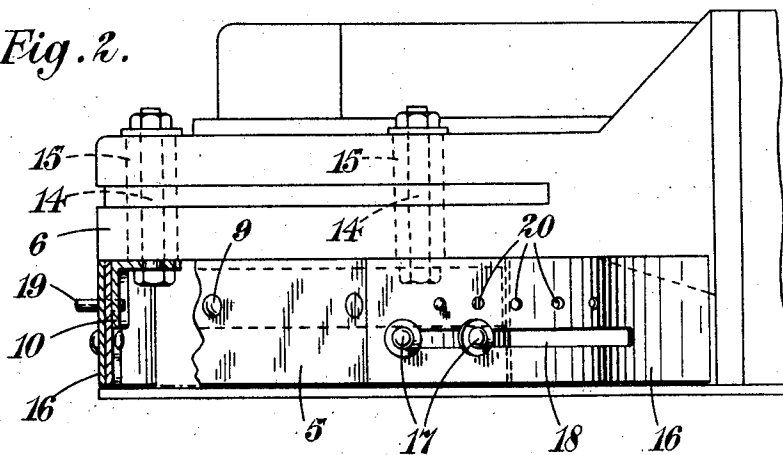


March 13, 1928.

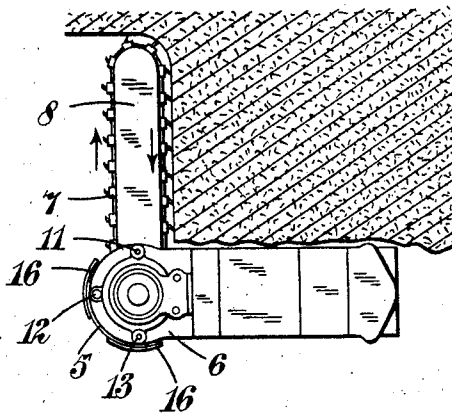
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G. RIMMER  
MINING MACHINE  
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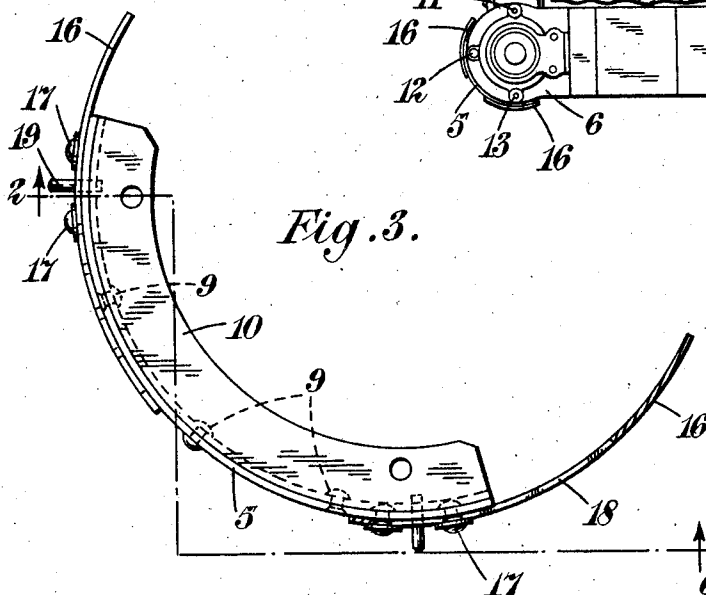
*Fig. 2.*



*Fig. 1.*



*Fig. 3.*



Inventor:  
Gilbert Rimmer.  
by Louis A. Mason.  
Att'y.

## UNITED STATES PATENT OFFICE.

GILBERT RIMMER, OF LONDON, ENGLAND, ASSIGNOR TO SULLIVAN MACHINERY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF MASSACHUSETTS.

## MINING MACHINE.

Application filed December 9, 1926, Serial No. 153,676, and in Great Britain August 6, 1926.

This invention relates to mining machines, such as coal-cutting machines, particularly of the jib-and-chain type in which an endless chain carrying picks or cutting tools is

5 mounted to travel round the margin of a pivoted jib. The invention is however also applicable to mining machines of the disc type in which the cutting tools are carried at the circumference of a rotatable disc. 55

10 In the operation of a machine of either of the above types the cutting tools remove a large proportion (upwards of 60%) of the cuttings from the cut or holing and consequently when a horizontal cut has been made 15 there is a tendency for the roof to sink down on to the floor and close the gap made by the passage of the machine. In some circumstances the uncontrolled collapse of the roof is undesirable and it is the object of 20 this invention to provide means for ensuring against the sinking of the roof after a cutting operation.

In accordance with this invention there is provided in a mining machine of the jib-and-chain type or of the disc type means for returning the cuttings, or a substantial proportion of the cuttings, removed from the cut or holing at the leading face of the jib or disc into the cut in rear of the following 25 face of the jib or disc. The cuttings which are returned into the cut provide a support for the roof and prevent it collapsing completely on to the floor. 30

In one form the invention provides a 35 guide-wall to extend round the heel of the jib or a portion of the disc and thereby form a compartment arranged at one end to receive the cuttings removed at the leading face of the machine and at the other end to direct 40 said cuttings back into the cut or holing.

According to a feature of the invention the aforesaid guide-wall is provided at one or at each end with an adjustable extension 45 piece by means of which the effective length of the wall may be varied.

An example of the invention as applied to a coal-cutting machine of the jib-and-chain type will now be described with reference to the accompanying drawings, in 50 which

diagrammatic) illustrating the machine in operation;

Figure 2 is an elevation (partly in section at the line 2—2, Figure 3) showing the 55 guide-plate attachment at the jib end of the machine, and

Figure 3 is a plan view of the attachment shown in Figure 2.

Like reference numerals indicate like parts 60 throughout the figures.

The attachment provided by the invention comprises a curved guide-plate 5 which is secured to the machine frame 6 at the jib end thereof. The plate 5 is of approxi- 65 mately semi-circular shape and is arranged to surround the cutter-chain 7 where the latter passes round the sprocket (not shown) at the inner end of the jib 8. The guide-plate 5 forms an enclosure adapted to receive 70 the cuttings from the cut at the leading face of the jib, and to guide said cuttings round the inner end of the jib and back into the cut. The cutter-chain 7 acts like a conveyor to move the cuttings through the en- 75 closure aforesaid.

The upper portion of the guide-plate 5 is attached by rivets 9 to the vertical flange of a right-angled bracket 10, the horizontal flange of which is bolted to the machine 80 frame 6. In the machine illustrated, which is a typical example of the jib-and-chain type, the jib 7 may be locked in any one of three alternative positions (i. e. in line with the longitudinal axis of the machine, or at 85 right angles thereto on the right or left of the machine) by the insertion of a locking pin in one of three holes 11, 12, 13 provided in the jib end of the machine frame. In the position which the jib occupies in Figures 90 1 and 2 of the drawings, the locking-pin (not shown) is inserted in the hole 11. The two locking-pin holes 12 and 13 which are not required for the purpose of locating the jib are employed to receive bolts 14 for secur- 95 ing the horizontal flange of the bracket 10 to the underside of the machine frame 6. In the illustrated example, the locking-pin holes are of larger diameter than the bolts 14, and in order to locate the bolts centrally 100 in the holes, bushings 15 are employed.

It will be understood that if the jib is to

be slewed from one side of the machine to the other, the guide-plate 5 must be disconnected (i. e. by removing the bolts 14) and attached to the frame in a different position appropriate to the new setting of the jib. If, for example, the jib were slewed from the position shown in Figure 1 through 180 degrees, the locking-pin hole 13 would then be employed for locating the jib, and the holes 11 and 12 would be used for securing the guide-plate attachment.

The guide-plate 5 is provided at each end with an adjustable extension-piece 16 for the purpose of varying the effective length of the plate and so varying the control imposed by the plate on the cuttings. The extension-piece 16, which is a plate having the same radius of curvature as the main guide-plate 5, is mounted to slide on the outer face of the latter. The extension-piece 16 is located on the main plate 5 by means of rivets 17, the stem portions of which pass through an elongated slot 18 in the extension-piece.

The slot 18 accommodates sliding movement of the extension-piece in the direction of the length of the main plate 5, and the extension-piece may be locked in any desired position of adjustment by means of a tapered pin 19 or like device inserted through one of a series of apertures 20 in the extension-piece and through registering apertures in the plate 5 and the vertical flange of the bracket 10. In practice it may be desirable to allow a small proportion of the cuttings to escape at one or each end of the guide-wall, and the necessary provision for this is made by the adjustable extension-pieces 16. In Figure 3, one of these extension-pieces is shown in section, for the sake of clearness.

While I have in this application specifically described one form which my invention may assume in practice, it will be understood that this form of the same is shown for purposes of illustration and that the invention may be modified and embodied in various other forms without departing from its spirit or the scope of the appended claims.

I claim:

1. In a mining machine of the type whose frame is slidable upon its bottom upon a mine bottom during cutting, a bottom engaging frame, a motor thereon, cutting mechanism actuated by said motor including a cutting member of the jib and chain type adapted to cut a horizontal kerf in the mine wall, and a guide wall supported on said frame and extending around the heel of the jib and forming a compartment arranged at one end to receive the cuttings removed at the leading face of the jib and at the other end to direct said cuttings back into the kerf in rear of the following face of the jib.

2. In a mining machine the combination of a cutting member of the jib and chain

type, a guide wall extending round the heel of the jib and forming a compartment arranged at one end to receive the cuttings removed at the leading face of the jib and at the other end to direct said cuttings back into the kerf in rear of the following face of the jib, and means for varying the effective length of the guide wall aforesaid.

3. In a mining machine the combination of a cutting member of the jib and chain type, a guide wall extending round the heel of the jib and forming a compartment arranged at one end to receive the cuttings removed at the leading face of the jib and at the other end to direct said cuttings back into the kerf, and an adjustable extension piece mounted at each end of the guide wall aforesaid and movable to vary the effective length of said wall.

4. In a mining machine of the type whose frame is slidable upon its bottom upon the mine bottom during cutting, a bottom engaging frame, a motor thereon, cutting mechanism actuated by the motor including a cutting member which in operation removes the cuttings from the kerf at the leading face of said member, and a guide wall supported on said frame and extending around a portion of the cutting member aforesaid and forming a compartment arranged at one end to receive cuttings removed as aforesaid at the leading face of the member and at the other end to direct said cuttings back into the kerf.

5. In a mining machine of the type whose frame is slidable on its bottom on the mine floor, the combination with a floor engaging frame, a motor thereon, and cutting mechanism actuated by said motor and including a horizontal cutter bar supported on said frame and adapted to cut a horizontal kerf in the mine wall and which in operation removes cuttings from the kerf at the leading face of said bar, of means for receiving cuttings brought back from the kerf by said cutter bar and returning the same into the kerf in rear of the following face of said cutter bar.

6. In a mining machine of the type whose frame is slidable on its bottom on the mine floor, the combination with a floor engaging frame, a motor thereon, and cutting mechanism actuated by said motor and including a horizontal cutter bar pivotally supported on said frame for horizontal swinging movement relative thereto and adapted to cut a horizontal kerf in the mine wall and which in operation removes cuttings from the kerf at the leading face of said bar, of means for receiving cuttings brought back from the kerf by said cutter bar and returning the same into the kerf in rear of the following face of said cutter bar.

7. In a mining machine of the type whose frame is slidable on its bottom on the mine

floor, the combination with a floor engaging  
frame, a motor thereon, and cutting mecha-  
nism actuated by said motor and including a  
cutter chain carrying cutter bar pivotally  
5 mounted on said frame for horizontal swing-  
ing movement relative thereto and adapted  
upon bodily movement of said frame to cut  
a substantially horizontal kerf in the mine  
wall, and means on said frame for receiving  
the cuttings brought back from the kerf by 10  
the cutter chain and returning said cuttings  
into the kerf as the machine advances.

In testimony whereof I affix my signature.

GILBERT RIMMER.