2 Sheets—Sheet 1.

S. H. BINGHAM.

Stove.

No. 218,475. Patented Aug. 12, 1879.

Fig. 1.

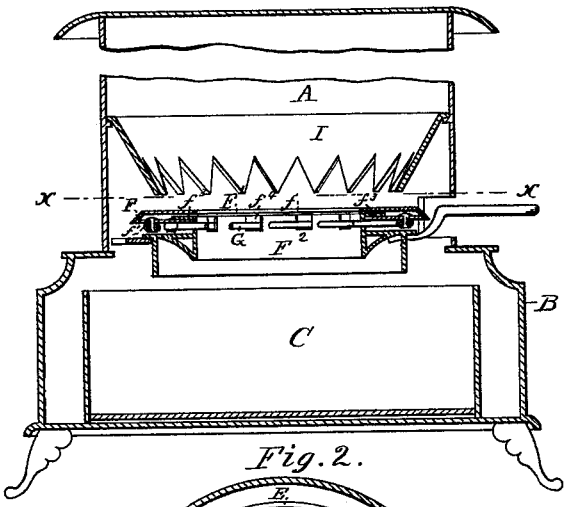


Fig. 2.

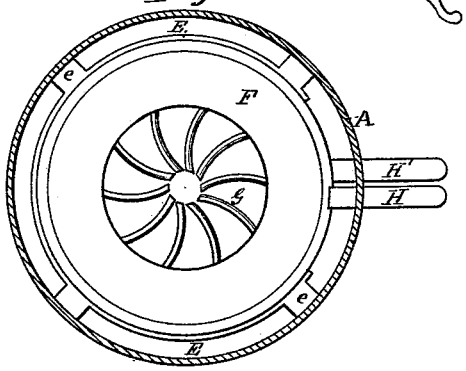


Fig. 5.

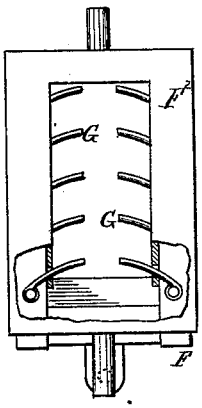


Fig. 3.

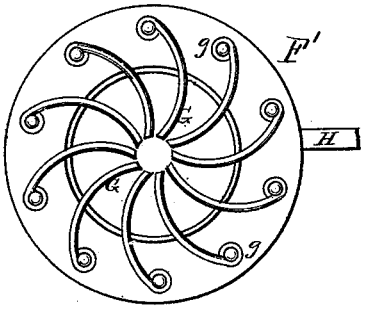
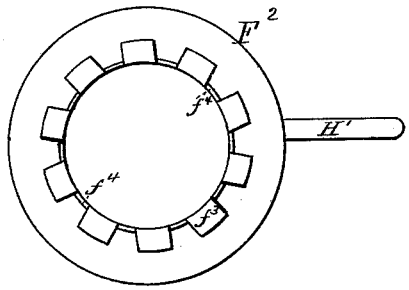


Fig. 4.



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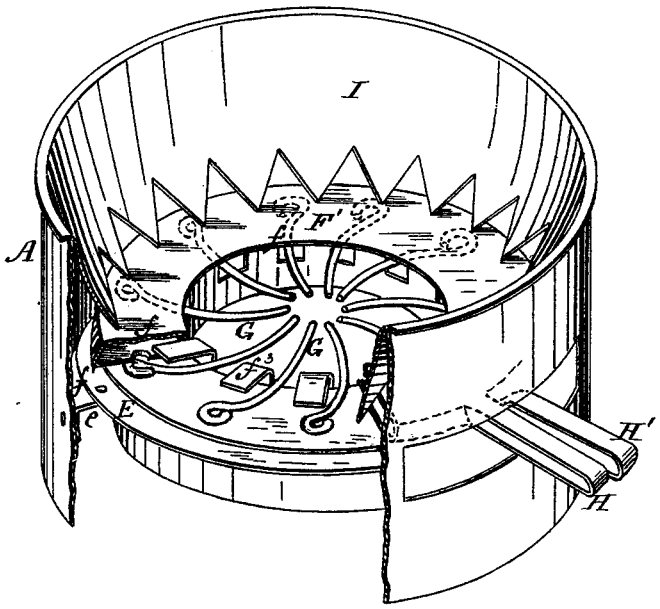
2 Sheets—Sheet 2.

S. H. BINGMAN.

Stove.

No. 218,475. **Patented Aug. 12, 1879.**

Fig. 6



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UNITED STATES PATENT OFFICE.

SAMUEL H. BINGMAN, OF LAURELTON, PENNSYLVANIA.

IMPROVEMENT IN STOVES.

Specification forming part of Letters Patent No. **218,475**, dated August 12, 1879; application filed June 2, 1879.

To all whom it may concern:

Be it known that I, SAMUEL H. BINGMAN, of Laurelton, in the county of Union and State of Pennsylvania, have invented certain new and useful Improvements in Stoves; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to an improved grate for stoves; and it consists in forming the grate upon which the fire is permanently supported of a series of rods or bars, pivoted in a box or casing situated inside the stove, and arranged so that the rods or bars of the grate can be withdrawn endwise when it is desired to remove ashes, clinkers, or other refuse of combustion without interfering with the fire.

The whole of the grate mechanism except the outer ends of the operating-levers is situated entirely within the stove.

Figure 1 is a vertical section of a cylindrical stove provided with my improvement. Fig. 2 is a horizontal section on line *x x*, Fig. 1. Fig. 3 is a bottom view of the upper part of the box or casing shown in Figs. 1 and 2, which supports the grate-bars. Fig. 4 is a top view of the lower part of the box or casing shown in said Figs. 1 and 2. Fig. 5 is a view of a long or rectangular grate provided with my improvement. Fig. 6 is a perspective view of the grate, part of the stove being broken away.

I will first describe the construction and operation of a cylindrical stove when constructed with my improved grate.

Referring to Figs. 1 and 2, A represents the cylinder of a stove, B the base, and C the ash-pan, all of which may be of any desired or ordinary form and operation.

E is an annular plate, supported upon the brackets *e e*, which are attached to the inside of the cylinder A, at or near the bottom thereof. F is a box or annular casing mounted on the plate E, and constructed with flanges to hold it in proper place thereon. It is made of two parts, F^1 and F^2, loosely joined together, so as to permit a partial rotation of the parts relatively to each other. The upper part, F^1, is constructed with a top plate, *f*, and a bottom plate, f^1, joined at their outer edges, and having an open space of suitable size between them at their inner edges. The lower part, F^2, is made of a plate, f^2, and upwardly-projecting ears or flanges f^3, which are turned or curved so as to pass at their upper end between the inner edges of the plates *f* and f^1, and serve as a means of connecting the two parts F^1 and F^2 together.

f^4 f^4 represent perforations or open spaces between the upwardly-projecting flanges or ears f^3.

G G are curved grate-bars, pivoted to the upper part of the box or casing at *g g*. The inner ends of these grate-bars respectively project through the apertures or open spaces f^4 f^4 between the flanges or ears f^3 f^3; and it will be seen that if the parts F^1 F^2 are rotated in opposite directions, the bars G G will be thrust into or will be withdrawn from the central open space of the stove. When they are forced in their inner ends are in contact with, or in close proximity to, each other, as shown in Fig. 2.

H is a handle attached to the upper part of the box or casing F, and H′ is a similar handle attached to the lower part, F^2. Both project through a slot in the stove, and by means of them the grate-bars G can be operated at will.

When the handles H and H′ are forced apart the grate-bars are withdrawn. When the handles are brought together the rods are thrust inward.

The method of operating the stove is as follows: The grate-bars G are closed or thrust inward, and the fire is built upon them as upon an ordinary fixed grate. After the fire has continued sufficiently long to form an undesired amount of ashes, clinkers, or slate upon the grate, they can be removed without interfering with the fire. To do this the handles H H′ are forced apart, rotating parts F^1 and F^2 of the grate-box in opposite directions, and this results in sliding the grate-bars G endwise outwardly from below the ashes. After this has been done the ashes, slate, clinkers, and other refuse will fall out or can be removed easily without interfering with the fire. After these materials have been removed the

grate-bars are again thrust inward to support the burning fuel which has remained in the stove while the refuse below it was being removed.

It will be readily seen that the grate, when closed, may be, by means of the handles H H′, rotated upon the plate E, in order to shake down or riddle the ashes and other refuse in the manner of an ordinary rotary grate, in which case parts F F¹ of the grate-box will be moved together in the same direction, as will be readily understood.

I is a hopper situated within the stove, and arranged to guide the fuel to a proper position above the grate.

In Fig. 5 I have shown the grate as adapted to be applied to a cooking-stove or other stove having a long or rectangular grate. In this case the grate-box in which the bars are mounted is rectangular in form, and one of the parts F^1 F^2 is made to reciprocate or slide longitudinally relative to the other, in order to operate the grate-bars G G, which move in a manner substantially similar to that already described.

I am aware that reciprocating rods have been heretofore combined with the grate of a stove, and situated above the same, in such manner as to be adapted to be thrust into the burning material above the grate and support it while the grate is withdrawn for the purpose of removing the ashes, and I do not wish to be understood as claiming such constructions as my invention. My improvement pertains directly to the grate itself.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A grate mounted entirely within the stove, adapted to receive and permanently support the burning material, and composed of bars arranged to be simultaneously thrust endwise inward and drawn endwise outward, substantially as set forth.

2. A support for a stove-grate, consisting of two movable parts, of which one is provided with a series of pivoted grate-bars, and the other with a series of flanges adapted to guide the pivoted grate-bars, the whole being supported at the bottom of the fire-box, substantially as set forth.

3. A rotary grate provided with bars adapted, by means substantially as set forth, to be reciprocated longitudinally.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

SAMUEL H. BINGMAN.

Witnesses:

PHIL. D. STOVER,

C. E. HAUS.