

J. SPEAR.
Base-Burning Stoves.

No. 153,859.

Patented Aug. 4, 1874.

Fig. 1

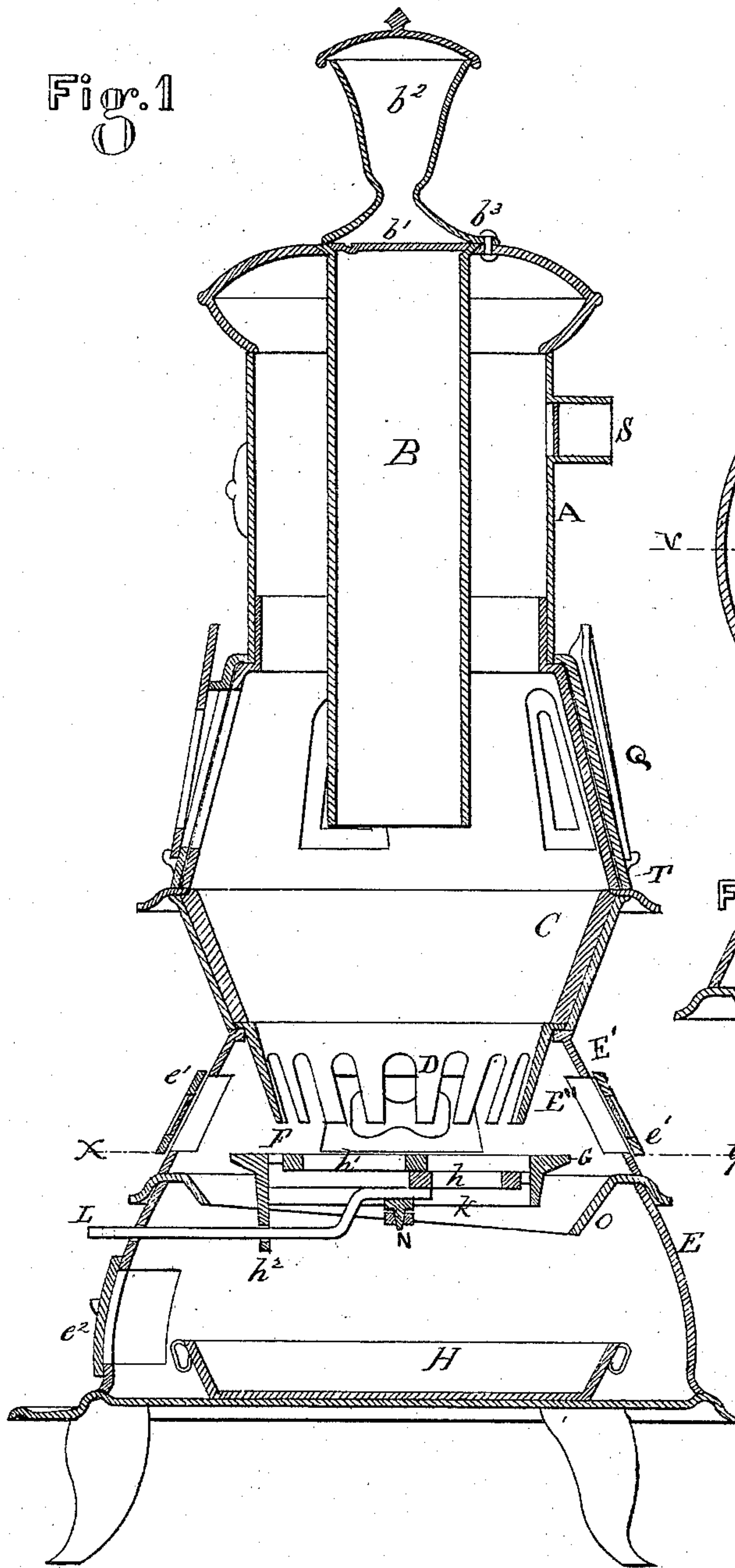


Fig. 2

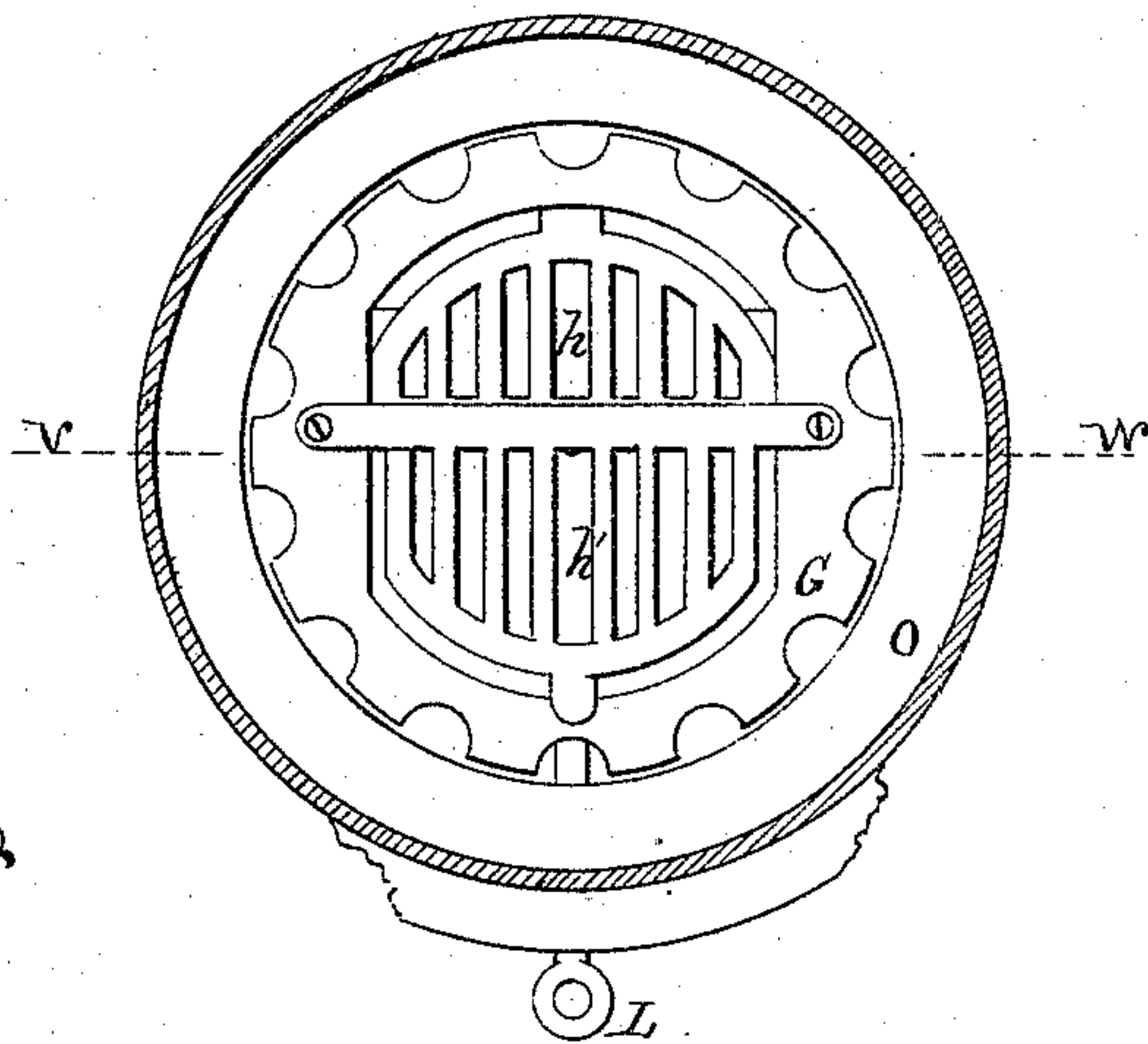
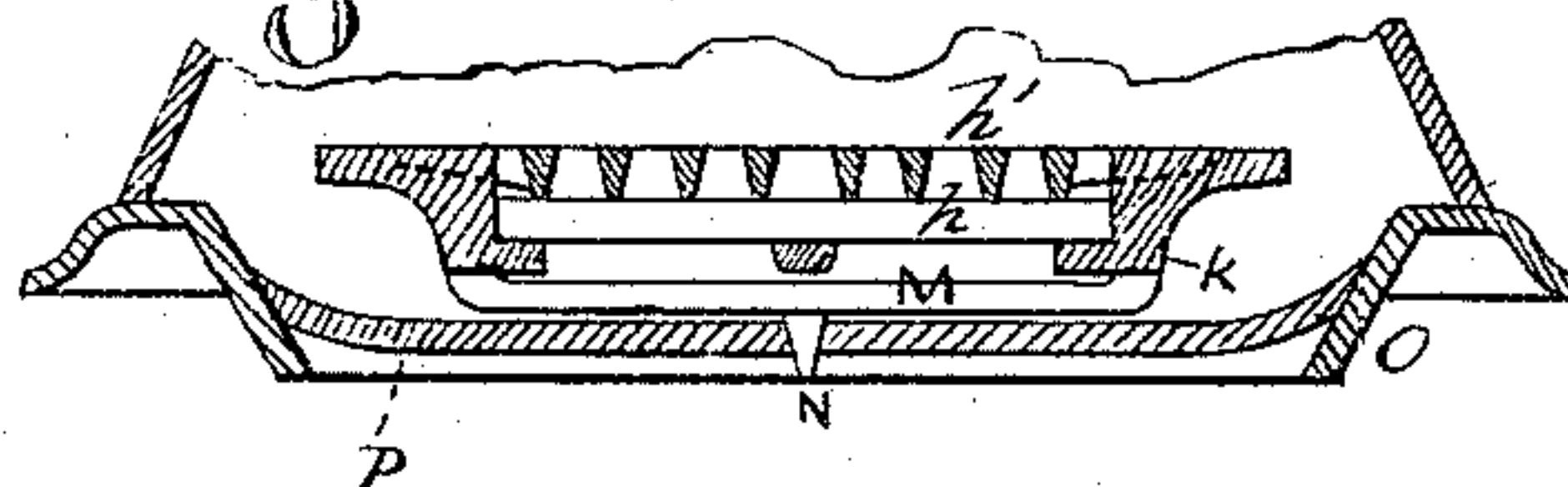


Fig. 3



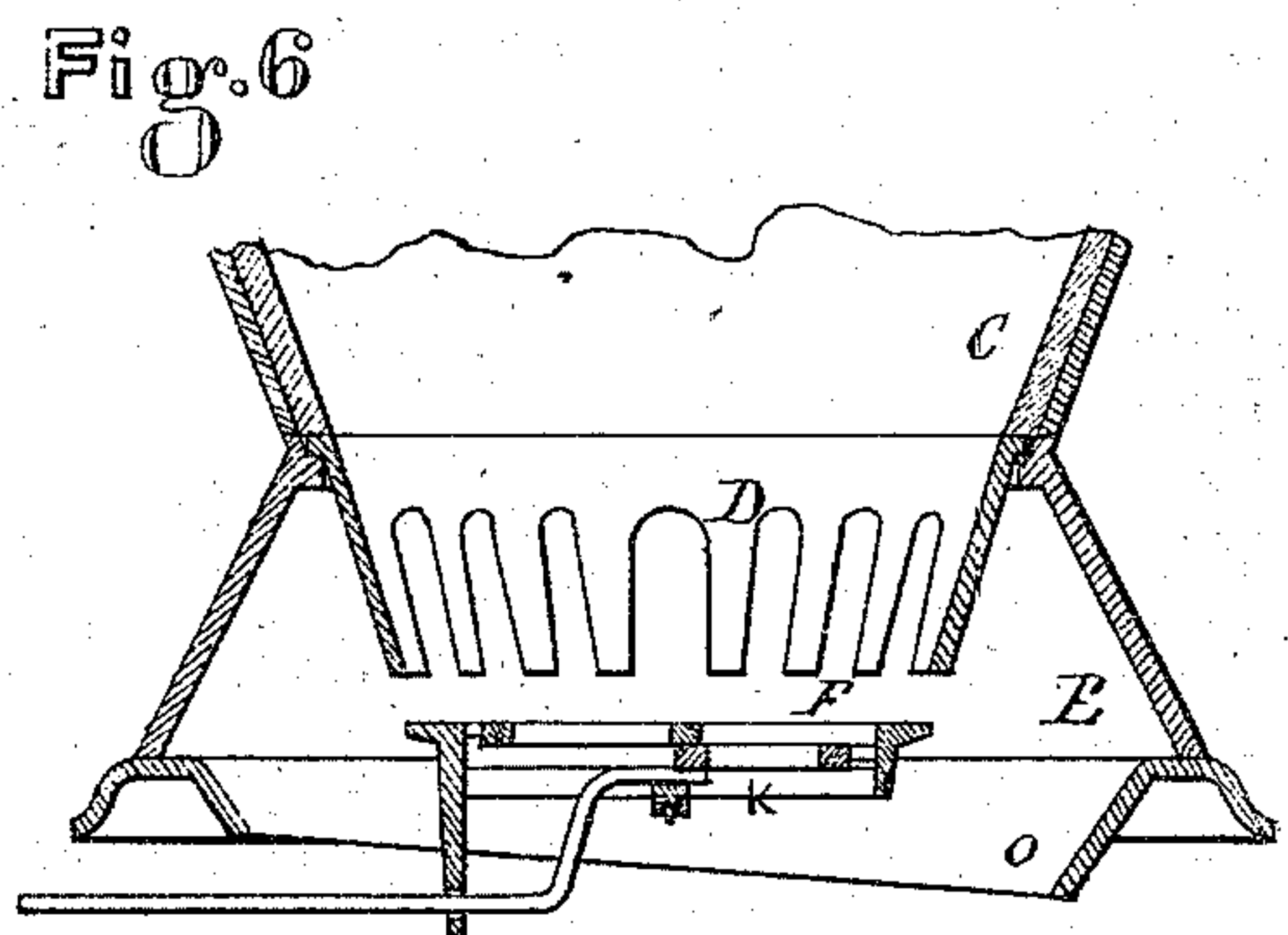
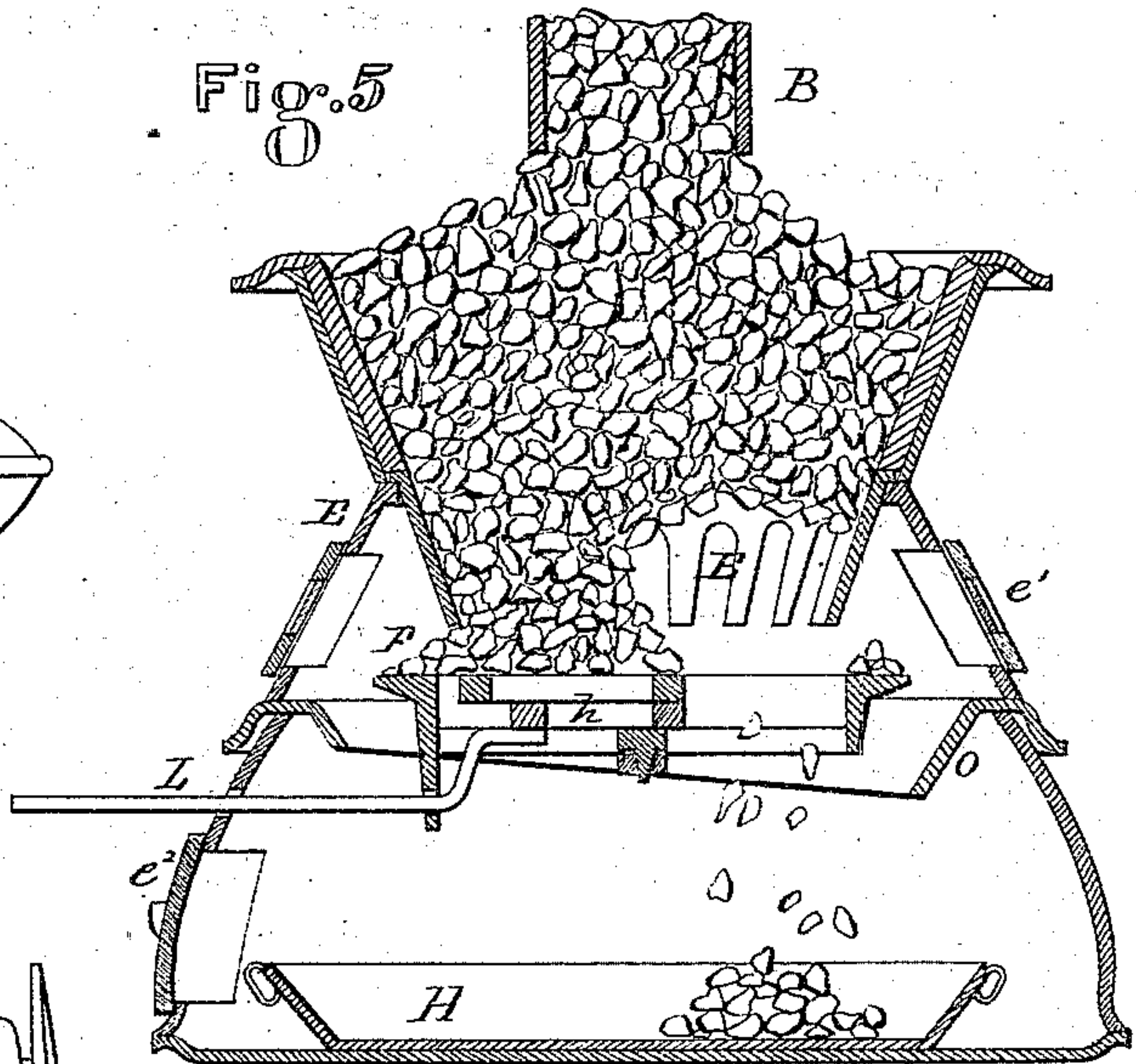
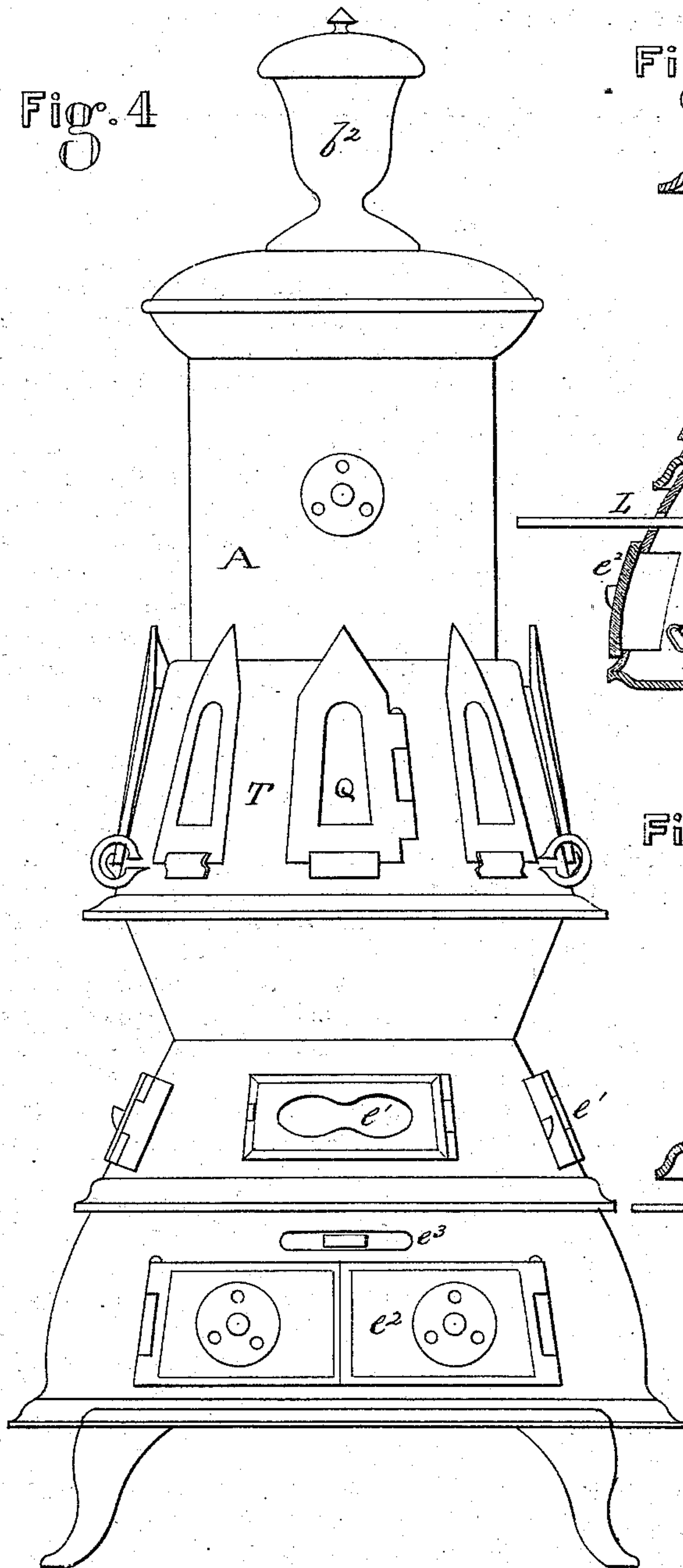
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UNITED STATES PATENT OFFICE.

JAMES SPEAR, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN BASE-BURNING STOVES.

Specification forming part of Letters Patent No. 153,859, dated August 4, 1874; application filed December 11, 1873.

CASE B.

To all whom it may concern:

Be it known that I, JAMES SPEAR, of Philadelphia city and county, State of Pennsylvania, have invented certain new and useful Improvements in Base-Burning Stoves; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section through the stove. Fig. 2 is a section through the stove on line *xy*. Fig. 3 is a section through the grate on line *vw*. Fig. 4 is an elevation of the stove. Fig. 5 illustrates the operation of the sliding bottom; and Fig. 6 shows a modification in the invention.

Letters of like name and kind refer to like parts in each of the figures.

This invention is designed for use in coal-stoves of otherwise ordinary construction and adaptation for heating purposes; and it consists in the novel and peculiar shape and configuration of the lower end of the fire-pot in the base of the stove, said fire-pot being in stoves of this particular sort a little removed from the horizontal grate upon and by which the body of incandescent fuel is supported directly over the ash-pit; and in the combination of said fire-pot with the said grate, and with apertures in the external wall of the stove, all as will be hereinafter more fully and definitively set forth.

In the accompanying drawings, A represents the casing of the stove; B, the ordinary fuel-reservoir, which is suspended from the top or upper part of the stove; *b*¹, the plate that covers it; *b*², the customary ornamental urn swinging horizontally on pivot *b*³. The lower end of the said fuel-reservoir is suspended above the fire-pot C, so that coals can be fed to the fire continuously, as is common in parlor or heating stoves. This portion of the stove is now shown in the drawing for the purpose of giving a better idea of the nature and scope of my present invention, and to indicate clearly its position or location in the general class of heating-stoves in which it is adapted to be used; but my said invention has no other or more intimate connection with this upper section or portion of the stove. It

is confined to, and designed solely for use in, the lower portion of the stove, namely, that part which is usually placed directly within the base or sub-base of the stove, or in the two combined.

The fire-pot is shown as made in two horizontal sections, C D; but it is not necessarily so made, as sometimes it may be found convenient to cast said fire-pot in one piece to suit a different size of stove; or it may be convenient to make it in several pieces. It is usually made in shape of an inverted frustum of a cone, and is attached to or suspended by its upper part from the body of the stove, so that it extends or projects downward, the fingers or notches at the lower end nearly reaching the level of the horizontal grate G. The central portion of this grate is made in two parts, one of which, *h*¹, is fixed rigidly to the external rim. The other, *h*, is movable on flange *k* by means of handle L attached to its bottom. When it is desired to clear the grate the part *h* may be drawn under the fixed portion of the grate, and thus sufficient space will be opened to permit a portion of the contents of the grate to fall through it into the ash-pit below. A cross-bar, M, is secured underneath to the opposite sides of the grate, and by means of projecting pin N the grate is pivoted upon the cross-bar P, which latter rests upon the sides of the deflector O, and is held in place by lugs cast on it. The handle or bar L, secured at its inner end upon the grate, passes through the lug *h*², and may be used at pleasure to move the slide *h* or to vibrate the grate. The exterior edge of the grate is serrated or notched. The grate is placed a little below the lower notched or fingered end of the fire-pot, and in the top of the ash-pit. When placed in these relations to each other there is a short vertical distance between the top of the grate and a line parallel with and touching the said ends of the fire-pot.

This peculiar construction of the edge of the grate and the lower end of the fire-pot allows the two parts to be brought a little nearer to each other than is possible in the stoves of this same general construction where the fire-pot is solid and the grate has a plain annulus at its edge, or has a close edge. It also allows

all the advantages which are derived from this peculiarity of arrangement of fire-pot and grate, because there is afforded ample spaces or openings for the radiation of the rays of light or heat through the openings in the lower ends of the fire-pot, and the best opportunity is gained for raking the fire by inserting a poker between the fingers or notches. In some considerable degree this may be accomplished when the grate is of about the same diameter as a circle of the size of the lower end of the fire-pot, which will be seen illustrated in Fig. 6; but preferably the grate should be of a larger diameter, as shown in Figs. 1 and 5.

In the drawings I have shown, in several of the figures, and have described above, a grate of somewhat complex construction; but it is obvious that any horizontal grate with a serrated edge may be adapted to operate in connection with a fire-pot, the lower edge of which has a notched or pointed end, in many essential respects similar to the grate I have now shown.

H is the ash-pan in the pit immediately below the grate. E is the base of the stove, and E' the surbase, and within this portion of the stove the said ash-pit, grate, and lower end of the fire-pot are arranged, placed, and used. Between the outer periphery of the lower end of the fire-pot and the wall of the surbase E' is an air-space, E'', of small dimensions. In the wall of this part E' are numerous apertures, provided with doors having mica in them. The mica openings are arranged so that the rays of light from the burning fuel, shining out from the fingers or notches in the fire-pot, and from the space between the said lower end of the fire-pot and the grate, may pass through them. When there is occasion to use a poker to rake or clean the grate, any or all of these doors may be opened and access gained to the entire periphery of the grate. By this means I am able at any time to clear out the ashes, clinker, slag, or unburnt refuse of fuel from the grate-surface and the lower part of the fire-pot, and that without quench-

ing the fire. The great advantage resulting from this is that the fire in the stove can be kept up continually and without any collection of refuse, debris, or clogging material. The fire-pot is thus always capable of being completely heated. Its shape is perfectly adapted to the most effective radiation of heat, namely, in a deflecting line downward to the floor from portion C of the fire-pot, while the heat and light rays may be sent out horizontally, or at an upward inclination from openings provided in the fire-pot, and between the fire-pot and grate in the surbase E', as has already been fully explained.

An air-register, e², is provided in the ash-pit door. The bar L extends through and is worked in the horizontal slot e³ just above the door of the ash-pit. In the main or central section T of the stove is placed, in the usual openings, the frames and mica windows G. These are so placed relatively to the combustion on the top surface of the coal in the fire-pot that the rays of light from thence can pass through said windows into the room; also, the state of the fire and fuel can be watched through these windows. Said windows may be constructed and applied to the stove in any usual and ordinary manner.

I do not in this case broadly claim the fire-pot having notched or pointed ends, as that feature is the subject of another application for a patent.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

The horizontal grate G, with its serrated edge, and the conical fire-pot C, having its lower edge notched or pointed, combined with the doors or windows e¹, placed in the wall or body of the stove relative to the horizontal space between the entire outer and upper edge of said grate and the fire-pot, in the manner and for the purposes set forth.

JAMES SPEAR.

Witnesses:

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JOHN F. GRANT.