E. Z. WEBSTER.

Car Heater.

No. 77,786. Patented May 12. 1868.

Fig. 1.

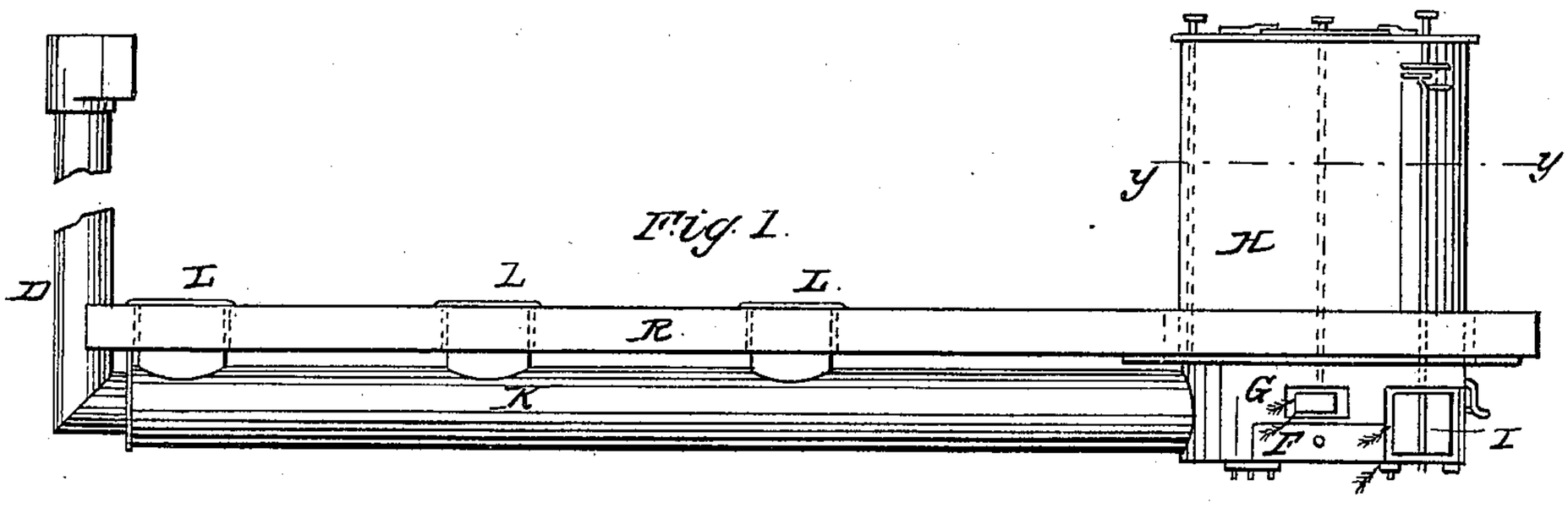


Fig. 3

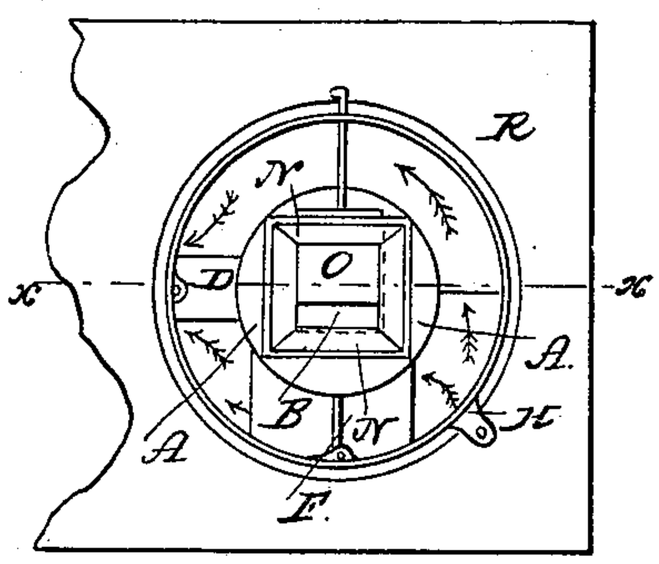


Fig. 2

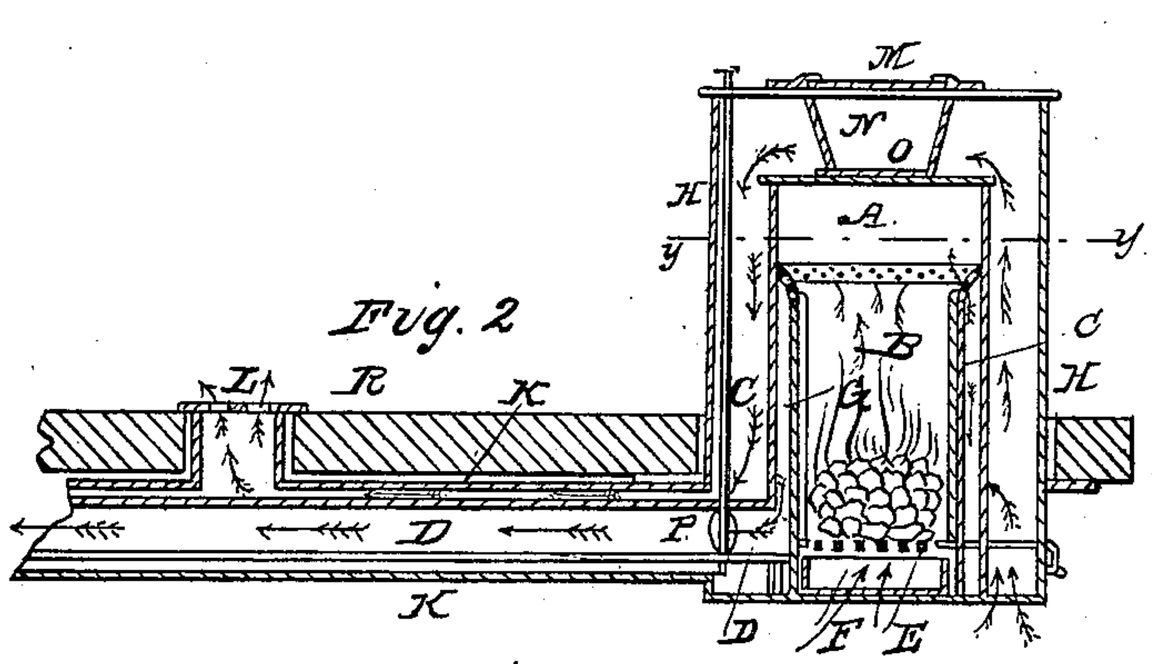


Fig. 4

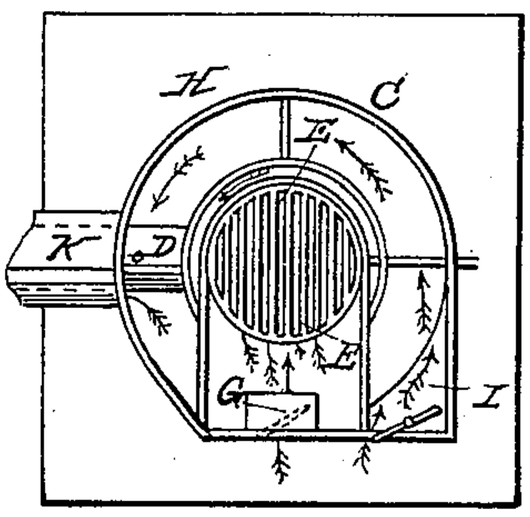
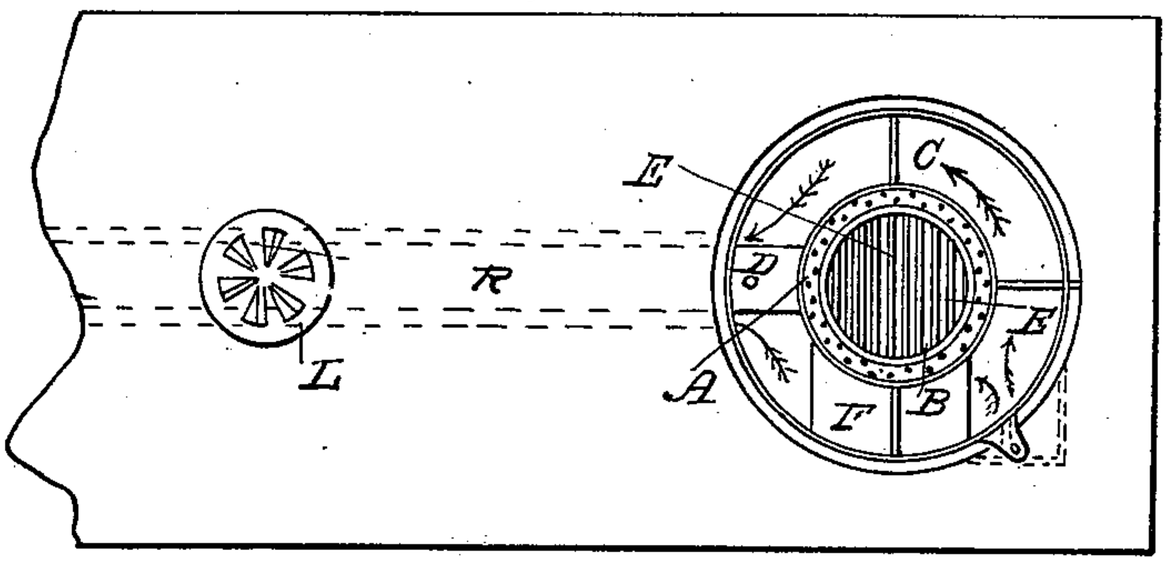


Fig. 5



Witnesses
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E. Z. WEBSTER, OF LOUISVILLE, KENTUCKY.

Letters Patent No. 77,786, *dated May* 12, 1868.

STOVE FOR RAILROAD-CARS.

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, E. Z. WEBSTER, of Louisville, in the county of Jefferson, and in the State of Kentucky, have invented an Improvement in Heating-Apparatus for Cars, Buildings, &c.; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side elevation.

Figure 2 is a perpendicular longitudinal section.

Figure 3 is a view of the heater, with the top plate removed.

Figure 4 is a view of the bottom of the heater, with the lower plate and ash-pan removed.

Figure 5 is a horizontal section of figs. 1 and 2, at the intersection of the line *y y*.

Letters of like name refer to like parts in each of the figures.

A represents the cylinder, enclosing the fire-pot B, between which sufficient space is left to serve as a return-flue, C, through which the smoke passes into the smoke-flue D, as shown by the red arrows.

E represents the grate, and F the ash-box, through which air is admitted to the fire by the valve G.

H represents a casing, which completely encloses the furnace, and forms a chamber for heating the air, which is admitted through the valve I, passes over the top of the furnace, and through the hot-air flue K, and registers, L, into the car, as shown by the black arrows.

M represents a slide, opening into a hopper, N, at the bottom of which is placed another slide, O, that opens into the cylinder, A, for the purpose of supplying fuel to the furnace.

P represents a damper, of the usual form, placed in the smoke-flue to assist in regulating the draught.

The valves G and I are so constructed that they can be set to admit the air from the direction in which the car is moving. By opening them, so that the edge toward the front end of the car is presented obliquely, the air is caught and forced into the furnace or heater, producing as strong a current as is desired.

The smoke-flue D passes through the hot-air flue K, which serves as a jacket, by which means all heat that would otherwise be carried into the open air with the smoke and wasted, is saved and used for warming the car.

The bottom of the heater extends far enough below the floor R to allow the smoke and hot-air flues to pass beneath it.

The furnace, grate, &c., may be constructed of cast iron, but the casing must be made of boiler-iron, strongly bolted together, to enable it to withstand any force that might otherwise crush it in case of a collision, thereby avoiding danger to the car from fire.

The operation of this heater is as follows, viz:

The valve G and damper P are opened, and fire started upon the grate in the usual manner; after which the valve I is opened, so as to catch the air which is forced into the hot-air chamber between the casing H and furnace A, where it is heated, and passes through the flue K and registers L into the car.

When it is necessary to supply fresh fuel to the furnace, the slide M is opened, and the hopper N filled with coal, and the slide closed. By opening the slide O the coal now falls into the cylinder A, without allowing the escape of gas or smoke.

The advantages possessed by this heater over all others in use, are—

First, entire safety from fire. The furnace is completely enclosed in the casing, which, being made of boiler-iron, strongly bolted together, is capable of withstanding the severest shock during a collision, or when a car is thrown from the track, without sustaining sufficient injury to allow the fire to escape.

Second, economy. By encasing the smoke-flue within the hot-air flue, the heat that passes off with the smoke is saved and used for warming the car, rendering less fuel necessary, and thereby reducing the cost. It also furnishes means for warming cars in a more thorough manner.

Third, convenience. The arrangement of the hopper N and slides M and O allows the furnace to be supplied with coal without the escape of gas or smoke, and the ashes and refuse are taken out below the car, thereby avoiding all annoyance from dust or ashes within the car.

This heater can also be used for warming buildings, in which case the casing can be made of cast iron, and the entire heater placed above the floor, materially reducing the cost.

Having thus fully set forth the nature and merits of my improvement, what I claim as my invention, and desire to secure by Letters Patent, is—

The slides M and O, in combination with the hopper N for supplying coal to the furnace, substantially as herein described.

Also, the combination of the furnace A, casing H, valves I and G, smoke and hot-air flues D and K, slides M and O, and hopper N, for the purpose, and substantially as herein specified.

In testimony that I claim the foregoing, I have hereunto set my hand, this 20th day of February, 1868.

E. Z. WEBSTER.

Witnesses:

A. E. Le Merle,

J. R. Hopkins.