

J. E. KLINE.
Railroad Car Heater.

No. 95,026.

Patented Sept. 21, 1869.

Fig. 1.

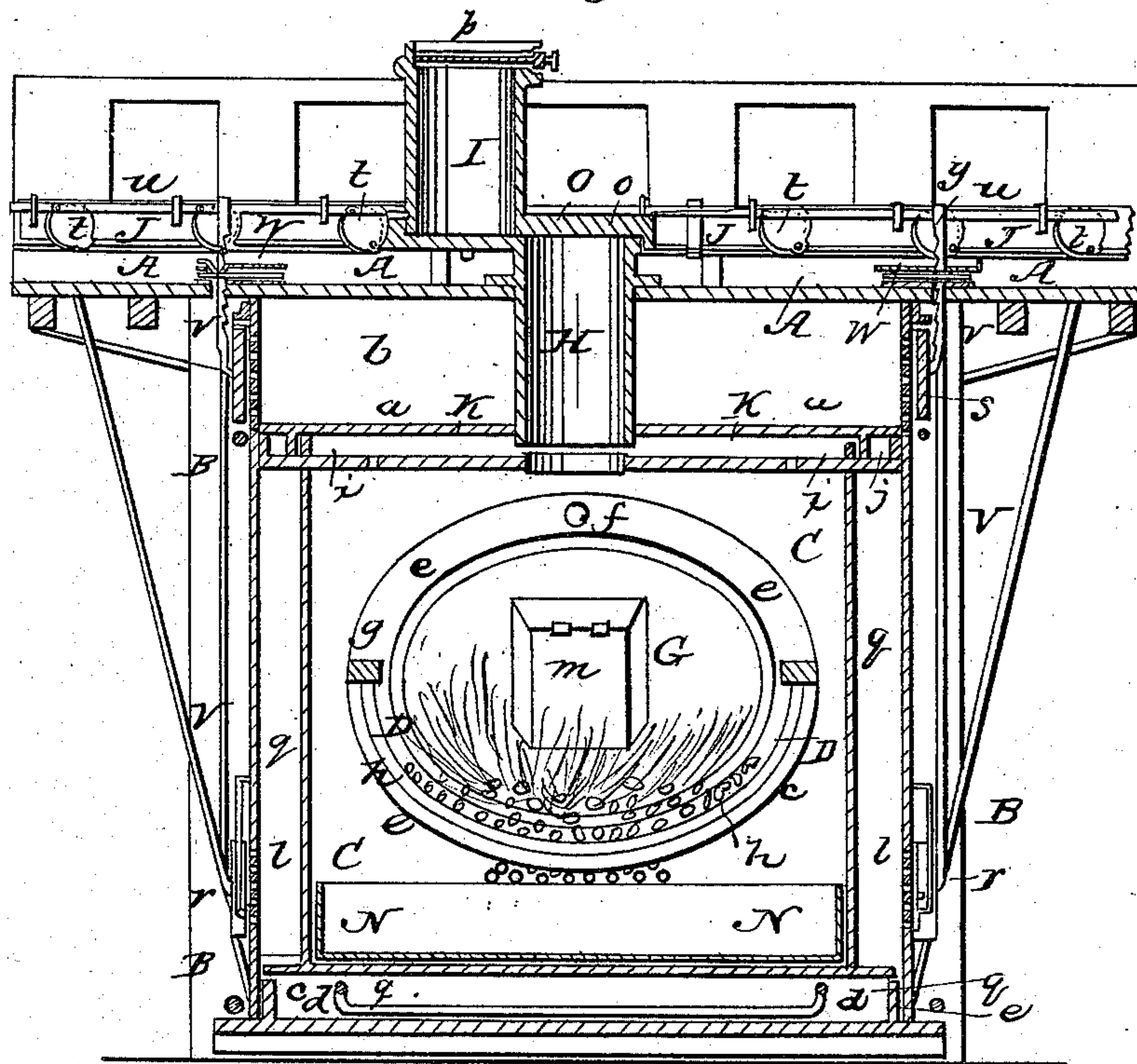
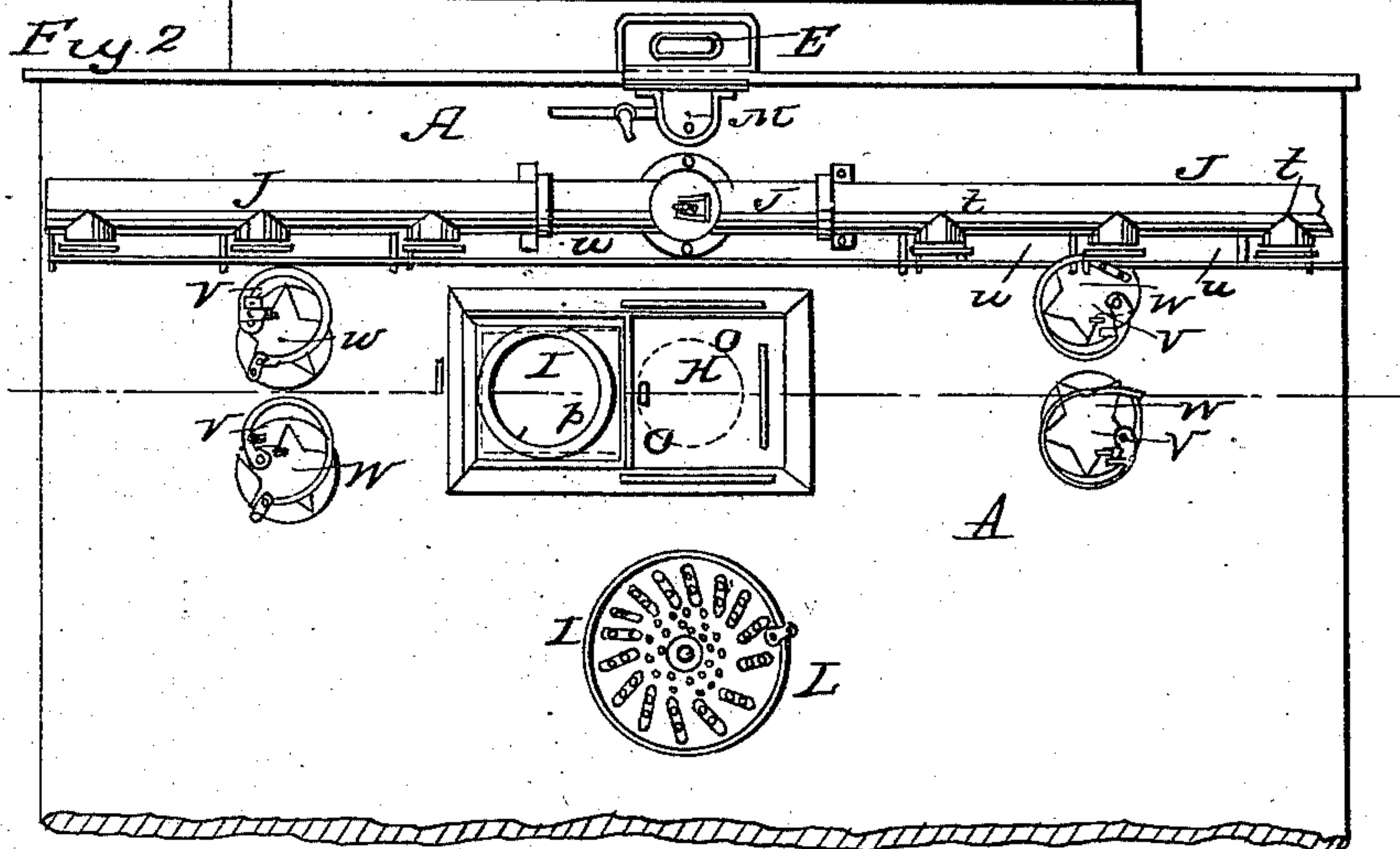


Fig. 2.



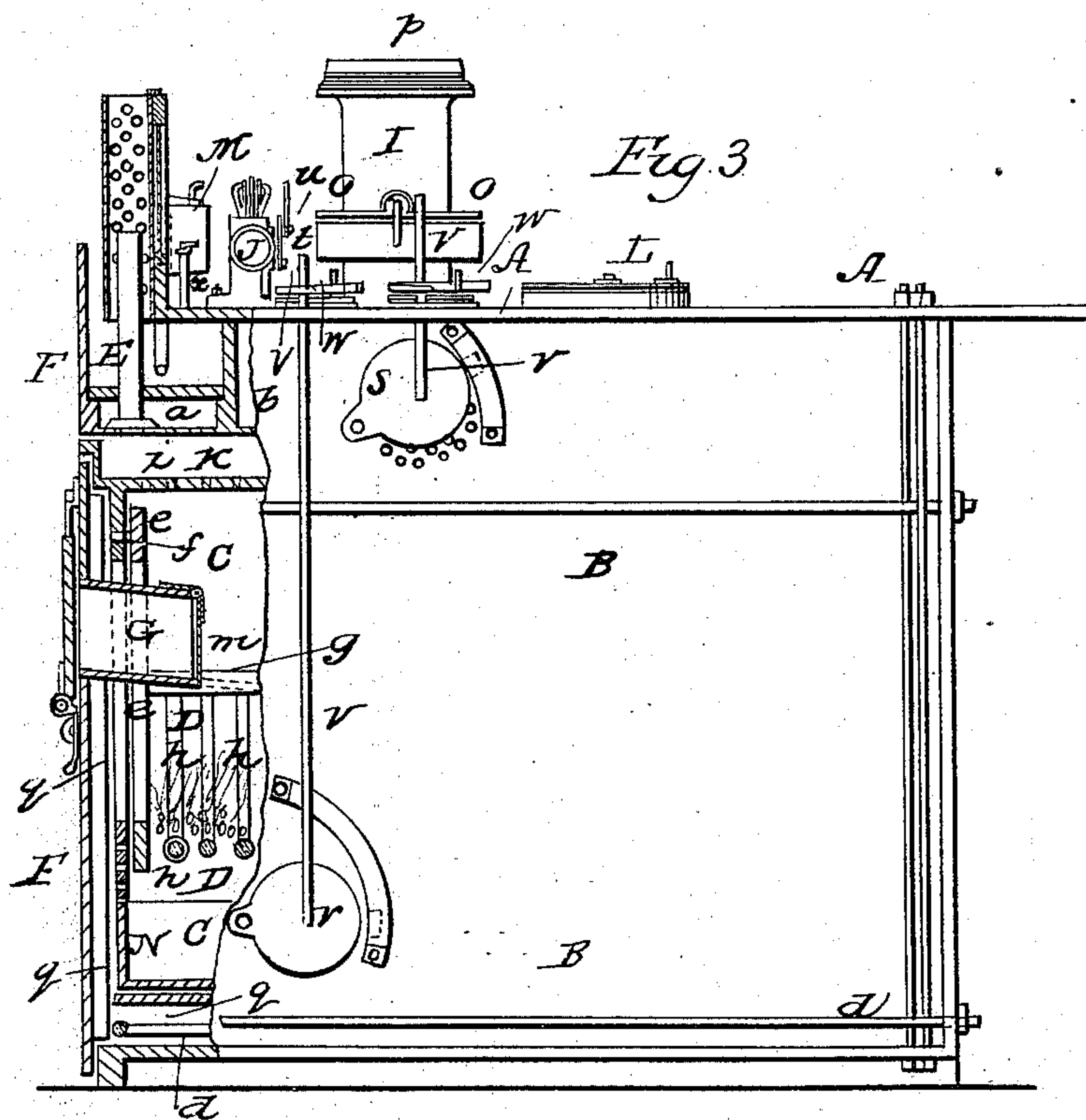
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JOSIAH E. KLINE, OF WHEELING, WEST VIRGINIA.

Letters Patent No. 95,026, dated September 21, 1869.

RAILROAD-CAR HEATER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOSIAH E. KLINE, of the city of Wheeling, in the county of Ohio, and State of West Virginia, have invented a new and improved Railroad-Car Heater; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 represents a vertical transverse section of my improved car-heater.

Figure 2 is a plan or top view of the car-floor.

Figure 3 is a side view, partly in section, of the heater.

Similar letters of reference indicate corresponding parts.

This invention relates to a new apparatus for heating railroad-cars, and for properly ventilating the same, and consists in the general arrangement and construction of parts for producing a fire-proof and convenient heating-attachment.

A, in the drawing, represents the floor of a car, from which a metallic box or safe B is suspended.

In this box or safe is arranged, some distance below the floor A, a horizontal partition, *a*, which forms a hot-air chamber, *b*, directly below the floor.

Into the safe B is, from one side, inserted the removable furnace C, which rests on shoulders *c c'*, so as to be elevated above the bottom *d* of the safe.

The furnace C is sufficiently large for the desired purpose, and has in it a semi-cylindrical or semi-oval grate D.

This grate is composed of rings *e e*, at the ends, which are pivoted, by means of pins *f f*, to the ends of the furnace, and which are connected by longitudinal bars *g*.

The bars *g* are connected with each other by means of semicircular grate-bars *h*.

The grate is thus pivoted to the furnace, and can swing on its pins *f* while the car is in motion.

It will, therefore, always remain in a perpendicular position, and will not throw the fuel as vehemently during the jarring motion of the car as it would if it were rigid.

The top-plate *i*, of the furnace, is some distance below the partition *a*, and ribs *j j* project from it against said partition, to form a closed chamber, K, as shown.

The products of combustion escape from the furnace into the chamber K, through apertures of the plate *i*, and heat the plate *a*, and, consequently, the air in the chamber *b*.

Through a chimney, E, shown in fig. 3, the products of combustion escape from the chamber K.

The open end of the safe B can be closed air-tight,

by means of a door, F, which has its joints or crevices covered with hinged plates, so as to produce an absolute air-tight closure.

From the door projects into the grate an inclined funnel, G, which can be closed on the outer end by a swinging plate, *n*, while a hinged plate, *m*, keeps its inner end automatically closed.

Through this funnel fuel is put into the grate.

Another feeding-apparatus may be provided in the car, to allow the fuel to be put in from the inside.

This apparatus is a tube, H, reaching from the floor A into the furnace, as shown.

The upper end of the tube H can be closed by a sliding plate, *o*, which has a box, I, formed upon it. Under this box the plate *o* is perforated.

The box I has a cover *p*.

When the tube H is closed, as in fig. 1, the fuel can be put into the box I, and when the latter is closed it is moved over the tube, so that the fuel will fall from it into the furnace.

Thus the furnace can be supplied from the inside of the car without any danger of allowing smoke to escape into the car.

The furnace is smaller than the safe B, so that an air-chamber, *q*, is formed between them.

The sides of the safe are perforated, to allow air to enter the space *q*.

This air enters the furnace through apertures *l* to supply the flame; the apertures of the furnace can, however, be closed by dampers *r r*.

The air-chamber *b* is supplied through apertures in the sides of the box, which can be closed by dampers *s*.

Between the tube J and chamber *b* there is a tube, through which the air from the air-chamber enters said tube J, which extends longitudinally throughout the car, and which has a series of openings that are closed by valves *t t*.

These valves are all connected by one rod *u*, so that they can all be more or less opened or closed simultaneously, to let the hot air escape into the car.

A double perforated plate, L, may also be arranged on the floor of the car, to be opened or closed at will, to let the air directly into the car from the chamber *b*.

The dampers on the outside of the safe are, by rods *v v*, connected with the inside of the car, said rods being notched, and locked in any desired position, by means of star-shaped spring-catches *w*.

A water-reservoir, M, may be arranged on the car, to conduct cold water in a pipe, *x*, along the connecting-joints of the safe, to cool the same, to prevent combustion.

A removable ash-pan, N, is arranged in the furnace under the grates.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The pivoted grate D, suspended within the furnace of a car-heater, to remain in a perpendicular position during the motion of the car, substantially as herein shown and described.

2. The semi-oval grate D, when arranged in the furnace of a railroad-car heater, substantially as herein shown and described, to better retain the fuel by its turned-up sides.

3. The safe B, arranged under a car-floor, to surround the furnace C, substantially as herein shown and described, and to form an air-chamber, *b*, as specified.

4. The door F, of the fire-safe, when provided with a funnel, G, which has doors at both ends, as set forth.

5. The feed-apparatus, consisting of the tube H,

sliding plate *o*, box I, and cover *p*, all combined and operating substantially as herein shown and described.

6. The apertures *l l*, formed in the sides of the fire-safe B, substantially as and for the purpose herein shown and described.

7. The combination of chamber B, having a single shut-off valve, with the tube J, provided with numerous valves, all as shown and described.

8. The water-reservoir M, when arranged above a car-heater, substantially as and for the purpose herein shown and described.

9. The chamber K, formed above the furnace, to conduct the products of combustion from the furnace into the chimney, substantially as herein shown and described.

Witnesses: JOSIAH E. KLINE.

DAVID NEUHART,
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