(No Model.)

J. C. SIMPSON.

MINING PLANT.

No. 419,595. Patented Jan. 14, 1890.

Fig. 1.

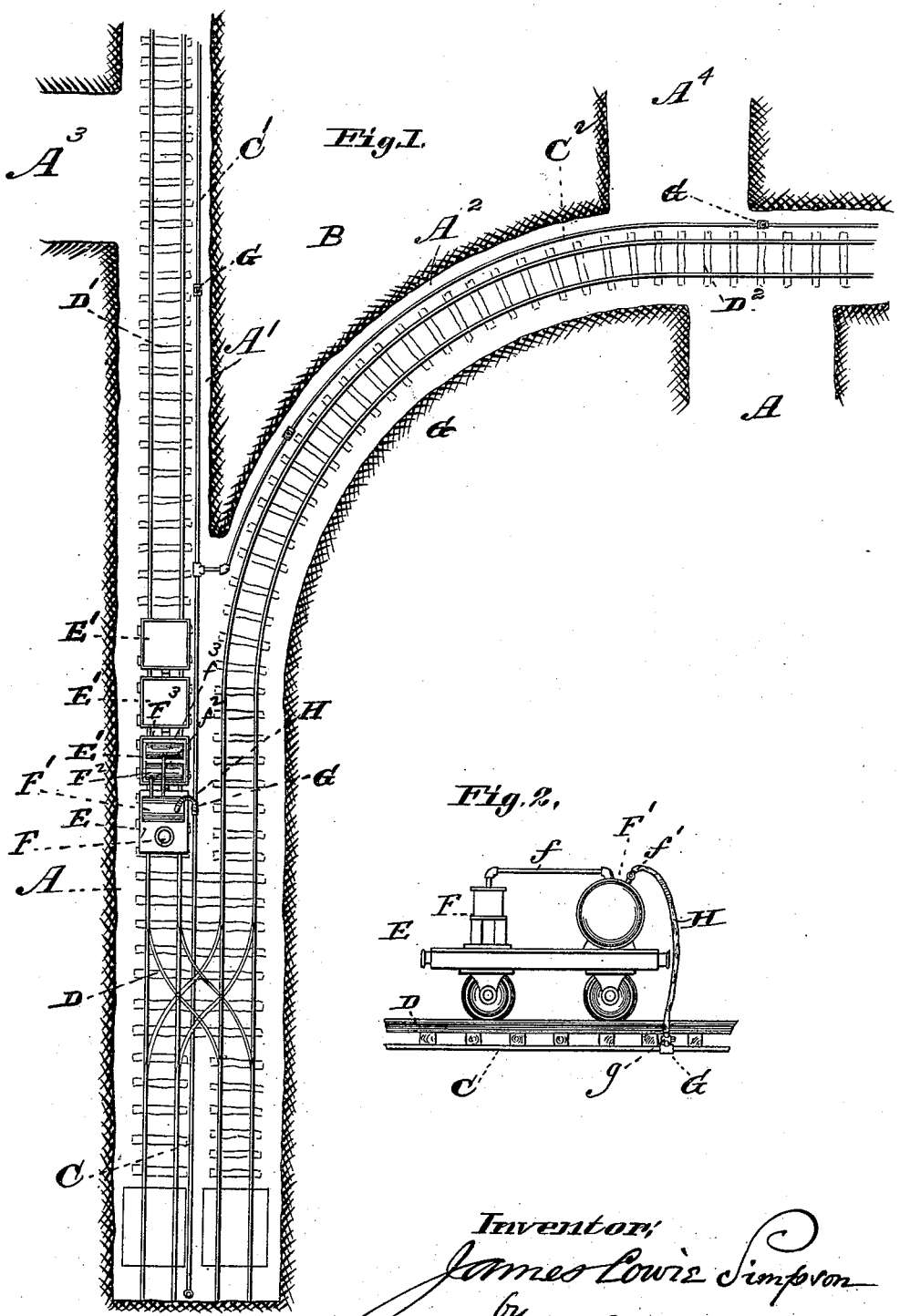

Fig. 2.

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UNITED STATES PATENT OFFICE.

JAMES COWIE SIMPSON, OF ST. LOUIS, MISSOURI.

MINING PLANT.

SPECIFICATION forming part of Letters Patent No. 419,595, dated January 14, 1890.

Application filed October 5, 1889. Serial No. 326,104. (No model.)

To all whom it may concern:

Be it known that I, JAMES COWIE SIMPSON, of St. Louis, Missouri, have made a new and useful Improvement in Mining Plants, of which the following is a full, clear, and exact description.

This improvement has for its object the facilitation of the movement of the coal, ore, or material requiring to be transported along the passages of a mine.

In operating a mine with the aid of coal-cutting machines it is customary to deliver the compressed air used in driving the machines through pipes leading to the point or points at which the machines are being operated. It is also the practice to construct railways along the mine-passages, over which cars are drawn for transporting the coal mined by the machines to the point of delivery from the mine. Such cars have hitherto been drawn by animals. To lessen the cost of this method of transportation, as well as to obviate other objections to the use of animals and to provide an improved system of transferring coal, ore, and other material from one point to another in a mine, is the aim of this invention, which is carried out substantially as is hereinafter set forth and claimed, aided by the annexed drawings, making part of this specification, in which—

Figure 1 is a view showing the passages of a mine in horizontal section and the improved mechanism in plan, and Fig. 2 a side elevation of the motor-car and the parts therewith immediately connected. The last-named figure is upon an enlarged scale.

The same letters of reference denote the same parts.

The passages A A′ A^2, &c., are the usual ones occurring in a mine B, and C C′ C^2, &c., represent the customary pipes for conveying the compressed air. Neither the mechanism for delivering the air into the pipes nor the ore-cutting machines are shown, their nature being well understood.

D D′ D^2, &c., represent the usual lines of railway.

E represents a car provided with a motor F, capable of being operated by compressed air and adapted to transmit its motion to the wheels of the car, so as to propel the car, and in either direction, upon the railway. The details of the motor and motion-transmitting mechanism being familiar are not set out. The car is also provided with a reservoir F′, adapted for holding compressed air such as used in operating mining-tools. By means of a suitable pipe *f*, Fig. 2, having suitable codes (not shown) the compressed air can be delivered at will from the reservoir to the motor.

E′ E′ represent freight-cars attached to the motor-car E and composing a suitable train for the transportation of the ore.

At any point or points G along the line thereof the pipes C C′ C^2, &c., are provided with suitable appliances by means whereof the pipes can be tapped and the compressed air therein drawn therefrom, and by means of a suitable detachable connection—such as the hose H—the compressed air withdrawn from the pipes can be transferred into the reservoir F and in sufficient quantity to effect the operation of the motor and the consequent propulsion of the train—that is, the animals usually employed for moving the cars are dispensed with and the motor-car, equipped substantially as described, is substituted therefor. The motor-car is run alongside some portion of the pipes C C′, &c., having an appliance G, and then, by means of the hose H, which at one end is connected with the appliance G and at the other end with some suitable device—such as the valved tube *f′*, Fig. 2—sufficient compressed air is delivered from the pipes C, &c., into the reservoir F to bring the air-pressure within the reservoir and pipes into equilibrium. The valve in the tube *f′* is then closed, as is also the valve *g* in the appliance G, and the hose H detached from the pipe C. The motor car can now be and is run and operated upon the railways as a locomotive until the air-pressure within the reservoir is exhausted, whereupon the motor-car is again moved into position to enable another charge of compressed air to be delivered, as before, from the pipes C, &c., into the car-reservoir, and so on, charging and recharging the car-reservoir as often as it becomes empty. At the same time the compressed air is being delivered through the pipes C, &c., to the ore-cutting machines for the purpose of operating them.

In practice it is desirable to employ several

smaller air-reservoirs rather than a single larger one. Accordingly a second reservoir F^2 is shown in the drawings. A suitable tubular construction f^2, analogous to that used in connecting compressed-air reservoirs in air-brake machinery, is used to connect the reservoirs $F' F^2$. Any desired number of the reservoirs may be thus combined and used, and a third one F^3 and its connection f^3 are shown.

Another advantage accruing from the herein-described construction is the better ventilation of the mine. The fresh air from without the mine is discharged into the rooms and passages of the mine not only in the immediate vicinity of the ore-cutting machines, but all along the lines of railway traversed by the described motors.

I claim—

The herein-described improved mining plant, the same consisting of the line of railway, the motor-car equipped as described, and the compressed-air pipes having the appliance or appliances for tapping the air therefrom, in combination with the mechanism for delivering the air into said air-pipe and the ore-cutting machines, substantially as and for the purpose described.

Witness my hand this 30th day of September, 1889.

JAMES COWIE SIMPSON.

Witnesses:
C. D. MOODY,
D. W. A. SANFORD.