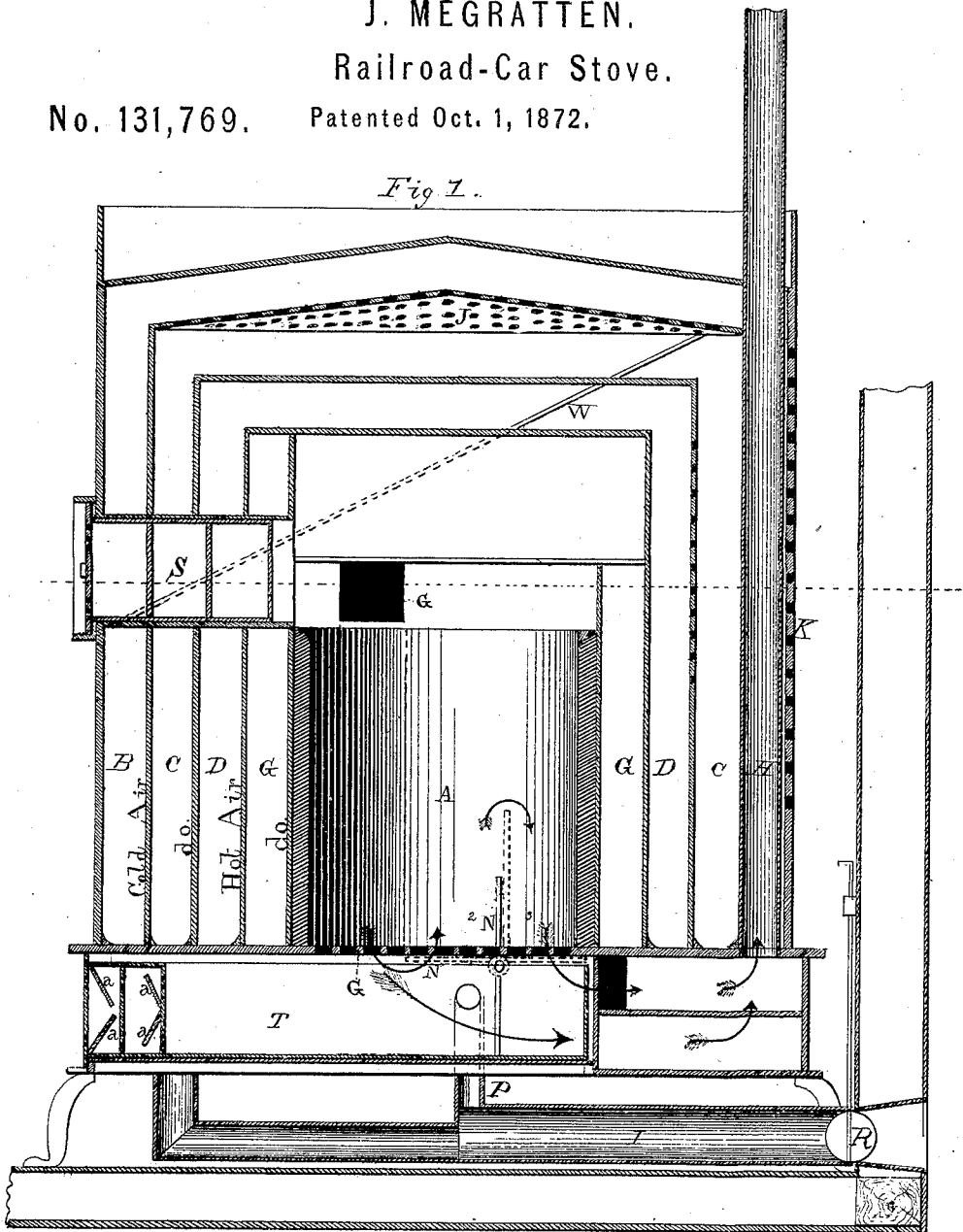


J. MEGRATTEN.  
Railroad-Car Stove.

No. 131,769. Patented Oct. 1, 1872.

Fig 1.



Witness  
Chas. H. Watson,  
How. S. Affol

James Megratten  
Inventor

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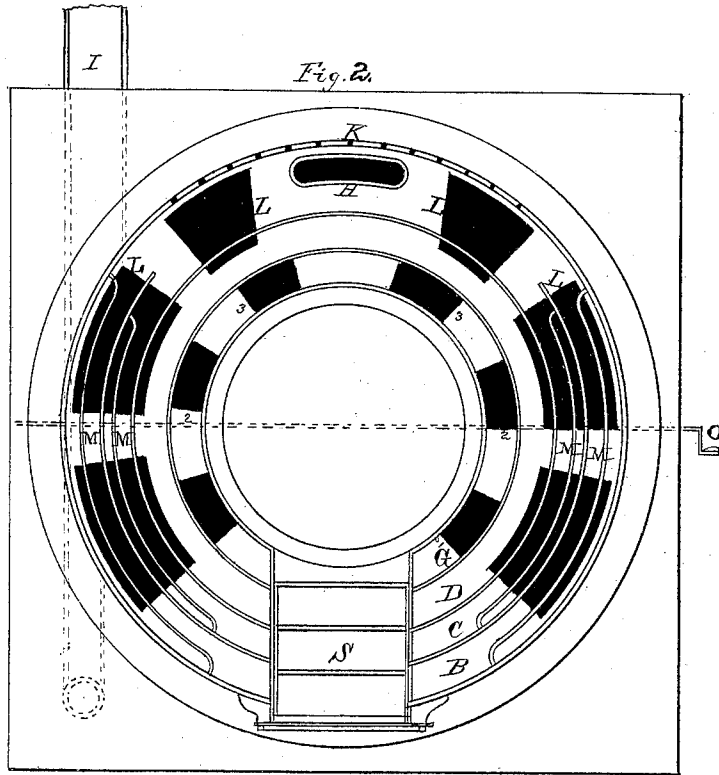


Fig. 2.

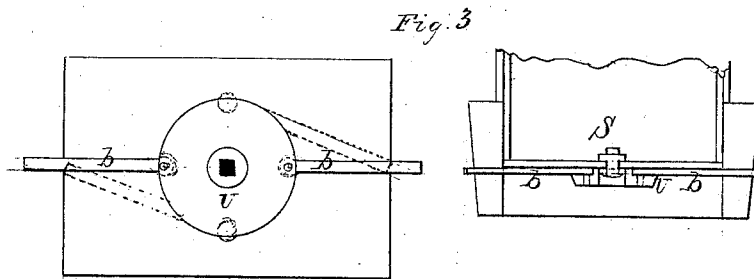


Fig. 3.

Witnesses  
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# UNITED STATES PATENT OFFICE.

JAMES MEGRATTEN, OF WILMINGTON, DELAWARE.

## IMPROVEMENT IN RAILROAD-CAR STOVES.

Specification forming part of Letters Patent No. 131,769, dated October 1, 1872.

*To all whom it may concern:*

Be it known that I, JAMES MEGRATTEN, of Wilmington, Delaware, have invented certain new and useful Improvements in Devices for Heating Railroad Cars, of which the following is a specification:

The nature of my invention consists in the construction of a stove or heater for cars which has a number of cold-air-chambers or cylinders surrounding it, so that in case of accident, should the stove be upset, there will be no danger of the car catching fire, as will hereafter be fully set forth.

In the accompanying drawing, Figure 1 is a vertical section of my heater; Fig. 2 is a horizontal section of the same; and Fig. 3 are views of the device for locking the stove-door.

A represents the fire-pot of my heater, which is lined with fire brick or clay in the usual manner. Surrounding this grate there are four concentric cylinders, placed at any desired distance apart, making four separate and distinct air-chambers around the furnace, the two outer ones, B C, being for cold air, and the two inner ones, D G, being for the heated air as it passes from the furnace out into the car. The flue G immediately surrounding the furnace, is divided into a number of flues, 1, 2, 3, as shown in Fig. 3, through which the smoke and gas escape downward into the chamber placed upon each side of the ash-pan, and from thence up the chimney H. The chamber D has openings through its bottom to admit cold air, which is brought into the bottom of the heater by the pipe I, which passes out through the side of the car, so as to supply only pure air. As the air becomes heated it escapes through the small perforations in the side of the cylinder D into the adjoining one, C, and passes up through the perforated head J into the outer case or cylinder B, and thence through the register K into the car. It will be readily seen from this arrangement that the two outer cylinders can never become anything more than merely warm, so that should the stove be accidentally upset no harm or injury can result to the car from the fire. The two outer cylinders have perforated bottoms, the same as the one D, as shown by letters L, Fig. 3, so that a constant and steady current is kept up from the pipe I to supply the place of the heated air as it

makes its escape outward. The cylinders D G B C are made of wrought-iron of any suitable thickness, while the outer one B is or may be covered with Russia-iron or any ornamental kind of coat or covering, so as to impart an elegant finish and design to it. Secured to each of the cylinders B and C, on their inner surfaces, and arranged on opposite sides of the door, are inner cases or divisions M, which extend from the bottom to within a short distance of the top, as shown in Fig. 3, which keep a column of cold air constantly rising to mingle with the heated air, and at the same time act as shields, so as to prevent the heat from acting directly upon the cylinders, and they are thus kept always comparatively cool. N is a damper secured to the rod O, which, when turned as shown in Fig. 2, causes the smoke, &c., as it escapes from the flue G, to pass up passage 2 and down 3, and thence out the chimney. When turned as shown in dotted lines, the smoke passes directly to the chimney, as shown by the arrows.

When first kindling the fire, when a brisk draft is needed, the damper is turned so as to allow the smoke a free exit; but after it is once burning well the damper is reversed, so as to make the heated gas and smoke pass over a larger radiating-surface, and thus throw off a greater amount of heat into the car. Ordinarily there will be a sufficient draft from the bottom of the car to answer all purposes of keeping up the fire; but should there not be sufficient, the pipe P, leading up from the main one I, will supply all that is necessary. By means of the damper or valve R placed in the mouth of the pipe I the supply of air, not only to the fire, but to be heated, can be regulated at will. The front of the ash-pan T is separated into two divisions, so as to prevent any possibility of fire or hot ashes from getting into the car. Each one of the partitions has a number of perforations through it, which are arranged in such relation to each other, and are guarded by the shields *a*, so that should the ashes or fire get into one compartment it cannot get into the other. The door in the stove is also divided into compartments in the same manner, but has three chambers instead of two. The two inner ones are air-tight, so as to check the outward flow of heat as much as possible; but the front cham-

her has communication with the air through the perforations in its front, so as to keep cool air in contact with the middle one. In order to prevent either the ash-pan or door S from being opened or thrown out of place in case of an accident, I lock each of them by the locking device shown in Fig. 4. The circular plate U is pivoted in such a manner as to allow it to be turned freely around by a key, which should be kept only by the person whose business it is to attend to the fire. Hinged to opposite sides of this plate or wheel are two bars, *b*, which, when the door is locked, extend straight out from it, and, catching in the jambs of the door, form a strong and effective locking device. When the key is turned in the opposite direction, for the purpose of unlocking the door, the plate revolves, drawing back the bolts at the angle shown in dotted lines. A pawl or spring of any kind, catching in notches in the rim of the plate, will hold it either open or closed. Extending upward at an oblique angle, as shown in dotted lines in Fig. 2, is a shield, W, which cuts off the heat from rising directly to the top of the flues in front, and causes it to flow backward toward the register, where it will be at once discharged into the car instead of accumulating at the top.

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

1. The four concentric cylinders, B C D G, arranged around the furnace A, substantially in the manner and for the purpose set forth.
2. In combination with the cylinders B C, I claim the divisions or shields M, for the purpose of protecting the cylinders from the heat, as set forth.
3. The shield W, extending upward at an angle, so as to conduct the heat of the flues directly to the register, substantially as shown.
4. The stove-door, divided into compartments, in the manner and for the purpose set forth.
5. The ash-pan T, with its compartments, and its shields *a*, substantially as specified.
6. The locking device U, with its hinged arms, in combination with the door of a stove, substantially as set forth.

JAMES MEGRATTEN.

Witnesses:

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