L. W. LEEDS.
Heating-Stove.

No. 222,592. **Patented Dec. 16, 1879.**

Fig. 1.

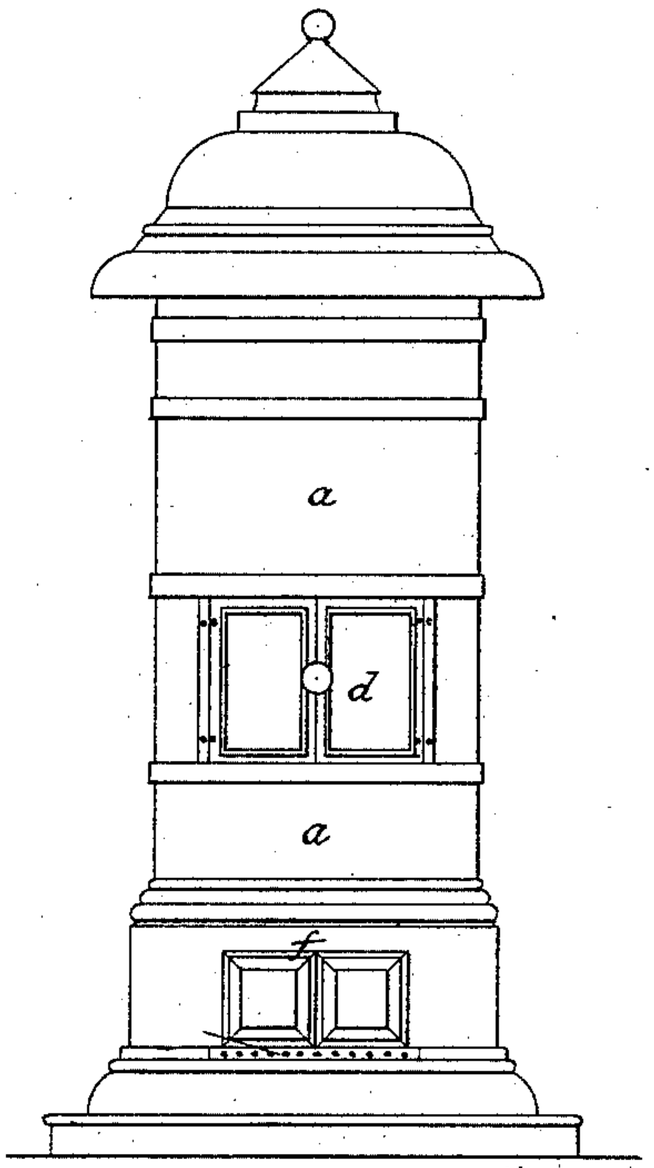


Fig. 2

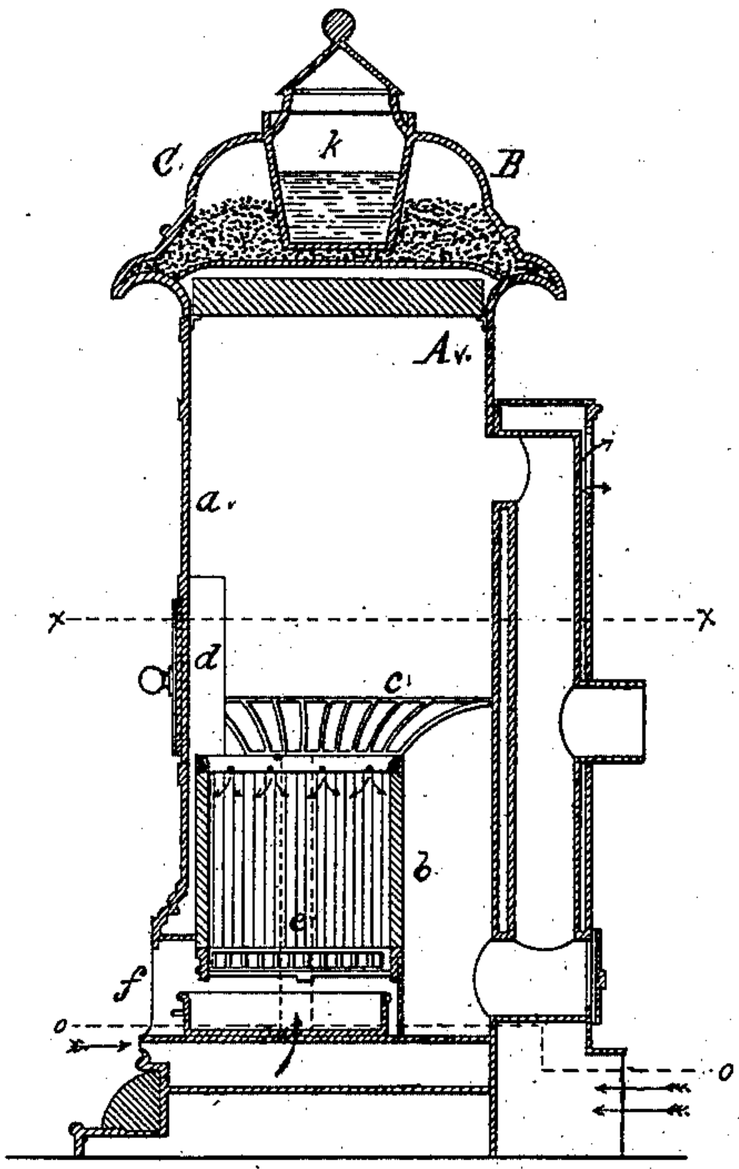


Fig. 3.

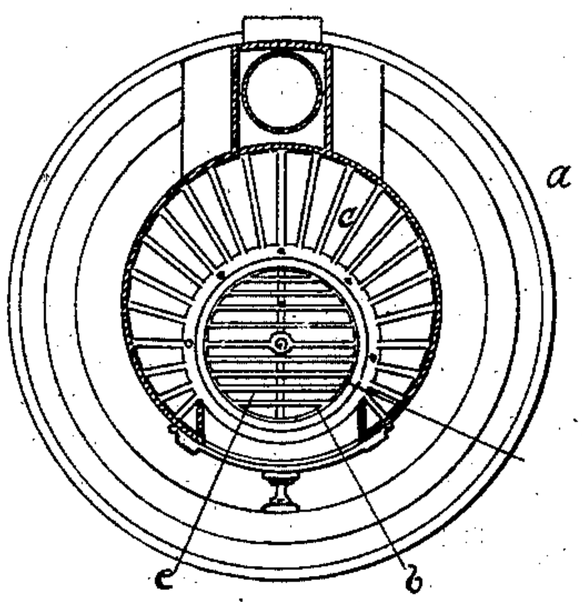
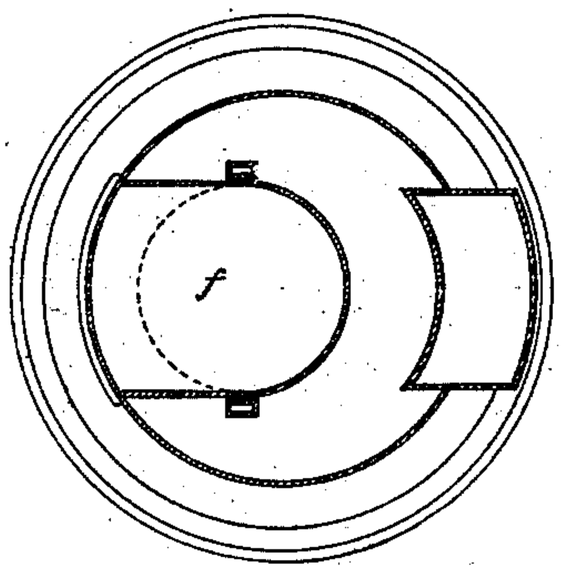


Fig. 4



ATTEST

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UNITED STATES PATENT OFFICE.

LEWIS W. LEEDS, OF NEW YORK, N. Y.

IMPROVEMENT IN HEATING-STOVES.

Specification forming part of Letters Patent No. **222,592**, dated December 16, 1879; application filed October 15, 1879.

To all whom it may concern:

Be it known that I, LEWIS W. LEEDS, of New York city, New York, have invented certain new and useful Improvements in Heating-Stoves, of which the following is a specification.

The main aim of my invention is to provide a stove for heating purposes which will avoid the upward radiation of heat from its top, and cause the heat concentrated on the top to be thrown back within the stove and radiated downwardly upon the floor, thus producing a healthful, economical, and natural heating effect.

To this end the chief feature of my invention may be stated to consist in constructing the stove with a thin metal casing unprotected at its upper portion, and arranging in the aperture or top thereof a non-conducting disk of fire-brick or equivalent material, whereby the heat radiated upwardly from the fire is arrested by and concentrated on said disk, which prevents its upward dissipation from the stove-top, but causes it to be abundantly radiated outward and downward through the thin upper casing of the stove, as hereinafter fully set forth.

Figure 1 of the annexed drawings presents a front elevation of my improved stove; Fig. 2, a side sectional elevation thereof; Fig. 3, a cross-section on *x x*, and Fig. 4 a cross-section on *o o*.

The body of the stove is indicated by *a*, and is preferably of the usual cylindrical shape, as illustrated, and may be formed of either sheet or cast iron. *b* is the fire-pot, which is much smaller than the body of the stove, and is isolated from the interior walls of the stove-body, as shown, being preferably placed in an eccentric position toward the front side thereof, so as to leave an annular or crescent space between the fire-pot and the walls of the stove-body. *c* is a radially grated or ribbed screen or guard, which flares from the top of the fire-pot upwardly to the walls of the stove-body in a manner similar to what is sometimes employed. *d* is the door through which fuel is inserted. *e* is the grate of the fire-pot, and *f* the ash-pit, all of about the usual construction.

Now, the upper part of the stove body or casing above the fire-chamber is formed of thin sheet or cast iron, which is left unprotected by fire-brick or other non-conducting covering, so as to be readily penetrable to heat, and in the top or aperture of this casing is arranged a thick non-conducting disk, A, of fire-brick or equivalent material, as illustrated. This disk A arrests and absorbs the heat radiated or conducted upward from the fire-chamber, and prevents this heat from being dissipated upwardly from the external top of the stove; but, on the contrary, the heat thus concentrated on the disk is radiated abundantly therefrom through the thin penetrable casing at a downward angle outward and toward the floor, while a large portion thereof is deflected back into the fire-chamber, where the concentration of the heat around the ring *c*, upon the air and gases meeting at the top of the fire-chamber, causes a very perfect and economical combustion to take place.

To further contribute to the downward radiation of the heat and prevent its more wasteful escape upwardly, the surmounting head or hood B of the stove is formed to overhang the cylinder of the stove to a considerable extent, forming a downward reflector or radiator, and its hollow interior is filled with a layer of fine sand, C, or equivalent non-conducting heat-proof material, such as ground asbestus, mineral wool, &c., which forms an insulator, which prevents the heat absorbed by the fire-brick A from passing upward, and insures its outward and downward radiation from the overhanging top of the stove and from the cylindrical sides of the stove-body. The hollow hood B may be entirely filled with the insulating material C; but it is preferably about two-thirds filled with the same, leaving an air-space at the top, and the water-urn *k* preferably depends into the hollow of the hood, as illustrated.

By this construction of the stove-top it is found that the heat of the stove is rendered much more effective, healthful, and economical, for a thermometer placed on a level with the floor and at a considerable horizontal distance from the base of the stove shows a much higher temperature than a thermometer hung directly over the top of the stove; hence the heat being thrown abundantly upon the floor, and also being radiated at a downward angle

upon the objects and persons in the room, renders the heating much more natural and effective. Hence the floor gives out an appreciable warmth to the feet, and causes the radiated heat to be greater in the lower space of the room, while the upper space, in which the head moves, is the cooler, thus rendering the conditions much more healthful and agreeable than is commonly the case with ordinary stoves or with hot-air furnaces.

I am aware that a non-conducting disk arranged in and closing the top of a stove is not in itself new; but where this feature has been employed, as in soap-stone stoves, &c., the side casing below the disk is also of non-conducting material, impenetrable to heat, so that the heat is thus confined within the stove, whereas I combine with said disk a thin metal casing unprotected by non-conducting material, and thus penetrable to heat below such disk, thereby securing an effective downward and outward radiation of the heat concentrated on said disk through the penetrable walls of said casing, while at the same time preventing the upward radiation of heat from the stove-top.

What I claim as my invention is—

1. The combination, in a heating-stove, of an upper casing formed of thin unprotected metal penetrable to heat with a non-conducting disk or layer, A, of fire-brick or equivalent material, arranged in and closing the top of said casing, whereby the heat concentrated on said disk from the fire-chamber is radiated abundantly at a downward angle through said penetrable casing outward and toward the floor, and upward conduction to and radiation from the stove-top prevented, substantially as herein set forth.

2. The combination, in a heating-stove, of a thin unprotected upright metallic casing, a disk or layer, A, of non-conducting material, arranged in and closing the top of said casing, and a hollow head or hood, B, overlying said disk and charged with non-conducting material, substantially as herein shown and described.

LEWIS W. LEEDS.

Witnesses:

S. H. WALES,

CHAS. M. HIGGINS.