(No Model.)

T. PICKUP.

APPARATUS FOR COLLECTING AND DIFFUSING HEAT.

No. 385,571. Patented July 3, 1888.

FIG. 1

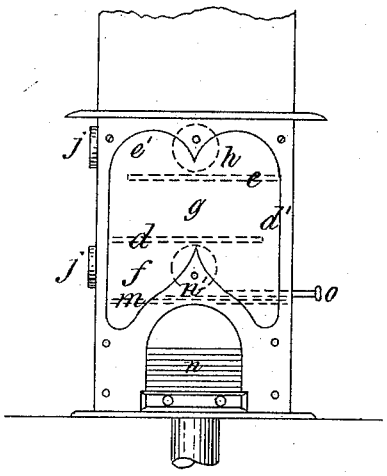


FIG. 2

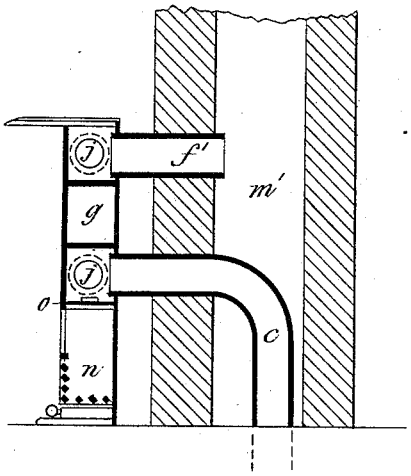


FIG. 3

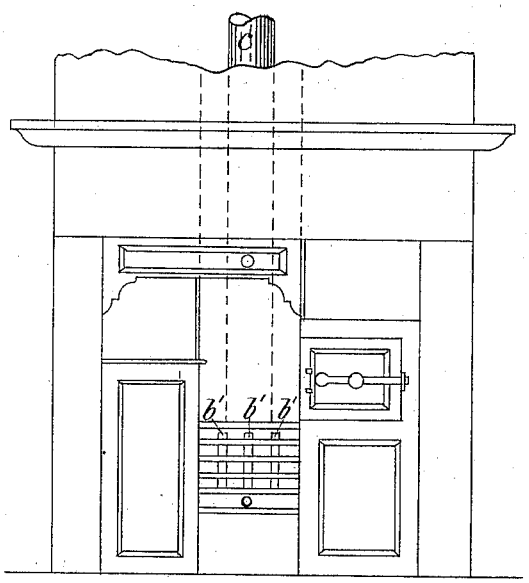
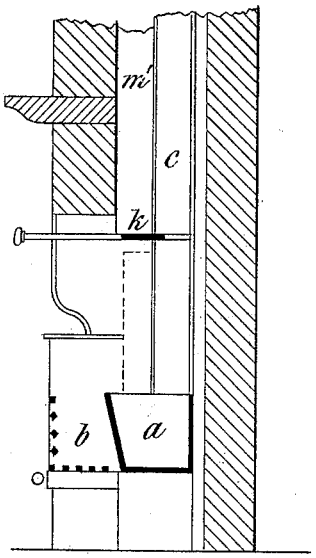


FIG. 4



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UNITED STATES PATENT OFFICE.

THOMAS PICKUP, OF BURNLEY, COUNTY OF LANCASTER, ENGLAND.

APPARATUS FOR COLLECTING AND DIFFUSING HEAT.

SPECIFICATION forming part of Letters Patent No. 385,571, dated July 3, 1888.

Application filed November 2, 1887. Serial No. 254,103. (No model.) Patented in England January 14, 1885, No. 518.

To all whom it may concern:

Be it known that I, THOMAS PICKUP, a subject of the Queen of Great Britain, residing at 43 Springfield Road, Burnley, in the county of Lancaster, England, grocer, have invented certain new and useful Improvements in Apparatus for Collecting and Diffusing Heat, (for which I have obtained a patent in Great Britain, No. 518, bearing date January 14, 1885,) of which the following is a specification.

This invention has for its object to provide novel means for heating rooms or apartments by the gases generated in a fire-place, stove, or range in a room below.

To such end my invention consists in the features of construction and combination of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a front elevation of the heating-drum or heat receiver and diffuser; Fig. 2, a vertical central sectional view of the same; Fig. 3, a front elevation of a fire-place provided with the gas collector and conductor, and Fig. 4 a vertical central sectional view of the same.

In the accompanying drawings, *a* is a chamber situated at the back of the fire-place *b*, and provided with openings or vertical spaces *b'*, as shown in Fig. 2. These openings or spaces are presented to the back portion of the fire, but sufficiently below the surface of such fire that the heated gases evolved by distillation will flow through the openings or slits into the chamber *a* comparatively free from smoke. I am perfectly aware that for this purpose a perforated diaphragm has been employed to divide the lower part of the chimney-flue into two portions, consisting of a front fire-space and a back circulating-space, in which the heated gases from the fire-space divide themselves on each side of the diaphragm and immediately mingle with each other above the throat of the chimney without any further utilization.

Now, the primary object of this invention is to utilize the waste heat by conveying the gases collecting or circulating in the chamber *a* through a pipe, channel, or flue, *c*, to a heating-drum or heat receiver and diffuser, as shown in Figs. 1 and 2. The drum comprises a casing divided into three compartments, *f*, *g*, and *h*, by surface-plates *d* and *e*. The number of compartments may, however, if desired, be augmented or diminished by the application of more or less surface-plates. The heated gases are led or conducted by pipe *c* into the receiver, where, after traversing the lower compartment, *f*, they pass upward through the opening *d'* and along the compartment *g* to the opening *e'*, from whence they are conveyed along the chamber *h* to the exit-pipe *f'* and chimney *m*.

The heated gases traversing through the compartments alternately, as above described, will impart heat to the surface-plates and side walls of the apparatus, and insure a regular transmission and conduction of heat into the room.

The grate or fire-space *n* is provided in which fuel may be deposited and burned when the kitchen-range or fire-place is not in use. When such is the case, the damper *o* (previously closed) is opened to allow the heated gases from the grate *n* to circulate in the chambers *f*, *g*, and *h* and heat the surface-plates and side walls of the receiver or stove in substitution of or in addition to the heated gases from the kitchen-range or fire-place.

The gases passing through the receiver, although collected as free as possible from smoke, will carry into the receiver and deposit upon the surface-plate soot, which, accumulating and being a non-conducting substance, would, if not removed, seriously obstruct the heating effect of the gases upon the surface-plates and side walls of the apparatus.

To clean the interior thoroughly of soot which may from time to time accumulate, I provide the doors *j*, as shown in Figs. 1 and 3, through which a brush, rake, or other suitable instrument may be inserted.

A damper or valve, *k*, (shown in Fig. 4,) may be used to regulate and control the flow of heated gases into the receiver.

Having thus described my invention, what I claim is—

1. The combination, with the drum-casing, of the alternating surface-plates *m*, *d*, and *e*, the bottom plate, *m*, having the draft-orifice *n'*, the damper *o*, for opening and closing the said orifice, and the fire-grate *n*, located in the

drum-casing beneath said bottom plate, substantially as described.

2. The combination, with the drum casing, the alternating surface-plates *m*, *d*, and *e*, the bottom plate, *m*, having the draft-orifice *n'*, the damper *o*, for opening and closing said orifice, the fire-grate *n*, located in the drum-casing below said bottom plate, the fire-place *b*, the gas-collecting chamber *a*, the passages *b'*, receiving the gases from the fire-place and leading such gases into the chamber and the gas-conducting flue *c*, leading from the chamber into the drum directly above the bottom plate therein, substantially as described.

3. The combination of a fire-place, *b*, a chamber, *a*, arranged adjacent thereto and receiving therefrom the gases arising from combustion, and a gas-conducting flue, *c*, leading from the gas collecting chamber to an apartment to be heated, with a heat receiver and diffuser located in said apartment and connected with the gas-conducting flue, substantially as described.

4. The combination of a fire-place, *b*, a gas-collecting chamber having its forward portion provided with vertical passages *b'*, for receiving the gases from the rear of the fire-place and leading them into the chamber, and a gas-conducting flue, *c*, leading from the chamber to an apartment to be heated with a heat receiver and diffuser located in said apartment and connected with the flue, substantially as described.

THOMAS PICKUP.

Witnesses:
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