



# UNITED STATES PATENT OFFICE.

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## HOUSE-HEATING DEVICE.

SPECIFICATION forming part of Letters Patent No 352,908, dated November 23, 1886.

Application filed December 22, 1885. Serial No. 186,425. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN R. BARKER, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in House-Heating Devices, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to a house-heating device, its object being to provide a combination of parts by the use of which a house may be readily heated by the use of hot-air and hot-water circulation.

My invention therefore consists of the novel devices and combinations of devices hereinafter described and specifically claimed.

In the accompanying drawings, Figure 1 represents a sectional elevation of my general arrangement, and Fig. 2 a vertical cross-section of the radiator-pipes as placed between the joists and under the floor of a room.

Corresponding letters in the several figures of the drawings designate like parts.

A denotes the hot-air furnace, which may be of any usual pattern; and *a*, the fire-pot therein. Into this fire-pot *a*, I place a coiled pipe, B, the ends of which are passed through holes in such fire-pot and in the casing, the lower end of the coiled pipe connecting with vertical pipe C, and its upper end with vertical pipe D.

Into the garret or other high point in the building I place a hermetic boiler, E, and I connect or project into or through the bottom of such boiler the pipes C and D. The top of this boiler E, I provide with a safety-valve, F, held to its seat by a lever, *b*, and weight *c*. From a chamber above this valve F a pipe, *d*, leads into an open tank, G, that is placed on the same elevation with boiler E, and is regulated automatically to be filled up to a certain measure with water from a supply-pipe, *e*, through a faucet, H, provided with a lever, *f*, and float *g*. A branch pipe, *h*, of pipe C connects with the bottom of the tank, the communication through which is interposed by a check-valve, *i*, allowing water to flow from tank G into pipe C, but not in the reverse direction.

Into any room too far away from the furnace to heat it by the air circulated through such

furnace, I place a radiator, I or J, composed of a series of pipes placed one above the other and connected to be continuous by semicircular elbows, couplings in the usual manner connecting the top end of such radiator with a branch pipe, *j* or *k*, of pipe D, and the bottom end with a branch pipe, *l* or *m*, of pipe C.

Water, being filled into tank G through faucet H, will first fill all the pipes and then the boiler E to the same level as such tank G, until faucet H is automatically closed by float *g*. The water in the coiled pipe B, being heated by the incandescent coal in contact therewith, will rise up in pipe D and into its branches *j k*, while a new supply is furnished from pipe C and its branches *l m*, whereby a circulation of hot water is produced through the radiators I and J, while any steam generated in coil B will separate from the water and will rise into boiler E, whence, as soon as the pressure therein becomes sufficient to raise safety-valves F, steam will pass off into tank G, to be condensed and to warm the water contained in such tank to such a degree that will keep it from freezing. Any waste of water thus escaping from the pipes and boiler, either in the form of steam or vapor, is compensated from the tank G through pipe *h*.

In rooms where it is not desirable to have the radiator exposed to view, I place such radiator under the floor between the joists. In this case I provide a box, L, of sheet metal, that fits between the floor-joists M, such box being arranged to have a diaphragm, *n*, and openings *o* and *p*, that are in line with corresponding openings in the floor *q*, to be covered by registers in the usual manner. Into this box L is placed the radiator J. The colder air, being the heavier, and therefore, being nearest the floor, will enter opening *p*, and, with passing from under diaphragm *n* and by the radiator J, such air is heated and passes off into the room again through opening *o*, and thus, a constant circulation of the air taking place through the radiator-box, the room is comfortably warmed without any heating device being visible or taking up space in such room.

What I claim is—

1. The combination, with a hot-air furnace and with the fire-pot thereof, of coil B, pipes C D, boiler E, connected with the coil by said

pipes, suitable radiators connected with the pipes, and tank G, also connected therewith, as set forth.

2. The combination, with a hot-air furnace and the fire-pot thereof, of coil B, pipes C D, suitable radiators, and a boiler, both connected with said pipes, and a tank provided with an automatic water-supply pipe, and also with a branch pipe provided with a check-valve for forming communication between it and the pipes C D, as set forth

3. The combination, with a hot-air furnace

and the fire-pot thereof, of coil B, pipes C D, a boiler, E, and suitable radiators, both connected with said pipes, tank G, a pipe connecting the boiler and tank, and a pipe, *h*, provided with a check-valve, the said pipe connecting the tank and pipes C D, as set forth. 15

In testimony whereof I affix my signature in presence of two witnesses.

JOHN R. BARKER.

Witnesses:

RICHARD REINBOLD,  
HARRIS W. HUEHL.