

Dec. 19, 1922.

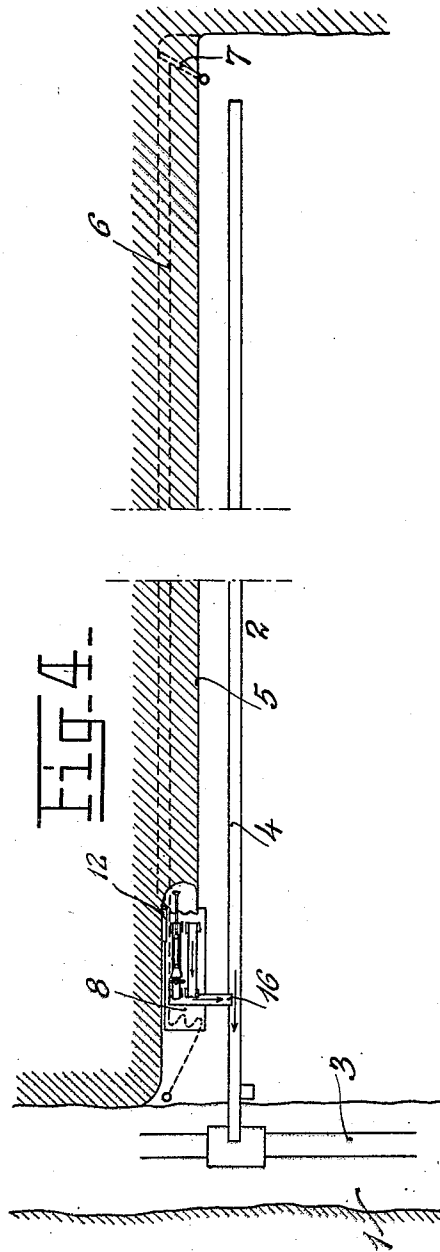
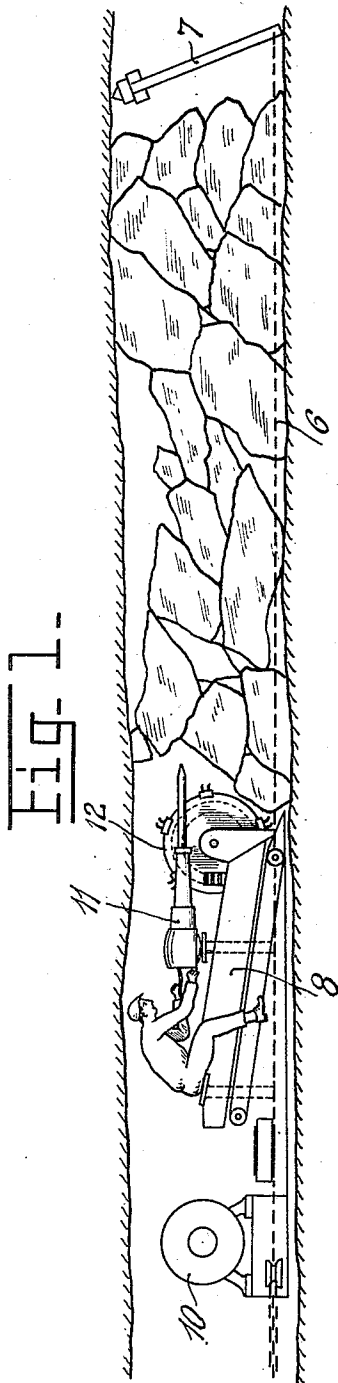
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ARRANGEMENT FOR BREAKING AND LOADING COAL IN COAL MINES.

FILED MAY 8, 1920.

2 SHEETS—SHEET 1.



INVENTOR
SIGURD OLAF FOSS
BY *Mundt & Co.*
ATTORNEYS

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2 SHEETS—SHEET 2.

Fig. 2.

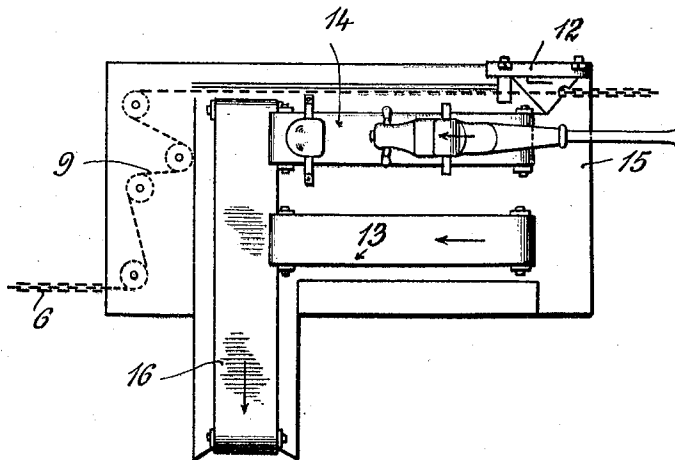
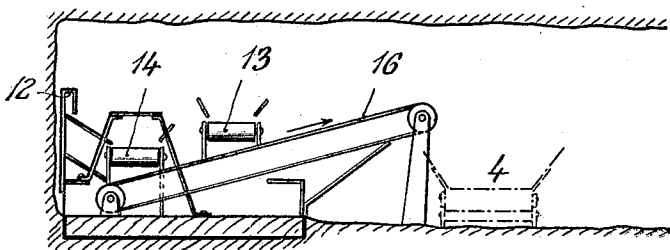


Fig. 3.



INVENTOR
SIGURD OLAF FOSS
BY *Mumfles*
ATTORNEYS

UNITED STATES PATENT OFFICE.

SIGURD OLAF FOSS, OF CHRISTIANIA, NORWAY.

ARRANGEMENT FOR BREAKING AND LOADING COAL IN COAL MINES.

Application filed May 8, 1920. Serial No. 379,842.

To all whom it may concern:

Be it known that I, SIGURD OLAF FOSS, a subject of the King of Norway, residing at Christiania, Norway, have invented certain new and useful Improvements in Arrangements for Breaking and Loading Coal in Coal Mines (for which I have filed an application in England, No. 31,819, filed Dec. 18, 1919); and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The known methods and arrangements for mechanically breaking and loading coal in coal mines are adapted for comparatively thick seams only, and the scope of their practical utility for this reason is limited.

The present invention has for its object a method and arrangement for mechanically breaking and loading coal, adapted for thin seams.

According to the present invention the coal seam is undercut in a long wall of the seam. In the undercut there is mounted or fastened a feed chain parallel to the wall along the front of which a conveyor is located for carrying the coal to the gate road. An apparatus for breaking loose the coal layer above the undercut is attached to said feed chain and works along the undercut part breaking loose the coal and loading it sideways on to the conveyor. The conveyor takes the coal from the cross cut to the gate road, where it is loaded automatically on railway cars or the like, carrying the same to the elevators or to the mine entrance.

On the drawing is diagrammatically illustrated a practical embodiment of the invention.

Fig. 1 is a section through the seam of a coal mine in front of a long wall.

Fig. 2 is a plan of the coal breaking and loading machine.

Fig. 3 is a transverse section of the seam wall illustrating diagrammatically the breaking and loading machine.

Fig. 4 is a horizontal section on a smaller scale through the seam of a coal mine, provided with the arrangements according to the invention.

The general application of the invention

will be best understood by reference to Fig. 4.

1 is a gate road and 2 a cross-cut in a coal-mine. The gate road 1 is provided with a railway 3, and in the cross cut there is mounted a conveyor 4, said conveyor being placed near one wall 5 of the cross cut 2. The said wall 5 of the cross cut is undercut by the usual means at the bottom of the cross cut and to the depth of say four feet. At the bottom of the undercut there is placed a chain 6, fastened at the inner end by means of a stay or the like 7. The feed chain is run through the mechanically driven feeding mechanism of a rock breaking and loading machine 8, adapted to work its way along the undercut, breaking loose the coal and loading it sideways on to the conveyor 4.

This machine is seen on Figures 1, 2 and 3. The machine comprises an ordinary chain feeding mechanism diagrammatically indicated at 9 and driven by means of an electric motor 10. This mechanism grips the chain and serves to haul the machine 8 along the same.

At the front end of the machine there is placed a pneumatically or otherwise operated breaking or drilling tool 11, controlled by an operator. Also at the innermost side of the machine there is located a saw or the like for cutting the seam along the inner end of the undercut.

Two belt conveyors 13, 14 run from the front end 15 of the machine backwards, conveying the loose coal past the operator and placing it on a transverse conveyor 16, serving to load coal on to the main conveyor 4 as indicated on Fig. 3.

Claim:—

An arrangement for breaking and loading coal, comprising a coal cutting and loading machine and a chain mounted in an undercut along a seam wall, said chain being engaged by the cutting and loading machine for enabling the same to perform a feeding movement.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

SIGURD OLAF FOSS.

Witnesses:

ROBERT H. FRAZIER,
A. B. COOK.