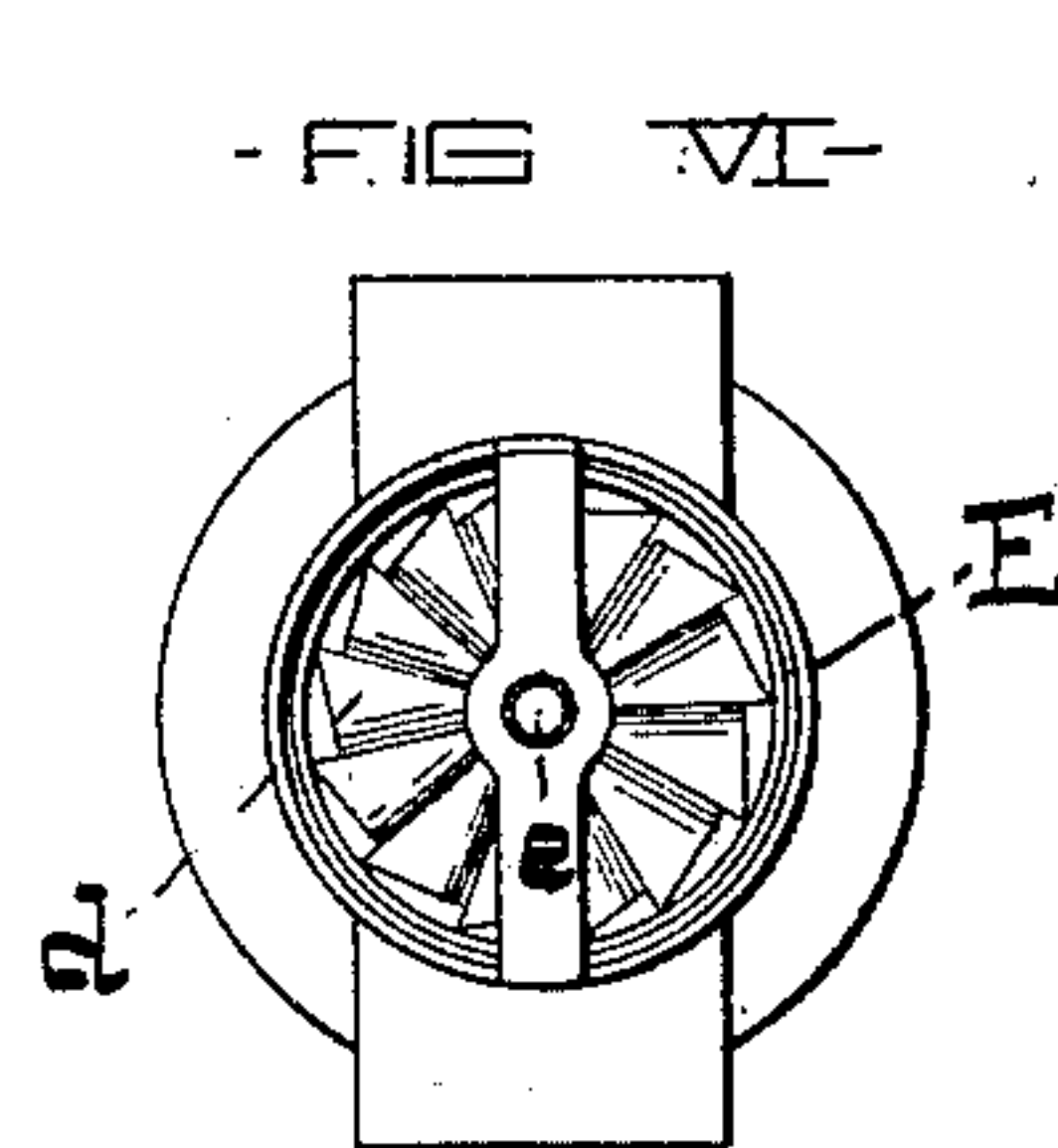
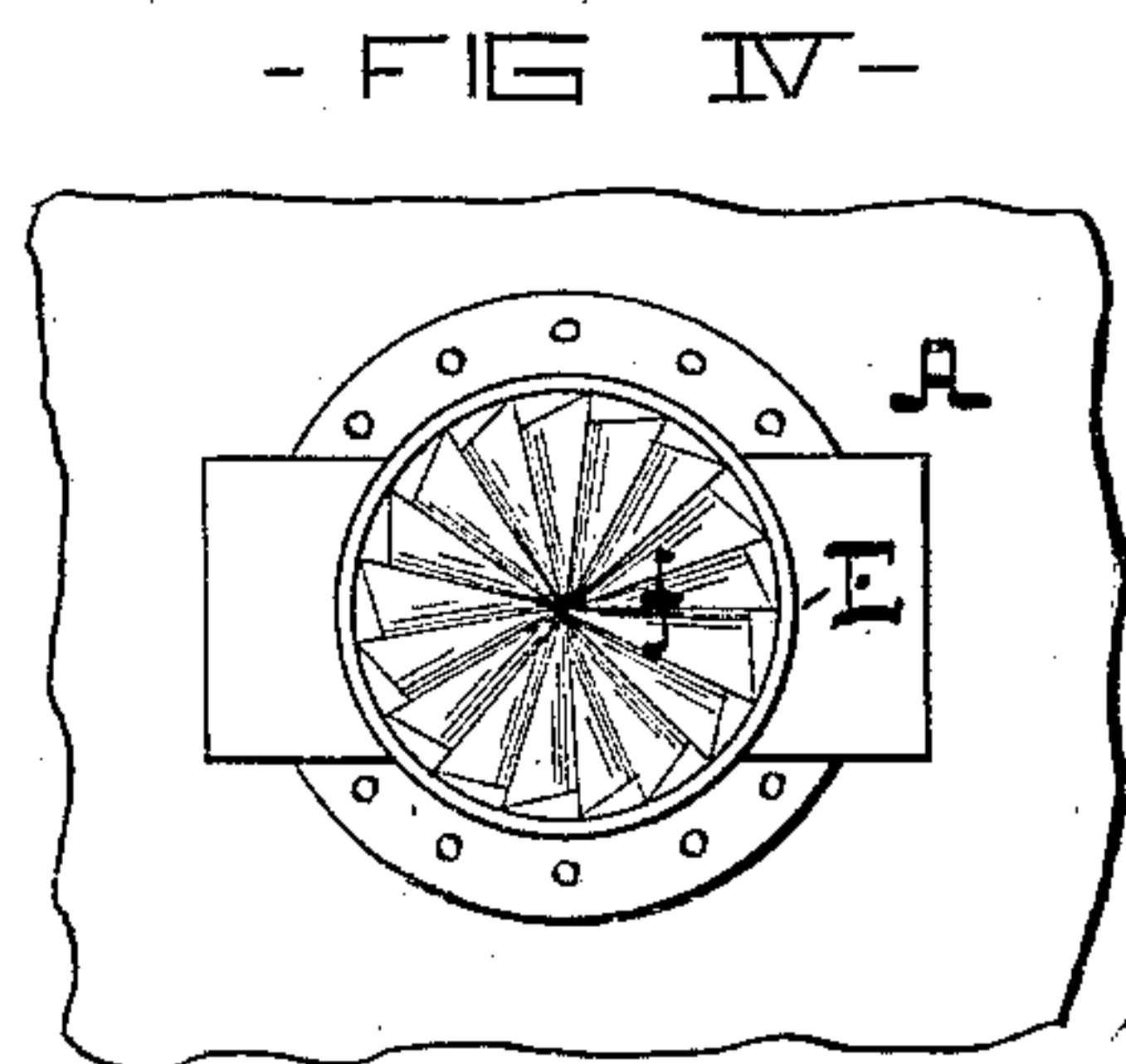
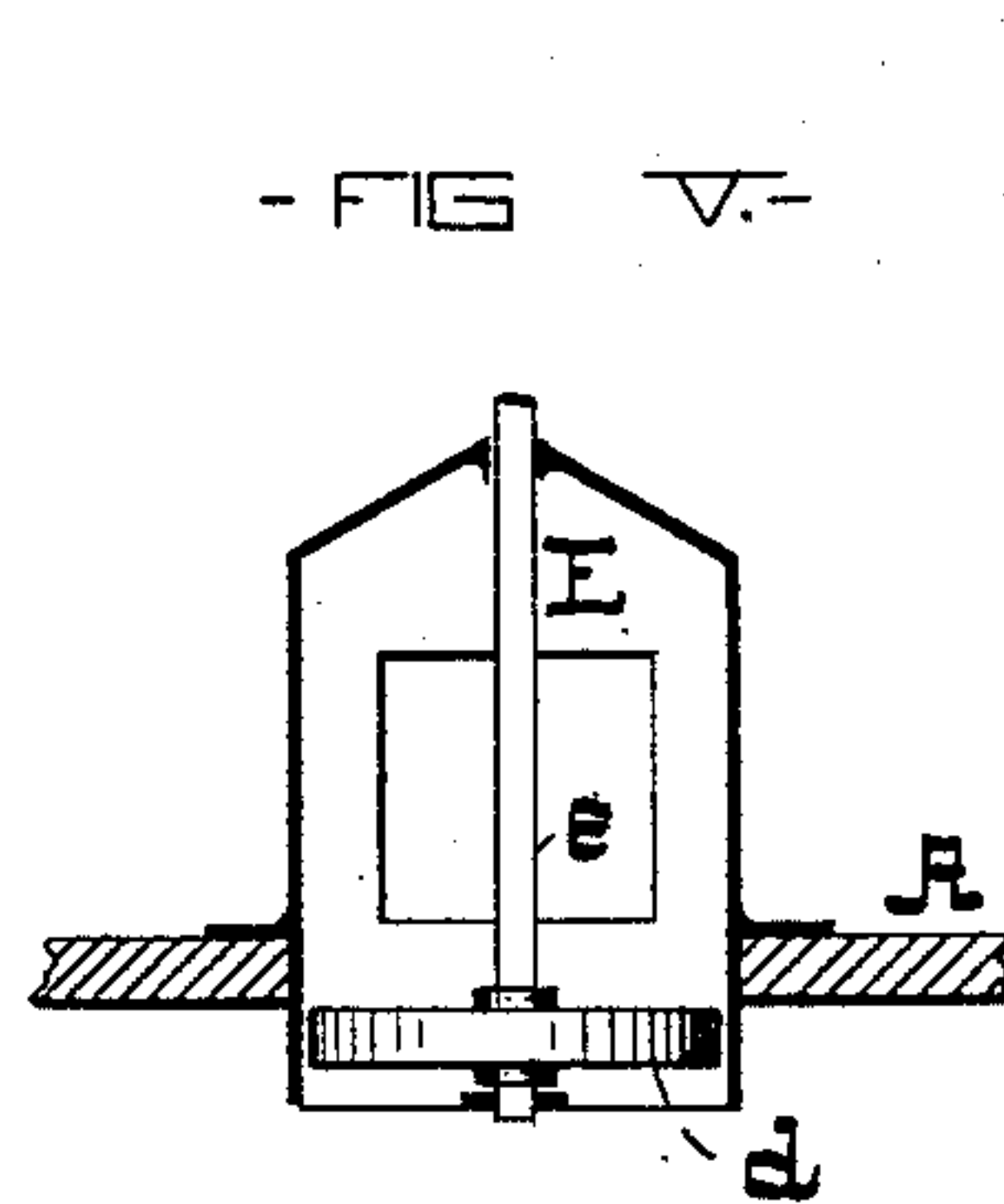
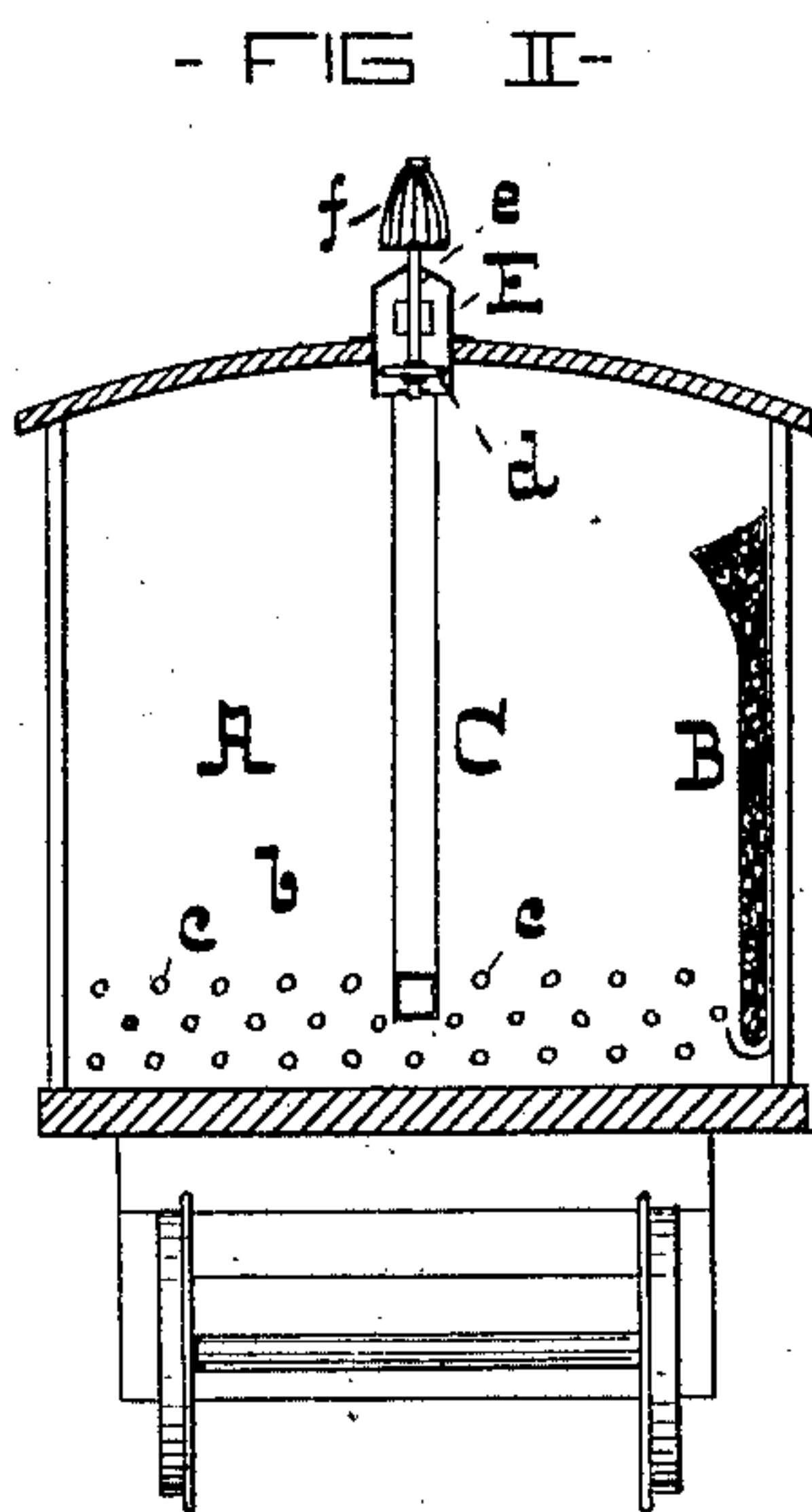
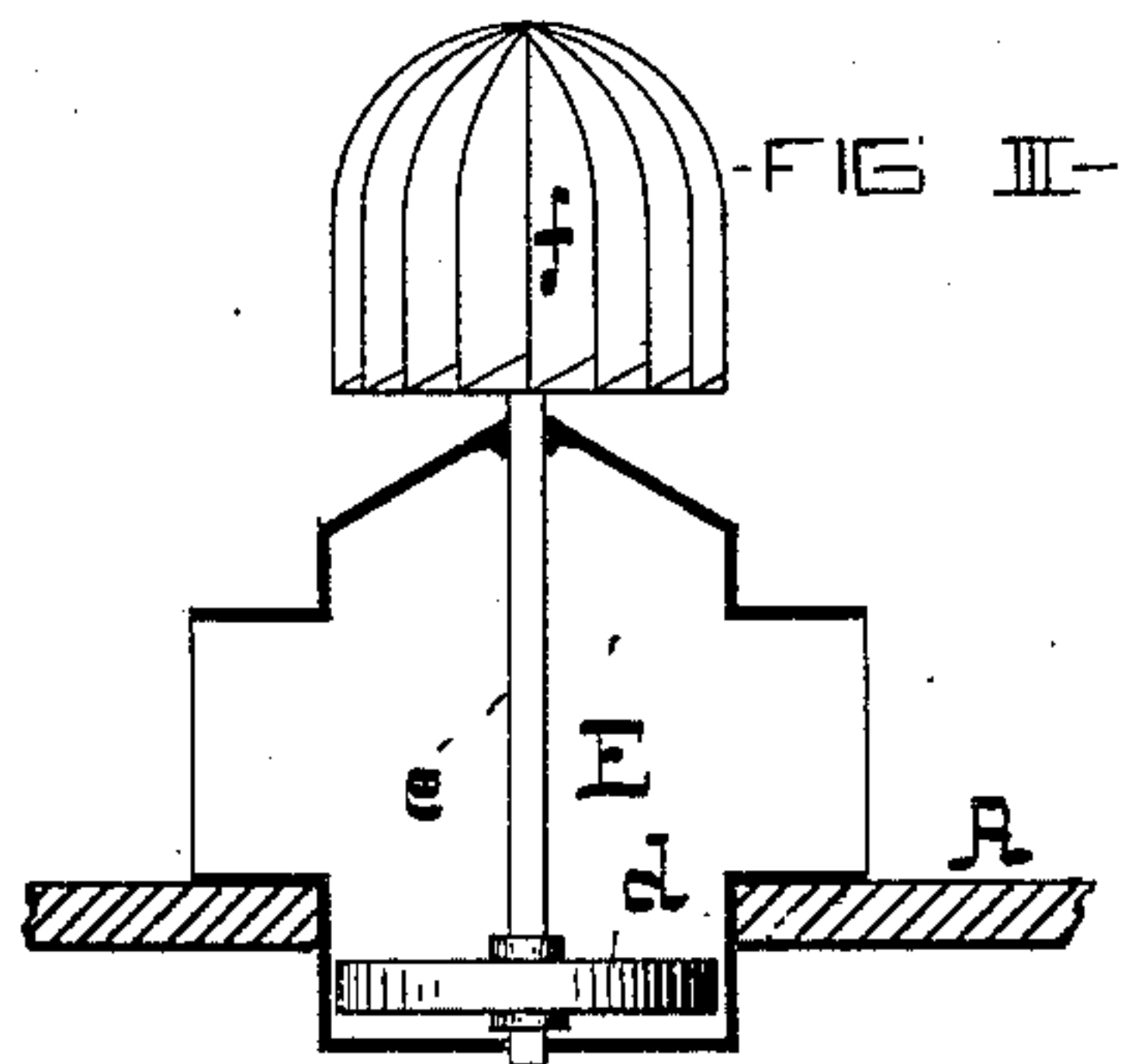
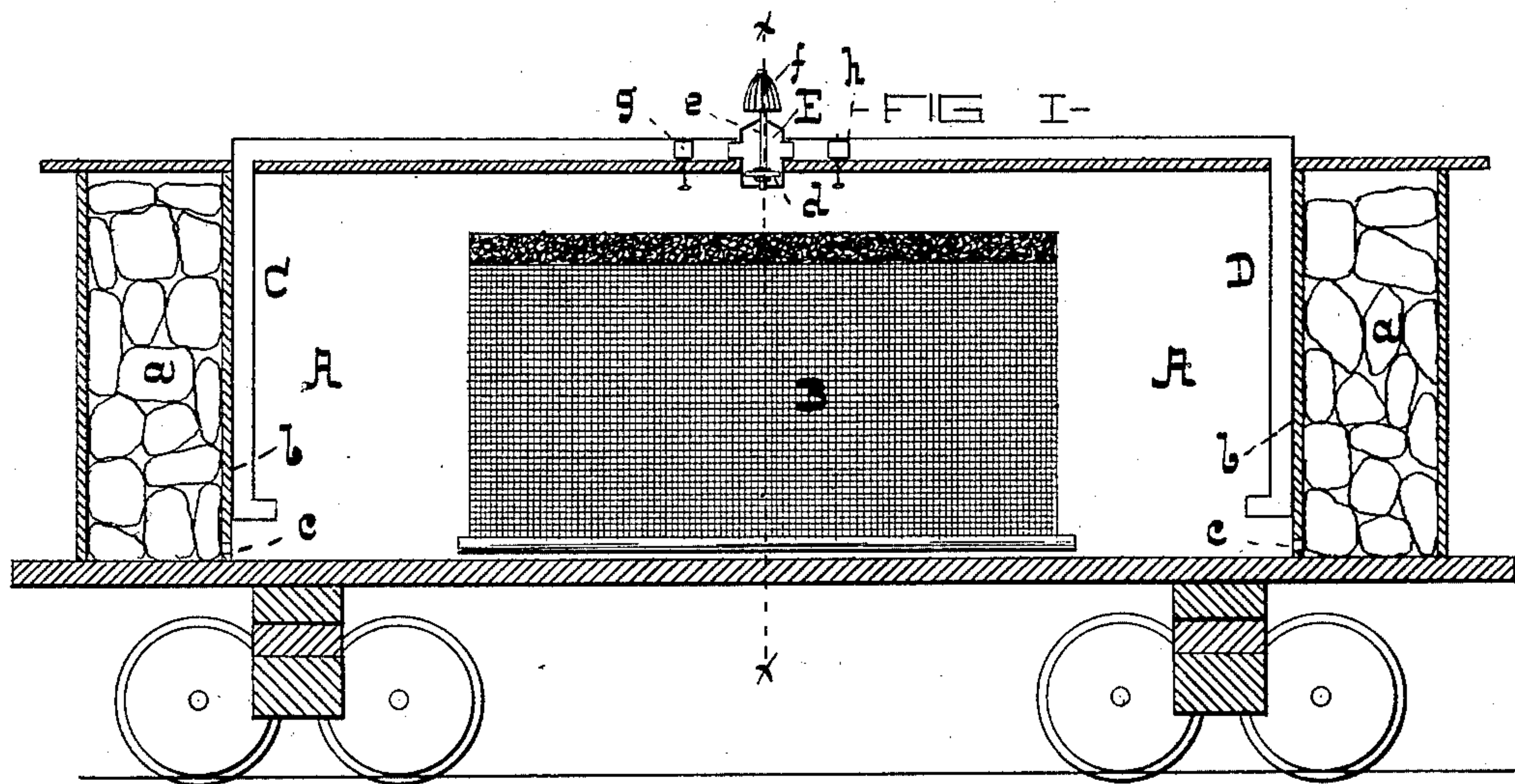


C. HAFFCKE.
REFRIGERATOR CAR.

No. 348,840.

Patented Sept. 7, 1886.



-WITNESSES-

David Fisher
Harren Ross

-INVENTOR-

Charles Haffcke
by E. H. H. Howard
att'y

UNITED STATES PATENT OFFICE.

CHARLES HAFFCKE, OF BALTIMORE, MARYLAND.

REFRIGERATOR-CAR.

SPECIFICATION forming part of Letters Patent No. 348,840, dated September 7, 1886.

Application filed March 22, 1886. Serial No. 196,116. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HAFFCKE, of the city of Baltimore, State of Maryland, have invented certain Improvements in Refrigerator-Cars, of which the following is a specification.

This invention relates to certain improved means for effecting a circulation of air in a railroad refrigerator-car, as will hereinafter fully appear.

In the drawings, forming a part hereof, Figure I is a longitudinal section of a refrigerator-car provided with my improvements. Fig. II is a cross section of Fig. I, taken on the dotted line *x x*. Figs. III, IV, V, and VI are details of the invention on an enlarged scale.

A is the car, having the ice-compartments *a a*, which are separated from the body of the car by the partitions *b b*. These partitions have holes *c c* near to the bottom, to admit of cold air from the ice-compartments flowing to the body of the car.

B B are salt-receptacles, formed of wire-work, and similar to those described in Letters Patent No. 343,369, granted to me on the 8th day of June, 1886. The salt serves to absorb moisture and produce a saline atmosphere in the car, which tends to preserve meats and other perishable goods placed therein.

C and D are air-pipes leading from near the bottom of the car to a chamber, E, situated in the top of the car. This chamber is open

at the bottom, and provided with a turbine, *d*, on a central shaft, *e*, which is revolved by means of a fan, *f*, operated by the wind or the motion of the car. Dampers *g* and *h* are used to cut off the current in either off the pipes C and D.

When the fan or turbine is in operation, warm air is taken from near the top of the car and forced through either or both the pipes C and D to near the floor, when it mingles with the cold air situated at that point. By this movement of air the entire atmosphere of the car is brought to a uniform temperature and in contact with the salt contained in the receptacles B B.

While I have described the circulation of air as being in a refrigerator-car, it is evident that any preserving or other chamber can be provided with the circulating apparatus described by slightly modifying the details of its construction and the arrangement of its parts. In some cases the turbine will have to be driven by some suitable motor, such as a steam or water engine.

I claim—

In a refrigerating room or chamber, pipes leading from the lower to the upper part thereof having therein an air-circulating turbine, substantially as and for the purpose specified.

CHAS. HAFFCKE.

Witnesses:

FELIX R. SULLIVAN,
DANL. FISHER.