

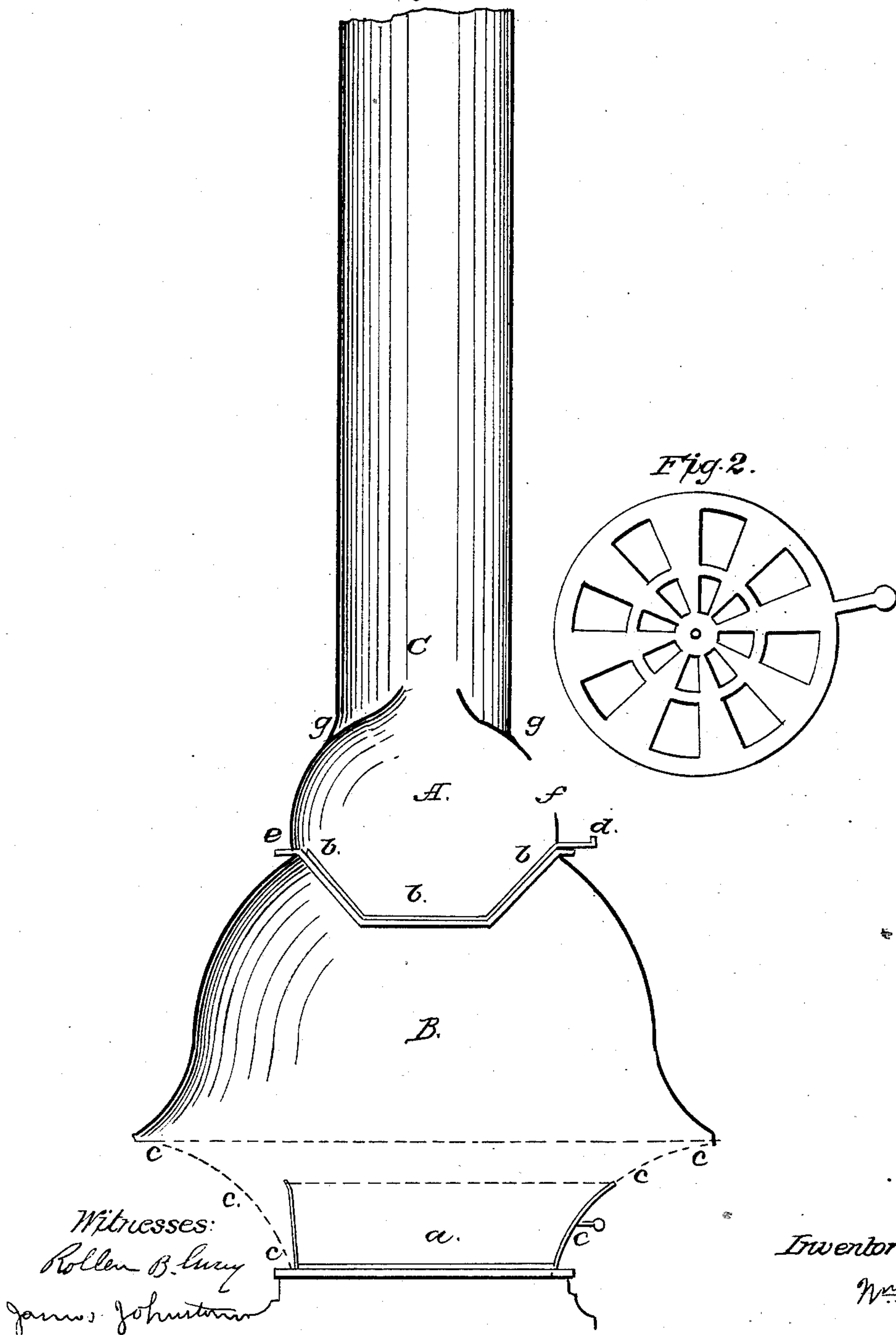
W. LEVIN.
Heating Stove.

No. 34,891.

Patented April 8, 1862.

Fig. 1

Fig. 2.



Witnesses:
Rollen B. Lury
James Johnston

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UNITED STATES PATENT OFFICE.

WILLIAM LEVIN, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN APPARATUS FOR ECONOMIZING FUEL.

Specification forming part of Letters Patent No. 34,891, dated April 8, 1862.

To all whom it may concern:

Be it known that I, WILLIAM LEVIN, of St. Louis, in the State of Missouri, have invented a new and useful Improvement in Apparatus for Economizing Fuel; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, and the letters of reference marked thereon.

This invention consists in, first, the arrangements of the mechanical parts so that as large a quantity of air as is necessary for perfect combustion can be supplied upon all sides of the burning mass, thereby allowing a large amount of oxygen to insure combustion; second, the adoption of a peculiar arrangement of parts whereby a draft can be produced sufficiently strong to remove the useless products of combustion and to secure a sufficient supply of air to the fire. I effect economy by causing perfect combustion, and produce the greatest amount of heat by effecting combustion rapidly. The parts are so arranged that while the products of combustion are immediately removed, the supply of air is unlimited, thus enabling me to carry on combustion with any degree of rapidity.

To enable others skilled in the arts to which my invention pertains to make and use the same, I will proceed to describe its construction and operation.

Figure 1 in the annexed drawings is a sectional view through the middle of my apparatus. Fig. 2 is a detached plan of the basket or grates in which the fuel is contained during the process of combustion.

In Fig. 1, A is a fire-chamber. B is the air-chamber, and C is the flue. The lower or air chamber B is formed like an inverted funnel from the top of the ash-pan *a* upward, and is intended to receive and concentrate a supply of air around the grate or basket *b b*. The air enters the air-chamber B through the small holes at *c c c c c c*. The peculiar form of the sides of the air-chamber tends to compress the air as it is drawn up through. The form of the fuel-basket *b b* is such that the fuel is held projecting down into the air-chamber B in such a manner that the air

strikes the fuel both at the bottom and at the sides thereof. This grate or fuel-basket *b b* has a handle *d* attached to its upper half, the operation of which can be more easily understood by reference to Fig. 2, which shows the grate or basket when open. There are duplicate baskets setting one within the other, the outside one stationary and the inside movable, and to which the handle *d* is attached. The inside basket rests and slides on the outer one in such a manner that by moving the handle *d* the grates can be opened or closed from the outside of the chamber. This is of importance both for cleaning the grates of ashes and for regulating the draft.

At *e* in Fig. 1 can be seen small holes through which air can pass into the fire-chamber A directly over the fuel.

The reason combustion ceases at a given height above the fire is that there is not an adequate supply of oxygen to the fire at that point. These holes obviate the difficulty, as follows: When there is fire in the grate, air entering at these holes will not escape upward immediately, but will first get directly over the heated fuel and render its oxygen.

The fuel is introduced into the fire-chamber through the door *f*.

The shape of the inner surface of the fire-chamber has a reverberatory effect, and tends to intensify the heat within its limits.

The flue C serves to confine within limits any gases which may have escaped combustion in the fire-chamber A and passed through the opening in the top of the said chamber. These escaped gases, being yet intensely hot, would combine with the jets of fresh air coming through the small holes shown at *g g*, and thus undergo perfect combustion.

The material of which my apparatus can be built will consist of sheet-iron mostly. The air-chamber should be sheet-iron, strengthened, if necessary, with perpendicular bars of iron on the inner surface. If the heat near the basket is too severe for sheet-iron, a cast-iron rim could be fitted to the upper edge of the air-chamber. The grates should be cast-iron; the ash-pan sheet or cast iron, as may be deemed necessary. The dome A should be cast-iron, and the flue sheet-iron in most

cases. The materials must be varied in strength and weight, according to the amount of heat it is intended to cause.

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

The peculiarly - arranged combination of air-chamber B, the fire-chamber A, the flue C, the peculiar form of the grate or fuel-basket *b b b*, when used in connection with the holes at *c c c c c*, at *e*, and at *g*, constructed in the

exact manner described, and when arranged and operated in the peculiar manner and for the objects specified.

I do not claim any one special part of this apparatus as my invention.

WM. LEVIN.

Witnesses:

ROLLIN B. GRAY,
MICHAEL MALLORY.