No. 797,816. PATENTED AUG. 22, 1905.

E. W. MOIR.

AIR LOCK APPARATUS FOR TUNNELS.

APPLICATION FILED MAR. 18, 1905.

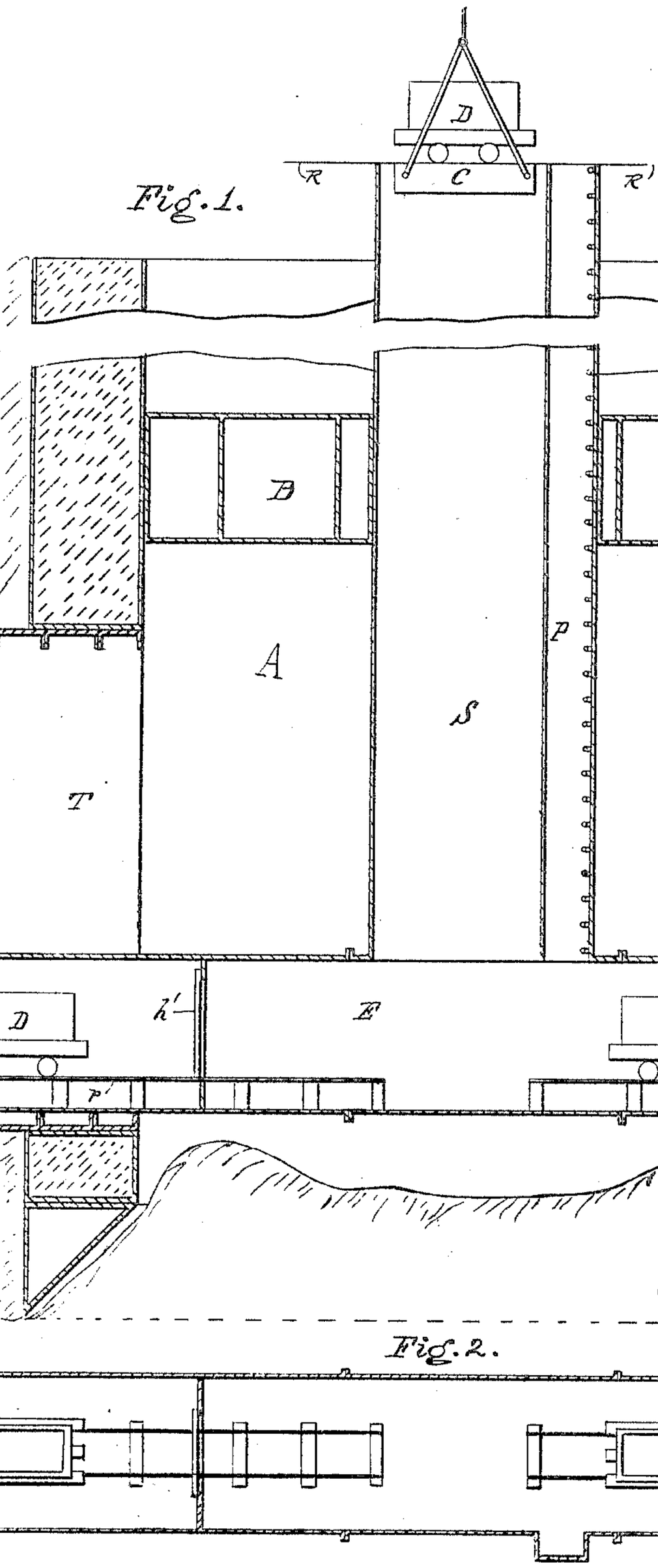

Fig. 1.

Fig. 2.

WITNESSES

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

AIR-LOCK APPARATUS FOR TUNNELS.

No. 797,816. Specification of Letters Patent. Patented Aug. 22, 1905.

Application filed March 18, 1905. Serial No. 250,781.

To all whom it may concern:

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

My invention relates to improvements in air-lock apparatus for use in connection with the construction of tunnels where excavations have to be carried on under pressure greater than atmospheric pressure and the material excavated has to be taken out through air-locks.

My present invention consists of a specific form of such an apparatus which has been disclosed but disclaimed in another application for patent filed by me March 18, 1905, Serial No. 250,780.

In the accompanying drawings, Figure 1 is a vertical section through a caisson with tunnel ends embodying my invention, and Fig. 2 is a sectional plan view through the air-locks.

A is the caisson, which may be of any suitable construction, circular or rectangular in section, and provided with the usual cutting edge *a* and the transverse air-tight floor B. Below this transverse floor B, I have indicated the ends of the partially-constructed horizontal tunnels at T T, starting from suitable openings provided for the purpose through the side walls of the caissons.

Passing through the air-tight floor B is a vertical shaft S, which may be conveniently built of metal and through which passes the hoisting-cage C. At the open upper end of this hoisting-shaft I provide horizontal runways R for the wheeled trucks D, which are carried up and down by the hoisting-cage C.

The lower end of the hoisting-shaft S opens to a horizontal air-lock leading to each tunnel. In a caisson where, as illustrated, there are two tunnels opposite each other, the two horizontal air-locks may have a common central chamber E leading to each air-lock, the usual pairs of doors *h h'* being employed. Along the bottom of the chamber E and also of the air-lock chambers are provided runways *r* for the wheeled trucks D.

When an empty truck is lowered on the cage C, it is run off the platform of the cage to the right or the left air-lock chamber, as required, and thence into its tunnel to the point where excavated material can be loaded upon it. The loaded trucks are run back again and pass through the air-locks in the usual way, one door being opened at a time, and then each truck is run onto the hoisting-cage and carried to the surface, where it may be run off and dumped.

Alongside the vertical shaft S is a passage-way P with ladder for the workmen, this passage-way opening at its lower end into the chamber E.

I claim as my invention—

1. Air-lock apparatus for tunnels having a vertical shaft and hoisting-cage therein, adapted to receive a wheeled truck and a horizontal air-lock opening from the bottom of the shaft, such horizontal air-lock having runways for the truck.

2. Air-lock apparatus for tunnels, comprising a caisson having an air-tight floor and hoisting-shaft passing therethrough with a hoisting-cage in the shaft and a horizontal air-lock at the bottom of the shaft and opening from the latter.

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

ERNEST W. MOIR.

Witnesses:

C. SEDGWICK,

HUBERT HOWSON.