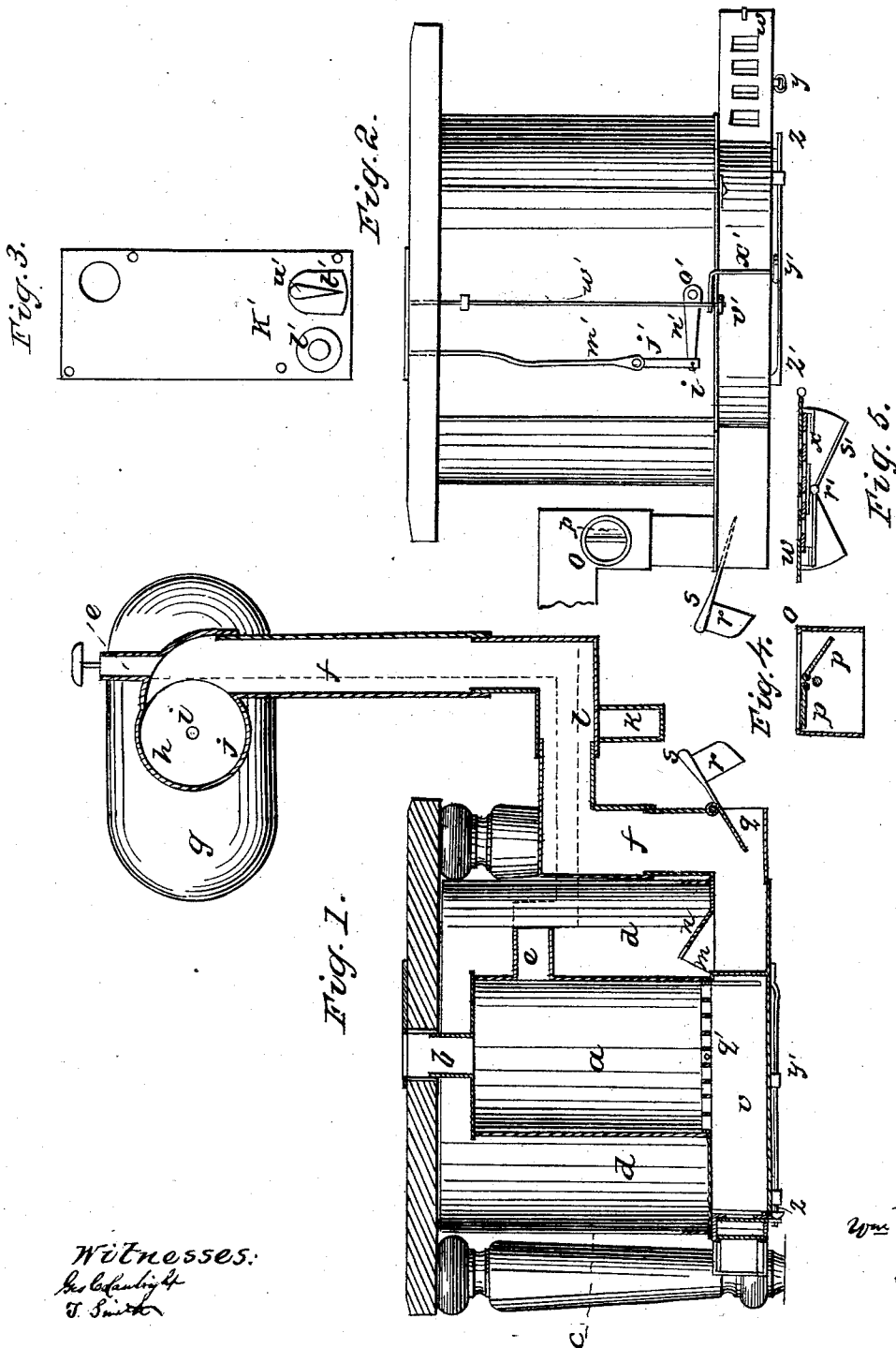


W. WESTLAKE.

Car Heater.

No. 36,044.

Patented July 29, 1862.



Witnesses:  
*As before*  
*T. Smith*

Inventor.  
*Wm. Westlake*  
*by Atty*  
*Thos. West*

### Car Heater.

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Fig. 7.

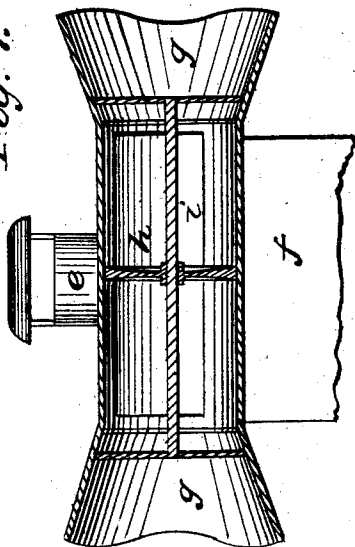
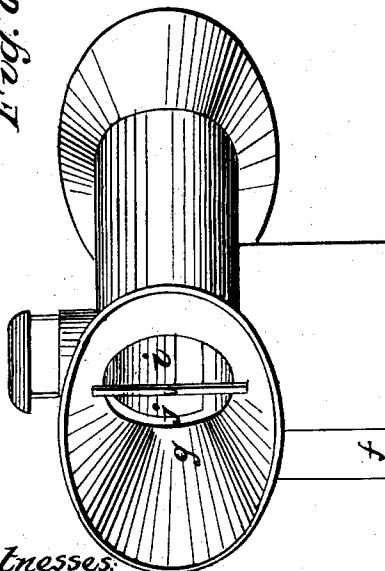
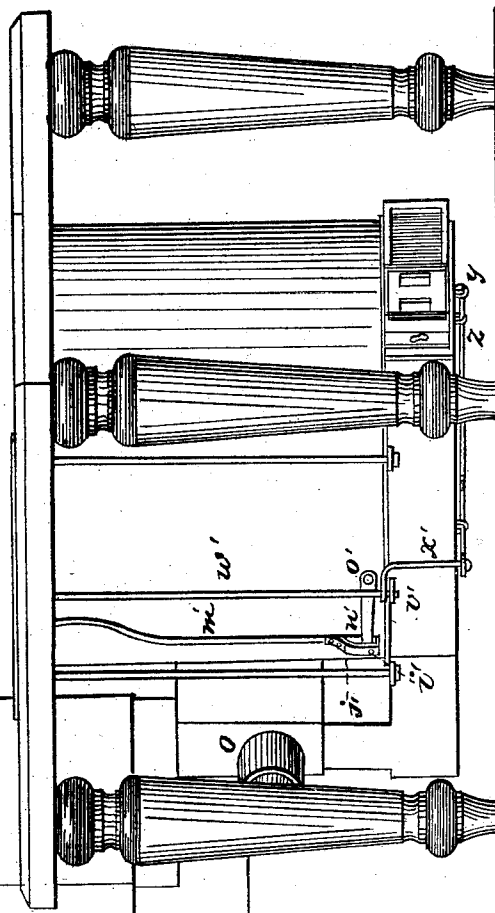


Fig. 6.



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# UNITED STATES PATENT OFFICE.

WILLIAM WESTLAKE, OF MILWAUKEE, WISCONSIN.

## IMPROVEMENT IN HEATERS FOR RAILROAD-CARS.

Specification forming part of Letters Patent No. 36,044, dated July 29, 1862.

*To all whom it may concern:*

Be it known that I, WILLIAM WESTLAKE, of the city of Milwaukee, in the State of Wisconsin, have invented certain new and useful Improvements in Car-Heaters; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the marks and letters thereon.

My improvements relate to that class of heaters where air is heated and distributed in pipes under the floor of the car, or in such other place or position as it may be deemed best to have the air-heating pipes; and the object of my improvements is to make ample provision for a supply of air to the heater in all conditions of motion or of rest of the car.

The drawings, forming part of this specification, show my improvements, Figure 1 being a section near a central line of the fuel-chamber, the air-chamber, and the smoke and air pipes; Fig. 2 being a side view of the heater without a part of the smoke and air pipes; Fig. 3 being a view of a plate having a dial and knob of the grate-rod; Fig. 4 being a view of one of the valves used in the side air-pipes; Fig. 5 being a view, by transverse section, of the draft-door; Fig. 6 being a perspective view of the heater, and Fig. 7 a view, by longitudinal section, of the wind-chamber, its valve and rod. In each of these figures, where like parts are shown, like letters and marks are used to indicate them.

This heater is intended to be placed underneath the car, and to be attached to the bottom of the car and supported by any suitable means, the air-heating pipes being placed under the floor or in any other desirable position. The heater may be attached near the center of the car, having the draft-door on one side of the car and the smoke and cold-air pipes on the opposite side of the car. The fire or fuel box can be of cylindrical form and lined with fire-brick or soapstone, or of any desirable form and not lined, and it and the base may be of cast-iron and most of the other parts and pieces of sheet or plate iron, or the entire heater may be of sheet or plate iron.

The fire-box *a* may be fed through the top *b*, or through a tube passing through the shell *c* and air-space *d*, as may be preferred. Such

number of air-conducting tubes may be attached to the shell and communicate with the air-chamber as may be deemed necessary.

As is shown by Fig. 1 of the drawings, the smoke-pipe *e*, or the pipe conducting off the gaseous products of combustion, is surrounded by the cold-air pipe *f*. This air-pipe *f* has a wind-chamber with a mouth, *g*, at each end. Within this chamber is a valve, *h*, which can be moved upon its spindle *i*. Bars at each mouth support the valve-spindle, and a wire or slight flange, *j*, at each end of the wind-chamber checks the further motion of the valve and form with it a close joint. When the car is in motion, this valve *h* will rest against one or the other of these flanges *j*, and thus form the closed end of the wind-chamber, while the other end will be open for the passage of the air down the pipe and into the air-space *d*. The cold-air pipe is provided with a dust-collector, *k*, having holes in its sides for allowing air to pass through it. This dust-collector should be about half full of water, and so connected to the pipe that it can conveniently be removed for cleaning it. Whatever dust or sparks are brought down the air-pipe with the current of air will find their way into this collector through the passage *l*.

When the car is in motion, the cold air will pass down the pipe *f* and into the air-space *d* through the spaces *m*, being deflected against the hottest part of the fire-box by the lips *n*. In order to furnish air to the air-space *d* and to the pipe *f*, that the smoke-pipe may not get too hot when the car is at rest, short pipes *o* are affixed to each side of pipe *f*, as shown, and a swinging damper, *q*, is attached near to the bottom of pipe *f* and below the pipes *o*. Pipes *o* have double-flap or butterfly valves *p*, (shown fully by Fig. 4,) which close the mouths of these pipes when the car is in motion, they then being forced to their seats by the downward current of air in pipe *f*. When the car is not in motion, the heat from the smoke will produce an upward current and the air will then come in through the pipes *o*, the valves then opening, and thus the smoke-pipe will be cooled. This coming in of air through pipes *o* at the resting of the car is favored by the action of the swinging damper *q*. It will be seen that this damper

has a vane, *r*, which, by a curved plate, *s*, is controlled in its upward movement, the tendency of which vane is to keep the damper to the mouth *t* when the car is in motion, and by the weight of the vane and the curved plate to keep the damper against the turn of the pipe at *u* when the car is at rest. Air thus is supplied to the smoke-pipe through the pipes *o* and to the air-space *d* through the mouth *t* when the car is not in motion.

The air for draft to the fire passes into the space *v* below the grate, the mouth of which has the door *w*. The draft is governed by the slide-plate *x*, this plate and the door being perforated, as is usual with such draft-hole plates. This plate *x* has attached to its bottom edge an oval-shaped mouth-piece, *y*, into which fits the end of rod *z*. Rod *z* is pivoted at its rear end, *z'*. At about the middle of its length it is embraced by the end of another rod or bar, *y'*. Into an eye on the outer end of bar *y'* the end of a crank *x'* fits, the crank being affixed to a rod, *w'*, the lower end of which has a bearing, *v'*, in which it rests, and the upper end thereof has an indicator, *u'*, with a countersunk dial-plate, *t'*. This dial-plate, being within the car, allows of the indicator's being used to operate the slide-plate *x* to control the draft, while the indicator will show the position of the plate. It will readily be perceived that through and by means of the rods and the crank here named the slide-plate *x* can be moved in either direction to increase or lessen the draft, as may be required.

Before the draft slide-plate *x* is a blower or double flap-plate, *s'*, centrally pivoted at *r'*, as is shown by Fig. 5, and having a guide-frame in which it moves. When the car is in motion, one of the flaps or plates of this blower will be down upon its seat, while the other will be open and against its outer guide-bar, and thus the air will have admission to the grate and

fire-box. The position of the flaps or plates will be due to the line of motion of the car.

The space below the grate (the ash-pit *v*) is contracted, and the grate *q'* should be tipped forward when dumped. To prevent its being tipped backward a foot, *p'*, is cast with or attached to the grate. The grate may be shaken from the inside of the car, the shaft or axle *o'* of the grate having attached to it a crank, *n'*, which is connected to a spring-ended rod, *m'*. This rod *m'* passes upward, as is shown, and has its knob, *l'*, countersunk in the plate *k'*. The knob can readily be seized and the grate operated. The spring-plate *j'* of the rod can easily be detached from its pin *i'* and moved to one side and the rod detached from the crank, thus allowing of the dumping of the grate.

It will be perceived that the fuel may be fed to the fire-box of this heater, the draft-door be controlled, and the grate be operated from the interior of the car.

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

1. The wind-chamber *g*, having the valve *h*, with its spindle *i* and flanges *j*, in combination with the air-pipe *f*, constructed and operated as described.
2. The swinging damper *q* and the pipes *o* with the valves *p*, in combination with the air-pipe *f* and air-space *d* and the smoke-pipe *e*, as and for the purposes described.
3. The lips *n* for deflecting the air against the fire-box, as set forth.
4. The arrangement of the means or devices for operating the draft slide-plate *x* from the interior of the car, as set forth.

This specification signed this 3d day of February, 1862.

WILLIAM WESTLAKE.

Witnesses:

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CHAS. C. COTTON.