No. 672,877. Patented Apr. 23, 1901.

J. W. GUILLOTT.

ELECTRIC LIGHTING SYSTEM FOR RAILWAY CARS.

(Application filed May 15, 1896.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

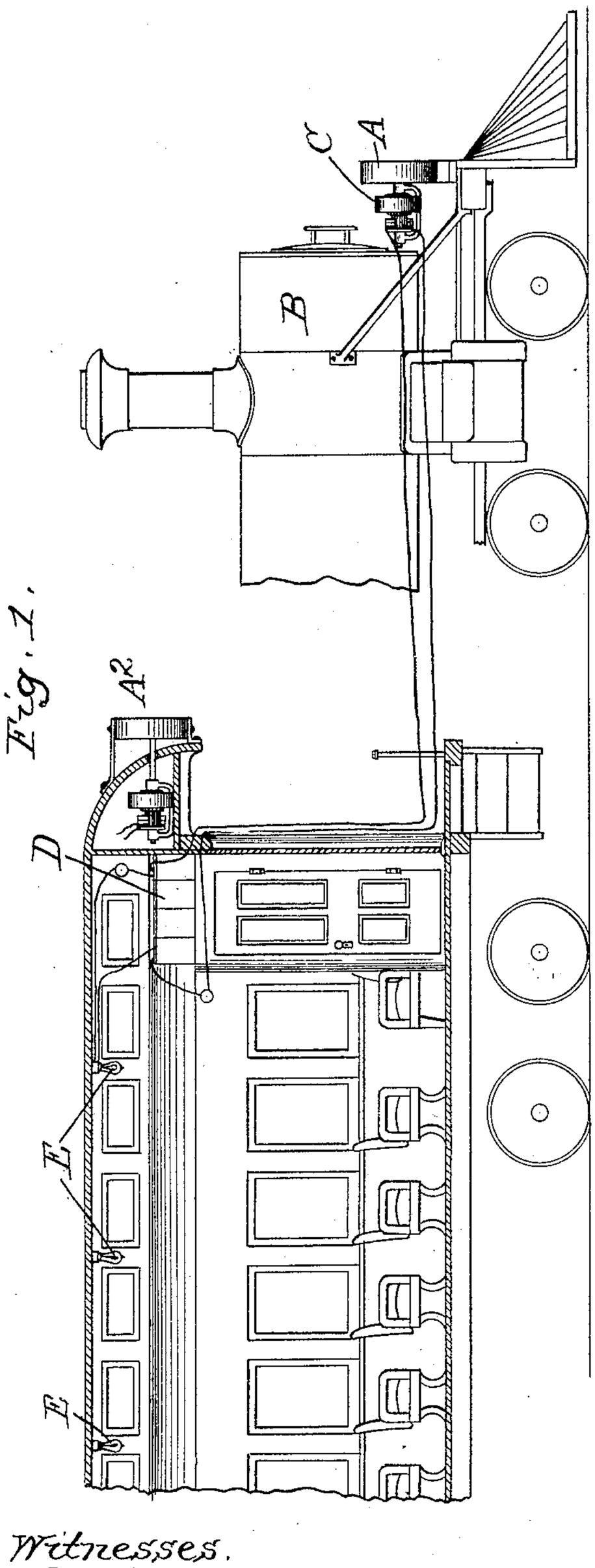


Fig. 2.

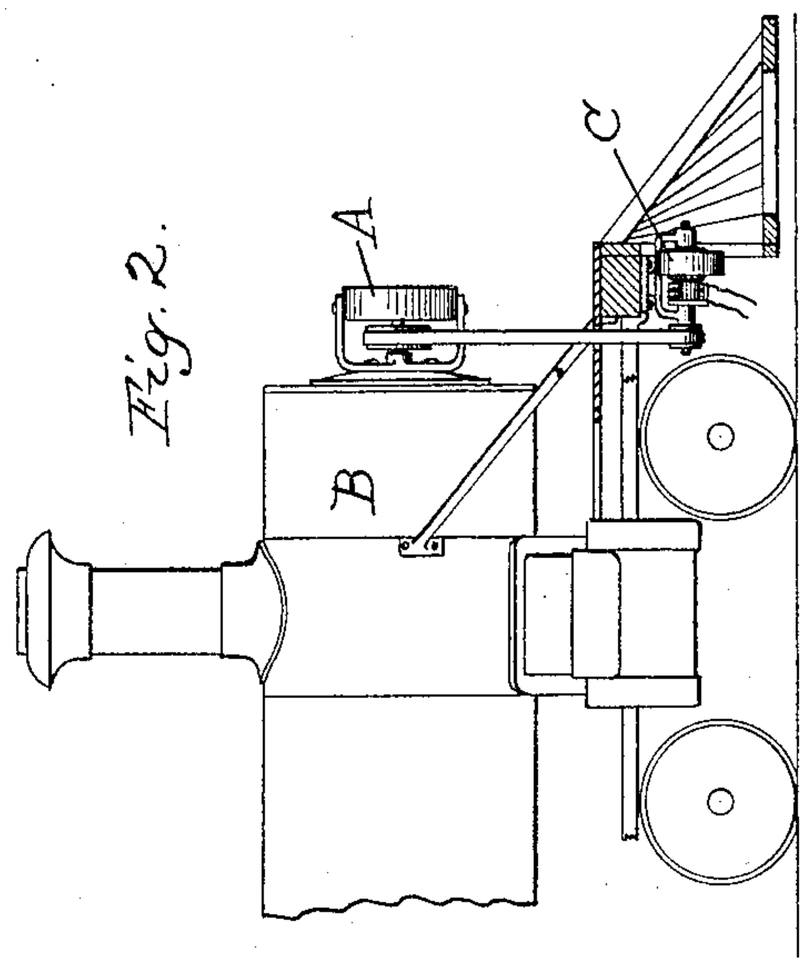


Fig. 3.

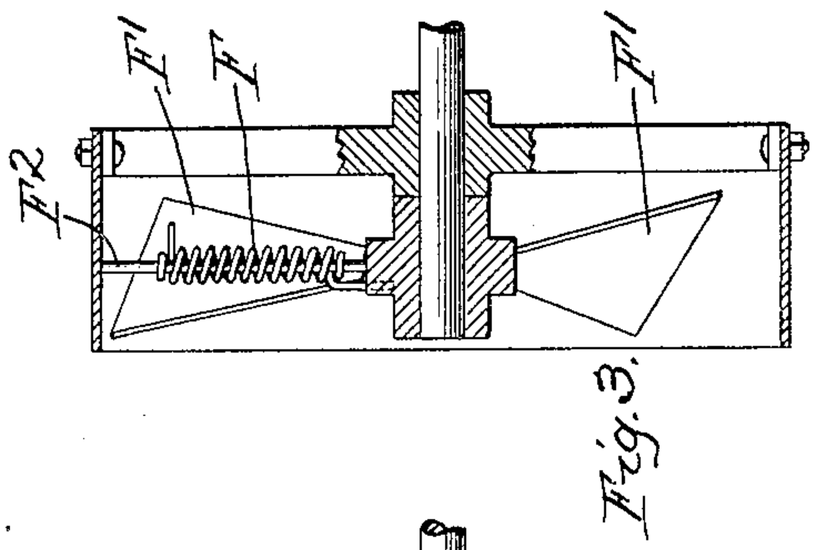
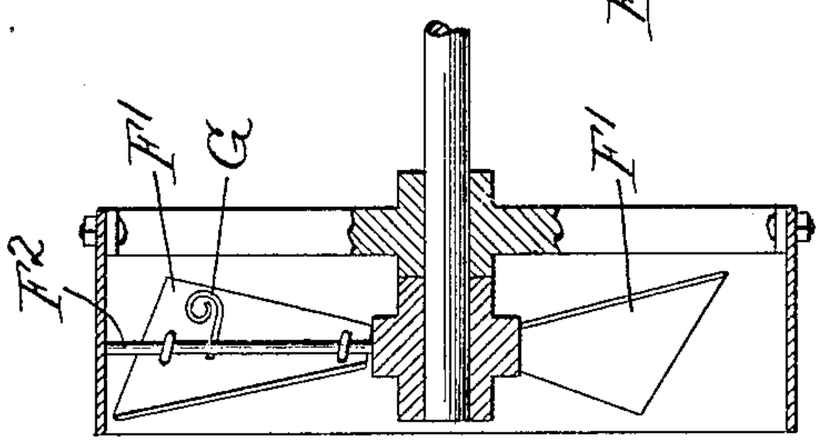


Fig. 4.



Witnesses.
E. T. Wray
Donald M. Barton

Inventor,
James William Guillott,
by Dawes & W. Parker Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 672,877. Patented Apr. 23, 1901.

J. W. GUILLOTT.

ELECTRIC LIGHTING SYSTEM FOR RAILWAY CARS.

(Application filed May 15, 1896.)

(No Model.) 2 Sheets—Sheet 2.

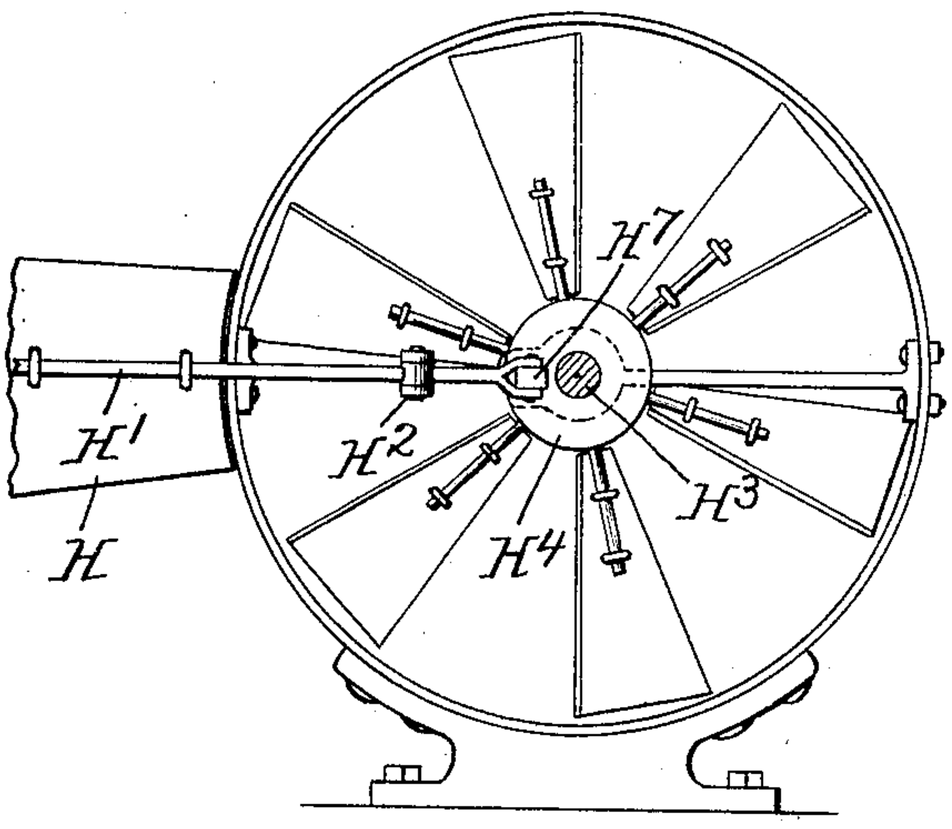


Fig. 5.

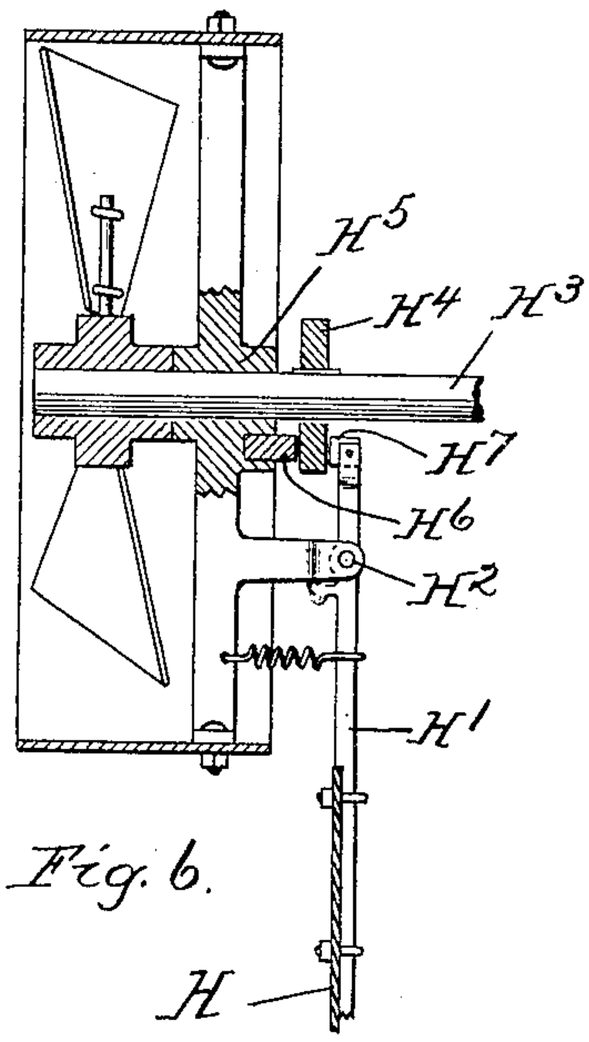


Fig. 6.

Fig. 7.

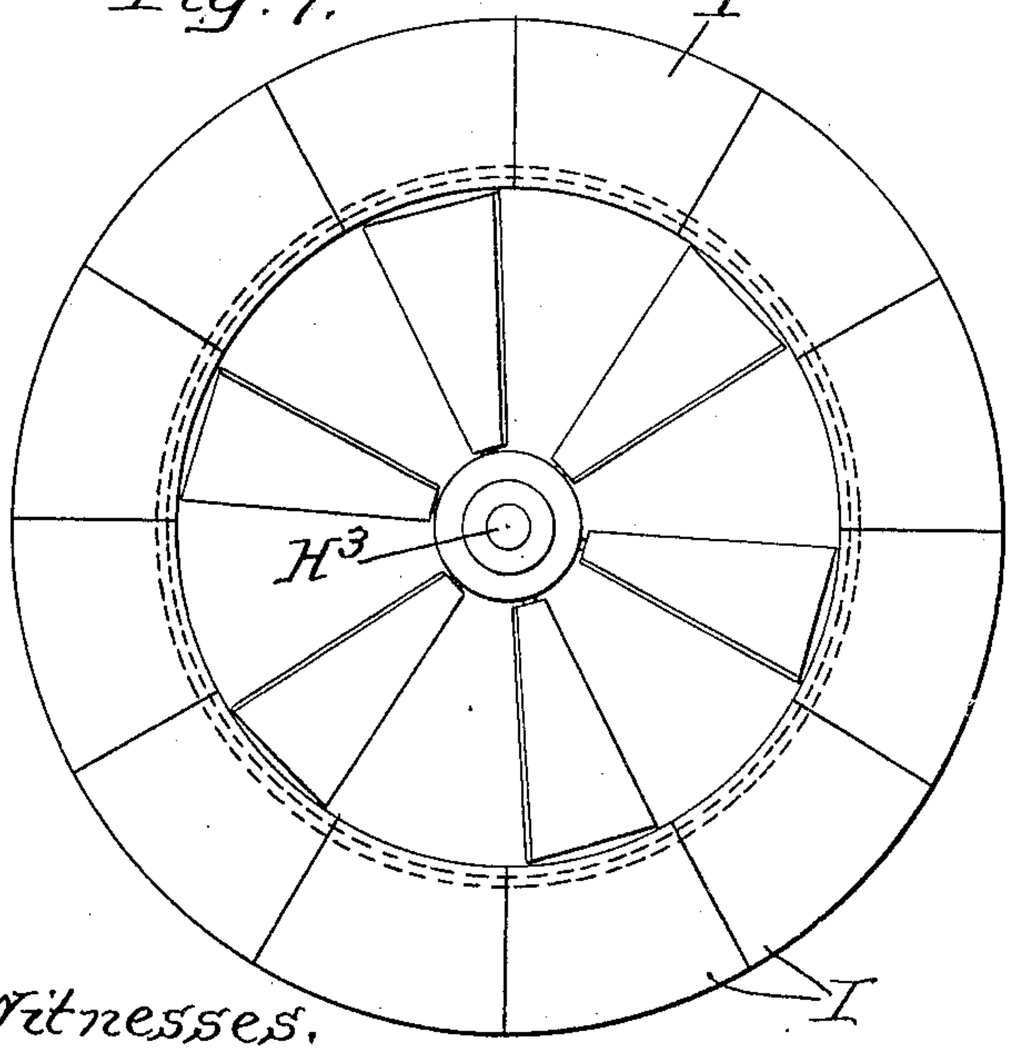
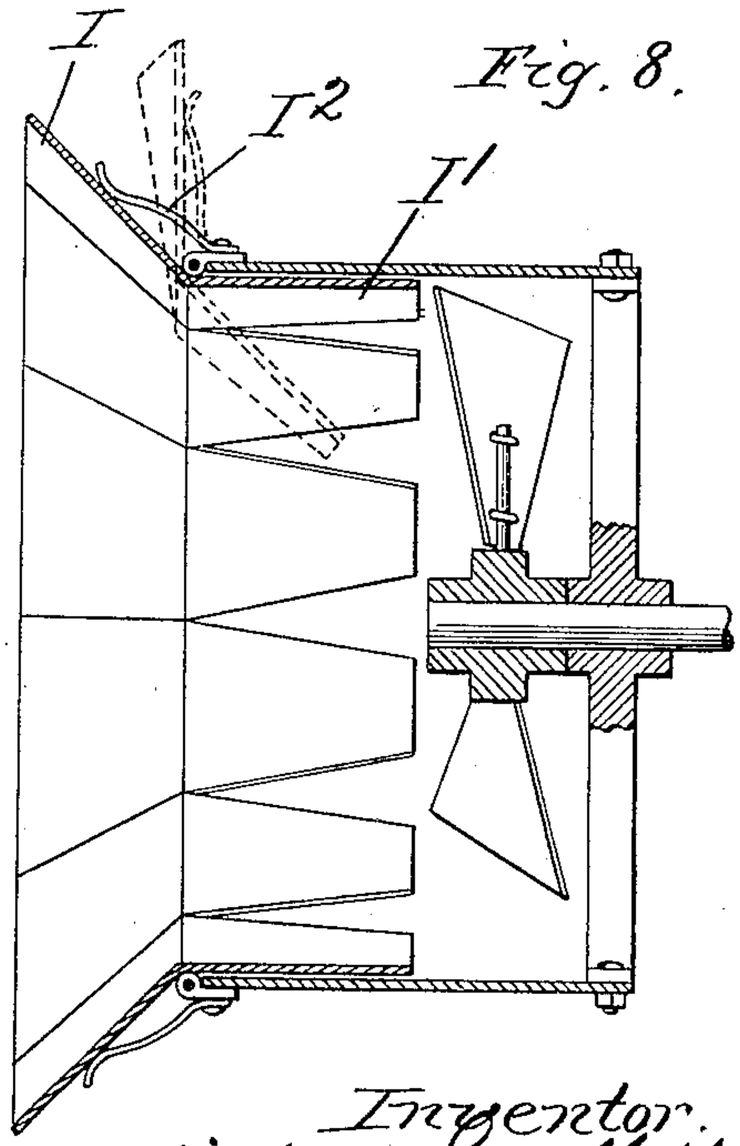


Fig. 8.



Witnesses.
E. T. Wray.
Donald M. Carter.

Inventor.
James William Guillott
by Bowes W. Parker,
His Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES WILLIAM GUILLOTT, OF CHICAGO, ILLINOIS, ASSIGNOR TO GEORGE W. CASS, TRUSTEE, OF SAME PLACE.

ELECTRIC-LIGHTING SYSTEM FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 672,877, dated April 23, 1901.

Application filed May 15, 1896. Serial No. 591,706. (No model.)

To all whom it may concern:

Be it known that I, JAMES WILLIAM GUILLOTT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Train-Lighting Systems, of which the following is a specification.

My invention relates to power-developing appliances adapted to be used upon moving bodies—such, for example, as railway-trains and the like.

My invention is particularly adapted to be used for lighting the moving body with which it is associated, as in the case of railway-trains. When a railway-train, for example, is moving at a high rate of speed, its motion is greatly retarded by the atmosphere striking against the exposed parts of the train.

The object of my invention is to utilize this retarding effect of the atmosphere which necessarily accompanies the operation of railway-trains to generate power to be used in operating lighting devices or other desired devices located upon the train.

In the application of my invention I provide a motor adapted to be operated by the wind, and I locate this motor upon the body or train, so that when said body or train is in motion the relative motion of the motor and the atmosphere will cause said motor to revolve, and thus operate any suitable mechanism which may be connected therewith. I prefer to place the motor in front of an exposed surface against which the wind normally strikes. It is of course evident that this motor may be located in many different positions and that it may be of any construction desired. I therefore do not limit myself to any particular construction of motor or to any particular position of said motor. In the accompanying drawings I have set forth one construction embodying my invention in order that it may be fully understood; but it is of course evident that there are numerous other constructions in which my invention may be embodied.

Figure 1 of the drawings shows a railway-train with parts omitted provided with one form of my power-generating appliance. Fig. 2 is a view of the locomotive of the train, showing the power-generating appliance in a different position. Figs. 3 and 4 show wind-operated motors provided with means for regulating the speed, such means being associated with the vanes of the motor. Fig. 5 shows a motor provided with a braking device for regulating its speed. Fig. 6 is a section through the same. Fig. 7 is a front view of a motor provided with means for limiting the amount of exposed surface. Fig. 8 is a section through the same.

Like letters refer to like parts throughout the several figures.

As shown in Fig. 1, the motor A is located upon the front of the engine B of the train, so as to be operated when the train is moving forward. A dynamo-electric machine C is mounted upon the same frame as the motor and operatively connected therewith. Said dynamo-electric machine is electrically connected with a series of storage batteries D, located in any convenient position, preferably in some part of the car to be lighted. A series of lights E E are placed at convenient points in the car and are adapted to be connected either with the storage battery or directly wth the dynamo-electric machine. As the speed of the train varies, it follows that the rotation of the motor will also vary. I may provide for this by using a peculiar form of dynamo-electric machine—such, for example, as have field-magnets provided with differential windings. As dynamo-electric machines to be operated by motors running at varying speeds and which supply lighting plants may be of various constructions and are well known to those versed in the art, I have not set forth any particular construction, as such construction is no part of my present invention. Neither have I set forth in detail the electrical connections and appliances which may be used in connection with this method of lighting, as such appliances and connections may be of many different forms and are well known to those versed in the art. The drawings are therefore in a measure diagrammatic and are only intended to show one means of embodying my invention.

In Fig. 2 I have shown a different arrangement of motor. In this figure the motor A is

connected to the front end of the boiler of the locomotive and the dynamo-electric machine C is situated back of and beneath the pilot, the motor and dynamo-electric machine being operatively connected by means of a belt. Instead of placing the motor and dynamo-electric machine upon the front of the train I may locate them upon each car, thereby producing an independent plant for each car, as shown at A^2 in Fig. 1. I have shown the motor in the drawings in these various positions in order to set forth the fact that it may have various locations and that I do not wish to be limited in any manner by the position of such motor, as there are many other positions not herein indicated by which the objects desired may be produced.

Instead of providing for the variation in speed of the motor by means of the construction of the dynamo-electric machine or the electric appliances I may construct the motor so that it will be self-regulating. This may be done in many different ways—as, for example, by providing the vanes of the motor with the spring F. (See Fig. 3.) The vane F′ is rotatably mounted upon the rod F^2, and the spring F is connected at one end to the vane and at the other end to the rod. The spring normally tends to hold the vane so that its surface will be exposed to the wind, and the parts are so constructed that when the velocity of the wind reaches a predetermined amount the spring will give and allow the position of the vane to change, so as to decrease the exposed surface, and thereby regulate the speed of the motor.

In Fig. 4 the vane F′ is rotatably connected with the rod F^2, and a spring G is connected with the rod and bears against the vane, said spring being adapted to perform the same purpose as the spring in Fig. 3.

In Figs. 5 and 6 I provide a vane H, which projects beyond the motor and which is connected with an arm H′, pivoted at H^2 to some stationary part. The motor-shaft H^3 is provided with a sliding disk H^4, adapted to be brought into contact with the bearing H^5 of the motor. The end of the arm H′ is in contact with the disk H^4. The air striking against the vane H forces the disk H^4 in contact with the bearing H^5, and the friction between said bearing and said disk tends to retard the motion of the wheel. It will be seen that the greater the velocity of the wind the greater will be the pressure tending to retard the velocity of the motor. I prefer to provide the bearing H^5 with one or more blocks H^6 of carbon, against which the disk H^4 bears, and also to provide the end of the rod H′ with a carbon block H^7. These carbon blocks prevent heating, especially if they have been saturated with oil, and produce much better results in every way.

In Figs. 7 and 8 I have shown a construction by which the amount of exposed surface of the motor is automatically varied as the velocity of the wind varies. In this construction a series of bent plates I I, each provided with an inner end I′, which is of smaller area than the outer end, are pivoted to the case of the motor and are each provided with a spring I^2, which normally presses them so that the ends I′ are against the case of the motor. As the velocity of the wind increases the plates I are moved toward the position indicated in dotted lines in Fig. 8, and the inner ends I′ moving downwardly decrease the opening through which the air is admitted. It will therefore be seen that as the velocity of the wind increases the speed of the motor is regulated by regulating the amount of exposed surface of the motor. I have shown here a number of different ways of regulating the speed of the motor; but it is of course evident that many other constructions may be used. I may regulate by constructing the motor so as to be self-regulating or by the combined use of peculiarly-constructed electric apparatus and peculiarly-constructed motors. I do not limit myself to any means of regulation, as it will be evident to those versed in the art that there are many different ways of providing for this variation in the speed of the motor.

The storage-battery cells may all be located at one place; but when there are a number of cars connected with the train I prefer to provide each car with a group of storage batteries and arrange the circuits so that when the car is disconnected from the train the lamps may be operated by the storage batteries.

The use and operation of my invention will be readily understood from the foregoing description. When the parts are in position upon the train and the train set in motion, current is generated and may be conveyed to the storage batteries, or it may be conveyed directly to the translating devices upon the car. In the latter event it will of course be desirable to have a few cells of storage batteries to supply some or all of the translating devices during the times when the train is stopped at the stations. It is of course understood that there are various ways of connecting the dynamo-electric machine with the translating devices, and any way by which the desired result may be accomplished may be used. Of course the construction will vary with and depend upon the conditions under which the devices are operated. I have shown in the drawings a lighting system connected with the motor; but it is of course evident that the power generated by this motor may be used in any desirable manner. I have suggested different ways of utilizing this power and different constructions to be used; but I wish it to be understood that I have not attempted to suggest all the uses of my invention or all the constructions by which the desired results may be obtained. Neither do I attempt to set out all the advantages of my invention or all the desirable features which it possesses.

I claim—

1. An electric generating system for moving bodies, comprising a wind-operated motor located on the moving body, so as to be operated by the movement thereof, said motor placed in front of an exposed surface against which the wind normally strikes when the body is in motion, a dynamo-electric machine operatively connected with said motor so as to be driven thereby, and one or more translating devices on the moving body electrically connected with said dynamo-electric machine.

2. A train-lighting system, comprising a wind-operated motor located on the train so as to be operated by the movement thereof, said motor placed in front of an exposed surface against which the wind normally strikes when the train is in motion, so as to utilize the force of the wind, a dynamo-electric machine operatively connected with said motor, one or more translating devices on the train, and an electrical connection between said translating devices and the dynamo-electric machine.

3. A train-lighting system, comprising a wind-operated motor located in front of the locomotive so as to be operated by the movement thereof, said motor placed in front of an exposed surface against which the wind normally strikes when the train is in motion, so as to utilize the force of the wind, a dynamo-electric machine located on said locomotive and operatively connected with said motor, a group of storage batteries placed in one or more of the cars connected with the train, said storage batteries being electrically connected with said dynamo-electric machine, and a series of translating devices on said train and adapted to be connected either with said storage batteries or said motor, the whole so arranged that the train is lighted by its movement.

4. A train-lighting system, comprising a wind-operated motor located on the train, said motor so positioned that when the train is moved the motor will be acted upon by the wind so as to be operated, a dynamo-electric machine operatively connected with said motor, means for automatically regulating the electrical efficiency of the dynamo-electric machine to compensate for changes in the wind-pressure applied to the motor, one or more translating devices on the train, and an electrical connection between said translating devices and the dynamo-electric machine.

5. The combination with a movable body of a wind-operated motor located thereon, said motor so positioned that when the body is moved forward the motor will be acted upon by the wind, said motor placed in front of an exposed surface against which the wind normally strikes when the body is in motion, so as to utilize the force of the wind, a dynamo-electric machine located on said movable body and operatively connected with said wind-motor, a series of translating devices on said movable body and adapted to be electrically connected with said dynamo-electric machine, and an independent motor connected with said movable body and adapted to move it forward so as to cause the wind-motor to be operated.

6. A train-lighting system, comprising a wind-operated motor located on the train and having its plane of rotation substantially at right angles to the direction of motion of the train, a dynamo-electric machine operatively connected with said motor, one or more translating devices on the train and an electrical connection between said translating devices and said dynamo-electric machine, said wind-operated motor located in front of an exposed surface against which the wind normally strikes when the train is in motion, so as to utilize the force of the wind.

7. A train-lighting system, comprising a wind-operated motor located on the train and having its plane of rotation substantially at right angles to the direction of motion of the train, a dynamo-electric machine directly connected with said wind-operated motor, means for automatically regulating the electrical efficiency of the dynamo-electric machine to compensate for the changes in the wind-pressure as the speed of the train varies, one or more translating devices on the train and an electrical connection between said translating devices and said dynamo-electric machine.

8. A train-lighting system, comprising a wind-operated motor located on the train and having its plane of rotation substantially at right angles to the direction of motion of the train, said motor located in front of an exposed surface against which the wind normally strikes when the train is in motion, so as to utilize the force of the wind, a dynamo-electric machine located on said train and operatively connected with said motor, a group of storage batteries located on said train and adapted to be electrically connected to said dynamo-electric machine, a series of translating devices on said train adapted to be connected either with the storage batteries or said motor, whereby the train is lighted by its movement, and an independent motor for driving said train forward.

JAMES WILLIAM GUILLOTT.

Witnesses:

DONALD M. CARTER,

E. T. WRAY.