

J. S. BLAIR.

Fire Place.

No. 42,739.

Patented May 17, 1864.

Fig. 1

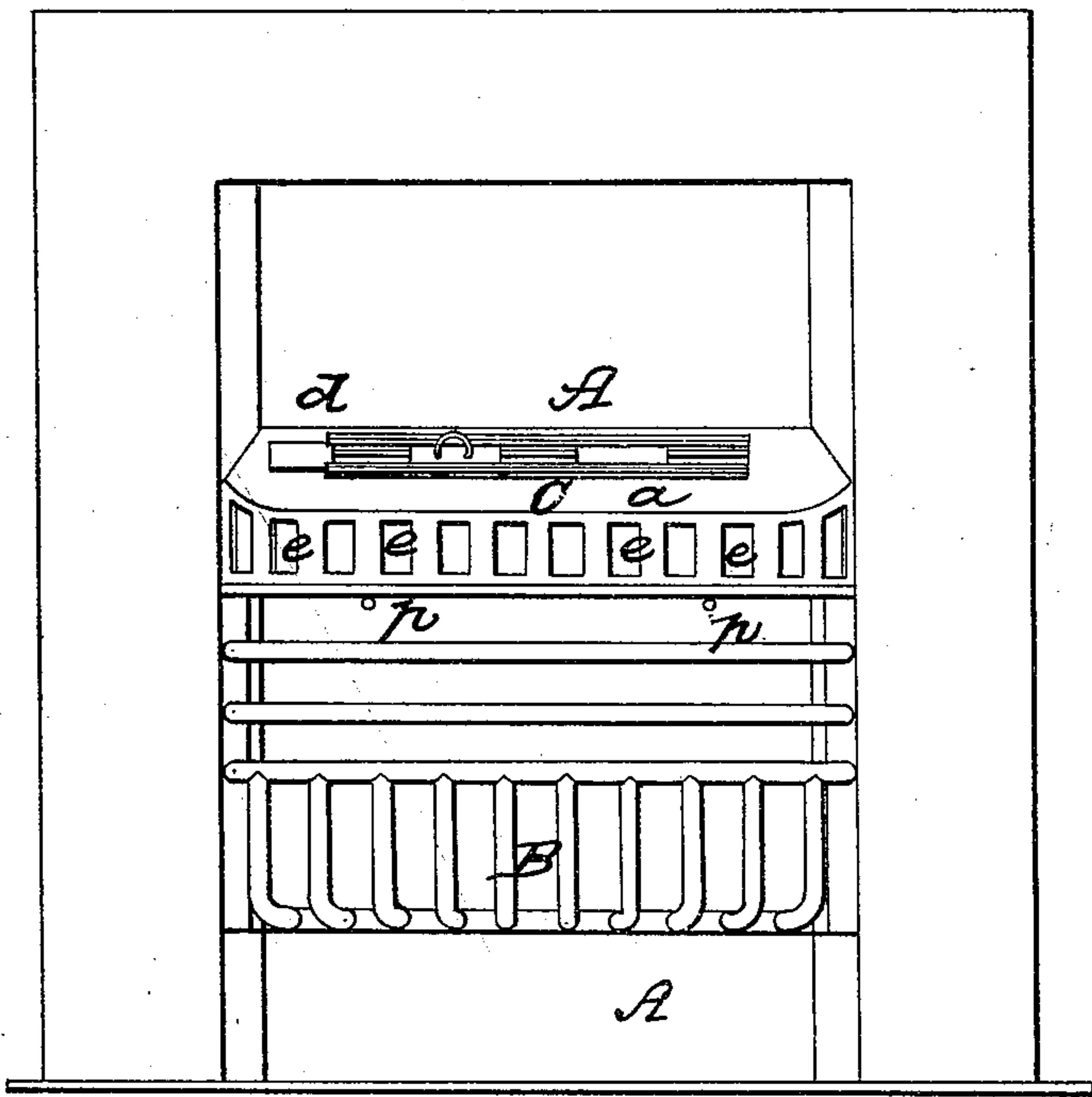


Fig. 2

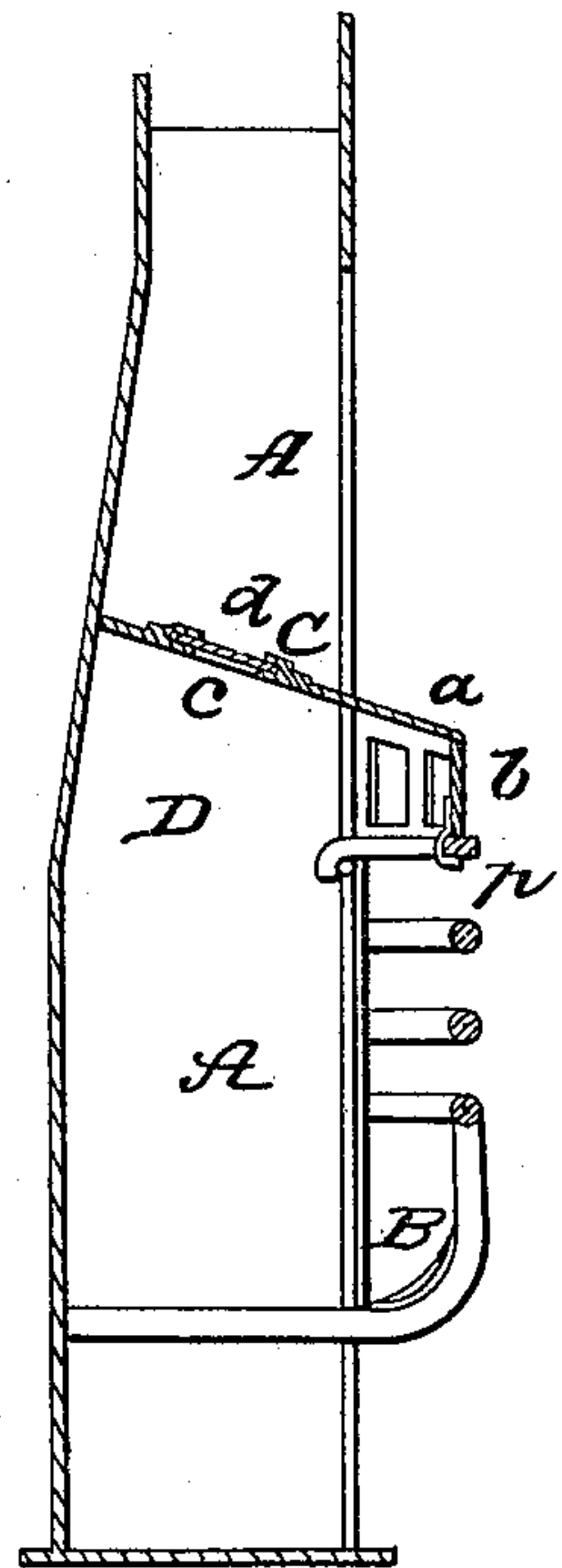


Fig. 3

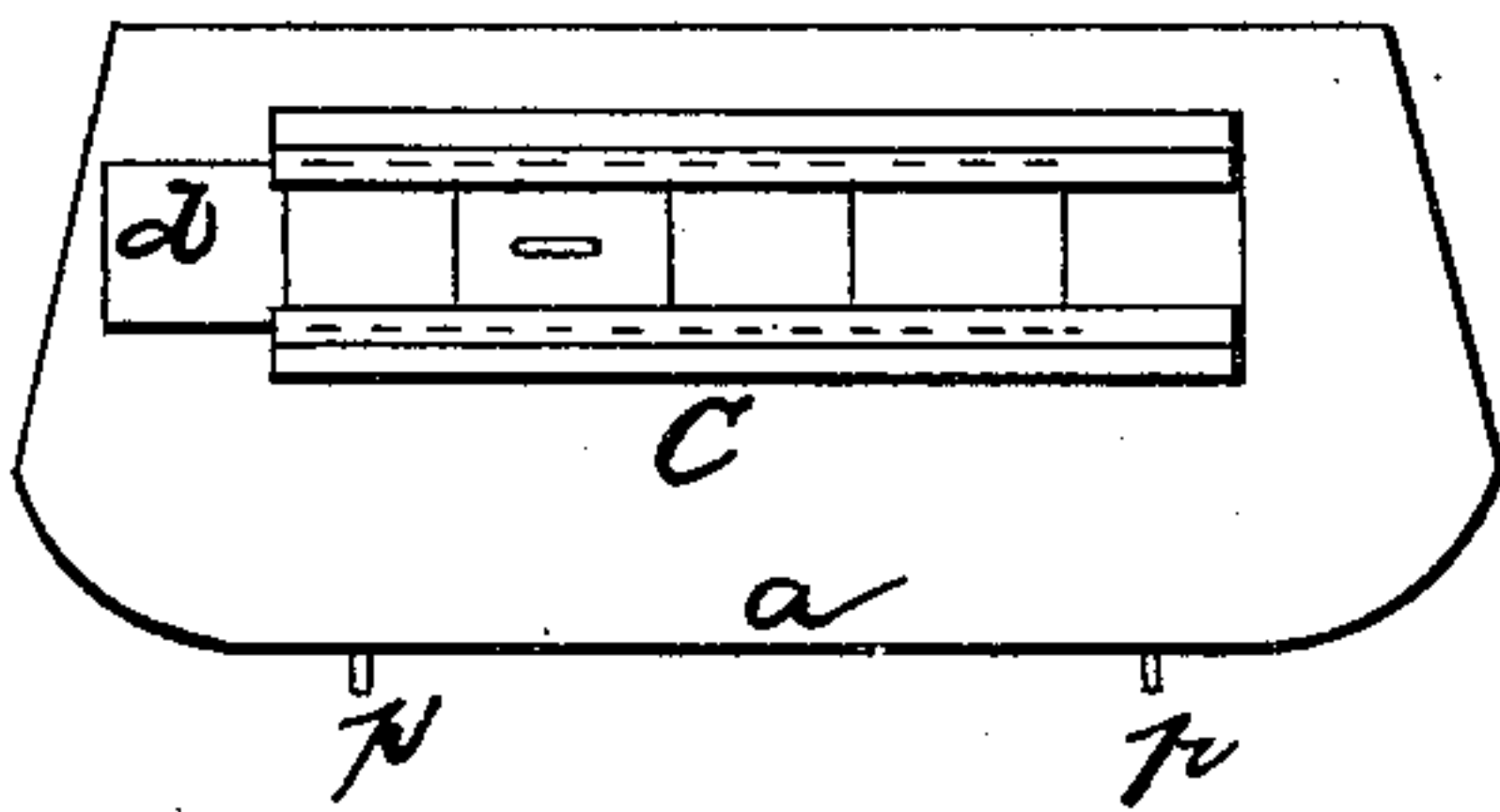
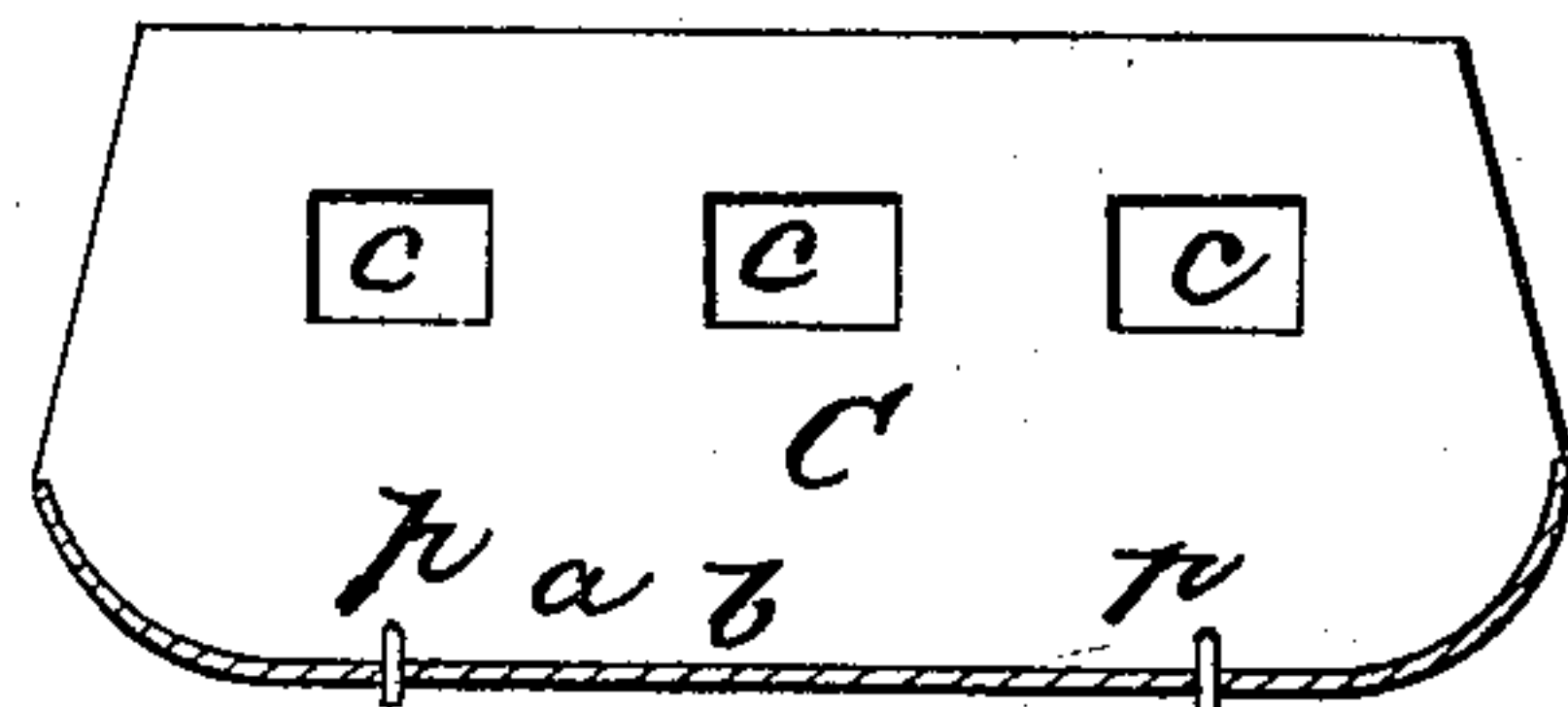


Fig. 4



witnesses  
H. D. Hale Jr.  
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# UNITED STATES PATENT OFFICE.

JOHN S. BLAIR, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN FIRE-PLACES.

Specification forming part of Letters Patent No. 42,739, dated May 17, 1864.

*To all whom it may concern:*

Be it known that I, JOHN S. BLAIR, a resident of Boston, in the county of Suffolk and State of Massachusetts, have made a new and useful invention, which I term a Register-Cap for a Grate for Burning Fuel; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 denotes a front elevation of an open fire-place and grate with my said register-cap applied thereto. Fig. 2 is a transverse section of the same. Fig. 3 is a top view of the register-cap; Fig. 4, an under side view of it.

When coal or other fuel is in a state of combustion, or in the act of being burned within a grate, there escapes in an unconsumed state, and goes off up the chimney and is lost, much of the volatile combustible products or gases which, if retained and burned within the fire-place, would add very much to the amount of heat radiated from it. The purpose of my invention is to arrest and hold within the fire place, and over the fire thereof, these volatile combustible gases or products until they may be mostly if not entirely consumed, they being thus rendered available as a means of warming. My invention also operates to regulate the combustion of the fuel so as to maintain the room at a proper temperature.

In the drawings, A denotes an open fire-place as provided with a grate, B, the said fire-place and grate being of the construction such as is ordinarily employed for burning either anthracite coal or other fuel for the purpose of warming an apartment. Directly over the grate B, and resting thereon, is the register-cap C, which consists not only of an inclined plate, *a*, which springs upward from the grate, or is provided with a front piece or upright ledge or supporter, *b*, to rest on the grate, but of a register applied directly to such plate, the said register being made not only of a series of holes, *c c c*, made through the plate, but of a valve or perforated slide-plate, *d*, applied to such series of holes, and so that by moving the said valve over the holes it may be made to either close them entirely or to open them more or less, as occasion may require.

One or more hooks or projections, *p*, may be extended from the supporter or front piece, *b*,

and so as, when the latter is in place on the upper grate-bar, to go down in rear thereof and against the same, and thus operate to maintain the register-cap in place on the grate.

The front piece or supporter, *b*, may be either solid or perforated with openings, as shown at *c c c*, to each or all of which a sheet of mica may be applied, in order that, although closed by the mica, such holes may emit light from the fire.

The inclined plate *a* should be so formed that its ends and rear edge may fit closely to the jamb and rear wall or plate of the fire-place, in order that between the said plate and the upper bar of the grate, or the fuel when in the grate, there may be a close or nearly close chamber or space, D, for intercepting the smoke and gases which may rise from the fuel when it may be in a state of combustion, and for retaining them long enough for them to be thoroughly burned, the spent products of their combustion passing off through the openings of the register.

The register cap, by its inclined position, will absorb heat of the gases when in combustion, which heat, in consequence of the inclined position of the cap, will be radiated into the apartment or room in which the fire-place may be.

When bituminous coal may be burned in the grate, and such grate may have on it a register-cap, as described, it will often be the case that streams of gas, in a state of ignition, will flow through the openings of the register, and with much brilliancy of flame.

The gases so passing out of the orifices of the register will be the surplus unconsumed below them, and will serve to indicate the necessity of a movement of the register-valve so as to create a diminution of the openings for the escape of the gases.

By means of my invention the draft of air through the grate may be regulated so as to obtain as slow a combustion of the fuel as occasion may require.

Previous to the ignition of the coal or fuel of the grate the register-cap should be removed from the fire-place. After the fuel may have become well on fire, the cap should be arranged in its proper position on the grate and have its valve adjusted from time to time, as may be deemed necessary.

I do not claim a simple metallic plate or



radiator perforated with numerous orifices, and provided with a flange to rest on the top bar of a grate and support the plate or radiator while resting in an inclined position against the fire-place back, the same being as represented and claimed in the Patent No. 16,459, and dated January 27, 1857; nor do I claim a movable deflector suspended within the fire-chamber of a hot-air furnace, and made and operated as represented in the Patent No. 11,278, and dated July 11, 1854; nor do I claim any other device or arrangement exhibited in the patent last mentioned; but

What I claim is—

1. The improved register-cap as constructed of a plate, C, provided with a flange, *b*, as

described, and not only having a series of openings, *c c c*, but a register plate or valve, *d*, applied to such openings, the whole to be used in manner on a grate and within the open fire-place thereof, and so as to operate therewith, substantially as specified.

2. The register-cap C, constructed in manner and combined with or to be applied to a fire-place, A, and its grate, B, and used for the purpose or objects substantially as hereinbefore explained.

JOHN S. BLAIR.

Witnesses:

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