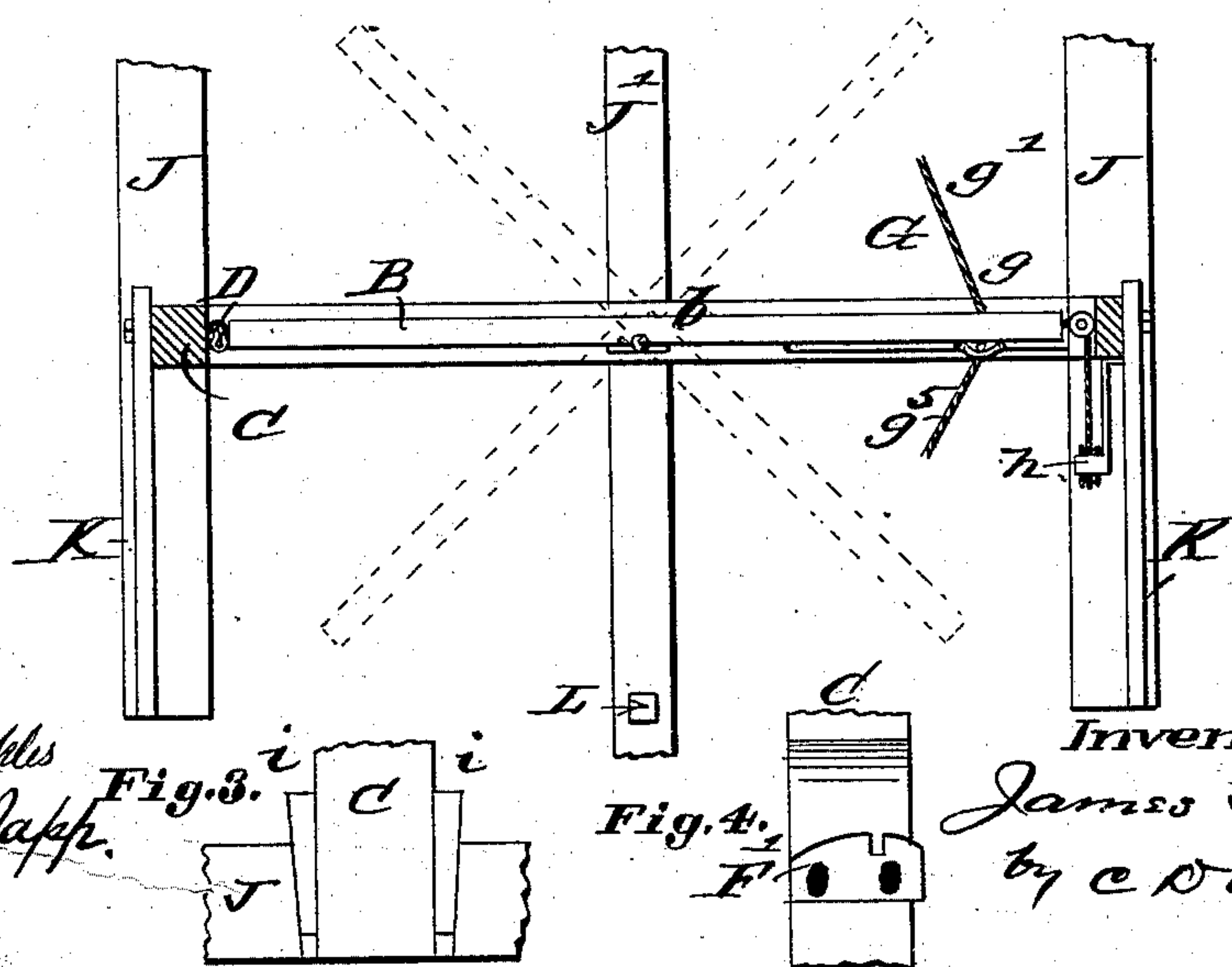
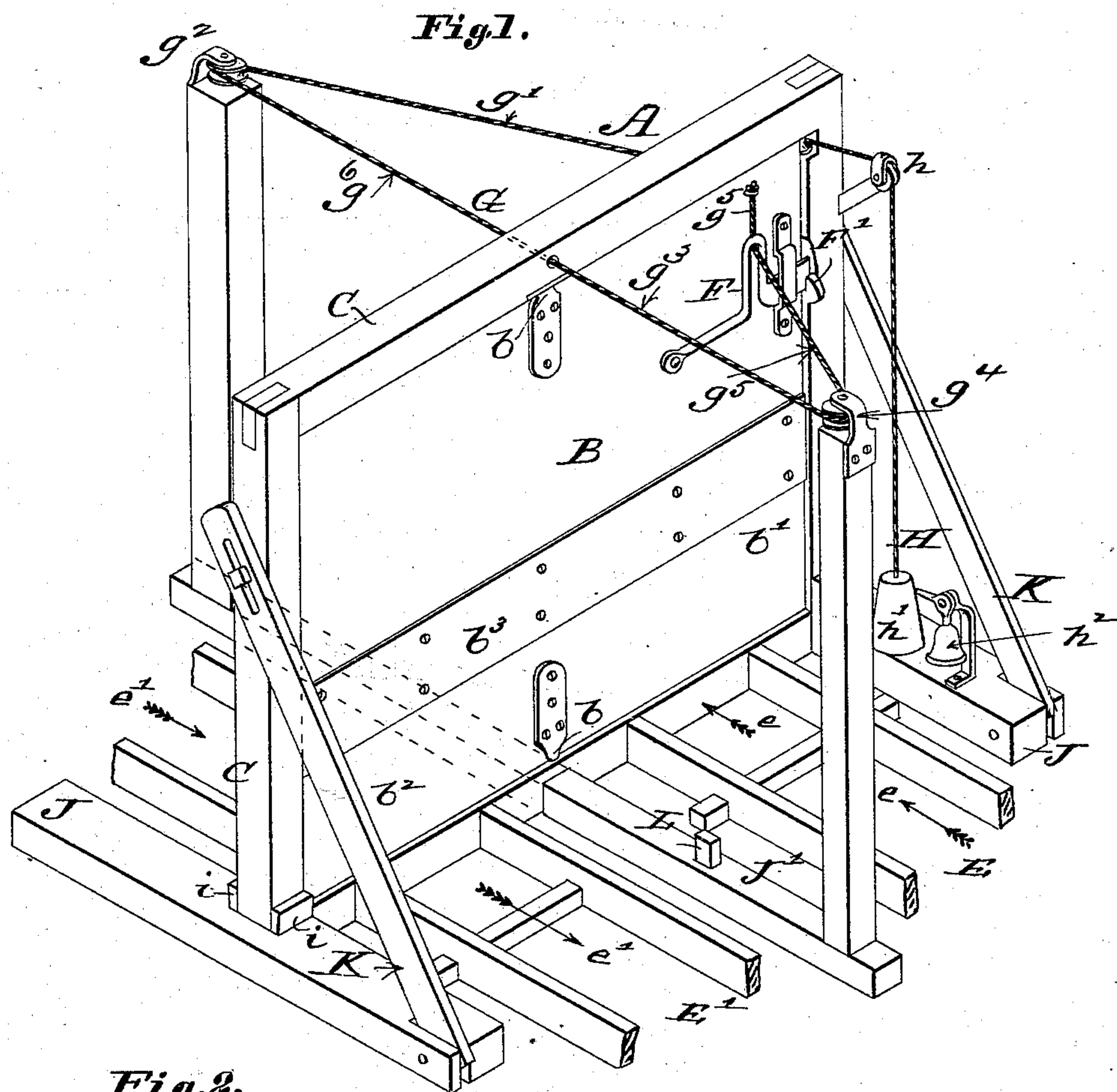


(No Model.)

J. SAWYER.
MINE AIR REGULATOR.

No. 283,286.

Patented Aug. 14, 1883.



Attest,

Charles Pickles

Colon W. Saff.

Inventor:

James Sawyer

by C Denoody
att'y

UNITED STATES PATENT OFFICE.

JAMES SAWYER, OF FREEBURG, ILLINOIS, ASSIGNOR OF ONE-HALF TO
WASHINGTON DE BOLT, OF ST. LOUIS, MISSOURI.

MINE AIR-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 283,286, dated August 14, 1883.

Application filed September 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES SAWYER, of Freeburg, St. Clair county, Illinois, have made a new and useful Improvement in Mine Air-Regulators, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a view in perspective of the improvement; Fig. 2, a plan, the top bar being removed; Fig. 3, a detail, being an elevation showing the mode of securing the valve-frame in the base; and Fig. 4, a detail, being a side elevation of the catch used in locking the valve.

The same letters denote the same parts.

The present improvement can be embodied in gates and doors; but it is especially valuable in connection with what are termed "air-regulators" for mines.

The present mode of regulating the air in mines is expensive and inconvenient. It either requires an attendant to open the regulator, or the driver must stop his train of cars and open it. In consequence the regulator is often allowed to stand open, and frequently an insufficient number of regulators is used. The miner, by reason of this, is not sufficiently supplied with pure air. To obviate the difficulty, and to provide an air-regulator adapted to a double track of railway, and that can be adjusted to the varying shapes of headings where the regulators are used, is the aim of this improvement.

A represents the improved regulator.

B represents the valve of the regulator, being the door which is opened and closed as the cars pass. The door B is pivoted in a frame, C, the frame conforming to the shape and size of the door, and fitting as closely thereto as is consistent with the proper working of the door. Suitable packing—such as shown at D, Fig. 2—may be used to more effectually seal the joints when the door is closed. The regulator is adapted to a single or double track. In the drawings it is arranged as for a double track, E E', in which case the journals b b of the door are arranged at the center of the width of the door. This enables the door to be swung on its journals b b either way, as indicated by the

broken lines in Fig. 2. The door, when closed, may be fastened by means, say, of the latch F, engaging in the catch F'.

G represents a cord or chain attached to the door and extending along the heading (in which the regulator is arranged) as follows: From its point g of attachment to the door the cord extends at g' along the heading to any desired distance from the regulator and sufficiently to enable the car-driver to operate the regulator at the proper distance therefrom. The cord is then passed around a suitable bearing or bearings—such as g²—and carried back to and past the regulator, and thence at g³ along the heading to a point sufficiently removed from the regulator to enable the car-driver coming in that direction to properly operate the regulator. The cord is then passed around a suitable bearing or bearings—such as g⁴—and thence carried and attached to the door at g⁵. The cord passes under the latch, as seen in Fig. 1, or is so connected with the latch as to cause the latch to be lifted from the catch whenever any part of the cord is drawn in the direction of the regulator.

The operation is then as follows: Suppose the cars to be approaching the regulator upon the track E and in the direction of the arrow e, Fig. 1. The driver takes hold of the part g⁵ of the cord, and as the cars move toward the regulator the cord g⁵ is drawn in that direction. This tightens the cord at g³ g⁶ g', causing the part b' of the door to open from the approaching train. When the train is approaching in the direction of the arrow e upon the track E', the driver takes hold of the part g³ of the cord and draws it, as before, in the direction of the regulator. This tightens the cord at g⁵, causing the part b² of the door to open from the train. Again, when the train is approaching in the direction of the arrow e', and is upon the track E, the part g' of the cord is drawn. This causes the part b' of the door to open from the train, and, coming upon the track E' in the direction e', the part g⁶ of the cord is drawn with a similar result. Thus whichever way the train approaches the regulator the door B opens from the train, and operation is effected readily, and without requiring an at-

tendant or compelling the driver to leave or to stop his cars. The door is closed by means of the weighted cord H, the cord being attached to the door, and passing thence over a pulley, 5 *h*. The movement of the weight *h'* may cause a bell, *h'*², to ring, and thus inform the driver of the closing of the regulator. The door is provided with a rub-plate, *b*³, to take the wear of the cars as they pass. The journals *b b* are 10 upon one side of the door B, so that in the event of an explosion the door will be simply blown from its bearings in the frame C, enabling the regulator to be speedily replaced in the event of disaster. As the headings in 15 which these air-regulators are used are apt to be irregularly formed, and as it is desirable to be able to readily readjust the regulator in the heading, the frame C is, by means of the wedges *i i*, wedged into the sills J J, and pivoted and 20 adjustable braces K K are extended from the sills to the frame, substantially as shown in Fig. 1. The frame can in this way be set to suit the particular pitch, slant, or irregularity of the position in which the regulator is being 25 used—that is, the frame may be set with one of its sides higher than the other, and it may be inclined somewhat longitudinally in the heading. Packing of a yielding and accommodating nature—such as bags of sawdust—is 30 then stuffed between the frame and the surrounding walls, floor, and roof. Then, should

the roof of the heading sink slightly or the floor rise—something apt to occur in mines—the frame B is not strained.

The catch F' is made vertically adjustable 35 upon the frame C, to provide for keeping the latch and catch in engagement in the event of the settling of the frame.

In practice the middle sill, J', between the sills J J need not be used. The uprights for 40 supporting the bearings *g*² *g*⁴ can be secured as posts in the heading. The stop L can be similarly fixed in the heading.

I am aware that heretofore a door swinging each way has been used in mine ventilation, 45 and do not broadly claim such a device.

I claim—

1. In an air-regulator for mines, the door-frame C, adjustably held in the sills or heading, as described, combined with the door B, 50 having journals *b*, to enable it to be turned in either direction, and operated by cord G, substantially as described.

2. The pivoted door B, having journals *b*, rub-plate *b*³, and packing D, combined with 55 frame C and cord G, said cord being attached and extended as desired, all in the manner and for the purposes set forth.

JAMES SAWYER.

Witnesses:

M. S. CARR,

G. W. BARTHEL.