

(No Model.)

2 Sheets—Sheet 1.

J. W. STORRS.  
CAR HEATER.

No. 383,835.

Patented May 29, 1888.

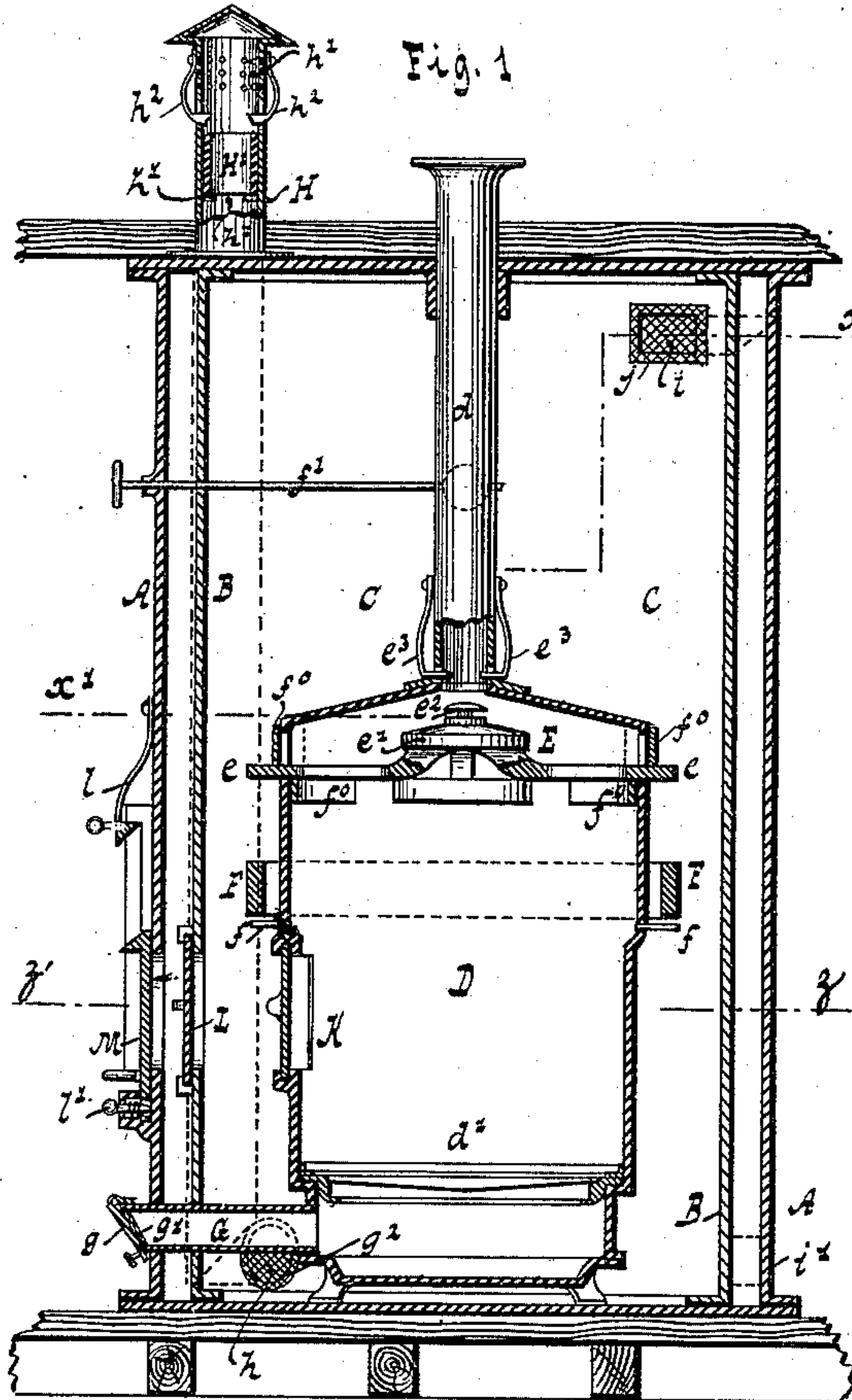


Fig. 1.

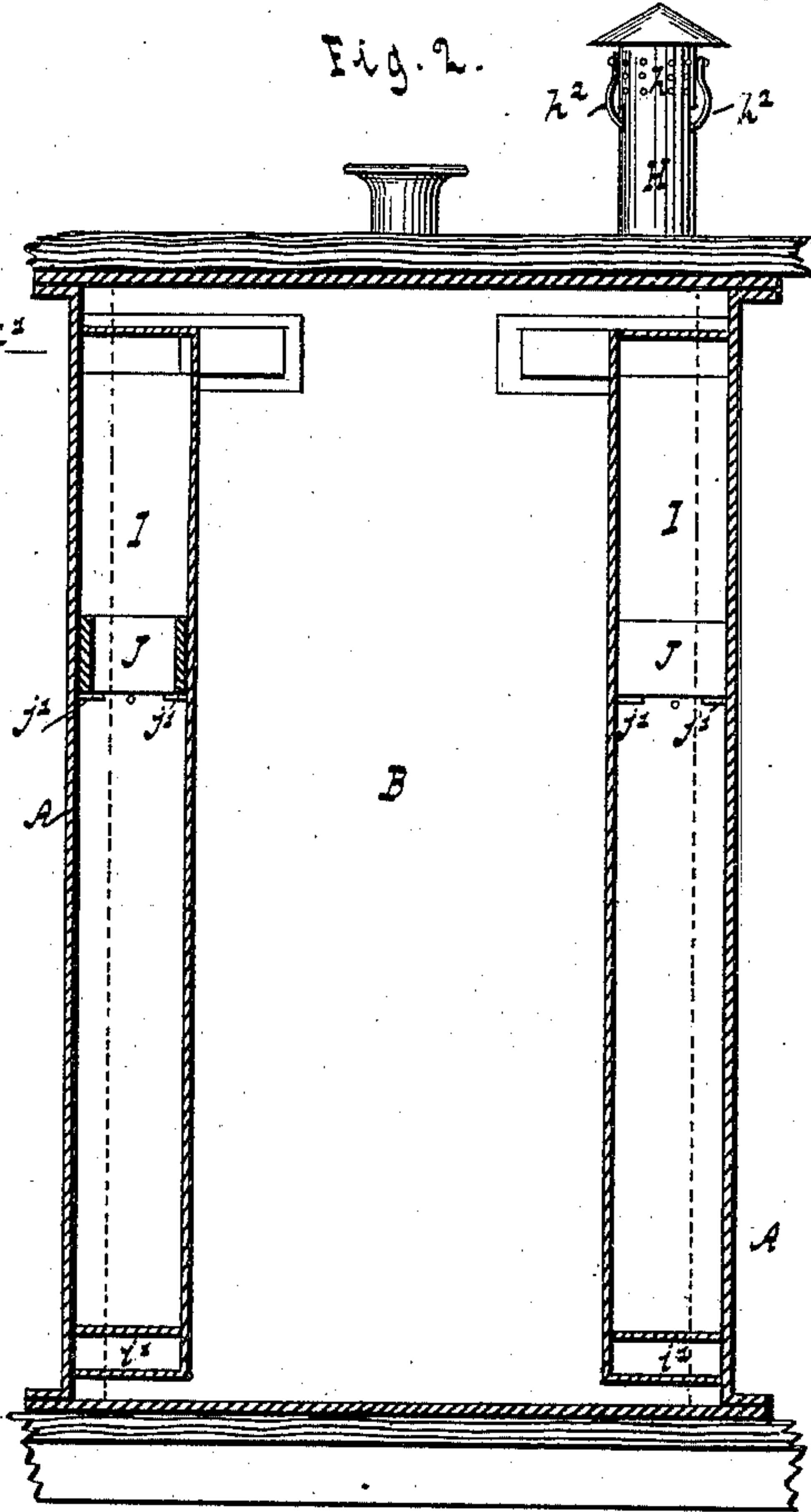


Fig. 2.

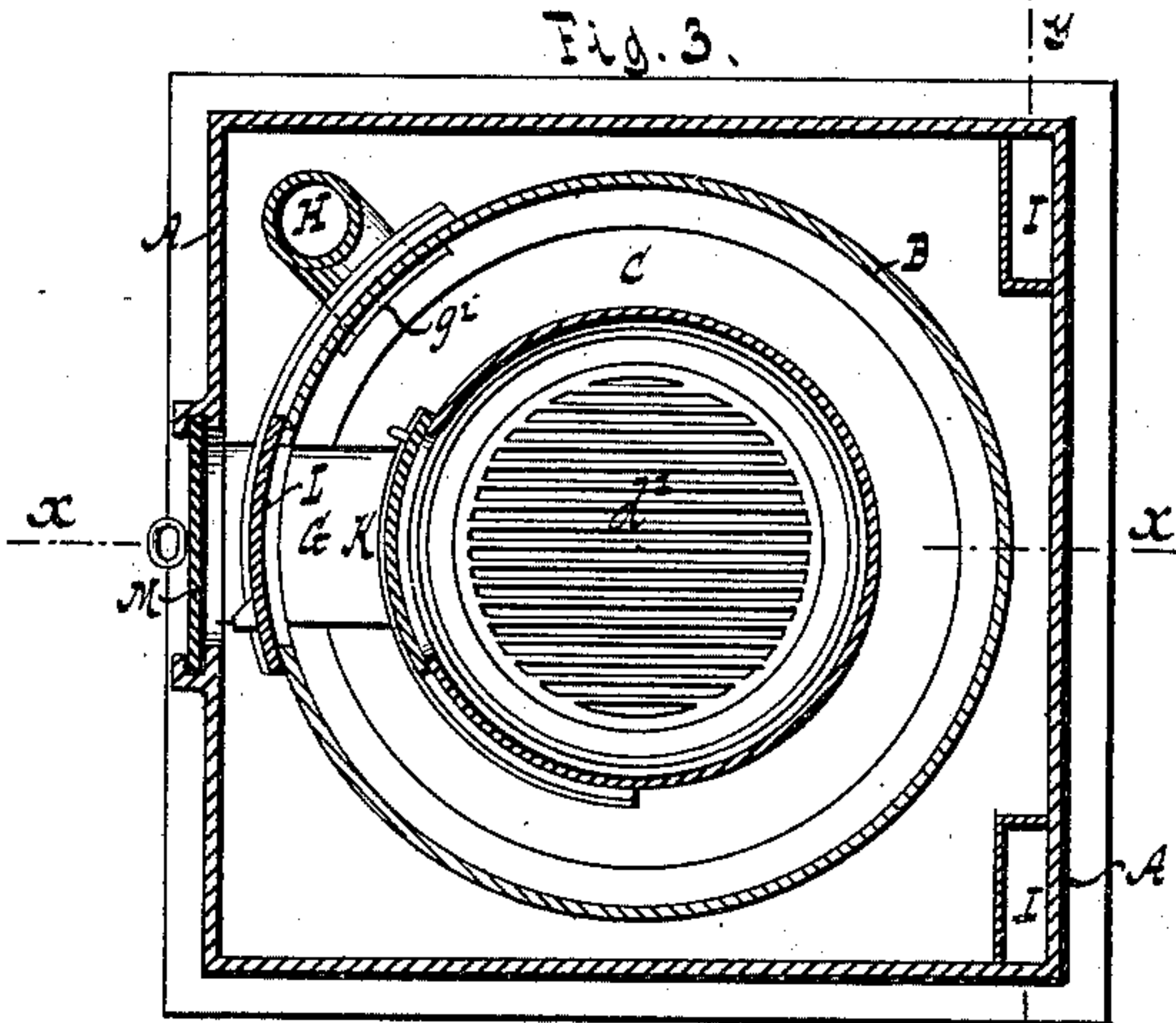


Fig. 3.

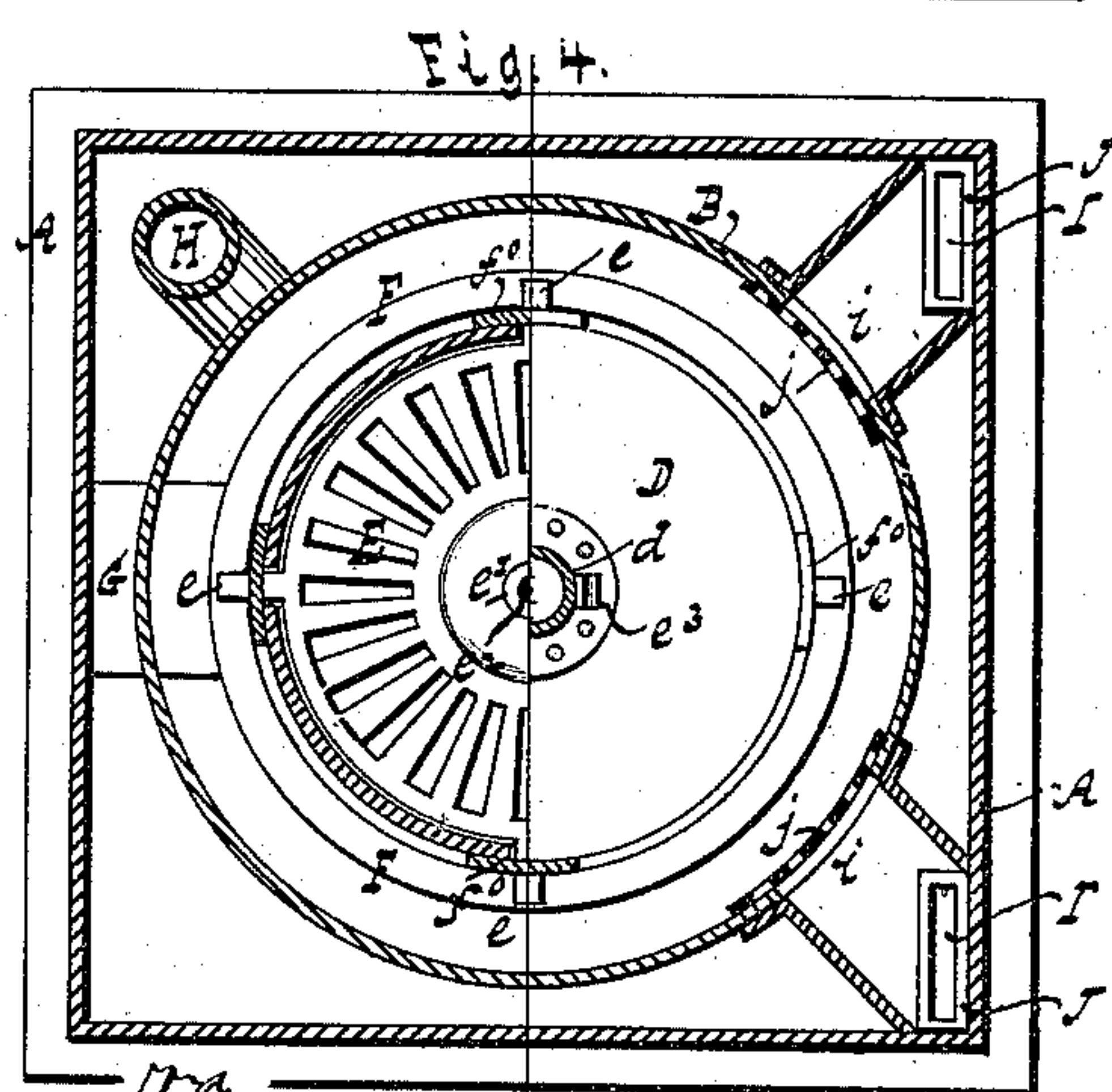


Fig. 4.

WITNESSES:

A. Faber du Four, Jr.  
William Miller

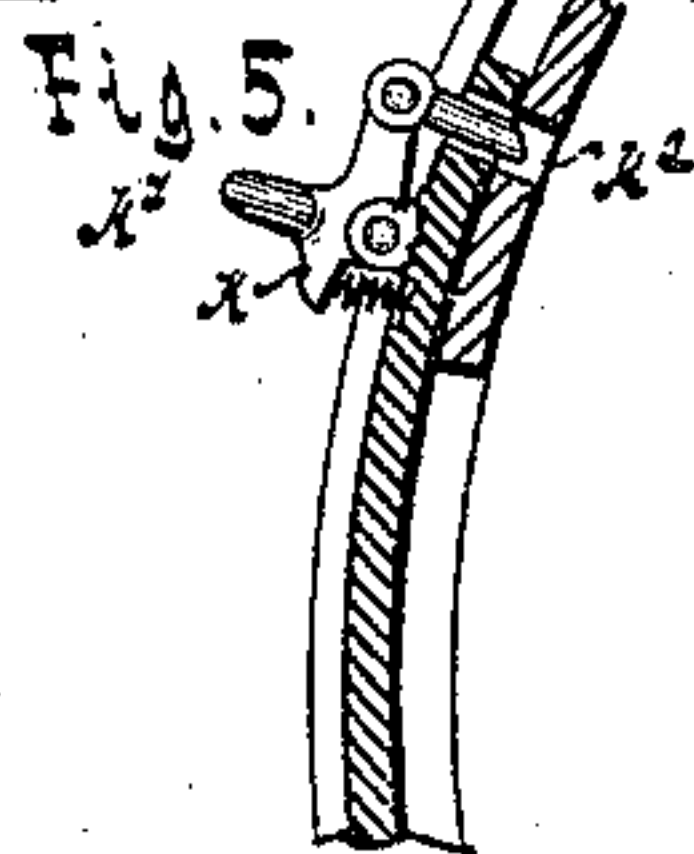


Fig. 5.

INVENTOR

Joseph W. Storrs.

BY  
Van Santvoord Hauff.

His ATTORNEYS.

(No Model.)

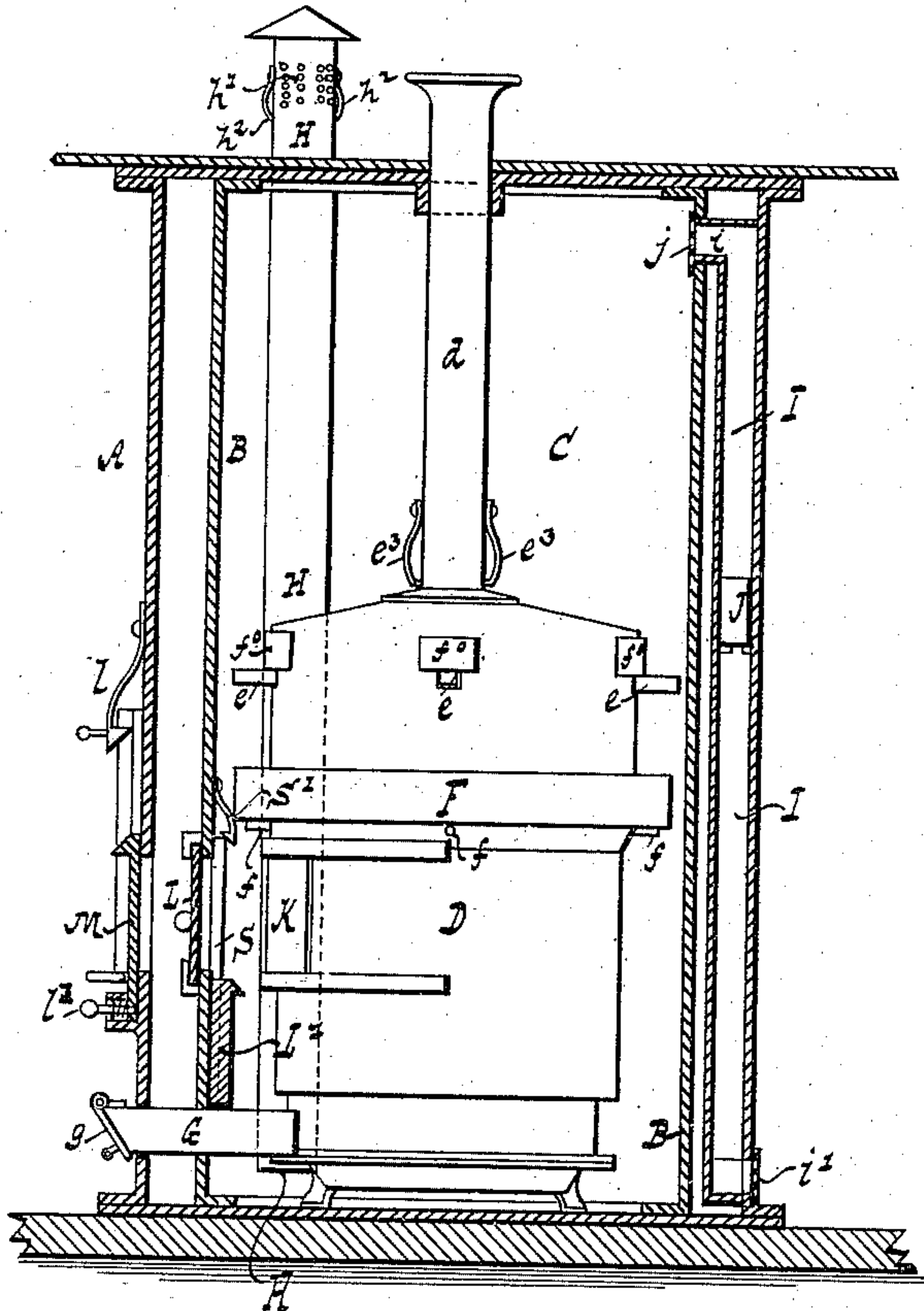
2 Sheets—Sheet 2.

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CAR HEATER.

No. 383,835.

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Fig. 6.



WITNESSES:

*A. Fisher and F. S. P.*  
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INVENTOR.

Joseph W. Storrs.

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# UNITED STATES PATENT OFFICE.

JOSEPH W. STORRS, OF NEW LONDON, CONNECTICUT.

## CAR-HEATER.

SPECIFICATION forming part of Letters Patent No. 383,835, dated May 29, 1888.

Application filed February 19, 1887. Serial No. 228,243. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH W. STORRS, a citizen of the United States, residing at New London, in the county of New London and State of Connecticut, have invented new and useful Improvements in Car-Heaters, of which the following is a specification.

This invention relates to improvements in car-heaters, and has for its object to prevent the escape of the heated coal from the fire-pot in case of collision or other accident on the road, whereby the danger of fire is avoided.

The invention consists in the novel features of construction and combinations of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 represents a vertical section in the plane  $xx$ , Fig. 3, of a heater embodying my invention. Fig. 2 is a similar section in the plane  $yy$ , Fig. 3. Fig. 3 is a horizontal cross-section in the plane  $zz$ , Fig. 1. Fig. 4 is a similar section in the plane  $x'x'$ , Fig. 1. Fig. 5 is a sectional detail view of a door-lock. Fig. 6 is a vertical central section of a modification.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates the outer metallic jacket or case, which extends from floor to roof of the car, and is provided with a metallic top and bottom whereby a strong protection is formed for the inclosed jacket B, which is best made cylindrical in cross-section, and is secured, respectively, at top and bottom to the outer jacket or case, A, so as to form an inner isolated air-space, C, in which is located the heater or stove D, the smoke-pipe  $d$  of which extends through the top of the casing A and above the car-roof.

To prevent the hot coals on the grate  $d'$  from escaping through the smoke-pipe  $d$ , in case the heater is overturned, I provide a closing-plate, E, Figs. 1 and 4, which is located near the top of the heater, and is perforated or slotted, as best seen in Fig. 4, to permit the gases of combustion to pass through. This plate E is provided with legs  $e$ , which extend through slots in the heater, said legs resting at the end of the slots.

The plate E is provided with a head,  $e'$ , which is adapted to close against the pipe  $d$ , and on said head is formed a catch,  $e^2$ , that is

engaged and retained by spring-arms  $e^3$ , secured to the exterior of the smoke-pipe  $d$  and entering the same. A closing-weight, F, which can be in the form of a ring encircling the exterior of the heater, and movable thereon, engages with said legs  $e$  on the closing-plate E, and forces the latter into contact with the spring-arms  $e^3$ , and thereby closes off the exit of coal in this direction. Flanges  $f^o$  on the closing-plate close up the slots when the former is in either position.

The closing-weight is normally supported on pins or supports  $f f$ , Fig. 1, secured in the heater. By providing means for holding the closing-plate in its closing position, as by the spring-arms  $e^3$ , subsequent movements of the stove which may move the weight will not affect the closing-plate. The rod  $f'$  of the damper extends through both jackets A B, and can be turned from the platform of the car. Air is supplied to the heater beneath the grate through a supply-opening, G, which is closed by a door,  $g$ , Fig. 1, having openings, as usual, which can be closed, as desired, and said door is lined on its inner side with a strong perforated plate,  $g'$ .

Air is supplied to the chamber C by an inlet-flue, H, extending above the roof, and entering the chamber near its bottom, as at  $h$ . The top end of the flue H is closed, and near the same are a number of holes or perforations,  $h'$ , Fig. 1, through which the air can enter. To close said holes, in case the car topples over, I provide an annular sliding gate, H', which fits loosely in the flue and rests on the supports  $h'$ . If the heater is overturned, the gate H' slides, owing to its weight, and closes said holes, and it is retained in its closing position by spring-locks  $h^2$ , extending into the interior of the said flue. The heated air from the air-chamber C is led away by flues I, opening at  $i i$ , at the top of the same, and leading downward and out at  $i'$ , and thence through the car, or as may be desired. The openings of the flues I and H into the air-chamber C are closed by perforated plates  $j j$  and  $g^2$ , to prevent the escape of heated coal in case such should escape from the heater, and, as an additional safeguard, I provide heavy sliding gates J J, located in said flues and resting on supports  $j' j'$ . These gates J J act in a similar



manner to the gate H' of the flue H. The door K of the heater is arranged to slide, and is provided with a spring-handle consisting of a spring-pressed bell crank lever, *k*, Fig. 5, having a handle, *k'*, one arm of which lever is provided with a pin or catch adapted to enter a socket, *k<sup>2</sup>*, formed in the heater. When the handle is moved to slide back the door, the pin is released from the socket, and when the door is closed the lever automatically locks the same, whereby it is prevented from opening in case of accident. Access can be had to the heater-door K through openings in the jackets A and B. The door L for the opening in the jacket B is constructed similarly to the heater-door K; but the door M in the jacket or casing A is arranged to slide vertically, Figs. 1 and 3, in proper ways. It can be retained in its open position (when up) by a lock, *l*, and is retained in its closed position by a spring-bolt, *l'*, so that it will not fall open accidentally.

From the above description it will be observed that all the doors are automatically locked when closed, and all other ports are so constructed that the heated coal cannot escape under any circumstances, the two jackets being strong enough to prevent the stove from being crushed.

As illustrated in Fig. 6, the air-supply flue H can extend directly into the air-chamber C from top down, whereby the opening *h* in the jacket B is dispensed with. I also make use of but one flue, I, which is placed centrally with respect to opposite sides in the jacket or casing A, so that if the car falls over on either side heated coal cannot enter the opening *i*. I also provide the door L of the jacket B, as an additional safeguard, with a heavy or weighted gate, *L'*, which works in slides S on the said jacket and closes over the door by its own weight when the heater is overturned. Stops are provided, or a lock, *S'*, may retain the weighted gate when closing the door-opening.

The roof of the car can be made of sheet metal, Fig. 6, and the heater being but lightly secured to the bottom of the car, the heater

will readily detach itself from the same in case of accident, thereby reducing the danger of fire to a minimum.

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

1. The combination, with a stove, D, having a smoke discharge pipe, *d*, extending from its top, of a closing-plate, E, having legs *e*, and a head adapted to close the lower end of the smoke-pipe, and a weight arranged below the closing-plate and slidable on the stove-body to strike the legs of the closing-plate for closing said lower open end of the smoke-pipe, substantially as described.

2. The combination, with a stove, D, having a smoke-pipe, *d*, provided with a retaining device, *e<sup>3</sup>*, of the closing-plate E, having legs *e* and a head, *e'*, provided with a catch, *e<sup>2</sup>*, to engage the retaining device, and a weight, F, arranged below the closing-plate and slidable on the stove-body, substantially as described.

3. The combination, with a stove, D, having a smoke-pipe, *d*, extending from its top and provided at its top with slots, of a closing-plate, E, having legs *e*, extending through said slots, and a weight, F, slidable on the body of the stove to strike said arms and force the plate to close the lower open end of the smoke-pipe, substantially as described.

4. The combination, with the closing-plate located in the interior of the heater and in line with the smoke-pipe, of a weight extending about the stove, supports for said weight, legs on the plate extending outward and adapted to be engaged by the weight, and a retaining device for the plate, substantially as shown and described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

JOSEPH W. STORRS. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.