H. B. VAN BENTHUYSEN.

Stove Door.

No. 111,020. Patented January 17, 1871.

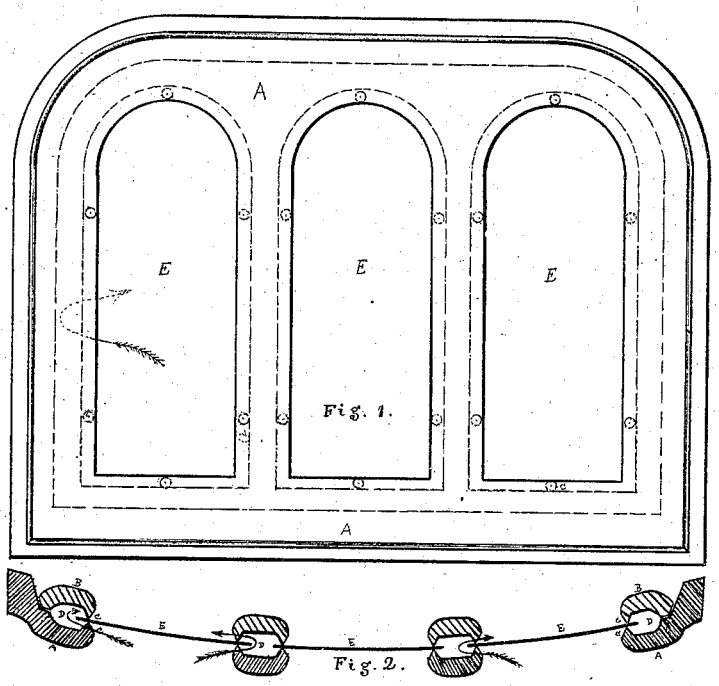


Fig. 1.




Fig. 2.

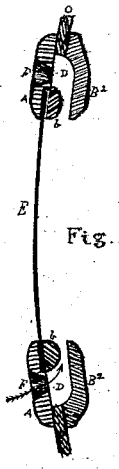


Fig. 4.

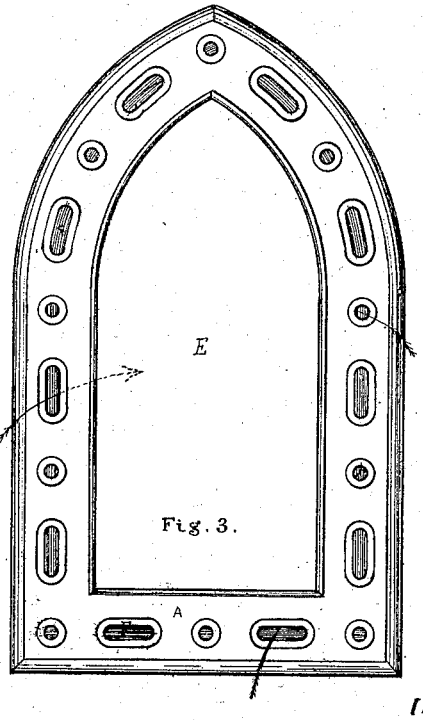


Fig. 3.

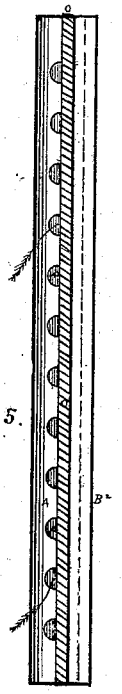

Fig. 5.

WITNESSES,

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HENRY B. VAN BENTHUYSEN, OF LOCK HAVEN, PENNSYLVANIA.

Letters Patent No. 111,020, dated January 17, 1871.

## IMPROVEMENT IN WINDOWS FOR STOVES.

The Schedule referred to in these Letters Patent and making part of the same.

*To whom it may concern:*

Be it known that I, HENRY B. VAN BENTHUYSEN, of Lock Haven, in the county of Clinton and State of Pennsylvania, have invented certain Improvements in Mica Illuminators for Stoves, of which the following is a specification.

It is an established custom very generally observed in the construction of stoves, to form window-openings in the external casing for the insertion of slips of mica, in order that the rays of light from the fire may pass out to the surrounding objects, making the fire visible to the eye, and rendering the stove more cheerful. So agreeable and popular has this custom become that it would be presumptuous in the inventor of a new stove to expect his stove to be received with favor, however much merit it might have in other respects, if it were impossible for him to give it a respectable illumination by means of mica doors or windows.

The nature and object of my invention is to illuminate and beautify my "Continental" base-burning stoves for bituminous or anthracite coal; to preserve and keep clean the slips of mica, and prevent the deposit of soot or fine ashes thereon when kindling fire, or during the combustion of soft or hard coal, so that the rays of light and heat may not be intercepted by the usual discoloration of the micas, and so as to require but little attention to keep them in fine condition.

My invention is applicable to all stoves in which a fine illuminator is desirable.

Figure 1 is a front elevation of a stove-door frame, having slips of mica inserted.

Figure 2 is a central cross-section of said door.

Figure 3 is a front elevation of a window-frame, having mica inserted.

Figure 4 is a central cross-section of said window.

Figure 5 is an external edge view of a window or door.

A A are the external frames of door and window.

B is the internal frame, clamp, or "mica-holder" of the door, which answers for a deflection-plate to turn the air.

$B^2$ is the deflection-plate of the window for directing the air across the inner surface of the mica.

*b* is the clamp or mica-holder of the window, the mica-holder being held firmly between this and the external frame.

C C are the conical points on the door-frames, between which the slips of mica are impinged and held in place, shown partly by the dotted lines.

D D are air-spaces or chambers, to admit a free passage of air around the edge of the mica.

E E are mica lights.

F F are perforations in the front or edge of window-frame, or edge of door-frame.

O is a broken portion of the external casing of a stove.

The discoloration of the mica is prevented and the mica preserved by a thin sheet, cushion, or current of air, which, to be effective, must be in proper quantity, uninterrupted, and not intercepted by any bearings, and directed across the internal surface of the mica.

When a fire is ignited in a stove an upward current is started, and air is drawn in to fill the partial vacuum. This fact is taken advantage of in the construction of my mica doors and windows.

Air is admitted from the exterior of the stove and deflected in the direction of the arrows, across the inner face of the mica, meeting with no other obstruction in its passage than the small conical points, which do not intercept or materially divide the sheet of air across the door-micas; and with the window the action is still more perfect, as the air is spread and deflected in an entire sheet, there being no interruption in its passage from the air-chamber.

Whenever a bearing of any size larger than a mere point is placed so as to intercept or break the sheet of air near where it strikes the inner surface of the mica, the mica will invariably become discolored, sooner or later, directly inside of such bearing, depending on the distance of the mica from the fire.

Micas inserted with my device may be placed close to or at any reasonable distance from the fire, and remain clean for a length of time in spite of the intense smoke arising from a newly-lighted fire of bituminous coal; and with anthracite coal they will remain clean an indefinite period.

The arrangement, as set forth in figs. 3 and 4, is complete and successful in its operation as applied to a single or double mica of reasonable width; but, when three or more micas are arranged side by side, as shown in fig. 1, a different device becomes necessary in order to protect the central micas. The conical points and air-space answer this purpose and operate well alone; but I prefer combining the two devices on a large door by notching out or perforating the edge of the door, and surrounding the opening for the door with a deflection-plate like $B^2$, in order to insure the desired action against all defects; hence the necessity of having two distinct devices to render the illuminator as nearly perfect as possible. Either device will answer the purpose alone, but the one devised for the windows is the best for windows, and that devised for doors, though good alone, is better when combined with the former.

I do not limit myself to any particular shape or size of openings for mica lights; nor to any particu-

lar number of conical points around such openings; nor to any particular, shape, size, number, or location of the perforations for the admission of air to the air-chamber; nor, indeed, to any particular manner of introducing air to the air-chamber; nor to any particular method of attaching the several parts together or to the stove; but

What I do claim, and desire to secure by Letters Patent, is—

1. The conical points C C, attached to or forming part of a mica frame, for holding the mica in place, or their equivalent, substantially as set forth.

2. The air-space or chamber D, for the passage of air around the edge of the mica, substantially as described.

3. The deflection-plate $B^2$, attached to or cast solid with the casing or frame, substantially as and for the purpose described.

4. The perforations or air-passages F F, or equivalents, and the same in combination with the air-chamber D, substantially as and for the purposes hereinbefore described.

5. A mica frame, (door or window,) constructed substantially as shown in figs. 1 and 2, in combination with deflection-plate $B^2$, air-passages F F, and air-chamber D, as and for the purposes described.

6. A mica frame, (door or window,) constructed substantially as shown in figs. 3 and 4, in combination with deflection-plate $B^2$ and air-chamber D, as and for the purposes set forth.

H. B. VAN BENTHUYSEN.

Witnesses:

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