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M. S. MOORE

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COMBINED CUTTING AND LOADING MACHINE FOR MINES

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Fig.1.

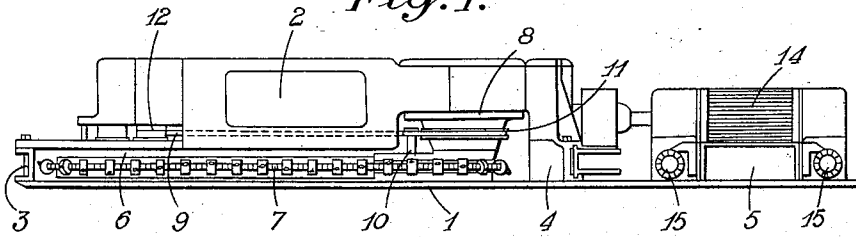


Fig.2.

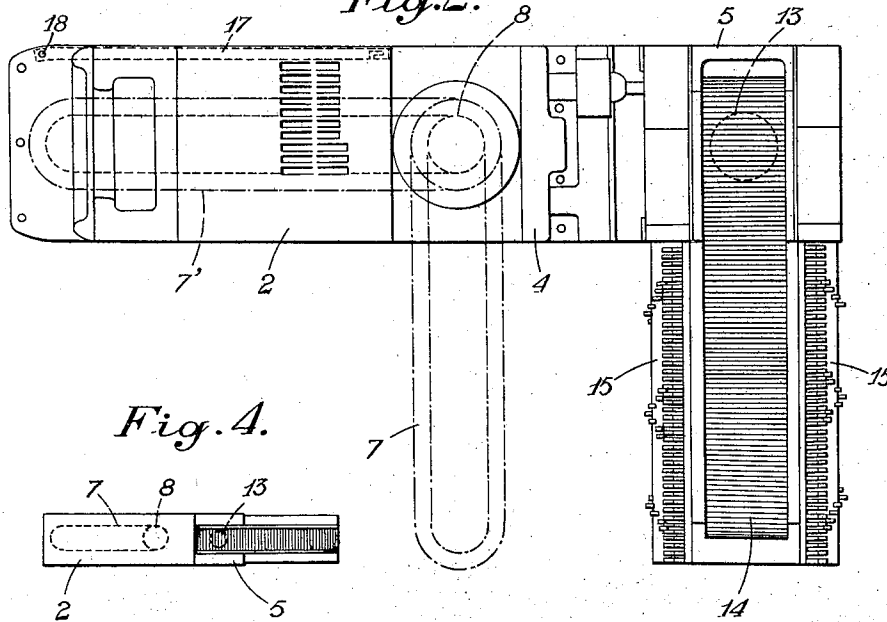


Fig. 4.

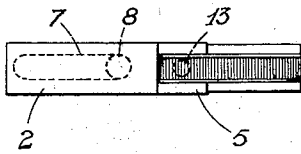
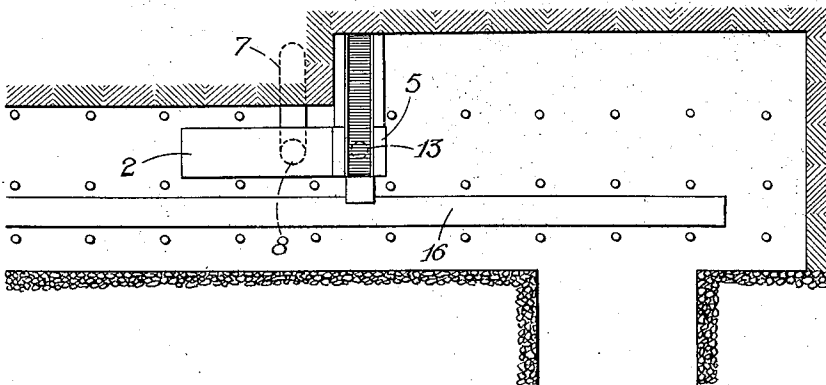


Fig. 3.



M. S. Moore
Inventor

By: Glascop Downing & Seibold
Attys.

UNITED STATES PATENT OFFICE

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COMBINED CUTTING AND LOADING
MACHINE FOR MINES

Matthew Smith Moore, Malvern, England, as-
signor of one-half to The Mining Engineering
Company Limited, Worcester, England, a Brit-
ish company

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6 Claims. (Cl. 262—30)

My present invention relates to an improved structure of combined cutting and loading machine, which is particularly adapted for use in mines where the coal or other material to be mined is very friable and advantages would accrue from the possibility of proceeding simultaneously with cutting and loading, it being either unnecessary or undesirable to break the material down by shooting.

10 An object of this invention is to provide a simple and convenient machine, whereby under these conditions, simultaneously cutting and loading is made possible, a further object being so to arrange such machine that the cutting and
15 loading means will not interfere with its freedom of movement when it is to be fitted between the props.

With these objects in view, the machine according to my invention comprises a loading device and a cutter member both pivotally mounted, said cutter member being adapted to be accommodated in the machine when in inoperative position. The machine casing is slightly raised above the base plate so as to provide therebetween an elongated space for accommodating the cutter member. The machine casing is supported on the base plate at both ends, i. e. beyond the gear head and at the haulage end, where it is conveniently secured to the base plate by means of a bolted support. The free space under the casing may be open on both sides to enable the cutter member which may be a chain or a bar, to be swung to one or the other side of the machine as required; or said space may be closed along the goaf side, for example, by a removable piece, in order to strengthen the structure. A cable attached to the chain jib or the bar, and wound round a pulley attached to the jib bracket, affords a convenient means for swinging the cutter member.

In the accompanying drawing which diagrammatically illustrates by way of example a combined cutting and loading machine embodying my present invention:

Fig. 1 shows the machine in side elevation,

Fig. 2 being a corresponding plan view,

Fig. 3 is a plan view on a smaller scale illustrating the machine in operation; Fig. 4 likewise shows the machine in position for fitting.

Referring to the drawing, 1 represents the base plate on which the machine casing 2 is supported at the haulage end by a bolted support 3 and at the gear head end by a case 4

housing gears for driving the loader device 5. Between the base plate 1 and casing 2 is a free space 6 adapted to receive the cutter member 7 which may be of the chain type as shown, or of the bar type. The chain jib is pivoted to the gear head 8 and the space 6 is open at both sides so that the jib may be swung from the position 7' to either side of the machine, as required. For this purpose I may conveniently use a cable 9 attached to a pin 10 on the chain jib, passing round a pulley 11 and secured to the haulage gear 12 from which it is operated. The loading device 5 is pivoted on the base plate at 13 and is herein shown to comprise a belt conveyor 14 and two loader bars 15 so that it is ready for use at will on either side of the machine.

In order to enable the cutter member 7 to be swung to either side of the machine, as may be required, the space 6 may be open on both sides. It may be advantageous, however, to close it on the goaf side in order to strengthen the structure and to provide a wall against which pressure may be exerted to keep the machine in the work, should there be any tendency for it to leave the face. In Fig. 2 I have shown a channel iron 17 secured at one end by a bolt 18 and at its other end by a pin and slot connection 19.

In operation, the cutter member 7 projects from the machine at or about right angles thereto and substantially parallel with the loading device. As shown in Fig. 3, the machine is advanced in a direction parallel to the coal face with the cutter member cutting its way through the friable coal and the loading device following through the cut, removing the coal as it breaks down, and delivering it onto an endless belt or a shaker conveyor as diagrammatically shown at 16.

When loading is completed, the cutter member is swung under the machine casing 2, while the loading device is swung into alignment with the casing (Fig. 4). The total width of the machine then does not exceed that of the casing and the structure can be fitted down the face to start the following cut or lift.

I claim:

1. In a combined cutting and loading machine for mines, a machine frame, a loading device and a cutter member both pivoted to said frame, said cutter member being accommodated in said frame when in inoperative position.

2. In a combined cutting and loading machine for mines, a base plate, a casing on said plate, a cutter member pivoted on said plate, said casing being raised above said base plate to provide therebetween an elongated space for accommodating said cutter member, and a loader device also pivoted on said plate.

3. In a combined cutting and loading machine for mines, a base plate, a loader device and a cutter member both pivoted with respect to said plate, a casing supported on said plate at both ends, the free space under said casing being open on both sides and adapted to accommodate said cutter member when in inoperative position.

4. In a combined cutting and loading machine for mines, a base plate, a loader device and a cutter member each mounted for pivotal movement through 180° on said plate, a casing supported on said plate at both ends, the free

space under said casing being adapted to accommodate said cutter member.

5. In a combined cutting and loading machine for mines, a base plate, a loader device and a cutter member both mounted for pivotal movement on said plate, a casing supported on said plate at both ends, the free space under said casing being adapted to accommodate said cutter member, and means for closing said space on one side.

6. In a combined cutting and loading machine for mines, a base plate, a loading device and a cutter member both pivoted on said plate, said loading device comprising an endless conveyor arranged between two parallel loader bars, and a casing supported on said plate at both ends, the free space under said casing being adapted to accommodate said cutter member when in inoperative position.

MATTHEW SMITH MOORE. 20