

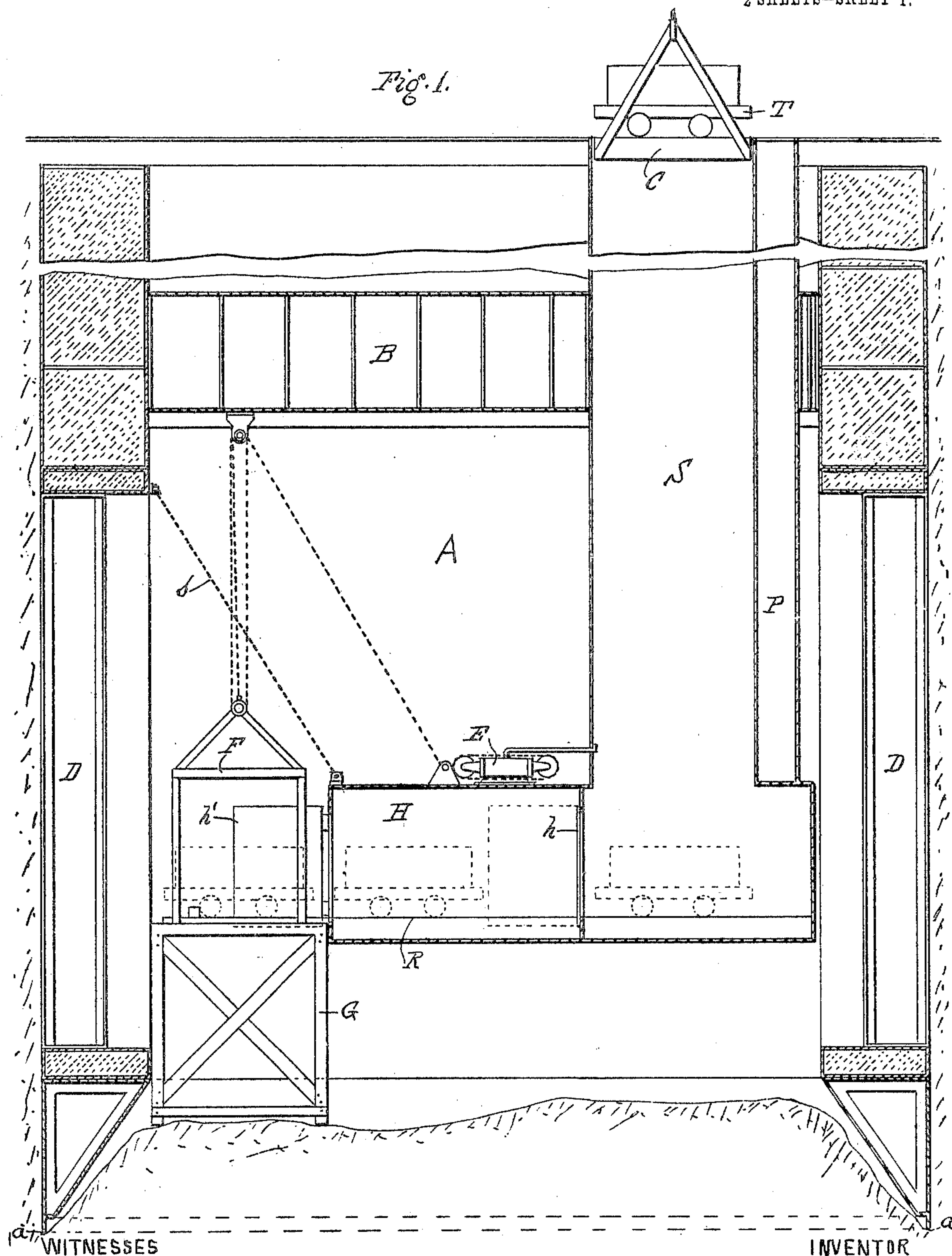
No. 797,817.

PATENTED AUG. 22, 1905.

E. W. MOIR.  
AIR LOCK APPARATUS FOR CAISSONS.

APPLICATION FILED MAR. 18, 1905.

2 SHEETS—SHEET 1.



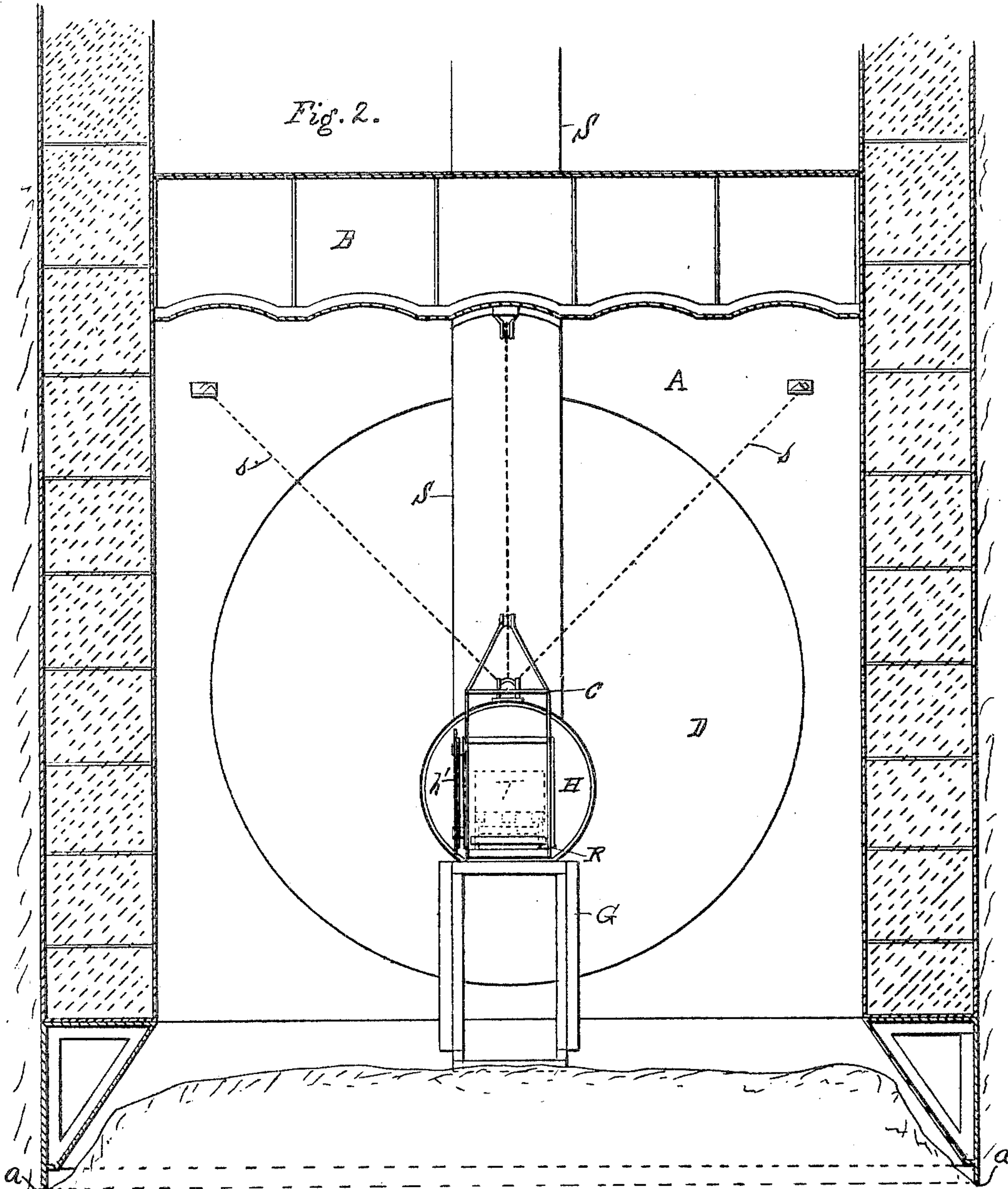
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INVENTOR  
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WITNESSES

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# UNITED STATES PATENT OFFICE.

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 CAISSONS.

No. 797,817.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed March 18, 1905. Serial No. 250,782.

*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 Caissons, of which the following is a specification.

My invention consists of improvements in the construction of air-lock apparatus for caissons in which excavating-work has to be carried on under a pressure greater than atmospheric pressure and the material excavated has to be taken out through air-locks.

In the accompanying drawings, Figure 1 is a vertical section of a caisson provided with my improvements, and Fig. 2 is a vertical section at right angles to Fig. 1.

The caisson A may be of any suitable construction, with a cutting edge *a* at the bottom and an air-tight floor B. In the drawings I have illustrated the caisson as one having plugs D D, which are adapted to be removed to start tunnel-borings at right angles thereto when the caisson has been sunk to the desired depth.

Passing vertically through the air-tight floor B is a shaft S, in which works a hoisting-cage C. The upper end of the shaft is open to the atmosphere and so arranged that when the cage has been hoisted to the top a wheeled truck T thereon may be run off on suitable runways to dump its load. The lower end of the vertical shaft opens into a horizontal air-lock H, which is provided with two doors *h h'*, the chamber between the two doors being of sufficient size to contain one of the material-trucks T when the inner door is open. The floor of the air-lock chamber is provided with a runway R for the guidance of the wheels of the truck. Between the end of the air-lock and the wall of the caisson I leave sufficient space for a secondary hoisting-cage F, which may be vertically guided in timbers or other means G. This cage F is hoisted and lowered by means of ropes or chains and

pulleys controlled from a suitable hoisting-engine E. The air-lock may be suitably braced by stays or guys *s*.

The empty trucks are lowered through the shaft and run off from the platform of the cage into the air-lock, the outer door *h* of the latter being open for the purpose. The outer door *h* is then closed and the inner door *h'* is opened and the truck run off onto the cage F, which has been raised to proper position to receive it. This cage is then lowered, and the empty truck can then be filled, being run to any desired part of the space inclosed within the caisson for the purpose. A loaded truck is run onto the cage F when the latter is lowered. This cage is then hoisted to a position opposite the end of the air-lock, the inner door *h'* is opened, and the truck run into the chamber and the door then closed. Then the outer door *h* is opened and the truck run onto the cage C, which can then be hoisted to the surface.

A passage-way with ladder for the workmen may be provided at P alongside the hoisting-shaft, this passage-way opening at its lower end into the bottom of the shaft. This passage-way may also be utilized for piping.

I claim as my invention—

1. Air-lock apparatus, comprising a caisson having an air-tight floor, a vertical shaft, a hoisting-cage therein, a horizontal air-lock at its lower end with a runway in the air-lock and a secondary hoist within the caisson.

2. The combination of a caisson having an air-tight floor with a vertical shaft and horizontal air-lock at its lower end and stays to support said air-lock.

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.