

J. ZIMMERMAN.

CAR HEATER.

No. 396,639.

Patented Jan. 22, 1889.

Fig. 1.

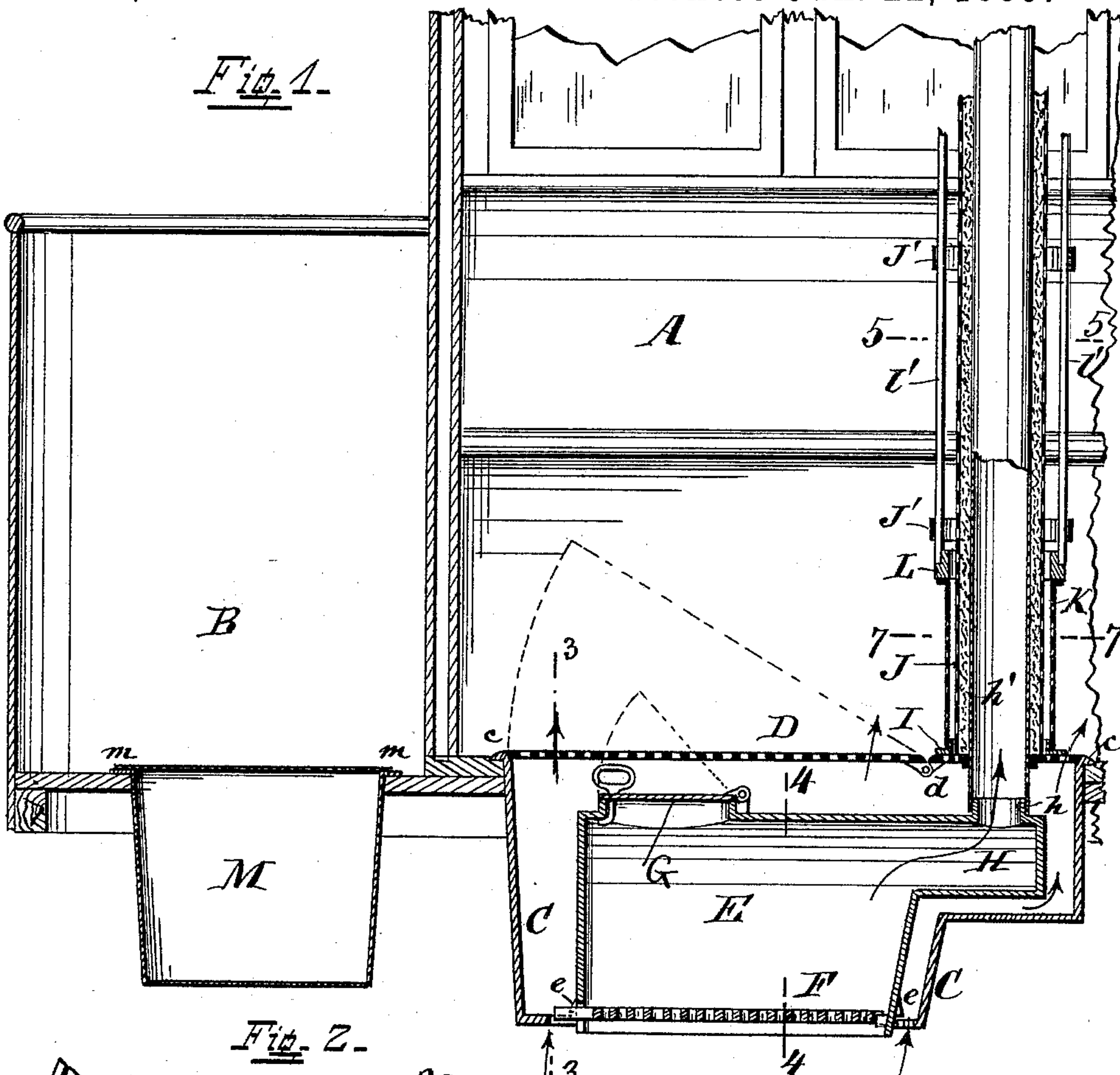
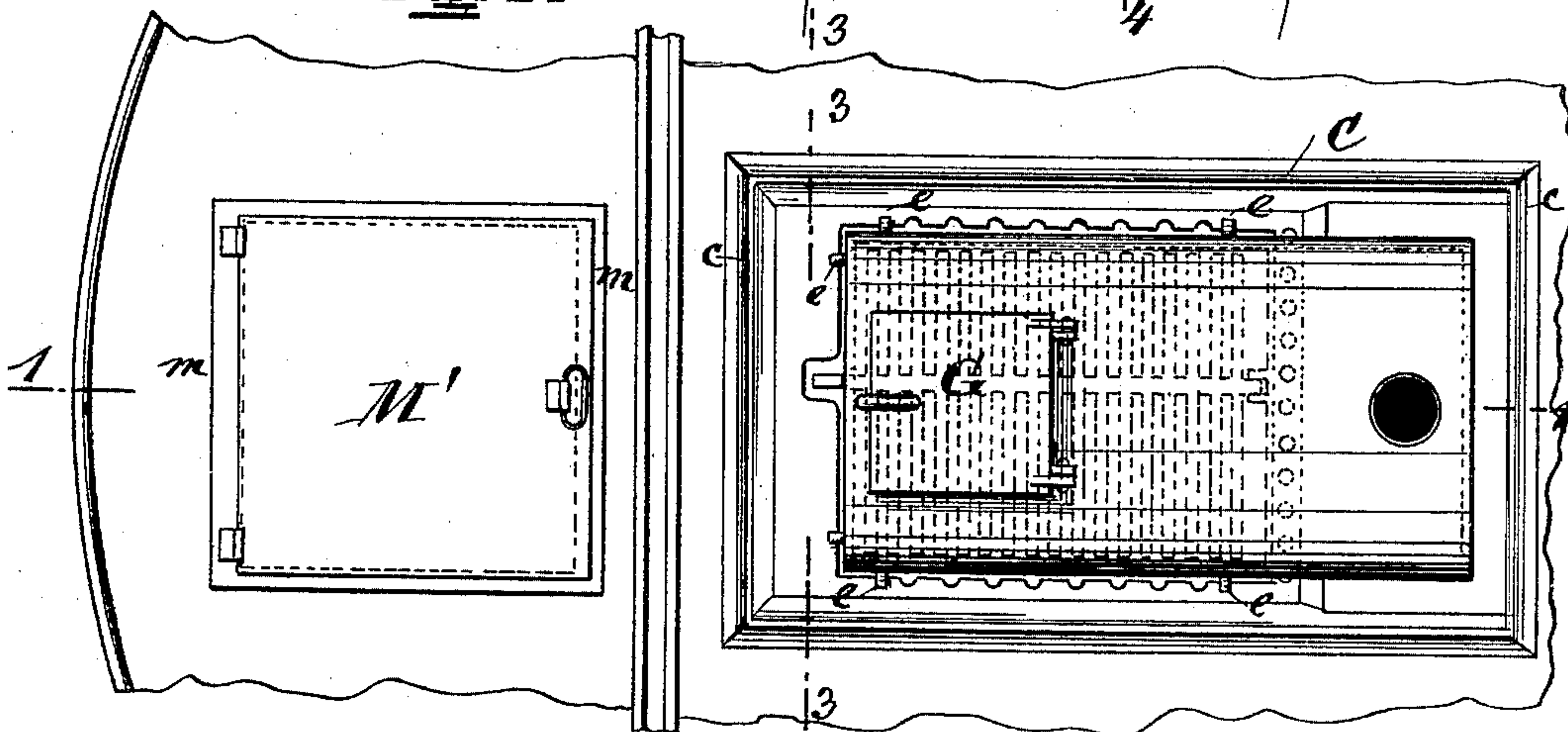


Fig. 2.



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(No Model.)

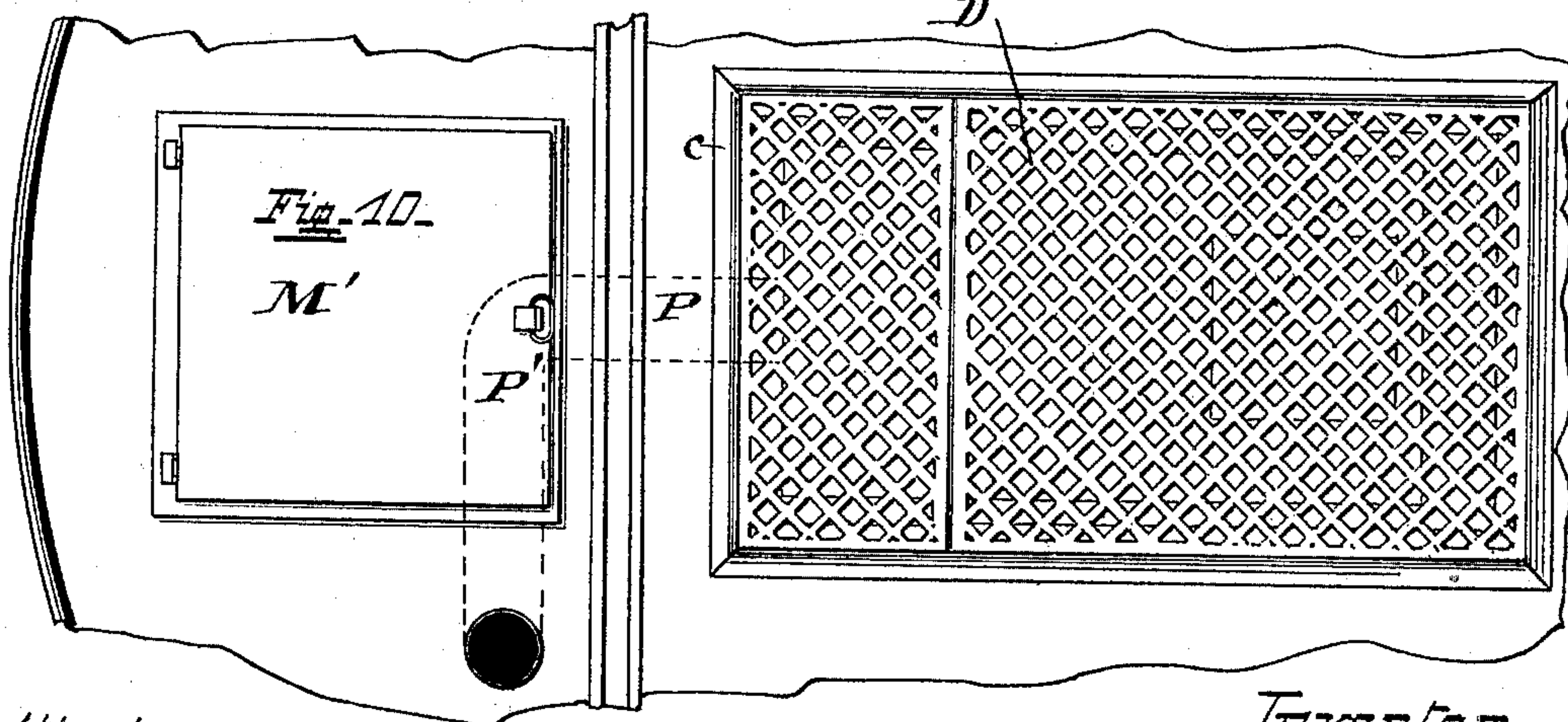
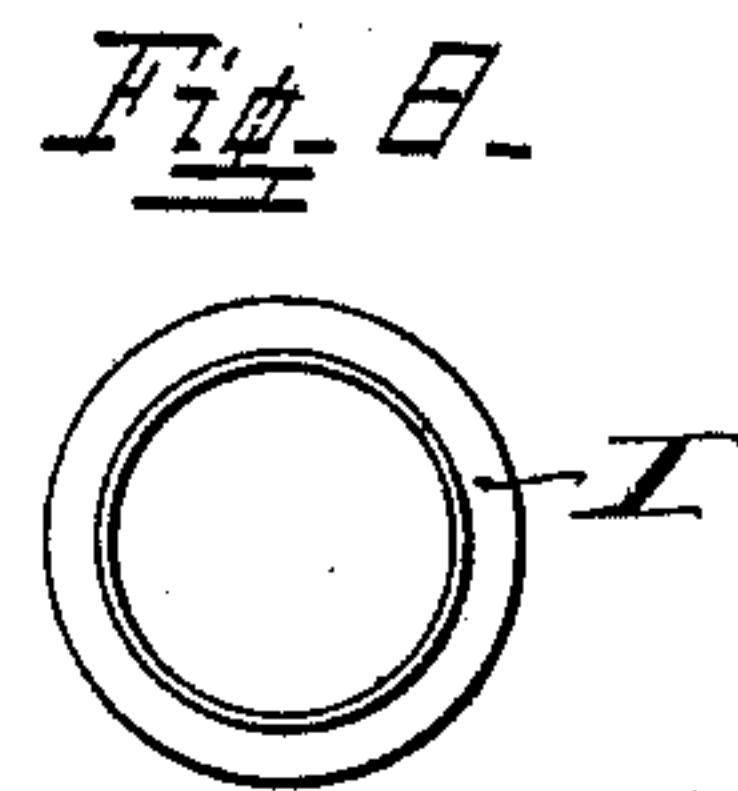
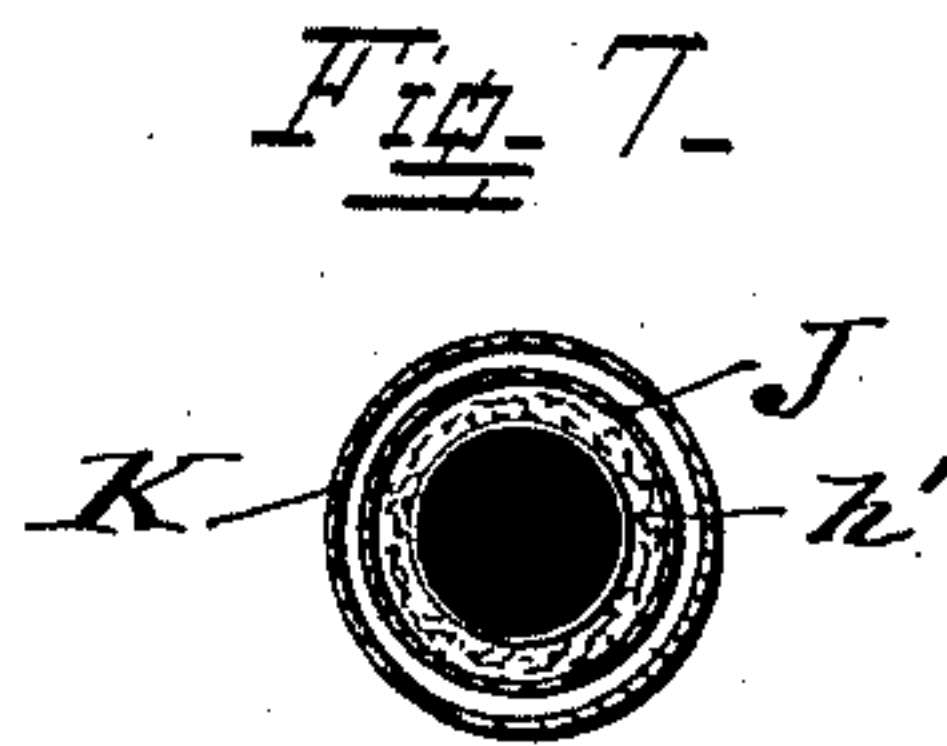
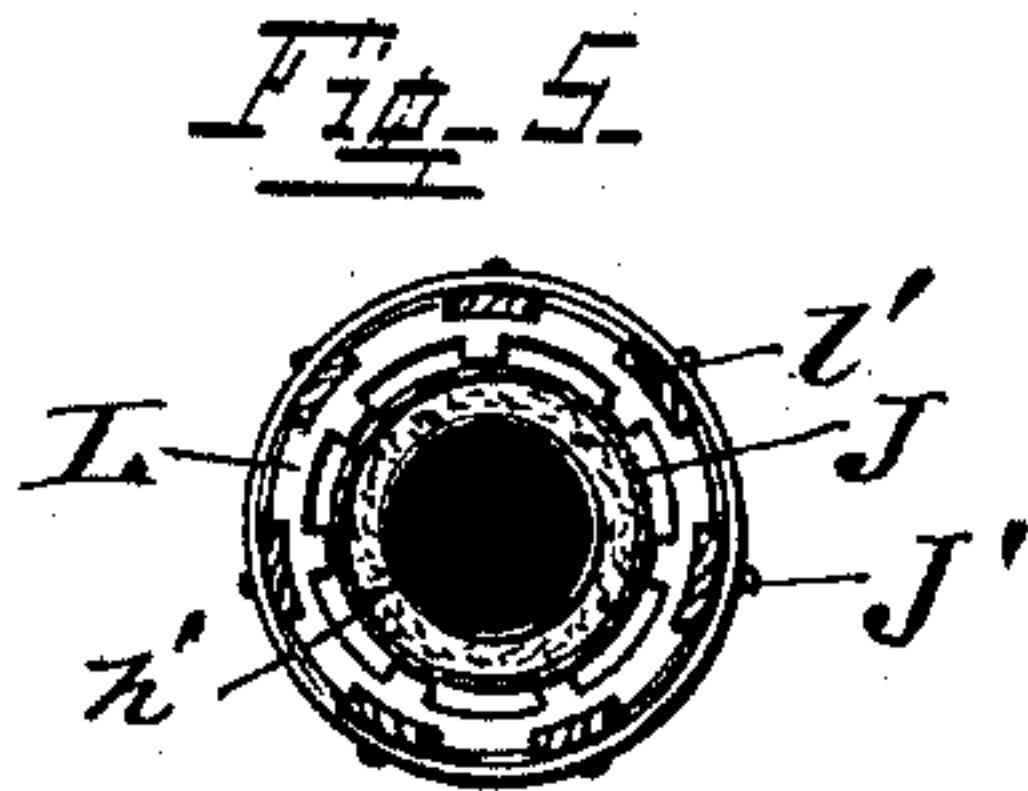
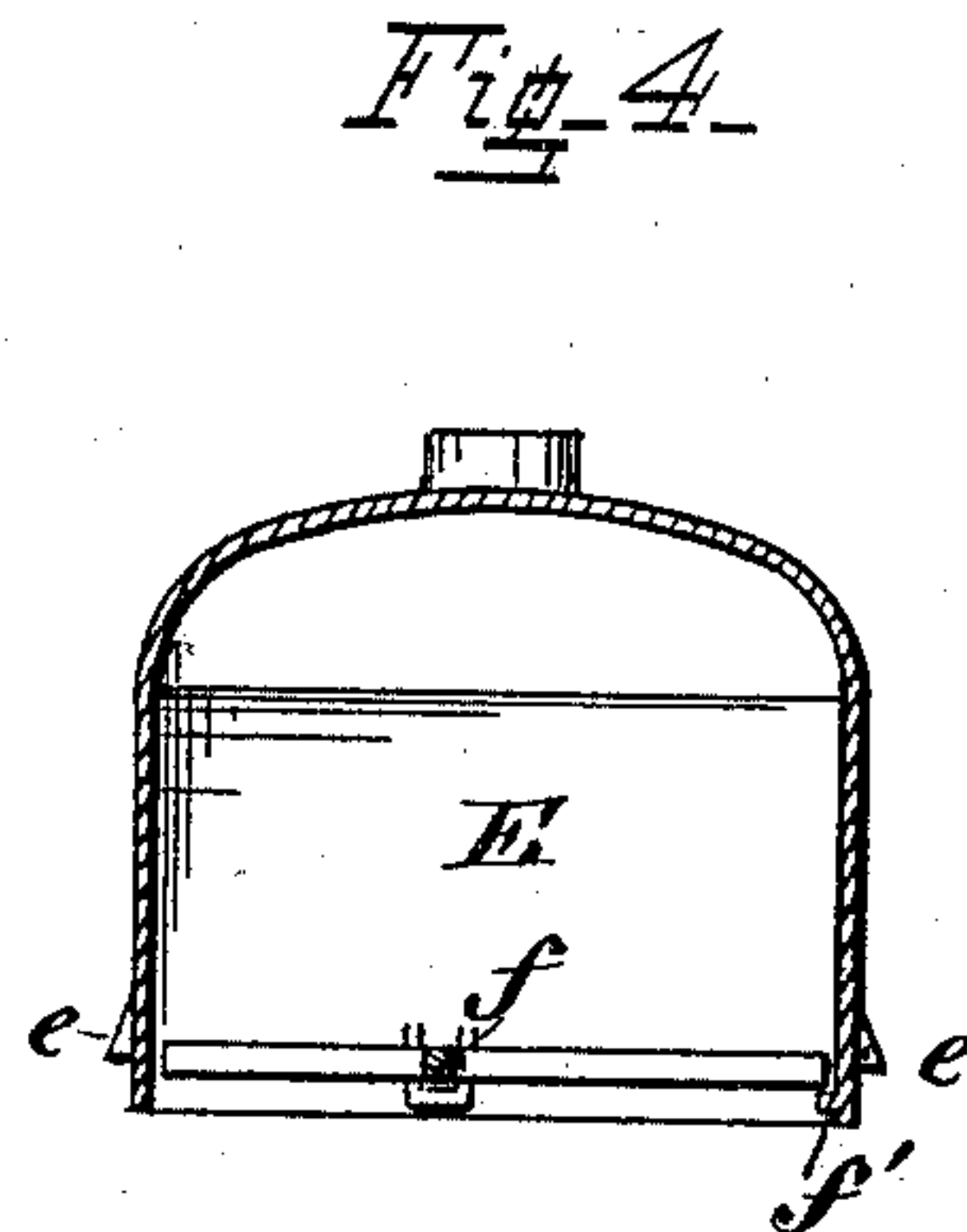
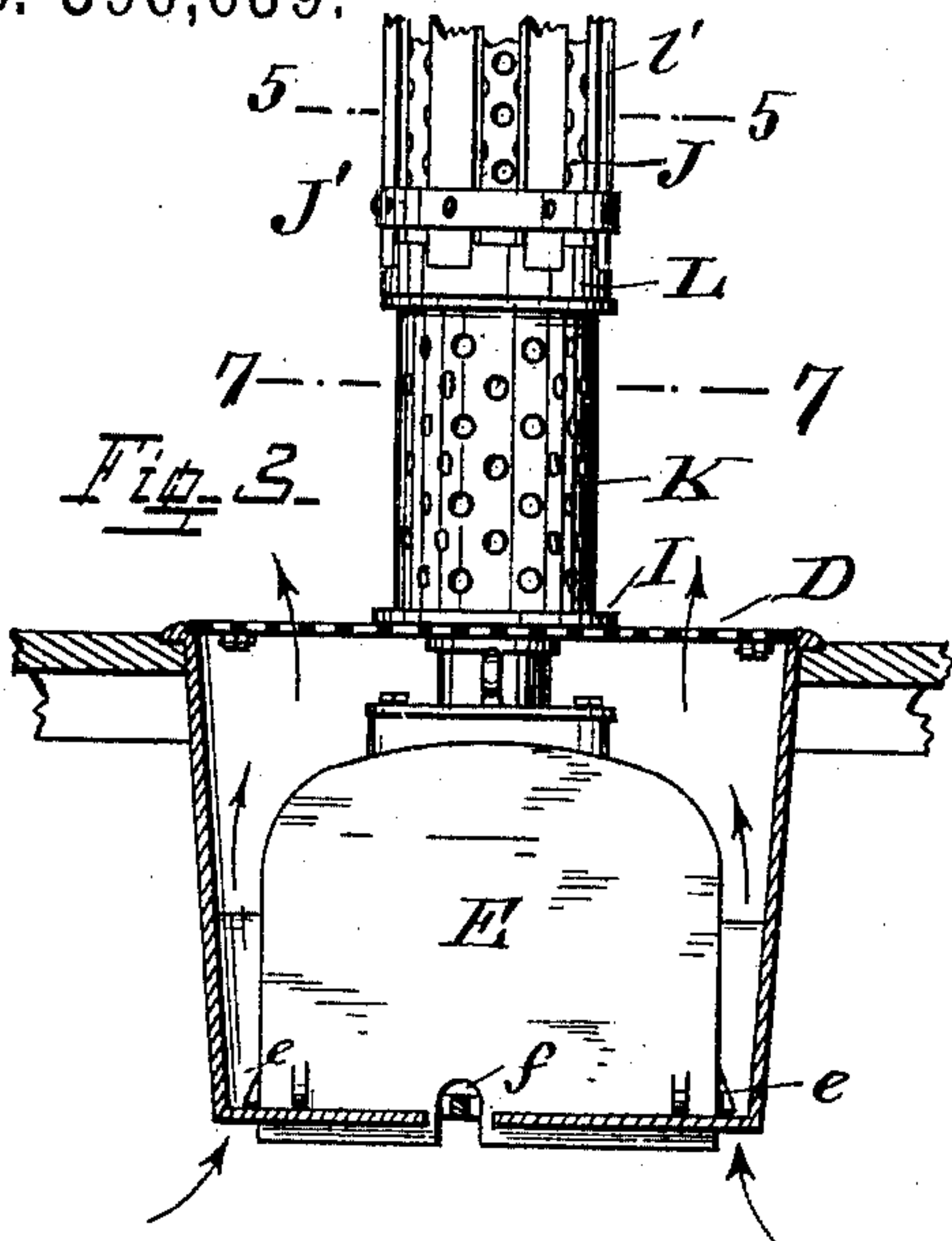
2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JOHN ZIMMERMAN, OF CINCINNATI, OHIO, ASSIGNOR TO THE ZIMMERMAN MACHINE COMPANY.

CAR-HEATER.

SPECIFICATION forming part of Letters Patent No. 396,639, dated January 22, 1889.

Application filed January 3, 1888. Serial No. 259,842. (No model.)

To all whom it may concern:

Be it known that I, JOHN ZIMMERMAN, a citizen of the United States, residing at Cincinnati, county of Hamilton, and State of Ohio, have invented certain new and useful Improvements in Heaters for Railway or Street Cars, of which the following is a full, clear, and exact description.

My invention relates to heaters for railway or street cars; and it consists of various improvements upon the heater described in my patent, No. 309,279, granted December 16, 1884.

My object is to produce a heater which is suspended beneath the car, so as not to occupy any space in the car itself, and which will supply a constant current of fresh air heated to a proper degree, and so arranged that it is easily attended to.

The nature, construction, and operation of my improvement will be more fully understood by reference to the accompanying drawings, forming part of the specification.

Figure 1 is a side elevation, in section, of one end of a car with my improved heater. Fig. 2 is a top plan view of the floor of the car and the heater. Fig. 3 is a cross-section through the line 3 3 in Fig. 2. Fig. 4 is a cross-section of the fire-pot. Fig. 5 is a horizontal section through line 5 5, Fig. 3. Fig. 6 is a side view of the ring-supporting protecting-slats. Fig. 7 is a horizontal section through the line 7 7 in Fig. 3. Fig. 8 is a top, and Fig. 9 a side, view of the flanged ring or collar for the pipe. Fig. 10 is a top plan view of the car-floor and heater, with the heater in reverse position.

In Fig. 1, A is an ordinary street-car, and B the front platform. Through an opening in the floor of the car is suspended the casing C, supported by the flange c. This casing is preferably made of cast-iron, the top being covered in part or entirely with an iron grating or register, D, a portion of which is hinged, as shown at d, the hinge being on the under side, thus leaving the top surface unbroken. In the bottom of this casing is a wide opening to permit the bottom of the fire-pot or furnace to extend through it. Within this casing C is a furnace or fire-box, E, preferably cast in one piece, the bottom being entirely open and sup-

ported in the chamber C by the lugs e e. In the bottom of this furnace is a grate, F, which may be supported on a longitudinal pivot, as at f, Figs. 3 and 4. The pivot is placed at one side of the middle line, and a lug, f', is provided under the longer end to prevent it from tipping. The other end can then be easily tilted for shaking or dumping. In the top of this furnace E is a hinged door, G, for supplying fuel. Near the top is a longitudinal extension, H. This extension accomplishes a double purpose in raising the end of the furnace and casing over the car-axle, and it also forms a flue, producing a more perfect combustion regardless of the direction of motion of the car. On the top it is provided with a collar, h, to receive the smoke-pipe h'.

When the heater is arranged to have the smoke discharged through a pipe extending up through the car, the top of the casing C above the collar h is provided with a flanged collar, I, to receive and support an outer pipe, J, which latter forms an annular chamber around the smoke-pipe h'. The pipe J is perforated to permit the heated air to pass out into the car, and lest it might become hot enough to burn substances coming in contact with it I provide guards consisting of strips of wood. This is done by placing a short perforated pipe, K, around the outside of the flanged collar I and surrounding the pipe J. At the top of this short pipe is a mortised ring or collar, L, (shown more fully in Figs. 5 and 6,) having mortises ll, which receive the ends of strips of wood l', which extend up along the outside of the pipe and are supported at their top by a similar ring and serve as guards to the pipe J.

J' is a band for holding the strips in place.

A fire being started in the fire-box E, the motion of the car causes a strong draft and produces a hot fire. In the lower edge of the casing C around the bottom of the fire-box are apertures admitting fresh air to the space or chamber surrounding the fire-box E, as indicated by the arrows. This air becomes heated and passes up through the grating D into the car and will keep the air constantly warmed. The fuel is supplied by lifting the hinged grating D and door G. Where a supply of

fuel is desired, it is carried in a box suspended beneath the platform, as shown at M. The coal-box is inserted through a hole in the floor of the platform and supported by the flanges
 5 *m m* and provided with the hinged lid M'. In thus providing a separate coal-box M it is not necessary to cut through the sill of the car; but the coal-box and the furnace are on either side of it.

10 Where it is desired to avoid carrying the pipe through the car, I arrange the heater as shown in Fig. 10. The fire-box E, and, indeed, the casing, are reversed, and the pipe P carried forward instead of upward under the sill of
 15 the car and into the coal-box under the front platform, where it is provided with an elbow, P', carrying it to one side and then up above the platform and through the roof of the car.

The fire-box is so arranged and constructed
 20 that the motion of the car will produce the desired draft whichever way it is arranged. The entire bottom of the furnace is open to receive the grate. The air is admitted only at the bottom, but very freely there, so that a
 25 sufficient supply of air and draft is produced whichever way the car is moving, thus enabling me to reverse the furnace.

Having thus fully described my invention, what I claim, and desire to secure by Letters
 30 Patent, is—

1. The herein-described improved car-heater,

consisting of a casing supported at its upper edge in the floor of the interior of the car, a perforated cover for said casing composed of sections hinged together, a furnace or fire-box
 35 having a cover, G, supported immediately beneath the perforated cover of the casing, a smoke-pipe, *h'*, attached to the furnace or fire-box and passing directly upward through one of the sections of the perforated cover and
 40 also through the interior of the car, substantially as shown and set forth.

2. In a car-heater, the furnace or fire-box supported in the car, the smoke-pipe *h'*, a perforated metal casing surrounding said smoke-
 45 pipe, and an open frame or guard composed of strips of wood or other non-conducting material surrounding the said perforated casing, with a space intervening between said casing and frame, substantially as shown and de-
 50 scribed.

3. In a car-heater, the furnace or fire-box supported in the car, the smoke-pipe *h'* thereof provided with a surrounding perforated metal casing, and a frame or guard of wood or other
 55 non-conducting material surrounding the perforated casing, substantially as shown and described.

JOHN ZIMMERMAN.

Witnesses:

GEORGE HEIDMAN,
 ARTHUR STEM.