

UNITED STATES PATENT OFFICE.

JOHN T. DEVIESE, OF CROWNHILL, WEST VIRGINIA.

AIR-DOOR.

SPECIFICATION forming part of Letters Patent No. 750,617, dated January 26, 1904.

Application filed July 30, 1903. Serial No. 167,635. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. DEVIESE, a citizen of the United States, residing at Crownhill, in the county of Kanawha, and State of West Virginia, have invented certain new and useful Improvements in Air-Doors; 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.

This invention relates to doors for regulating the air or ventilating currents in mines; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a plan view of the mine-door and the devices for operating it. Fig. 2 is an end view of the same.

A is a railway-track in a mine, and B is a door-frame which extends over the track.

C is a triangular plate secured to the top part of the door-frame and arranged in a horizontal position.

D represents the door-plates, which are connected to the door-frame by hinges *d* and which rest against the plate C when closed.

E is an electromagnet secured to the front part or apex of the supporting-plate C. The door-plates D are provided with arms *b*, which project from their top edges over the plate C. A bar *c* has its opposite ends pivotally connected with the free end portions of the arms *b* by means of links *c'* or other equivalent connections.

An iron plate *e* is connected to the middle part of the bar *c* and is arranged to work in front of the electromagnet. When the electromagnet is energized, the iron plate is attracted, and the door-plates are turned on their hinges, so as to permit a car to pass along the track.

F is a tappet-bar which is supported parallel with one of the track-rails and which has a flange *f*, which projects slightly above the track-rail. The wheels of the mine-cars are broader than the treads of the track-rails, and when a car passes along the track its wheels

press the tappet-bar outwardly away from the track-rail.

G represents brackets secured to the track alongside the rails at convenient distances apart.

H represents bars which are slidable longitudinally in the brackets G and which are pivoted to the tappet-bar F by pins *h*. Springs *g* are provided for pressing the tappet-bar against the rail or toward the rail.

I represents inclined contact-plates carried by the brackets G and insulated from them by plates of insulating material *i*.

J represents contact-pieces which are slidable vertically in holes in the bars H, and *j'* represents springs which press the said contact-pieces downwardly. The contact-pieces J are insulated from the bars H by bushes *j''* of insulating material.

2 is the positive main conductor, and 3 is the negative main conductor, which are arranged along the track, so that a series of mine-doors can be operated. A branch conductor 4 extends from the positive main conductor 2 to the electromagnet, and a branch conductor 5 extends from the negative main conductor to the contact-piece J at each bracket. A branch conductor 6 couples each contact-plate I with the electromagnet.

The tappet-bar extends under the mine-door for as far as desirable in each direction, and its ends are flared or curved, so that the car-wheels may push it back gently.

When a mine-car approaches a door, it operates the tappet-bar at one end and moves the nearest contact-piece into contact with the contact-plate to which it pertains, thereby completing the circuit through the electromagnet. The electromagnet when thus energized attracts its iron plate and opens the mine-door. The remaining contact-pieces and contact-plates of the series are placed in contact successively as the car passes along the track, so that the door is held open by the electromagnet until the car has passed through it, and the electromagnet is finally deenergized when the last car-wheel releases the rear

end of the tappet-bar. The door-plates are closed automatically by the air-current or by any approved device for that purpose, such as springs or weights commonly used for closing doors.

What I claim is—

1. In a mine air-door, the combination, with the hinged door-plates provided with arms, of a bar operatively connected with the said arms, an armature carried by the said bar, and an electromagnet for attracting the armature and opening the door.

2. In a mine air-door, the combination, with a door-frame, a triangular supporting-plate secured to the upper part of the door-frame, and door-plates hinged to the said frame; of arms which project from the said door-plates, a bar operatively connected with the said arms, an armature carried by the said bar, and an electromagnet secured to the apex of the said supporting-plate and operating when en-

ergized to attract the said armature and open the door.

3. The combination, with a mine air-door, an electromagnet, and intermediate actuating mechanism between the said electromagnet and the mine-door; of a tappet-bar which extends under the said door longitudinally of the track, a series of spring-pressed bars which normally press the said tappet-bar laterally in one direction, contact pieces and plates arranged in pairs and placed in contact when the said spring-pressed bars are retracted, and conductors connected with the said electromagnet and with the said contact pieces and plates.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN T. DEVIESE.

Witnesses:

EDDIE SAULSBY,
R. G. SPALDING.