

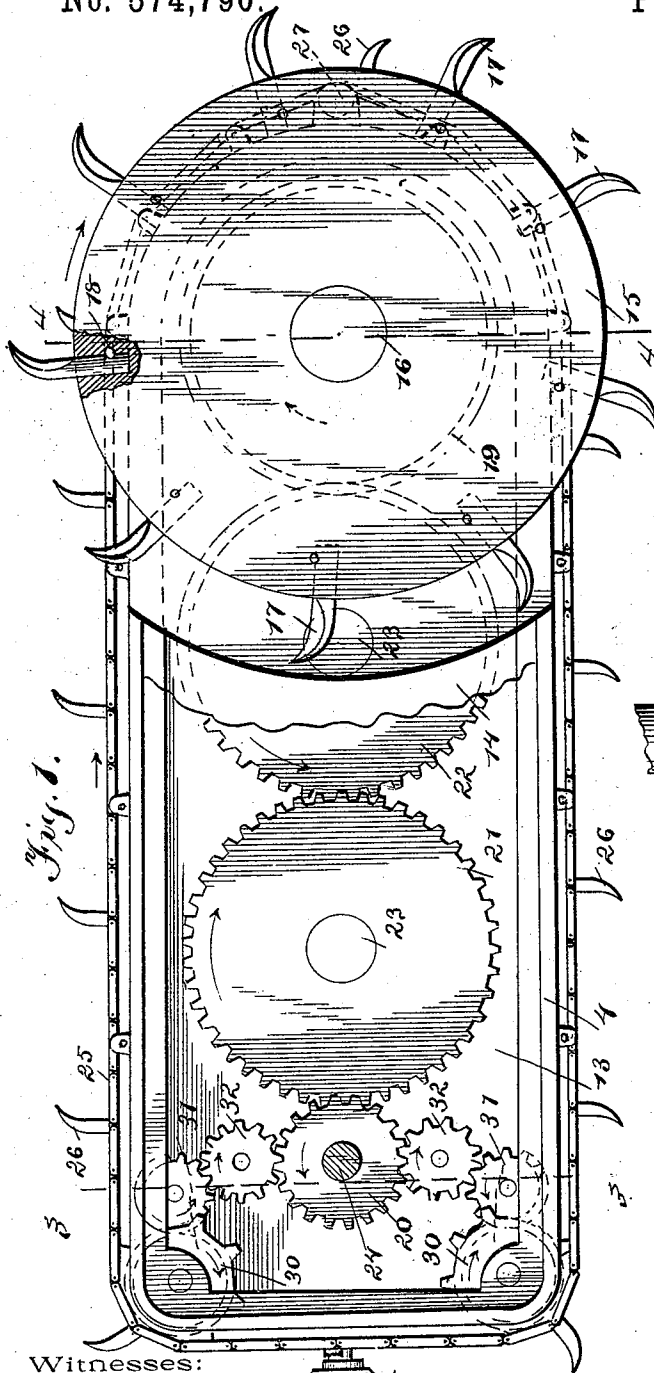
(No Model.)

2 Sheets—Sheet 1.

H. F. DORIS & J. J. McCLOSKEY.
MINING MACHINE.

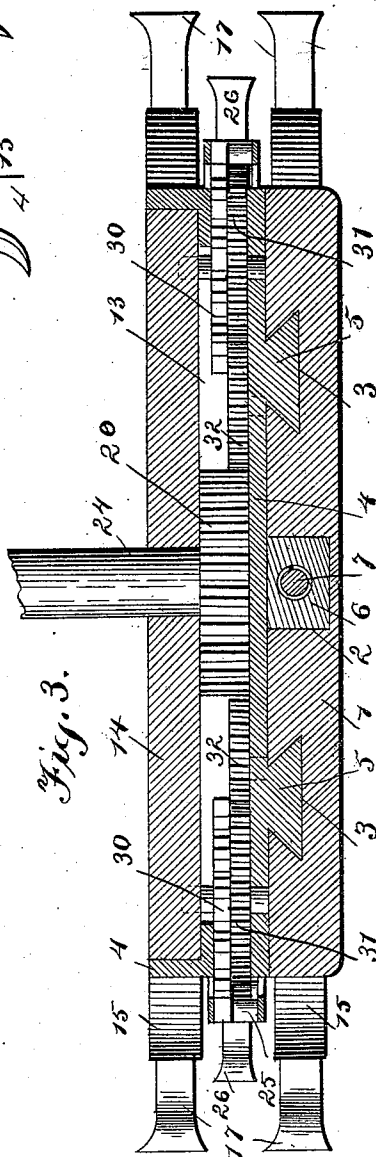
No. 574,790.

Patented Jan. 5, 1897.



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Fig. 2

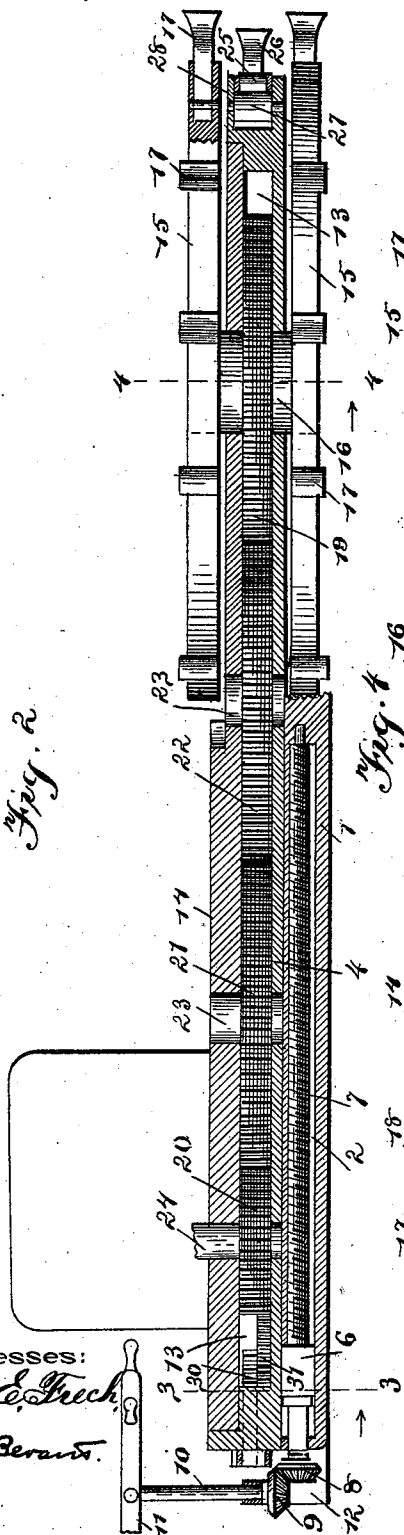


Fig. 4

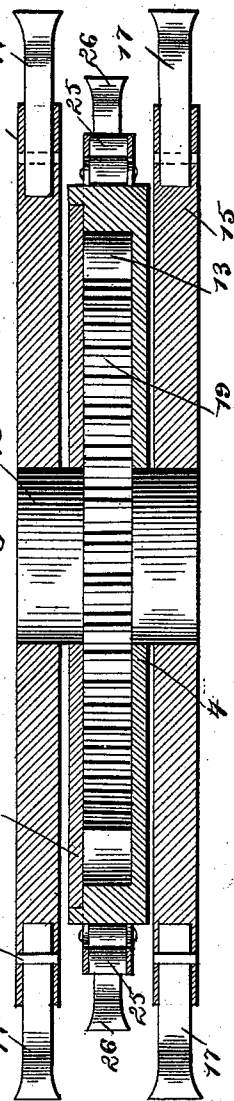
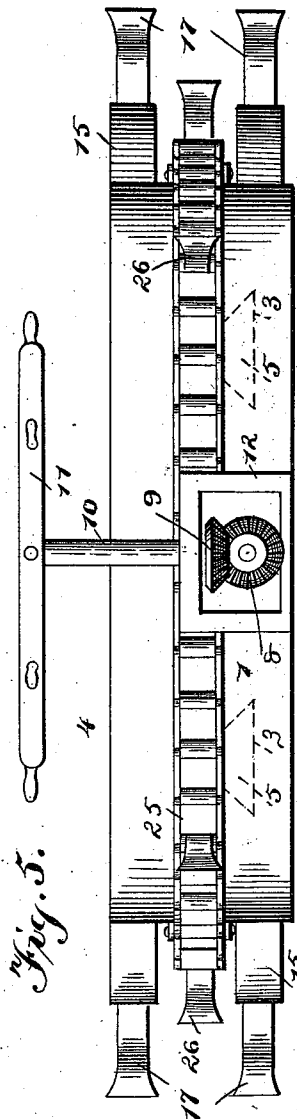


Fig. 5



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UNITED STATES PATENT OFFICE.

HUGH F. DORIS AND JOHN J. McCLOSKEY, OF PITTSBURG, PENNSYLVANIA.

MINING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 574,790, dated January 5, 1897.

Application filed May 21, 1895. Serial No. 550,109. (No model.)

To all whom it may concern:

Be it known that we, HUGH F. DORIS and JOHN J. McCLOSKEY, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Mining-Machines; and we 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

This invention relates to improvements in mining-machines, the object being to provide an improved powerful driving mechanism for the cutter-heads; to arrange a conveyer in an improved manner with relation to the cutter-heads; to provide an improved mechanism for feeding the cutters forward, and, finally, to so construct the framework of the machine as to inclose the driving and adjusting gearing so as to retain the lubricant therefor, as well as to exclude all dirt, grit, &c.

With these and other objects in view, which will presently appear, our invention consists in the features of novel construction herein-after described and claimed, and illustrated by the accompanying drawings, in which—

Figure 1 is a plan view of the machine, partially in section. Fig. 2 is a longitudinal vertical sectional view. Fig. 3 is a vertical cross-sectional view on line 3 3 of Fig. 1. Fig. 4 is a similar view on line 4 4 of the same figure.

The base 1 of the machine is formed with the central longitudinal depression 2 and the dovetailed depressions 3 on each side of and extending parallel with the depression 2. 4 is a frame slidable longitudinally on base 1, the same being formed on its under side with the dovetails 5, which fit the depressions 3 and guide the frame in its longitudinal movement. From frame 4 also depends the interiorly-screw-threaded sleeve-lug 6 into depression 2, so as to adjust the frame longitudinally on the base by screw-shaft 7, extended through said sleeve-lug and mounted in suitable bearings in the end walls of depression 2. The end of said shaft extends through to the outer side of the base and carries upon its extremity the bevel-pinion 8, meshing with similar pinion 9 on vertical shaft 10, carrying at its upper end the hand-wheel 11. Said shafts are supported

by a bracket 12 at the end of the base, and by means of the arrangement here shown and described the frame 4 may be given a positive forward or backward movement, thus feeding the cutter-heads at the forward end thereof either to or from the coal, as desired, and at the requisite speed.

A depression or cavity 13 is formed in casing 4, extending from end to end thereof, and the same is inclosed upon its upper side by cover 14. The cutter-heads 15 are arranged, as shown, above and below the casing 4, the same being keyed to the end of short shaft 16, extended transversely through casing 4 and cover 14. The peripheries of the heads extend a short distance beyond the casing end, and secured thereto at proper intervals are the teeth 17. The shank of each tooth is let into a depression in the head-periphery and there held by key 18, which occupies a depression formed partially in the tooth and partially in the wall of the cavity, thus locking the tooth securely in position and at the same time rendering it easily removable. On shaft 16, within the depression 13, is gear 19, which is driven by the initial pinion 20 through the medium of the intervening gears 21 and 22. All of these gears are inclosed within cavity 13 and arranged in train fashion, so as to develop and transmit to the cutter-heads great speed and power.

The shafts 23 of gears 21 and 22 are let into sockets or bearings in the bottom of the frame or casing 4, as well as top 14, but preferably do not project entirely therethrough. Pinion 20 is on the lower end of shaft 24, which may be driven by any desired form of motors to be carried on the upper side of the movable frame or casing, as indicated in the drawings.

For removing the loose coal from the cutters, as well as knocking out the core which may form between the upper and lower cutter, we provide the endless chain 25, having at intervals thereon teeth 26. This endless chain passes around the exterior vertical sides of the movable frame or casing and midway the cutter-heads, the friction-rollers 27, pivoted between ears 28, projecting from the frame, serving to hold the chain in proper position. Ears 28 extend slightly beyond the peripheries of the rollers, so as to form

- guides 29 for holding the chain in proper vertical adjustment. The chain is actuated by sprockets 30, arranged within the rear corners of the slidable frame or casing and having their peripheries projected outward only sufficiently far to carry the chain clear of the casing-sides. Gears 31 and 32 connect driving-pinions 20 with the geared sprockets 30 for actuating the latter in the proper direction.
- 10 The inclosed cavity or depression 13 affords complete protection for the gear from dirt, grit, &c., and at the same time serves to retain the lubricant. The same is true of depression 2, in which screw-shaft 7 is completely incased and protected, together with the lubricating oil or grease. It will be noticed that the corners and ends of the framework are rounded, so that the machine may be easily slid to or from its operating position.
- 15 20 Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is--
1. A mining-machine comprising a stationary frame, a movable frame carried thereby,

cutters at the outer end of the movable frame, 25 a carrier-chain encircling the movable frame and coacting with the cutters, a driving-gear for the cutters, a similar gear for the chain, and a motor carried by the movable frame and common to and driving both the cutter and chain gearing, substantially as shown and described. 30

2. An improved mining-machine comprising a frame, the cutter-heads, the endless conveyer encircling the frame and extending 35 between the cutter-heads, the friction-rollers, the supports for the rollers extended beyond the peripheries of the latter to form guides for the chain, and an operating mechanism, substantially as shown and described. 40

In testimony whereof we affix our signatures in presence of two witnesses.

HUGH F. DORIS.
JOHN J. McCLOSKEY.

Witnesses:
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