

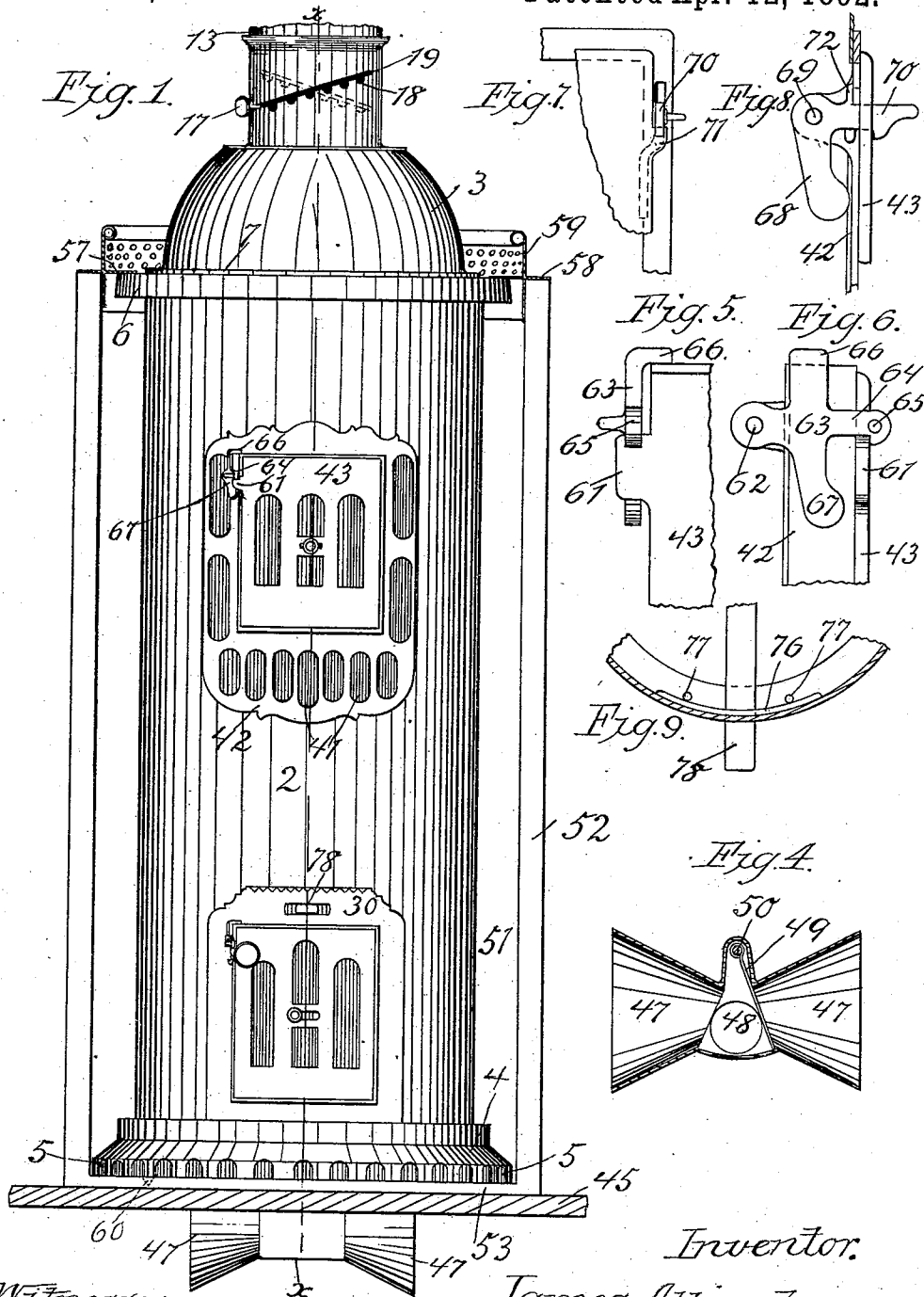
(No Model.)

2 Sheets—Sheet 1.

J. ALLINGHAM.
STREET CAR HEATER.

No. 472,778.

Patented Apr. 12, 1892.



Witnesses:
J. Jensen

C. Hawley,

Inventor:
James Allingham.

By Paul Shuman atty.

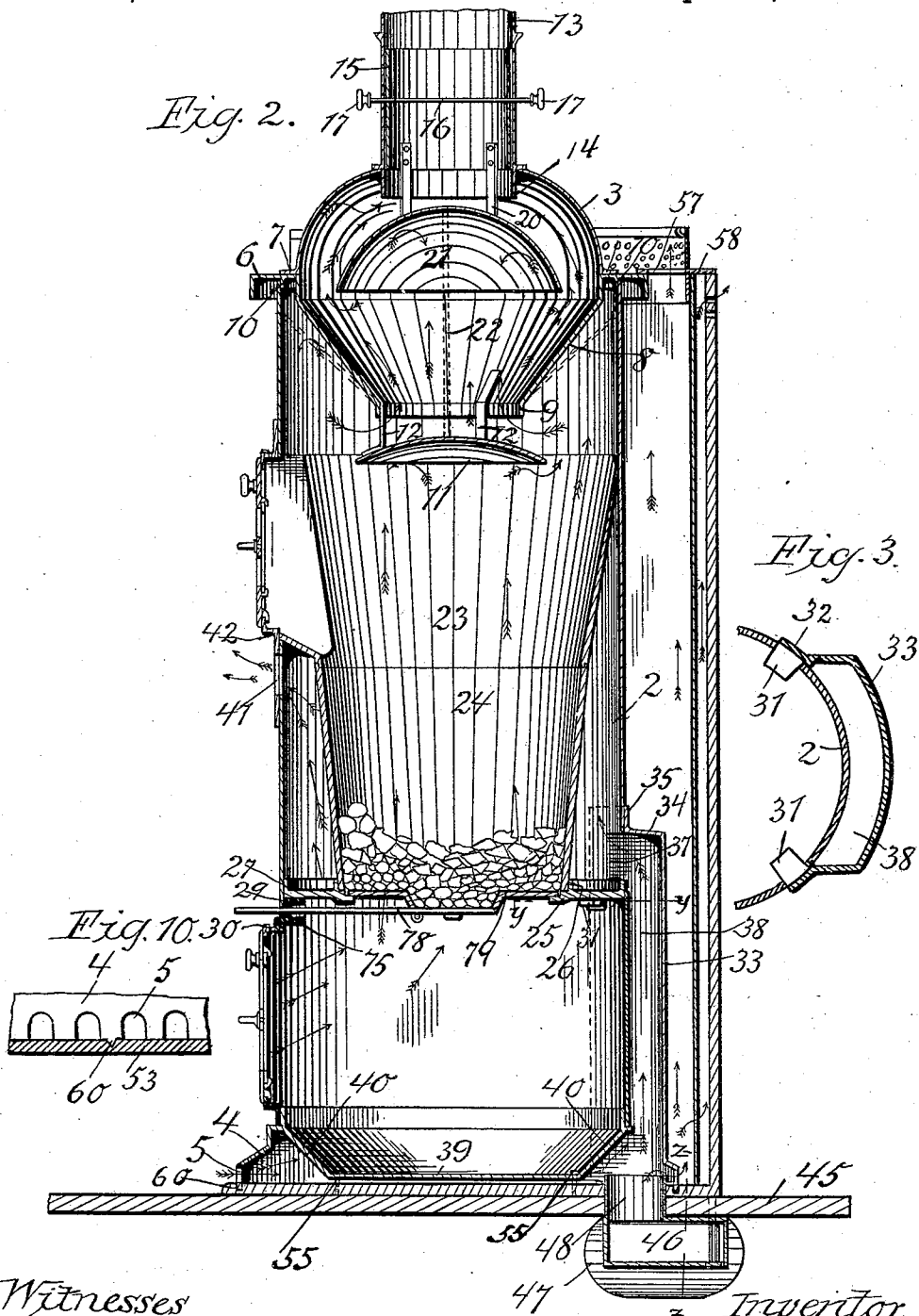
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UNITED STATES PATENT OFFICE.

JAMES ALLINGHAM, OF MINNEAPOLIS, MINNESOTA.

STREET-CAR HEATER.

SPECIFICATION forming part of Letters Patent No. 472,778, dated April 12, 1892.

Application filed October 24, 1891. Serial No. 409,718. (No model.)

To all whom it may concern:

Be it known that I, JAMES ALLINGHAM, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Street-Car Heaters, of which the following is a specification.

My invention relates to stoves, and especially to stoves adapted for use in heating cars or coaches; and the object of the invention is to provide a stove which, while being of a cheap and simple construction, will utilize a greater proportion of the heat generated from the fuel and at the same time present a neat appearance.

To this end my invention consists generally in the construction and combinations hereinafter described, and particularly pointed out in the claims, and will be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a front elevation showing a street-car heater embodying my invention. Fig. 2 is a vertical section thereof on the line *xx* of Fig. 1. Fig. 3 is a partial horizontal section on the line *yy* of Fig. 2. Fig. 4 is a vertical section of the air-inlet duct as seen from the line *zz* of Fig. 2. Figs. 5 and 6 are details of a novel door-catch. Figs. 7 and 8 show a modification thereof. Fig. 9 is a partial section of Fig. 2. Fig. 10 is a detail showing a portion of the bottom casting of the stove.

As shown in the drawings, the general appearance of my stove is that of a plain cylinder having a bell-shaped crown or dome. These parts 2 and 3 are of sheet and cast iron and rest, respectively, upon the cast-iron flaring base 4, having the openings or perforations 5 and the cast ring 6, upon which the flange 7 of the dome 3 rests. The deflector 8 is formed with the ring and has the inwardly-slanting sides and the short collar 9. This deflector may be cast separate and bolted upon the stove, as shown in dotted lines in Fig. 1. The sheet-iron walls of the cylinder 2 engage the rim 10, arranged on the under side of the rim 6. From the inverted cone or deflector 8 I depend the spreading cone or cup 11 by means of the straps 12. The stove-pipe 13 projects up from the dome 3, and the lower end 14 thereof extends down into the same a short distance to slightly choke a direct draft

through the same. Within the pipe or collar 13 I provide the vertically-movable sleeve 15, suspended therein by the transverse rod 16, having the knobs 17, one on each end. The ends of this rod rest in the notches 18, provided in the lower side of the inclined slots 19, arranged in opposite sides of the pipe-collar 13. It will be seen that the lowest point of one slot is directly opposite the lowest point of the other and the highest points arranged similarly. Hence as the rod is raised and at the same time rotated with respect to the center of the sleeve as an axis the same will raise the sleeve 15 and therewith the cone 21. The rod may be adjusted at any height by dropping it into the notches 18. From this sleeve I suspend by the straps 20 the bell 21 of a hemispherical shape and adapted to be raised or lowered with the sleeve. As the bell approaches the lower end of the pipe 14 it will be seen that the smoke-outlet is gradually decreased, thereby retarding the outlet of the hot smoke and gases and increasing the efficiency of my stove. If desired, the plate 11 may be connected with the bell 21, as shown in the dotted lines 22, so as to be raised and lowered with the same to provide a double cut-off. Beneath these parts I provide the fire-pot arranged in the two sections 23 and 24, resting one within the other, and the lower one upon the grate-ring 25 being held from lateral movement thereon by the rim or lugs 26. This grate-ring is provided with the rim 27 to engage the cylindrical walls of the stove and rests on the flange or lugs 29, provided on the door-casting 30. At the back the ring is supported by the two lugs 31, extending from the flanges 32, provided on the air-inlet casting 33, which extends down to and may be formed with the base 4. The top of the casting 33 has the wall 34 provided with the circular flange 35 to be bolted to the cylinder 2. An opening 37 is provided in the back of the cylinder 2 to admit the air from the trunk or chest 38, formed between the rear wall of the casting 33 and the lower and rear wall of the cylinder or casting 2. The pan 39, cast with the base or separate therefrom and having the inclined walls 40, forms the bottom, and beneath this the air entering through the opening 5 circulates and enters the vertical trunk 38,

thence passing through the opening 37 into the air-heating chamber between the fire-pot and the stove-casing 2. The heated air is discharged into the car or apartment through the openings 41, arranged in the frame-casting 42 of the upper door. The sleeve or chute connects the door-opening with the fire-pot.

In opening and closing car-stoves constant annoyance is experienced from the dropping back or down of the catch, the same being thrown about by the jarring and jolting of the car. To overcome this objection, I provide door-catches of the novel construction shown in Figs. 5, 6, 7, and 8. The construction of one form is illustrated in Figs. 5 and 6, where 61 represents the lug extending from one side or edge of the door 43. On the side of the door-frame I pivot by a pin 62 the cross-shaped gravity-catch 63, having the forwardly-projecting arm 64, provided with the hook to engage the lug 61, and a small pin or lug 65, by means of which the arm may be thrown up to disengage the lug. On the upper arm I provide the lateral lug 66 to engage the top of the frame and prevent the catch from falling too low. The lower arm is provided with the end 67, which when the hook is thrown up and just at the time when the hook rises above the lug 61 kicks the door open. A similar arrangement to this is shown in Figs. 7 and 8, where a small bell-crank 68, pivoted on a lug 69 of the door-frame, is used, the same having the hook 70 extending through a small slot in the door-frame to engage a lug 71 on the door. The shoulder 72 corresponds to the part 66 of Figs. 5 and 6 and answers the same purpose.

In Fig. 2 I have shown two flanges arranged in the top of the lower door-frame casting. These flanges 29 and 75 are adapted to hold the slide 76 (shown in Fig. 9) in place. This slide is held against the circular part of the casting by the small pin 77 and is provided with the slot to admit the grate-rod 78, extending from the stove-grate 79.

Beneath the floor 45 I provide the inlet-duct 46, having the flaring ends 47 and connecting through the sleeve or pipe 48 with the chamber or trunk 38. The construction of the duct is shown clearly in Fig. 4. The flap 49 is pivoted on the rod 50 and is adapted to swing from one side to the other to close the passage through the duct. As the car travels forward the wind blows in against the flap or shutter 49 and throws the same back, thus diverting a forcible current of air into the pipe 48. When traveling in the other direction, the air will enter through the other flaring end of the inlet-duct. In this way I insure a very strong supply of fresh air to be heated by the stove and discharged through the lattice-openings 41 into the car or apartment.

This stove or heater used in a street-car is necessarily inclosed within the box having the back 51 and the sides 52 and the bottom 53 resting on the floor, which parts are lined

with sheet metal, as shown. The crown-plate has its vertical guard part 59 ornamentally perforated, and its horizontal parts 57 and 58 bear and are secured upon the top of the box and of the stove. The stove is thereby held steadily. The stove is prevented from twisting in the box by the small lugs or points 60, extending into the bottom board 63 of the box, as shown plainly in Figs. 2 and 10, and by the bolts 55, passing through the bottom 39 into the floor.

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

1. The combination, in a heater, of the upright cylindrical portion with the dome thereof, the smoke-pipe extending therefrom, the slidable sleeve arranged therein, the inverted bell or cone suspended therefrom by straps 20, the rod 16, extending through said sleeve, the sides of said pipe provided with two inclined slots having notches 18, wherein the ends of said rod 16 are retained, the slanting walls of the deflector arranged beneath said dome, and a plate 11, suspended beneath the central opening of said deflector, substantially as and for the purpose specified.

2. The combination, in a heater, of the cylindrical portion of the stove with the fire-pot arranged within the same, a chamber being formed between them, a grate and a grate-ring therefor, the stove-door casting having lugs 31 to support the rear part of said ring, said cylindrical part provided with the openings 37, through which the air enters from said air-duct, the air-inlet, and the openings 41, arranged in the upper stove-door frame, substantially as described.

3. The combination, in a heater, with the upper stove-door frame and the lower door-frame, of that portion of the sheet-metal casing extending about and between the two frames, said lower door-frame provided with the flanges 29 and 75 on said frame, the slide 76, arranged to close a slot provided in said frame and adapted to admit the grate-bar 78, the grate, and grate-ring 25, having its forward sides supported by the flange 29, substantially as described.

4. The combination, in a heater, of the cylindrical part with the flaring base 4, having perforations 5, the inclosed ash-pit, the air-duct casting having the top 34 and the flanges 32 and 35, the lugs projecting from said air-duct casting to support the grate-ring, the walls of said casting and the lower part of the stove forming a vertical air duct or trunk, from which the air is admitted into the stove through an opening provided in the head thereof, and a horizontally and externally arranged air-inlet having flaring ends, substantially as described.

5. The combination, in a stove, of the upper ring thereof and a cylindrical casing with the containing-box provided with the crown-piece consisting in the vertical guard part and the horizontal parts adapted to be secured upon

the block and to rest upon said ring to hold the stove in position, respectively, substantially as described.

5 6. The combination, in a stove, of the door with the door-frame whereon the same is secured, the lug upon said door and parallel with the vertical side of the door-frame, and a pivoted latch arranged transversely with respect to said door and having a kicking
10 arm arranged to strike the inner side or end of the door when the latch is lifted, substantially as described.

15 7. The combination of the door and door-frame thereof with the casting 63, pivoted by a pin 62 to said frame and having a hooked arm to engage a lug upon the door, a stop-arm 66, and a kicking arm 67, all as and for the purpose specified.

8. The combination, in a heater, of the upright stove-casing and the dome of the same 20 with the smoke-pipe extending from the same, a sleeve slidably arranged in said smoke-pipe, a rod extending through both sides of said sleeve and pipe and retained in oppositely-located inclined slots therein, and a part or 25 plate hung from and beneath said sleeve and adapted to be raised thereby to shut off the outlet through said smoke-pipe or lowered to open the same, substantially as described.

In testimony whereof I have hereunto set 30 my hand this 20th day of October, 1891.

JAMES ALLINGHAM.

In presence of—

C. G. HAWLEY,
F. S. LYON.