

(No Model.)

2 Sheets—Sheet 1.

H. E. PENNEY.
FIRE ENGINE HEATER.

No. 542,065.

Patented July 2, 1895.

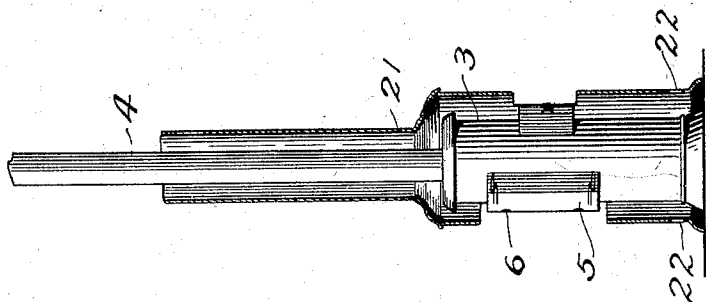


Fig. 2.

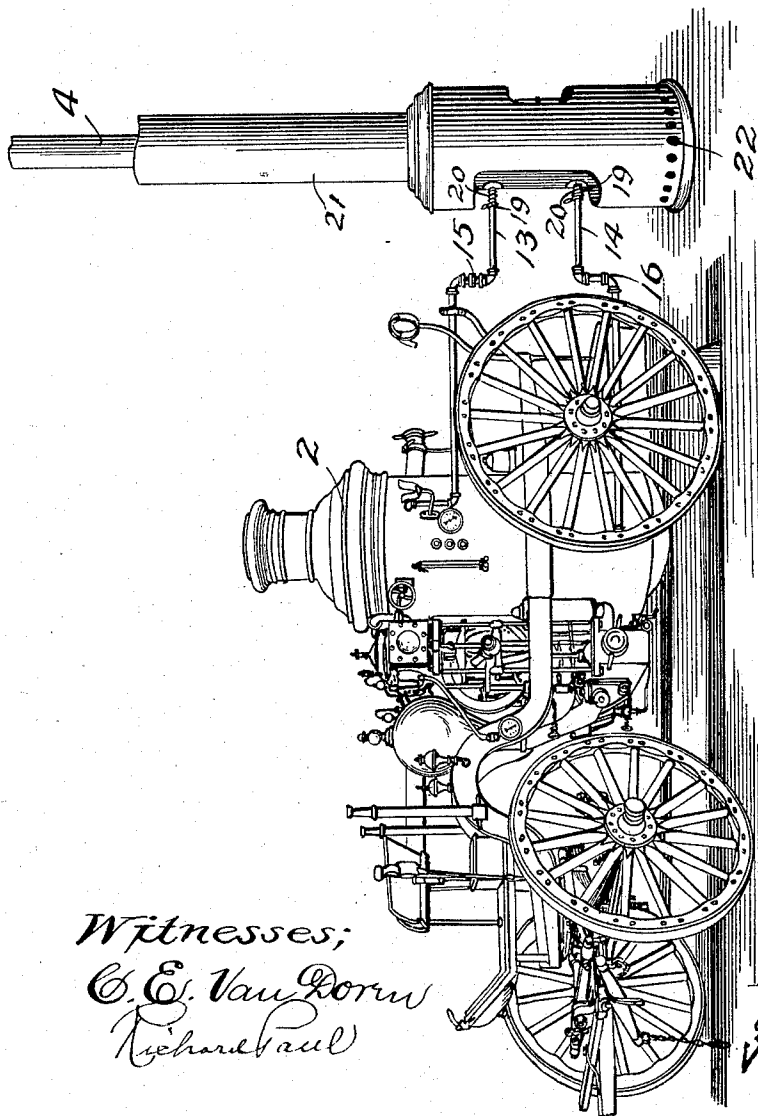


Fig. 1.

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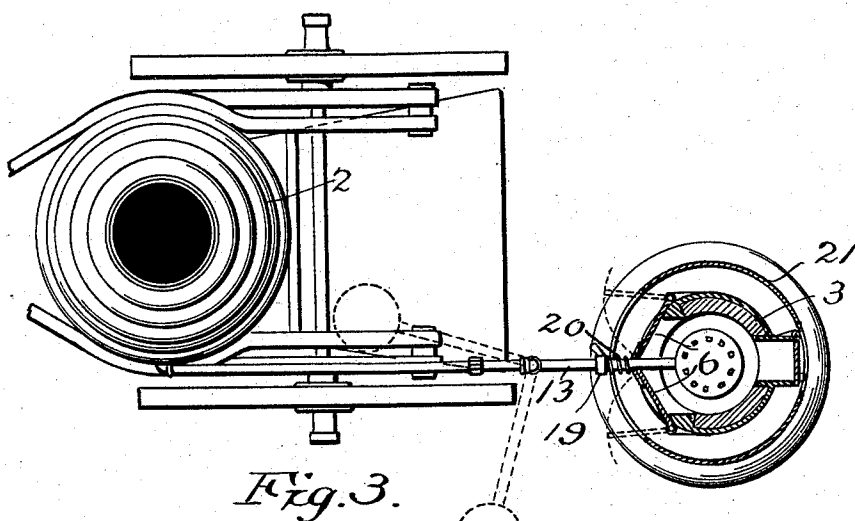


Fig. 3.

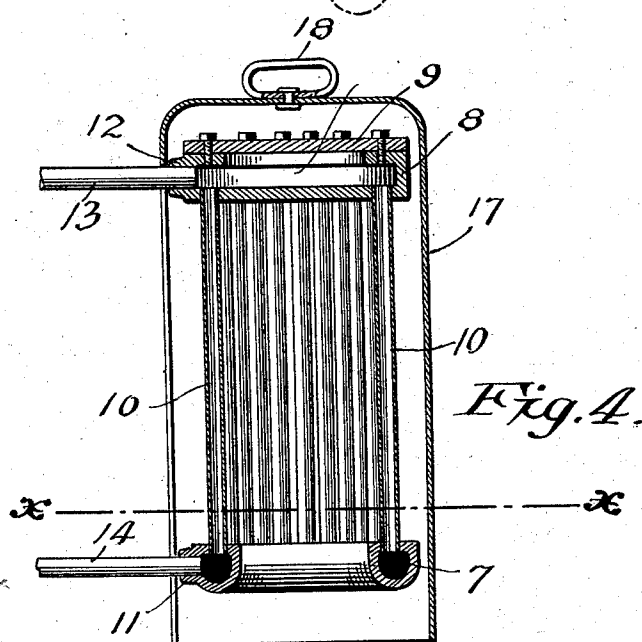
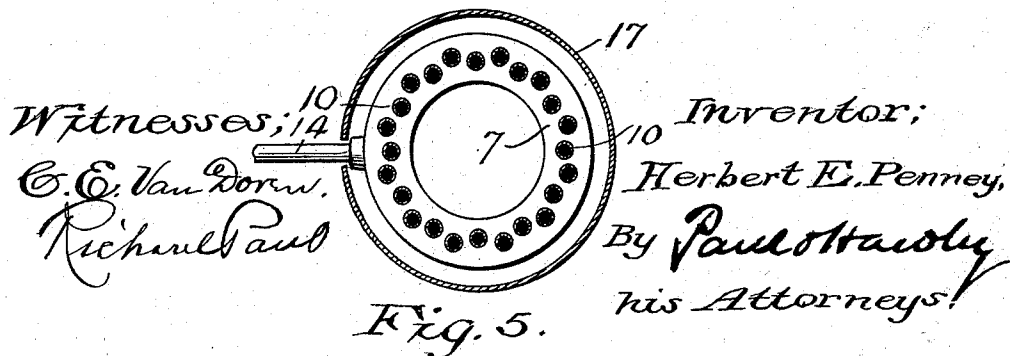


Fig. 4.



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UNITED STATES PATENT OFFICE.

HERBERT E. PENNEY, OF MINNEAPOLIS, MINNESOTA.

FIRE-ENGINE HEATER.

SPECIFICATION forming part of Letters Patent No. 542,065, dated July 2, 1895.

Application filed March 25, 1895. Serial No. 543,067. (No model.)

To all whom it may concern:

Be it known that I, HERBERT E. PENNEY, of Minneapolis, Hennepin county, State of Minnesota, have invented certain new and useful
5 Improvements in Fire-Engine Heaters, of which the following is a specification.

My invention relates to fire-engine heaters, and the object I have in view is to provide a
10 simple and convenient device to be used in connection with the engine-boiler for keeping the water therein hot at all times while the engine is in the house and also maintaining a high pressure of steam so that the engine
15 will be always ready for immediate use in case of fire.

A further object of my invention is to provide an auxiliary boiler or heater adapted to go with the engine when it is drawn out of the house and which will be carried along
20 with the engine when it starts without requiring an attendant to disconnect the same from the furnace or heating apparatus, which operation necessarily consumes considerable valuable time and delays the starting of the
25 engine.

My invention consists generally in providing a fire-engine boiler with an auxiliary boiler permanently attached thereto and arranged to be carried with the engine when it
30 goes out to a fire, in combination with a suitable stove or heater arranged to receive the auxiliary boiler when the engine is standing in the house, whereby the water in the engine-boiler will be kept circulating through the
35 auxiliary boiler, and a high pressure of steam maintained at all times in the engine-boiler; and, further, my invention consists in various combinations and constructions, all as hereinafter described, and particularly pointed
40 out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, forming part of this specification, and in which—

45 Figure 1 is a side elevation of a fire-engine with my invention applied thereto. Fig. 2 is a side elevation of the stove, the shell or covering therefor being shown in vertical section. Fig. 3 is a plan view of the boiler and the
50 stove, showing the auxiliary boiler in its normal position over the fire, its position when

the engine is in use being indicated by dotted lines. Fig. 4 is a vertical section of the auxiliary boiler itself and the cover for the same when the engine is in use. Fig. 5 is a
55 transverse section on the line *xx* of Fig. 4.

In the drawings, 2 represents the boiler of a fire-engine of the ordinary construction as it appears when not in use in the engine-house. At the rear of the engine and a short
60 distance therefrom I provide an upright stove 3, having the smoke or outlet pipe 4, and provided in its side nearest the engine with a vertical opening 5. This opening is normally closed by swinging doors 6 and is of sufficient
65 size to receive the small auxiliary boiler when the engine is backed into position in the house.

The auxiliary boiler comprises the hollow heads 7 and 8, the head 7 having the large
70 central opening, as shown in Fig. 5, and the head 8 being provided with a central opening in its upper surface, which is covered by a plate 9 securely fastened to the head by screws or bolts, as shown in Fig. 4. This re-
75 movable plate permits access to the interior of the head to the series of tubes or flues 10, which connect with the heads 7 and 8. The opening in the center of the head 7 permits the flames to pass up between the tubes of the
80 heater and therefore subjects the water flowing through the tubes to a very intense heat, so that in a very short time after the auxiliary boiler has been pushed back into the stove the water in the boiler will begin to circulate
85 through the auxiliary boiler, and in a short time will begin to generate steam very rapidly. The heads 7 and 8 are each provided on the side of the auxiliary boiler next to the engine-boiler with openings 11 and 12 to receive the
90 pipes 13 and 14, which connect directly with the boiler of the engine, the pipe 13 entering the boiler near the water-line, while the pipe 14 passes through the boiler-shell near the bottom thereof.

95 Suitable couplings 15 and 16 are provided in the pipes 13 and 14, so that when the engine starts out of the house the auxiliary boiler may be swung round to the position over the fuel-box, as shown in Fig. 3, and
100 when the engine is in use at the fire the auxiliary boiler may be swung around to the

other position indicated by dotted lines in Fig. 3, where it will be entirely out of the way when it is desired to fire the engine-boiler.

A hood or cover 17 is provided, made of suitable material and having a handle 18, said hood being arranged to slip down over the auxiliary boiler as the engine starts out of the house, thereby preventing in a measure rapid cooling of the flues of the heater, and also preventing any danger of the firemen being burned by coming in contact therewith. The hood is also provided with a longitudinal slot which permits it to be slipped down over the auxiliary boiler, the pipes 13 and 14 sliding in the longitudinal slot. By grasping the handle 18 the auxiliary boiler may be swung to either of the positions indicated by dotted lines whenever desired. The doors 6 are provided with openings at the top and bottom, through which the pipes 13 and 14 respectively pass, and each of said pipes is provided with a sliding sleeve or collar 19 and a spring 20 coiled about the pipe between the doors and the collar, which upon being put under compression by the collar 19 will hold the doors closed while the auxiliary boiler is in its normal position within the stove. The collar 19 is held from slipping on the pipe by an ordinary set-screw.

For summer use, particularly, I provide a shell or cover 21 for the stove 3, as shown in Figs. 1 and 2. This covering may be made of any suitable material and covered with asbestos or other non-conducting material, if desired, and is preferably provided at its base with a series of openings 22, through which the air circulates and carries the heat radiated from the stove up into the top of the house or into the chimney, and thereby prevents the unnecessary heating of the house during hot weather. The casing or shell 21 is also provided with openings on either side corresponding and registering with the doors in the stove, both the fuel door and the doors 6, heretofore described. The stove fire-pot is preferably lined up with fire-brick to aid in retaining the heat around the heater, and also to prevent the rapid burning out of the stove from the intense heat within.

The operation of my device is as follows: The normal position of the heater when the engine is standing in the house is shown in Fig. 1. A hot fire being maintained in the stove, the water in the boiler soon begins to circulate through the auxiliary boiler and steam is generated very rapidly until it reaches the desired pressure, usually from sixty to eighty pounds.

When an alarm of fire is sounded and the engine starts out of the house, the auxiliary boiler is drawn out of the stove as the engine passes out and, after the hood or cover 17 is placed over the auxiliary boiler, the whole apparatus may be swung around over the fuel box out of the way. There being a high pressure of steam already generated in the boiler,

when the fire is reached it will not be necessary to light the fire under the grate in the boiler unless water is called for, which is not done in the majority of alarms. It is, therefore, not necessary when the engine returns to the house to clean the boiler, and as soon as the engine is backed into position in the house, and the auxiliary boiler pushed into the stove, the engine boiler will begin to make steam and in a few moments the engine will be ready for service again. In all other engine auxiliary boilers where the heater is left in the house it is necessary to disconnect the pipes and make connections with a tank, or else leave an attendant to watch the fire in the stove or furnace after the departure of the engine, while in other devices, where the heater accompanies the engine, it has been found impossible, with the gasoline-burners usually employed, to heat the water sufficiently to generate steam, and for this reason the devices of this kind have been practically worthless.

It is obvious that the size of the auxiliary boiler may be changed at pleasure in order to increase the heating-surface, and it may be made of various kinds of material without departing from the spirit of my invention.

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

1. In a device of the class described, the combination with a movable steam boiler and its fire box, of an auxiliary boiler arranged outside the main boiler, but connected therewith for circulation, and a stationary stove or heater into which said auxiliary boiler may be inserted, and from which it may be separated by the movement of the main boiler, substantially as described.

2. In a device of the class described, the combination of a fire engine boiler, a small auxiliary boiler permanently connected thereto, and through which the water in the main boiler circulates a stationary stove or heater provided with an opening in its side to receive said auxiliary boiler when the engine is backed into the house, and to permit its withdrawal with the engine when the latter is moved away from said stove, substantially as described.

3. In a device of the class described, the combination, with the fire engine boiler, an auxiliary boiler connected thereto and through which the water from the engine boiler circulates, said auxiliary boiler being arranged to swing in either direction a stationary stove or heater arranged to receive said auxiliary boiler while the engine is standing in the house and to permit its withdrawal when the engine is drawn out, substantially as described.

4. In a device of the class described, the combination, of a fire engine boiler, the auxiliary boiler permanently connected thereto, said auxiliary boiler comprising suitable hollow heads, flues connecting the same, the pipes

connecting said heads respectively with the upper and lower portions of said boiler, suitable joints or couplings being provided in said pipes between the auxiliary boiler and said engine boiler to permit the swinging of said auxiliary boiler in either direction, a stationary stove or heater arranged to receive said auxiliary boiler and to permit its immediate removal therefrom, substantially as described.

5. In a device of the class described, the combination, of a fire engine boiler, an auxiliary boiler carried thereby, a stationary stove or heater, said stove being provided with an opening to receive said auxiliary boiler, doors for closing said opening when the auxiliary boiler is within the stove, and arranged to be thrown open when the auxiliary boiler is drawn out, substantially as described.

6. In a device of the class described, the combination, with a fire engine boiler, of the auxiliary boiler permanently connected thereto, and through which the water in the engine boiler circulates, and the hood or cover for covering said auxiliary boiler, said hood being provided with a suitable handle, whereby it may be readily placed over or removed from said auxiliary boiler, substantially as described.

7. In a device of the class described, the combination, with the engine boiler, the auxiliary boiler connected thereto and through which the water therein circulates, a stationary stove, said stove being provided with an opening to receive said auxiliary boiler while the engine is standing in the house, and to permit the

withdrawal of the same when the engine is drawn out, and said stove being provided with a shell or casing surrounding the same and leading to the chimney or ventilator, substantially as described.

8. In a device of the class described, the combination, with the engine boiler, of the auxiliary boiler, said auxiliary boiler comprising the hollow heads 7 and 8, the head 7 being provided with a large central opening, the plate 9 covering a similar opening in the upper surface of said head 8, a series of flues or tubes connecting said heads, the pipes 12 and 13 respectively connecting said heads with the engine boiler, the couplings in said pipes 13 and 14 to permit the swinging of said auxiliary boiler in either direction, and the hood 17 having the longitudinal slot or opening to receive the pipes 13 and 14, and said hood being also provided with the handle 18 upon the upper end thereof, for the purpose set forth.

9. In a device of the class described, the combination, with a fire engine boiler, of the swinging auxiliary boiler connected thereto and through which the water in the boiler circulates, said auxiliary boiler being arranged to be carried with the engine, and the hood or cover for covering said auxiliary boiler for the purpose set forth.

In testimony whereof I have hereunto set my hand this 12th day of March, A. D. 1895.

HERBERT E. PENNEY.

In presence of—

C. G. HAWLEY,
RICHARD PAUL.