

No. 838,351.

PATENTED DEC. 11, 1906.

E. W. MOIR.
VALVE FOR VENTILATING AIR LOCKS.
APPLICATION FILED JUNE 28, 1906.

Fig. 1.

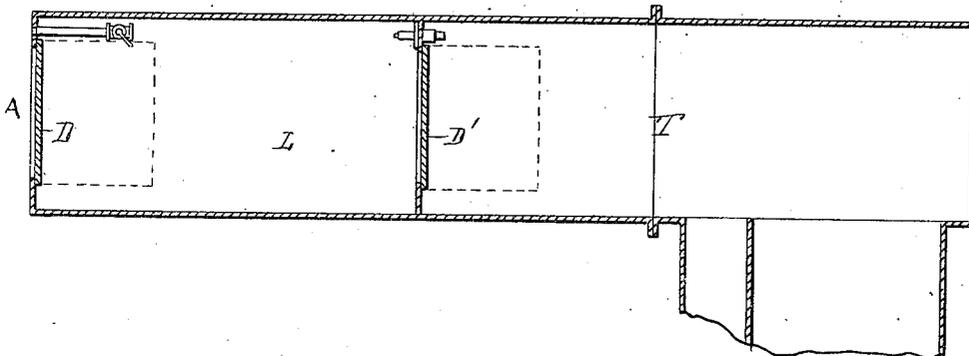
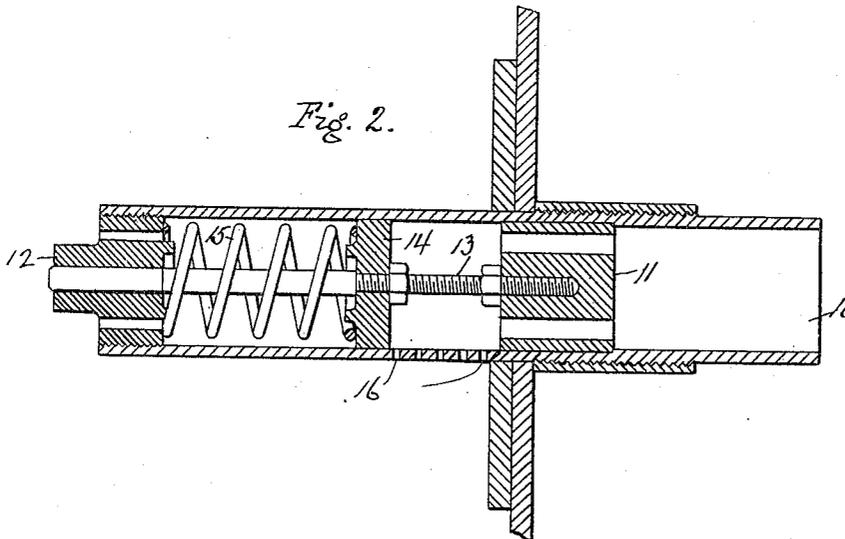


Fig. 2.



WITNESSES

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ERNEST W. MOIR, OF LONDON, ENGLAND, ASSIGNOR TO S. PEARSON & SON, INC., OF LONG ISLAND CITY, NEW YORK, A CORPORATION OF NEW YORK.

VALVE FOR VENTILATING AIR-LOCKS.

No. 838,351.

Specification of Letters Patent.

Patented Dec. 11, 1906.

Application filed June 28, 1906. Serial No. 323,954.

To all whom it may concern:

Be it known that I, ERNEST W. MOIR, a subject of the King of Great Britain and Ireland, residing in London, England, have invented certain new and useful Improvements in Valves for Ventilating Air-Locks, of which the following is a specification.

My invention relates to automatic means for ventilating air-locks during the locking-out operation.

This invention is intended for use in air-locks between the atmosphere and the high-pressure required in tunnels, caissons, and the like.

As is well known to those familiar with the art to which this invention relates, the locking-out operation requires from five to fifteen minutes, according to the pressure in the tunnel, and when the lock is taxed to its utmost capacity, with the men, for example, in the changing of the "shifts," the air becomes very foul in that time, as well as foggy, owing to the decompression.

It is the object of my invention to provide means for automatically supplying fresh air to the lock during the locking-out.

In the accompanying drawings I have shown a preferred form of valve adapted to supply air from the tunnel, which may be considered comparatively fresh, as air is continually being supplied thereto to maintain a constant pressure.

In the drawings, Figure 1 is a diagrammatic sectional view showing a tunnel and an air-lock with my device applied therein, and Fig. 2 is a longitudinal section of a preferred form of valve.

Referring to the drawings, A represents the entrance, or the part of the tunnel at atmospheric pressure. L is the lock, and T the tunnel, having communicating doors D and D' in the separating-partitions.

The valve shown comprises a hollow cylindrical casing 10, open at one end with the tunnel-pressure and having a movable perforated piston-valve 11. At the other end the cylinder is open to the variable pressure of the air-lock through a small stationary block 12. The piston-valve 11 is rigidly connected to a piston-rod 13, which passes through a central hole in the block 12. Also rigidly connected to this piston-rod near the middle is a solid piston 14. Behind the piston 14 and bearing against the stationary block 12 is a

spring 15, adapted to be compressed by the constant pressure of the tunnel on the reduction of pressure in the lock. Between the piston 14 and the piston-valve 11 when the valve is in its normal position (shown in Fig. 2) are a number of holes 16 through the wall of the casing. Through these openings and the holes in the valve 11 there is a direct communication between the tunnel and the lock.

The operation of this valve is substantially as follows: After the men enter the lock from the tunnel and close the doors the exhaust-valve is opened, and the pressure in the lock immediately begins to fall. The air in the tunnel being under high pressure passes through the perforations in the piston-valve 11 and the holes 16 of the valve-casing, but not so rapidly as the air is leaving the lock through the exhaust-valve. At the same time the tunnel-pressure acting on one side of the piston 14 is greater than the lock-pressure on the opposite side, which will force the piston-valve 11 in, compressing the spring, thereby gradually covering the holes in the casing, so that when the pressure in the lock becomes equal to that of the atmosphere the valve 11 will have covered all of the holes and stopped the inflow of air from the tunnel. In other words, while there is little difference of pressure in the tunnel and air-lock many openings 16 are provided, and these are gradually closed automatically as the pressure falls in the air-lock and are shut off entirely at atmosphere. By these means a constant supply of just sufficient fresh air is provided for the comfort of the men and to disperse the fog.

I claim as my invention—

1. In combination with an air-lock, means for automatically supplying fresh air thereto during the locking-out operation.

2. In combination with a tunnel and air-lock, means communicating with the tunnel for automatically supplying air from the tunnel to the lock during the locking-out operation.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ERNEST W. MOIR.

Witnesses:

GEORGE MEYESON,
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