No. 689,346. Patented Dec. 17, 1901.

J. C. YOUNG.

MINE DOOR.

(Application filed Apr. 24, 1901.)

(No Model.)

Fig. 1.

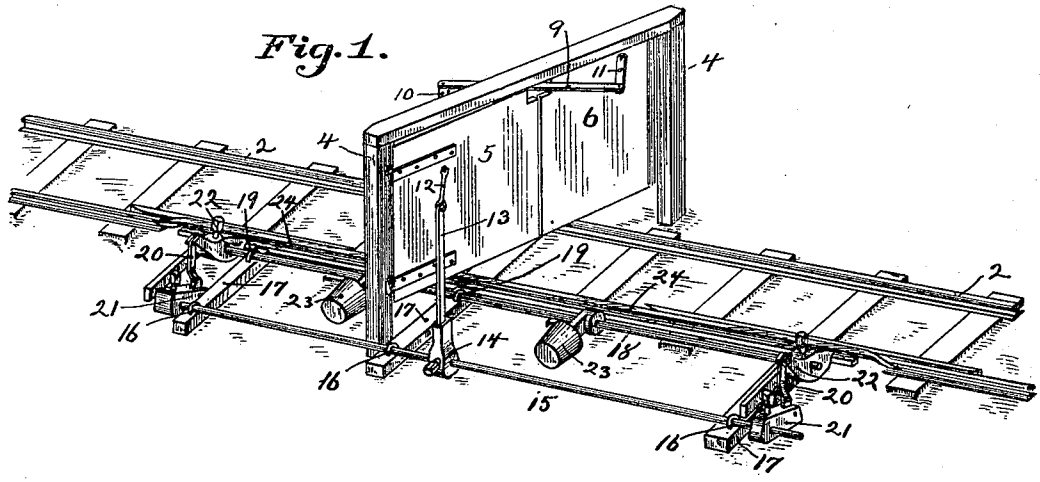
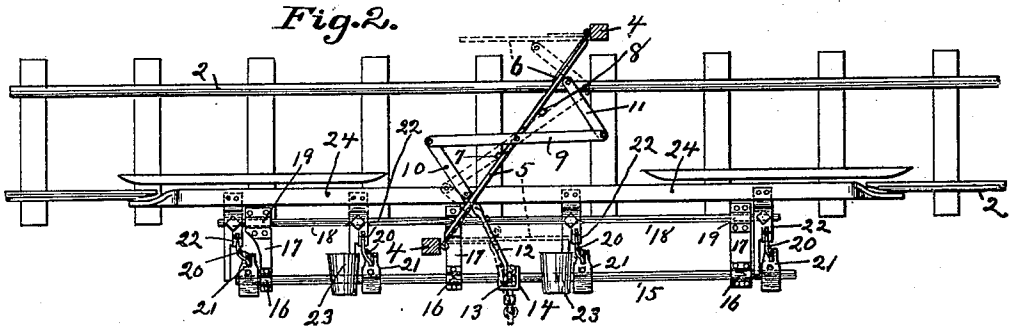


Fig. 2.



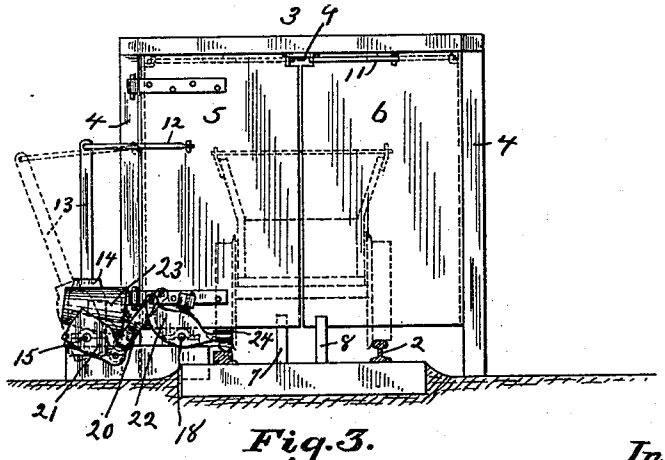


Fig. 3.

Witnesses:

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# UNITED STATES PATENT OFFICE.

JOHN C. YOUNG, OF MONESSEN, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO LUTE HORNICKEL, OF MONONGAHELA, PENNSYLVANIA.

## MINE-DOOR.

SPECIFICATION forming part of Letters Patent No. 689,346, dated December 17, 1901.

Application filed April 24, 1901. Serial No. 57,315. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN C. YOUNG, a resident of Monessen, in the county of Westmoreland and State of Pennsylvania, have invented a new and useful Improvement in Mine-Doors; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to doors for coal-mines, its object being to provide doors so arranged as to open readily when the mechanism connected thereto is operated, the doors being so located as to be least affected by the draft in opening and closing and so as to require the least possible movement of the operating mechanism.

To this end my invention comprises, generally stated, a frame extending across the entry in a direction diagonal thereto and doors swung on said frame and opening in opposite directions, together with mechanism by means of which the doors are operated by the car or other vehicle entering or leaving the mine.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved mine-door. Fig. 2 is a plan view thereof, and Fig. 3 is an elevation thereof.

Like numerals indicate like parts in each of the figures.

The numeral 2 designates a suitable track laid in the mine-entry and over which the cars travel conveying the coal therefrom. Located at the proper point with reference to the entrance to the mine is the frame 3, constructed of suitable timbers and arranged diagonally of the track 2. Hinged to the posts 4 of the frame are the doors 5 and 6, said doors being adapted to swing in opposite directions. These doors 5 and 6 when arranged in the diagonal frame 3 will be substantially in line with each other when closed and in the same plane as the frame.

Stops 7 and 8 are arranged to prevent the doors when closed from swinging beyond a certain point.

Pivoted to the frame 3 is the bar or lever 9, whose ends are connected by the links 10 and 11 to the doors 5 and 6, respectively, on opposite sides of said doors. The door 5 is connected by a link 12 to the upper end of an arm 13, said arm having an enlarged weighted lower end 14, which is connected to a rock-shaft 15, extending parallel with the track for a suitable distance and journaled in bearings 16 on the blocks or ties 17. Parallel with the rock-shaft 15 is another rock-shaft 18, also journaled in bearings 19 on the blocks or ties 17. The rock-shafts 15 and 18 are provided at intervals with enlarged weighted arms 21 and 22, respectively, which are connected by means of the links 20. The enlarged arms 21 and 22 serve as weights, acting normally to hold the doors in their closed position, the rock-shaft 18 being further weighted by the weight 23, which aids the arms 21 and 22 to hold the doors closed.

Suitably connected to the rock-shaft 18—as, for instance, on extensions of the arms 22—is the rocking bar 24, said bar being located in such position with reference to one of the rails of the track as to be acted on by the tread of the wheel of the mine-car, so as to be depressed thereby and operate the mechanism just described to open the doors 5 and 6.

When my improved mine-door is in use, if the doors are closed, extending, as they do, diagonally of the mine-opening and opening in opposite directions, it is apparent that the strong draft in the mine-entry will not strike the doors in the same manner as where the doors are arranged at right angles across the entry, so that there will not be the same pressure to be overcome in the opening of the door which swings inwardly against the draft. At the same time the draft bearing against the door which opens outwardly will tend to equalize the opposition to the door opening inwardly, so that the pressure of the draft is practically equalized. As the car approaches the rocking bar 24 and the tread comes in contact therewith said rocking bar will be depressed and through the rock-shafts 15 and 18 and the other connections the arm 13 will operate to open the door 5, and at the same time through the rod 9 the other door 6 is opened simultaneously in the opposite direction.

As the doors are arranged diagonally of the

entry, it is not necessary to move the doors through as wide arcs as though they were located directly across the entry, and as a consequence there is not so much movement of the operating mechanism required, while at the same time the opposing effect of the draft in the door which moves in opposition to it is greatly diminished.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In mine-doors, doors arranged diagonally of the entry and opening in opposite directions, and mechanism for opening and closing said doors.

2. In mine-doors, a suitable frame extending diagonally of the entry, doors hinged to said frame and in the same plane with said frame, said doors opening in opposite directions, a rocking bar in the path of the wheels of the car and connections between said rocking bar and said doors whereby said doors are opened and closed.

In testimony whereof I, the said JOHN C. YOUNG, have hereunto set my hand.

J. C. YOUNG.

Witnesses:
M. S. WARNE,
FRED HORNICKEL.