R. B. DAVY.

VACUUM RAILWAY.

APPLICATION FILED MAY 23, 1919.

1,336,732.

Patented Apr. 13, 1920.

2 SHEETS—SHEET 1.

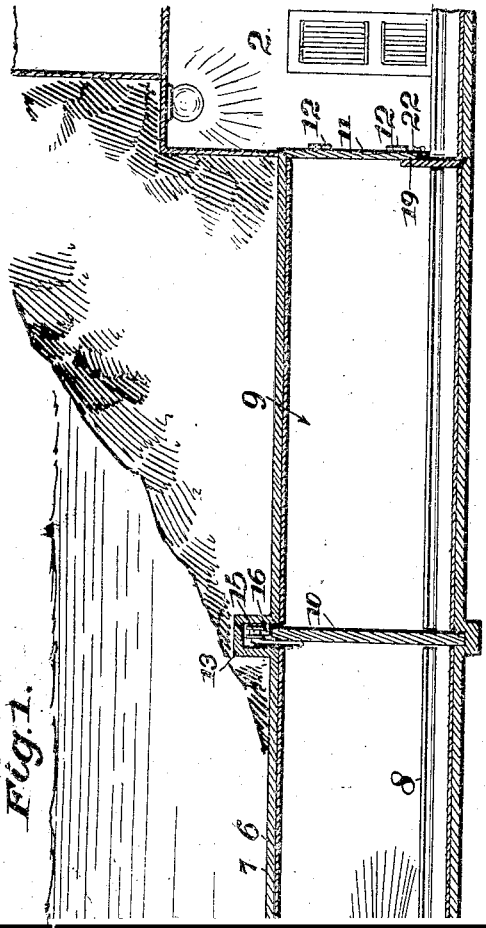

Fig. 1.

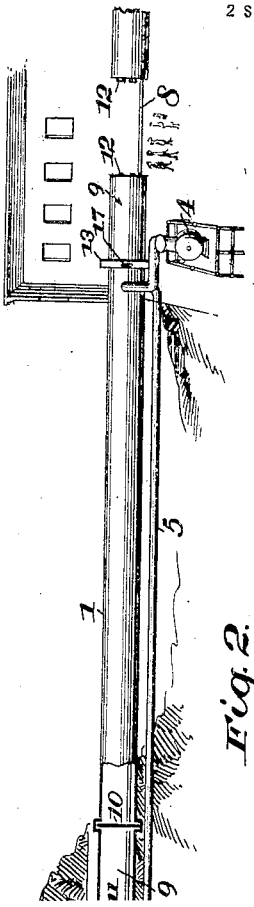

Fig. 2.

R. B. DAVY.

VACUUM RAILWAY.

APPLICATION FILED MAY 23, 1919.

1,336,732.

Patented Apr. 13, 1920.

2 SHEETS—SHEET 2.

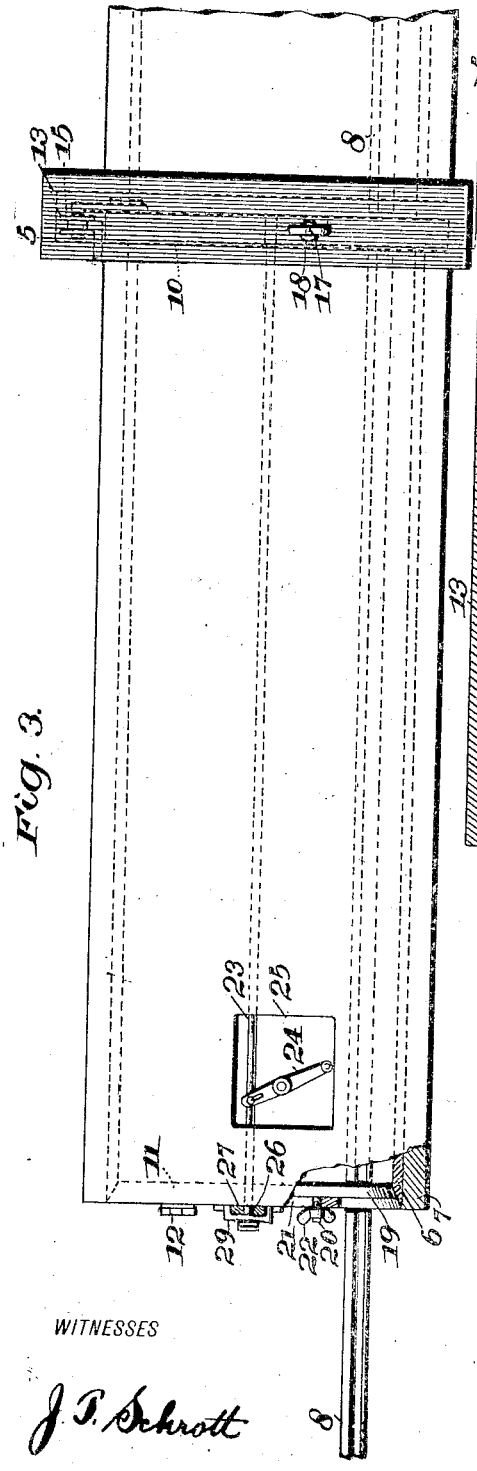

Fig. 3.

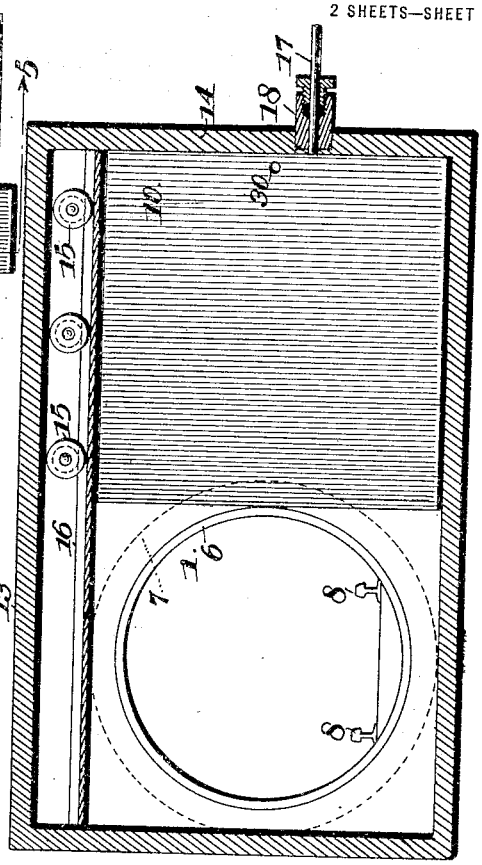

Fig 5

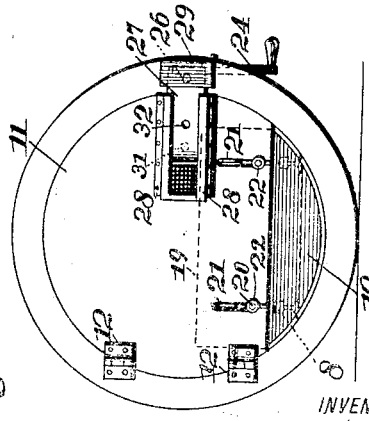

Fig 4.

WITNESSES

J. F. Schrott

INVENTOR

Robert B. Davy

BY Munn & Co.

ATTORNEYS

ROBERT BALLARD DAVY, OF HAYWARD, CALIFORNIA.

VACUUM-RAILWAY.

1,336,732. Specification of Letters Patent. Patented Apr. 13, 1920.

Application filed May 23, 1919. Serial No. 299,257.

To all whom it may concern:

Be it known that I, ROBERT B. DAVY, a citizen of the United States, and a resident of Hayward, county of Alameda, and State of California, have invented certain new and useful Improvements in Vacuum-Railways, of which the following is a specification.

My invention relates to improvements in railways, and it consists in the constructions, combinations and arrangements herein described and claimed.

An object of my invention is to provide a railway, comprising generally, a tube with stations at intervals, the tube between the stations having a partial vacuum produced therein so that suitably propelled cars moving therein may travel with greater speed by reason of the lessening of the air resistance.

A further object of the invention is to provide a novel arrangement in the stations, whereby the car has egress and ingress to the adjacent vacuum tube portions, without admitting enough air to said tube portions to destroy the vacuum.

A further object of the invention is to provide a novel locking arrangement for the sliding and hinged doors which form important parts of the aforesaid stations.

tube sections between the stations 2, by means of a suitable air pump 4, which has pipe connections 5 to the various tube sections, substantially as illustrated in Fig. 2.

The tube 1 is capable of construction in many different ways, depending altogether on particular circumstances. In order to illustrate one construction, the drawings show it to consist of an inner metallic lining 6 which is covered by suitably reinforced concrete 7.

The tube may be laid or erected on the surface of the ground, under ground or under water as the nature of the ground of the region wherein the vacuum railway is to run, may make necessary. Rails 8 are suitably supported in the tube, these running up close to the various doors of a station 2, where substantially air tight joints are maintained in the manner described below.

The station structure comprises a car compartment 9 at each side of the central station 2 where air is present at ordinary atmospheric pressure. There is a compartment 9 at the end of each tube 1 adjacent to the station 2, as clearly shown in Fig. 2.

The compartment 9, in each case, is defined by a transversely sliding door 10, and a door 11 hinged at 12 to open into the station 2. A superstructure 13 including a

It is preferable that the slide 19 be used, because a tight joint at the bottom may be made more easily by this means, than by employing the hinged section above spoken of. To carry out the construction, the slide 19 is provided with a plurality of studs 20 which occupy slots 21 in the door, and have suitable fastening means 22 through which the slide is firmly clamped in position when once adjusted.

The door locking means is a feature of importance in the present construction. As shown in Fig. 3 the locking means comprises a locking rod 23 which is manually actuated by a suitably pivoted handle 24 in a recess 25 in the side of the tube 1.

Normally the forward end of the locking rod, namely that end nearest the station 2, occupies an opening 26 in the extremity of a sliding latch or bolt 27. The bolt is carried in guides 28 on the door 11, and as stated, is normally positioned in the keeper [redacted] that the door 11 cannot be opened with

whereupon the sliding door 10 is opened to enable the car to proceed.

The advantages.

It is thought unnecessary to dwell at length on the advantages of this particular arrangement of railway, but in order that some of the features may be appreciated it is desired to say that one of the most important benefits to be derived from running cars or trains of cars in a tube wherein the air is partially exhausted is, extremely rapid transportation from congested commercial centers to more open and free parts of the country.

The question of transportation is one that gives rise to problems that are sometimes most difficult of solution. Crowding of cars is an annoyance commonly experienced, which has many attendant evils. This crowding is produced largely by the condition that the cars are limited in speed and consequently cannot make trips quick enough. By running them in a tube where they will

ments at adjacent ends of the tube sections, enabling the egress and ingress of cars from and into said sections without destroying the vacuum conditions therein.

3. A vacuum railway, comprising a tube divided into a plurality of sections by suitably disposed stations, and including movable means defining a compartment at the adjacent end of each tube section, enabling the entrance and exit of a car into the station without destroying the vacuum conditions normally maintained in said tube sections.

4. A vacuum railway, comprising a tube divided into a plurality of sections, with means defining a car compartment at the adjacent ends of the tube sections; said means comprising a slidable door in each tube section, a hinged door at the end of each section; means for maintaining a vacuum in the tube sections, and means operatively associated with each sliding and hinged door, preventing the opening of both at the same time.

5. A vacuum railway, comprising a vacuum tube section, provided with means defining a car compartment; said means comprising a door normally across the tube but to be opened on the approach of the car, a second door normally closing the end of the tube, and instrumentalities normally locking the second door but permitting the opening of the first, but capable of movement to unlock the second and then lock the first.

6. A vacuum railway, comprising a vacuum tube section, with means defining a car compartment; a door housing in the tube, a movable door in said housing normally across the tube, a door hinged on the end of the tube, both doors constituting said compartment forming means; means for normally locking the hinged door, and an operatively associated movable member cooperating with said locking means to prevent the opening of the hinged door without first locking the other door.

7. A vacuum railway, comprising a vacuum tube section with rails, means defining a car compartment at one end including a transversely slidable door normally across the tube, housing means for the door, supporting means therein for the door, a door hinged on the end of the tube, with means forming a tight closure below the rails, locking means for the hinged door, and a manually operated locking member cooperating with said locking means to prevent the opening of the hinged door without first locking the sliding door by means of said manually operated locking member.

8. A vacuum railway, comprising a vacuum tube section with rails, a sliding door in the tube defining one end of a car compartment, a housing for the door, suitable actuating and supporting means for the door in the housing, a hinged door at the end of the tube defining the other end of the car compartment, a slidable portion carried by the door enabling the opening of the door above the rails and making a tight joint when the door is closed, a bolt on the door with a keeper on the tube, said bolt having a locking opening and an air opening normally out of registration with a similar opening in the door, and a manually actuated locking rod operatively carried by the tube, occupying said locking opening to normally prevent the opening of the hinged door, but free of the sliding door whereby it may be opened, said locking rod being movable into locking engagement with the sliding door to enable the opening of the hinged door.

ROBERT BALLARD DAVY.