each of the sprocket-wheels c is provided with a hub or journal portion c' on its upper and lower sides, said hub portions being journaled in suitable openings formed in the plates a and a' . The outer faces of these hubs are provided, respectively, with short projecting pins d d' , said pins being arranged eccentrically on said hubs and

with reference to each other, being arranged on opposite sides of the centers of said hubs.

e and e' represent, respectively, upper and lower holding-bars, each of said bars being provided at a desirable point with a transverse link-shaped intersection f . The link of the upper bar e is adapted to receive loosely the upper pin d , while the link of the lower bar is adapted to receive in a similar manner the pin d' . Each of the bars e e' is arranged to pass loosely through suitable keepers or guides g g' , secured, respectively, to the upper and lower sides of the plates a a' . As indicated more clearly in Fig. 3 of the drawings, I preferably incline the outer end of each of the bars e e' , and this inclined end is reduced to an edge, from which extend inward inclined grooves, as indicated at h , thus forming a substantially gouge-shaped termination to the bar.

It will be observed that the length of the forward portion of each of the bars e e' , or that portion which is in front of its link, is such as to admit of its being projected beyond the extremities of the cutting-tools b' of the chains, and it is evident that these bars are at their extreme outer limit when the pins d d' are in the centers of the links and when said pins are in their most forward position, as illustrated, for instance, by the position of the upper holding-bar in the drawings.

For reasons hereinafter set forth the bars e e' are inclined slightly to positions at angles with the direction of the feed.

Owing to the relative arrangement and points of connection of the upper and lower bars e and e' with the sprocket-wheel hub ends it is evident that in the reciprocating motion which is imparted to said bars by the rotation of the sprocket-wheel one or the other of said bars must be in a position advanced beyond the line of cutters at all times. In carrying out my invention the chain cutting-tools are so arranged and the backward and forward movement of the holding-bars are effected at such times as to result in the upper holding-bar missing any conflict with the usual upwardly-projecting cutting-tools or the lower holding-bar missing conflict with the lower downward-extending cutting-tools, said bars being so arranged as to be in their

inner positions during the passage of these tools. In the above manner it is evident that during the cutting operation of the chain-tools one or the other of the holding-bars will
 5 be projected not only into the kerf produced by said cutting-tools, but into the coal beyond said kerf, said bar thus serving at all times to hold the machine against the lateral movement, which is ordinarily caused by the
 10 resistance which the coal-body offers to the cutting-tools.

The holding-bars being inclined, as shown, it is evident that the forward thrusts thereof into the coal-wall must not only result in an
 15 advancement of the position of said holders at each thrust thereof, but in a gradual cutting away of one side of the pocket produced by each of said bars, thereby providing mouths to said pockets sufficient to admit of
 20 the withdrawal of the coal-cuttings produced by the bars and preventing said cuttings becoming packed or driven into the pockets, as would necessarily result were the cutters arranged on straight lines with direction of the
 25 feed.

From the construction and operation which I have described it will be observed that simple, reliable, and effective means are provided for holding a mining-machine against
 30 lateral movement and that the necessity of producing an engagement of the holding-bars with the coal outside the plane of the kerf formed by the cutting-tools is entirely obviated.

35 The construction of my improved holding mechanism is such as to insure a positive operation and admit of its being constructed and employed at a low cost.

Having now fully described my invention, what I claim, and desire to secure by Letters
 40 Patent, is—

1. In a holding mechanism for mining-machines the combination with the traveling frame, a chain-cutter-carrying wheel journaled therein and holding-bars arranged on
 45 said frame respectively above and below the front end plate of the machine, and adapted to have imparted thereto alternate reciprocating motions, entirely within the plane of said endless chain cutter, substantially as and
 50 for the purpose specified.

2. In a holding mechanism for mining-machines the combination with the traveling frame and a cutter-chain-carrying wheel journaled therein and pins projecting eccentrically from the hubs of said wheel, of holding-bars having sliding bearings on said traveling frame and link-shaped intersections in
 55 said holding-bars adapted to receive said pins, substantially as and for the purpose 60 specified.

3. In a holding mechanism for mining-machines the combination with a traveling frame and a cutter-chain-carrying wheel journaled therein, of holding-bars having sliding bearings on said traveling frame and an eccentric connection with said wheel-hubs, said holding-bars being arranged in positions slightly inclined toward the direction of the cut to be made substantially as and for the purpose
 70 specified.

WILLIAM H. SLADE.

In presence of—

C. C. SHEPHERD,
 A. L. PHELPS.