F. S. BISSELL.

Car-Heater.

No. 205,468. Patented July 2, 1878.

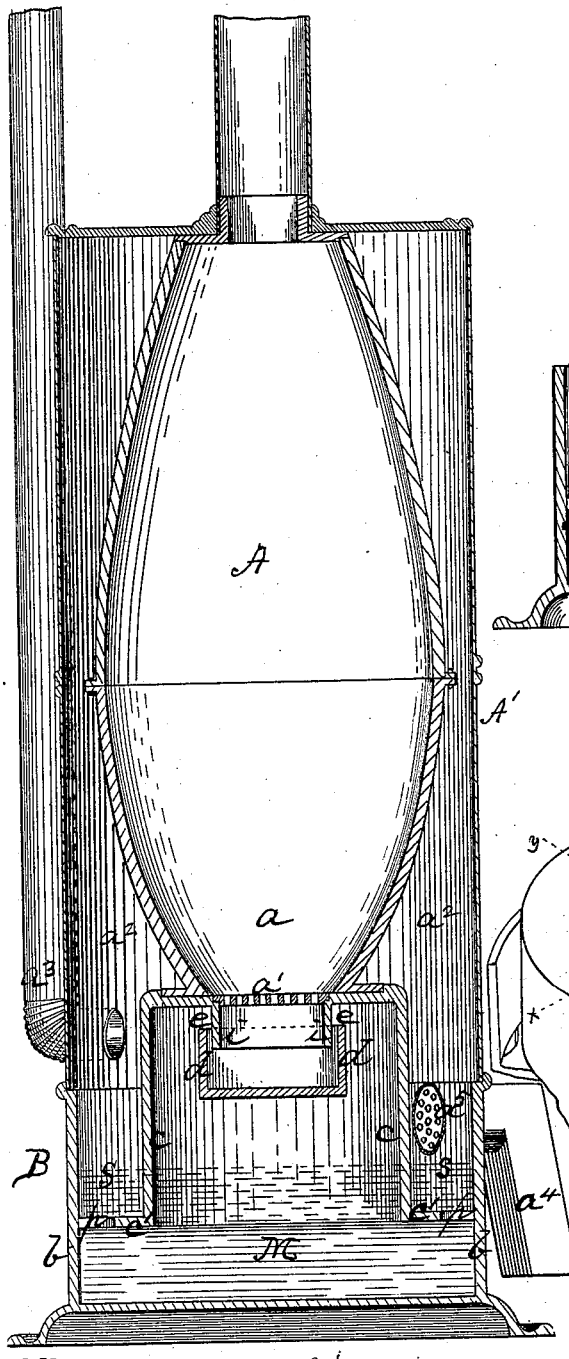


Fig. 1.

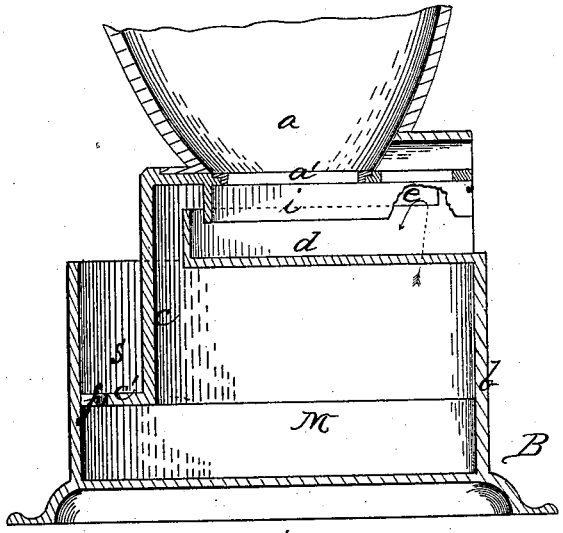


Fig. 2.

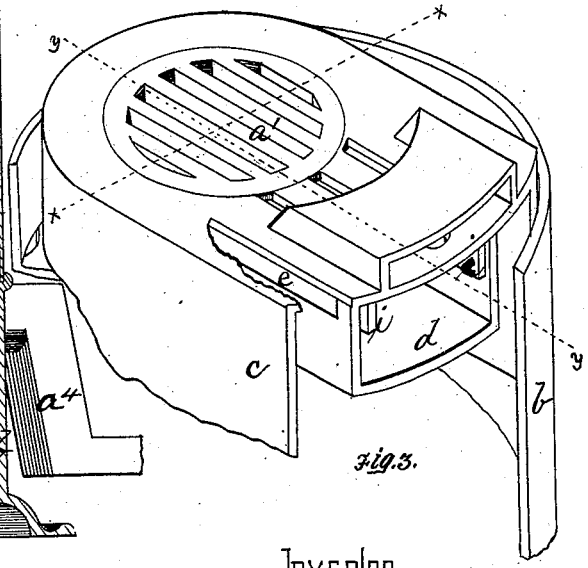


Fig. 3.

Witnesses.

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# UNITED STATES PATENT OFFICE.

FRANK S. BISSELL, OF PITTSBURG, PENNSYLVANIA.

## IMPROVEMENT IN CAR-HEATERS.

Specification forming part of Letters Patent No. **205,468**, dated July 2, 1878; application filed May 20, 1878.

*To all whom it may concern:*

Be it known that I, FRANK S. BISSELL, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Self-Extinguishing Car-Heaters; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a vertical section on the line *x x*, Fig. 3. Fig. 2 is a detailed sectional view on the line *y y*, Fig. 3. Fig. 3 is a perspective view of the base of the stove, partly in section.

Like letters refer to like parts wherever they occur.

My invention relates to the construction of stoves for heating cars, &c., wherein a means of extinguishing the fire therein is so combined with the stove as to be automatically operated when the usual position of the stove is altered by accident or otherwise.

Under the laws of several of the States it is compulsory upon railroads to employ stoves or heaters provided with means for automatically extinguishing the fires in cases of accident.

The construction of such stoves as have been devised for said purpose, so far as I am aware, are of two characters—first, those in which the reservoir has been placed in or on the cylinder over the fire-pot; and, secondly, those wherein the reservoir, though placed below the fire-pot, communicated with the cylinder above the fire-chamber by a series of pipes or tubes, or by ports in the bottom of the ash-pit. In the first construction, the bulk, if not the whole, of the liquid will, in case of accident, escape without affecting the fire, being thrown in reverse direction by the tilting or overthrow of the stove, and in the second construction, more or less of the extinguishing-fluid is discharged without effect, being thrown into the top of the stove or compelled to filter through the ashes in the ash-pit; and the devices are more or less complicated, difficult to clean out, and liable to be choked up by dust, &c.

The object of the present invention is to obtain a simple, cheap, and effective self-extinguishing stove or car-heater.

I will now proceed to describe my invention, so that others skilled in the art to which it appertains may make and use the same.

In the drawing, A indicates the cylinder or body of the stove or car-heater, having the usual or any approved form of fire-pot *a* closed below by a suitable grate, $a^1$, the whole inclosed by the usual sheet-iron case A′, forming the air-space $a^2$, with which the induction and eduction air-pipes $a^3$ $a^4$ communicate, the latter having a perforated guard-plate, $a^5$.

B represents the base of the stove, constructed to contain the ash-pit and reservoir. This base is preferably cast with the outer shell *b*, within which is the shell *c*, having the perforated flange *c′*, that divides the base into a main reservoir, M, directly beneath the ash-pit, and a supplementary or minor water-chamber, *s*, communicating with M through the perforation *p* in flange *c′*. The top of inner shell *c* supports the grate $a^1$ and fire-pot *a*, and has connected thereto or formed therewith the ash-pit *d*, which is slotted at one or more points, *e*, to establish direct communication between the fire-pot and reservoir M through the ash-pit. A flange or curtain, *i*, is formed with or attached to the upper part of shell *c* within the ash-pit, and is sufficiently wide to extend down within the ash-pit and cover the slots *e*, thereby preventing the clogging of the said slots or the escape of ashes into reservoir M.

With the ash-pit *d* the usual or any approved ash-pan may be employed, and at any point in the reservoir B a port or man hole may be formed for cleaning the reservoir.

The operation of my devices is as follows: The main reservoir M beneath the ash-pit being filled with water to the desired depth, the water or other liquid used will rise to an equal level in supplemental chamber *s* through ports *p*. This chamber *s* will serve as a wash-chamber for purifying the air entering through air-induction pipe $a^3$, and any dust and dirt from said chamber will find its way through ports *p* into the main reservoir M, from which it can be removed, as specified. Should the stove be tilted or overturned, as in case of accident, the main body of liquid in reservoir M enters the ash-pit *d* through slots *e*, and finds its way directly through grate $a^1$ into fire-pot *a*

without obstruction, while the shell *c* and perforated flange *c'* will serve to direct the fluid into the fire-pot and prevent the useless escape of any material quantity thereof.

The advantages of my invention are the simplicity and effectiveness of the devices and their adaptability to serve both as a cleanser and purifier of the incoming air, and an automatic fire-extinguisher in case of necessity.

I am aware that a closed water-reservoir has heretofore been arranged in the base of a car-heater for the purpose of purifying the air to be heated, and also that ports have been made in the bottom of the ash-pit to permit the water to enter the fire in case of accident, and do not herein claim such subject-matter; but

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

1. The combination, with a car stove or heater, of a reservoir arranged in the base and communicating with the fire-pot through a slot or ports in the sides of the ash-pit just below the grate, as at *e*, substantially as and for the purpose specified.

2. The combination, in a reservoir-base for self-extinguishing stoves, of the outer and inner shell, forming the main and supplemental communicating reservoirs, and the slotted ash-pit, substantially as specified.

3. The combination, with the reservoir, slotted ash-pit, and grate, of the flange or curtain arranged within the ash-pit to guard the slots thereof, substantially as specified.

In testimony whereof I, the said FRANK S. BISSELL, have hereunto set my hand.

FRANK S. BISSELL.

Witnesses:

F. W. RITTER, Jr.,

JOHN K. SMITH.