

J. H. ROBERTSON & J. E. STEGER.  
Heater for Vehicles.

No. 218,316.

Patented Aug. 5. 1879.

Fig. 1.

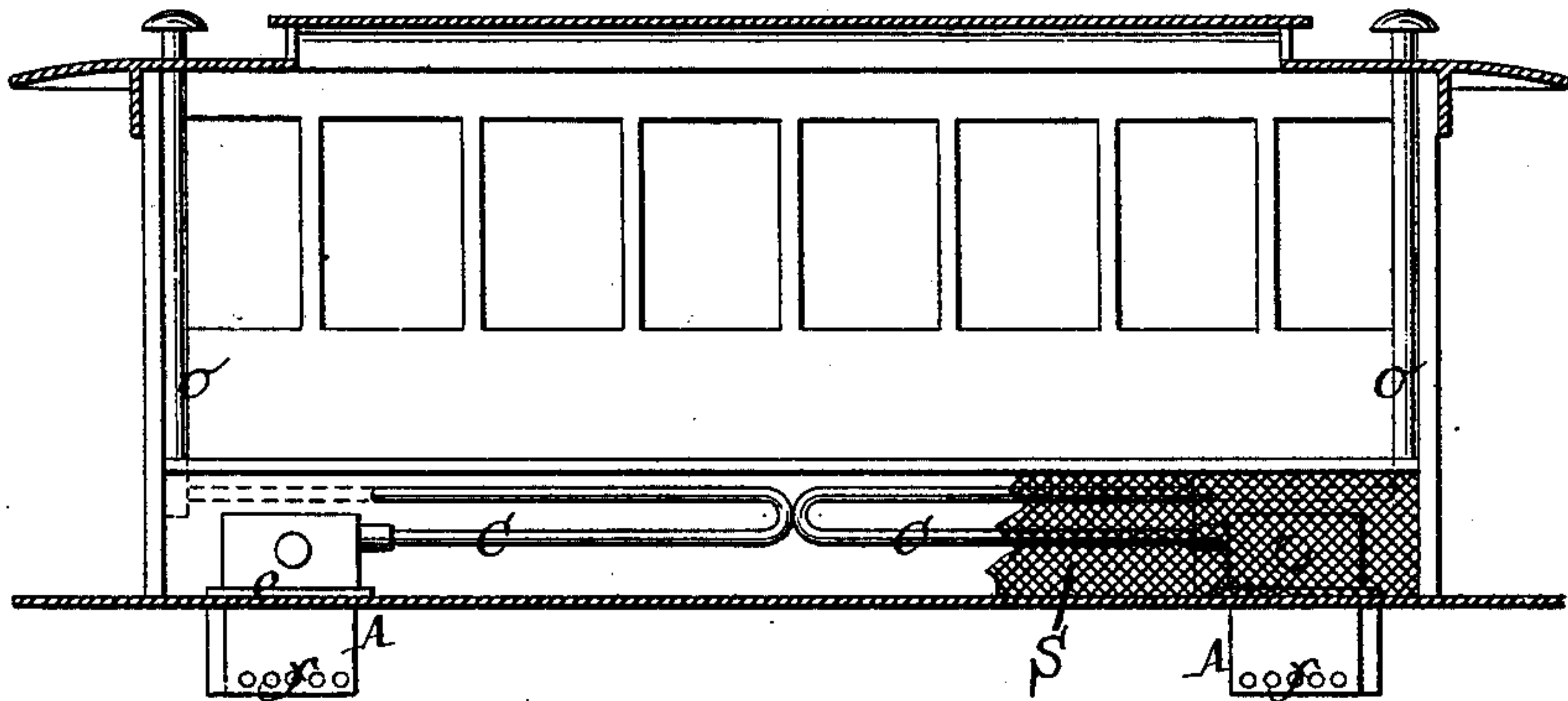


Fig. 2.

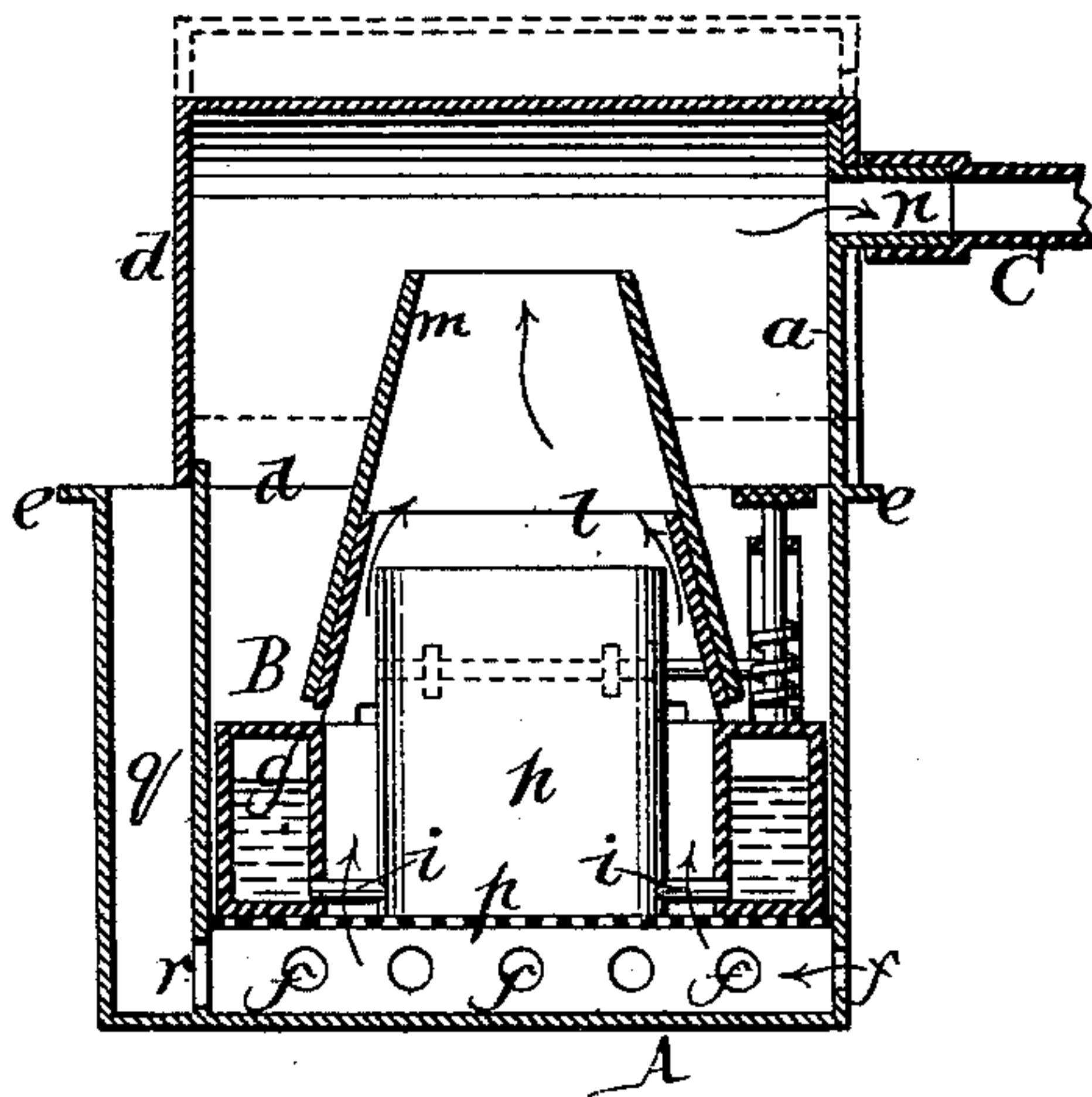


Fig. 3.

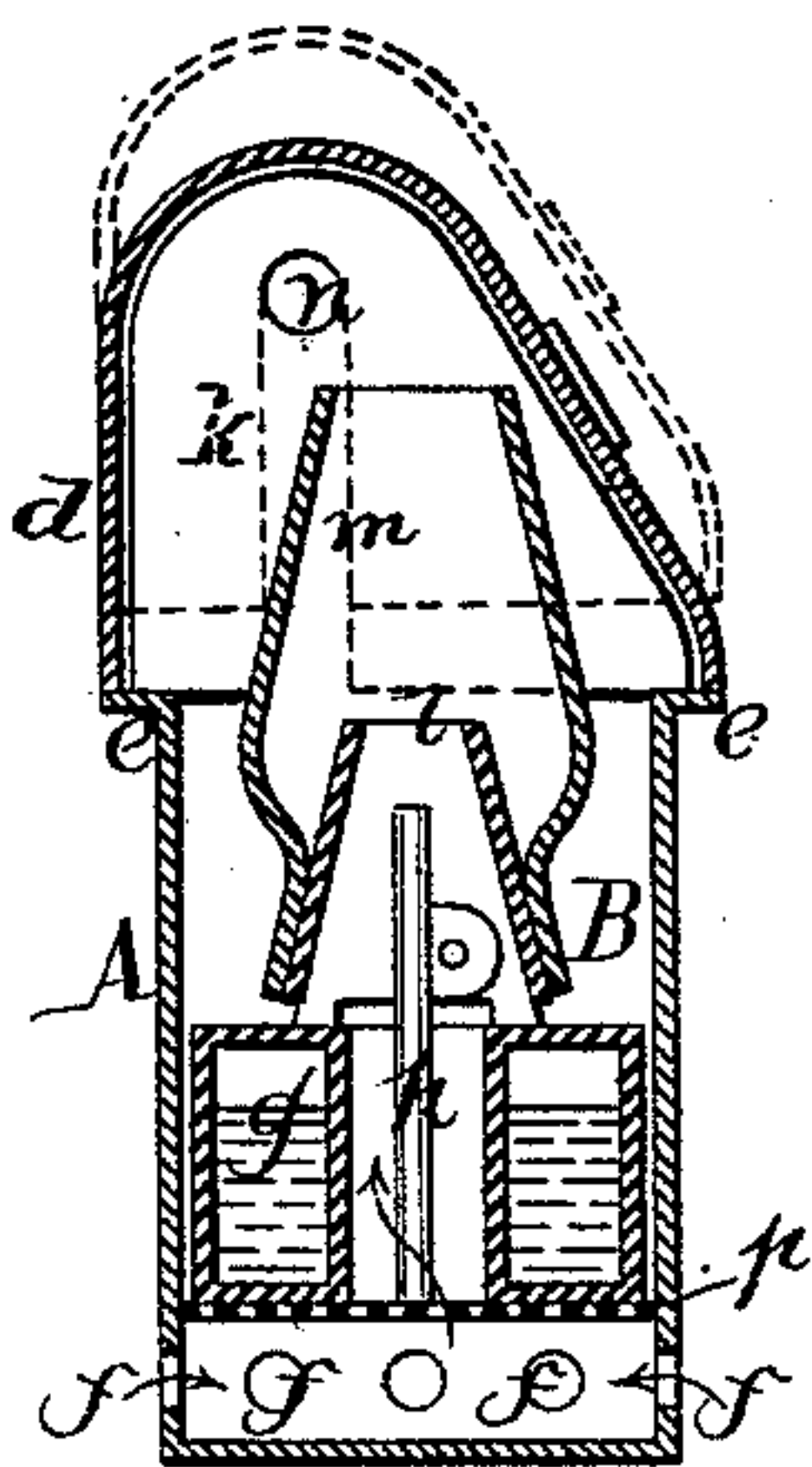
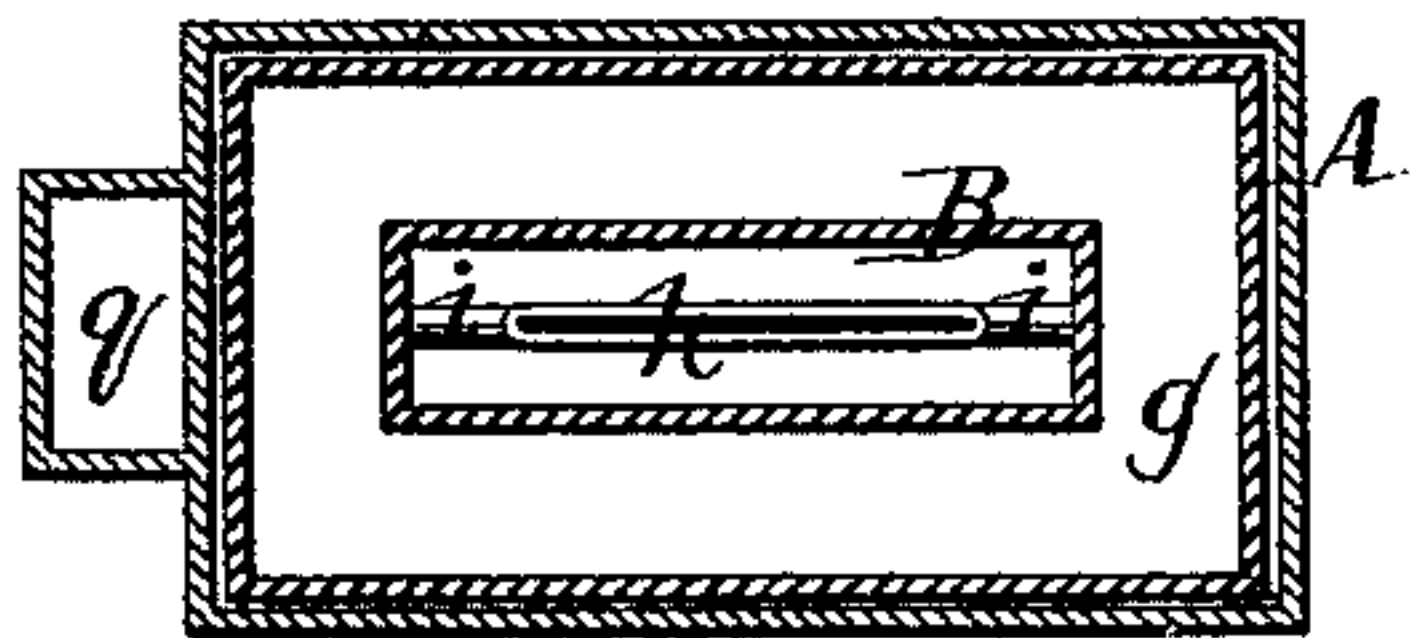


Fig. 4.



Witnesses.

Chas. Wahlers

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by Van Lanbrood & Hauff  
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# UNITED STATES PATENT OFFICE.

JOHN H. ROBERTSON AND JOSEPH E. STEGER, OF NEW YORK, N. Y.

## IMPROVEMENT IN HEATERS FOR VEHICLES.

Specification forming part of Letters Patent No. **218,316**, dated August 5, 1879; application filed May 14, 1879.

*To all whom it may concern:*

Be it known that we, JOHN H. ROBERTSON and JOSEPH E. STEGER, both of the city, county, and State of New York, have invented a new and useful Improvement in Heaters for Vehicles, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a longitudinal section of a car containing our invention. Fig. 2 is a vertical longitudinal section of the heater detached. Fig. 3 is a vertical cross-section thereof. Fig. 4 is a horizontal section of the same.

Similar letters indicate corresponding parts.

Our invention relates to an improved arrangement of devices for heating a vehicle by means of a lamp arranged under the floor thereof.

In the drawings, the letter A designates the hot-air box; B, the lamp, and C the radiating-pipe of our heater. Under normal conditions the box A is closed; but the top part thereof is made detachable, as at *d*, so that access may be had to the interior of the box.

On its upper edge the body of the box A is provided with a flange, *e*; and in the sides of such body, near the bottom, are formed a series of air-holes, *f*. At a point above the air-holes *f* we provide the box A with a perforated false bottom, *p*, to support the lamp B; but said holes can also be formed in the bottom of the box, and in that case this false bottom may be dispensed with. On one side or end of the box A is formed a flue, *q*, which is closed at the bottom, but open at the top, and which communicates with the box through one or more holes, *r*.

The lamp B is fitted snugly into the box A, so that it remains firm during the pulsations to which the whole is subjected when applied to a car, and in this example the lamp is constructed as follows: The oil-fount *g* has a central ventilating-flue, containing the wick-tube *h*, and this tube is connected to the fount by means of feed-pipes *i*, with the same being combined a suitable wick-raising device, and a cone, *l*, is arranged over the ventilating-flue, so as to surround the upper part of the wick-tube, while a secondary cone, *m*, is arranged over the first or main cone.

The pipe C is connected to the box A on the upper part of the latter, and to form this connection we extend one of the walls of the body of the box up into the top *d*, and provide the extension *a* with a nipple, *n*.

One end wall of the top *d* is provided with a slot, *k*, open at its lower end, to fit over the nipple *n* when the top rests upon flange *e*. This arrangement allows the top to be removed by raising it upward, as shown in dotted lines, without interfering with the pipe C.

In applying our invention to a railway-car we generally employ two heaters, one at each end of the car, and arrange the pipe C of such heaters under the car-seats, at the same time connecting each pipe to a vertical discharge-flue, *o*, as shown in Fig. 1, while over the heaters, as well as their pipes, we arrange a screen, S.

A hole of corresponding shape to the box A is made in the floor of the car to which our heater is to be applied, and the box is dropped into this hole, with its flange *e* resting on the edge of the hole. The greatest part of the box A is thus brought beneath the car-floor and occupies an unused space, while the air-holes *f* are adapted to admit cold and fresh air to the box, which air feeds or supports the flame of the lamp B, and, after being heated, is carried into the pipe C, together with the products of combustion, whereby this pipe is heated, so as to warm the car. When the box A is in position the flue *q* opens into the car, and it serves to allow any excess of air to escape from the box A, especially the air which rushes into the box as it is swayed by the action of the car, so that the flame of the lamp B is not liable to be put out by such air.

We are aware that it is not new in itself to use a lamp-stove in connection with heating-pipes and discharge-flues for the purpose of heating vehicles, and such not being within the scope of our invention, we hereby disclaim the same.

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

1. The combination of the lamp-box A, having the upward-extending wall *a*, provided with the nipple *n*, adapted to connect with the radiating-pipe, and the removable top *d*,

having its end wall provided with the open slot *k*, to fit over said nipple, substantially as described.

2. In a heater for vehicles, an air-heating box provided with a foraminous false bottom, and with holes for the admission of air beneath such false bottom, in combination with a lamp resting on the foraminous false bottom, and having a central ventilating-flue, which is supplied with air through the perforations of said bottom, substantially as described.

In testimony that we claim the foregoing we have hereunto set our hands and seals this 8th day of May, 1879.

J. H. ROBERTSON. [L. S.]  
JOSEPH E. STEGER. [L. S.]

Witnesses:

W. HAUFF,  
CHAS. WAHLERS.