

S. B. SEXTON.
Magazine Fire-Place Stove.

No. 162,108.

Patented April 13, 1875.

Fig. 1.

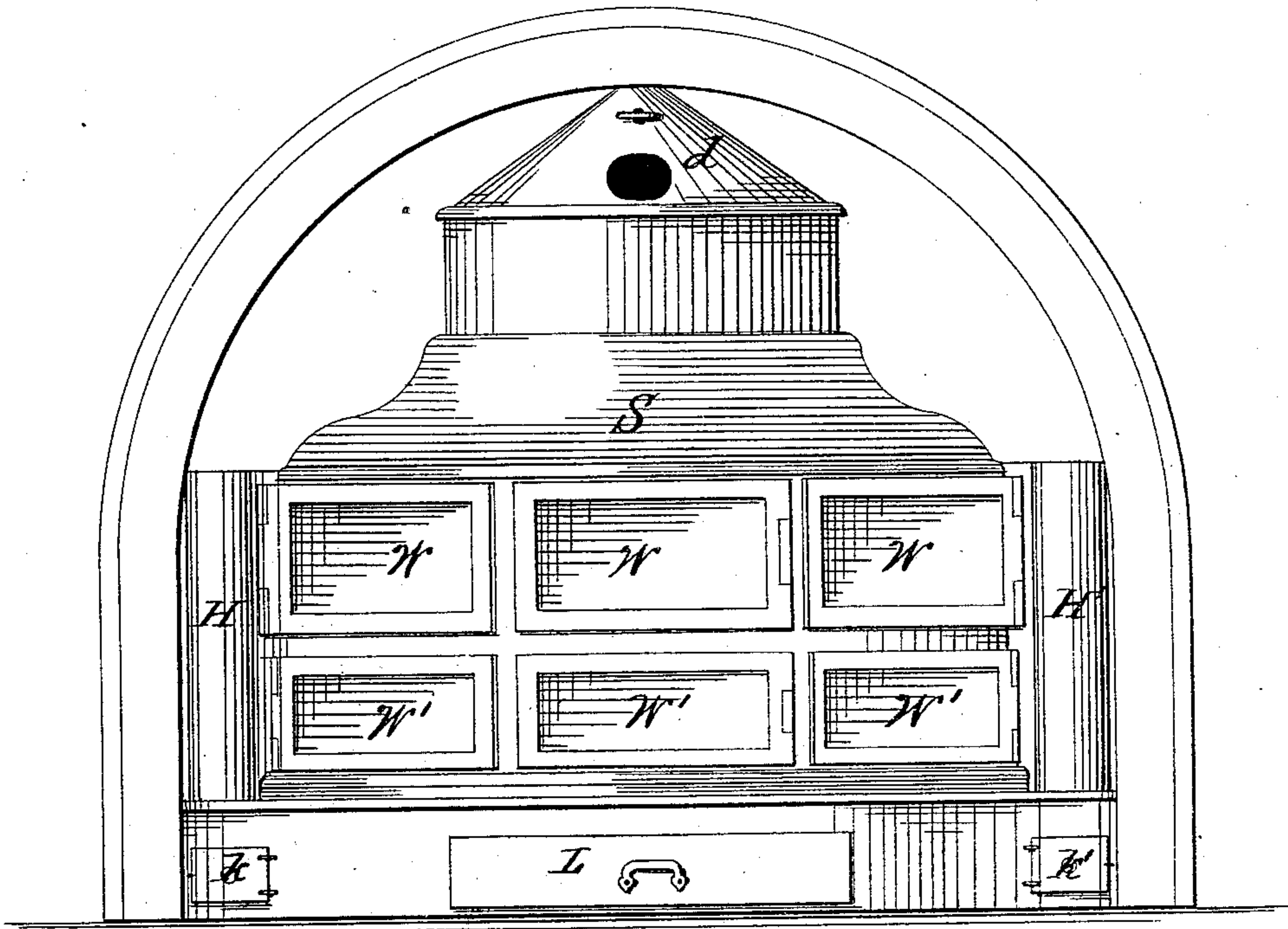
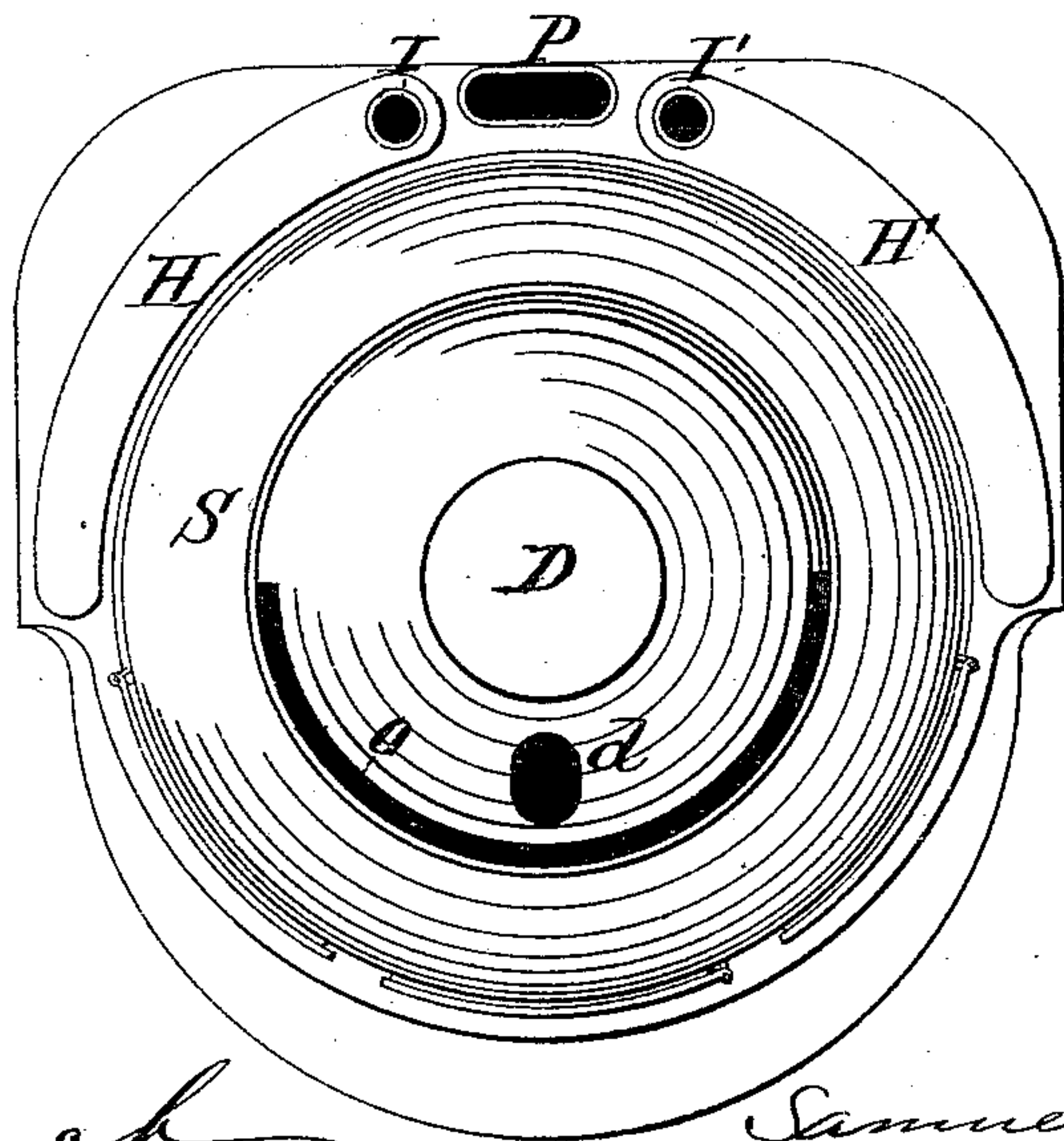


Fig. 2.



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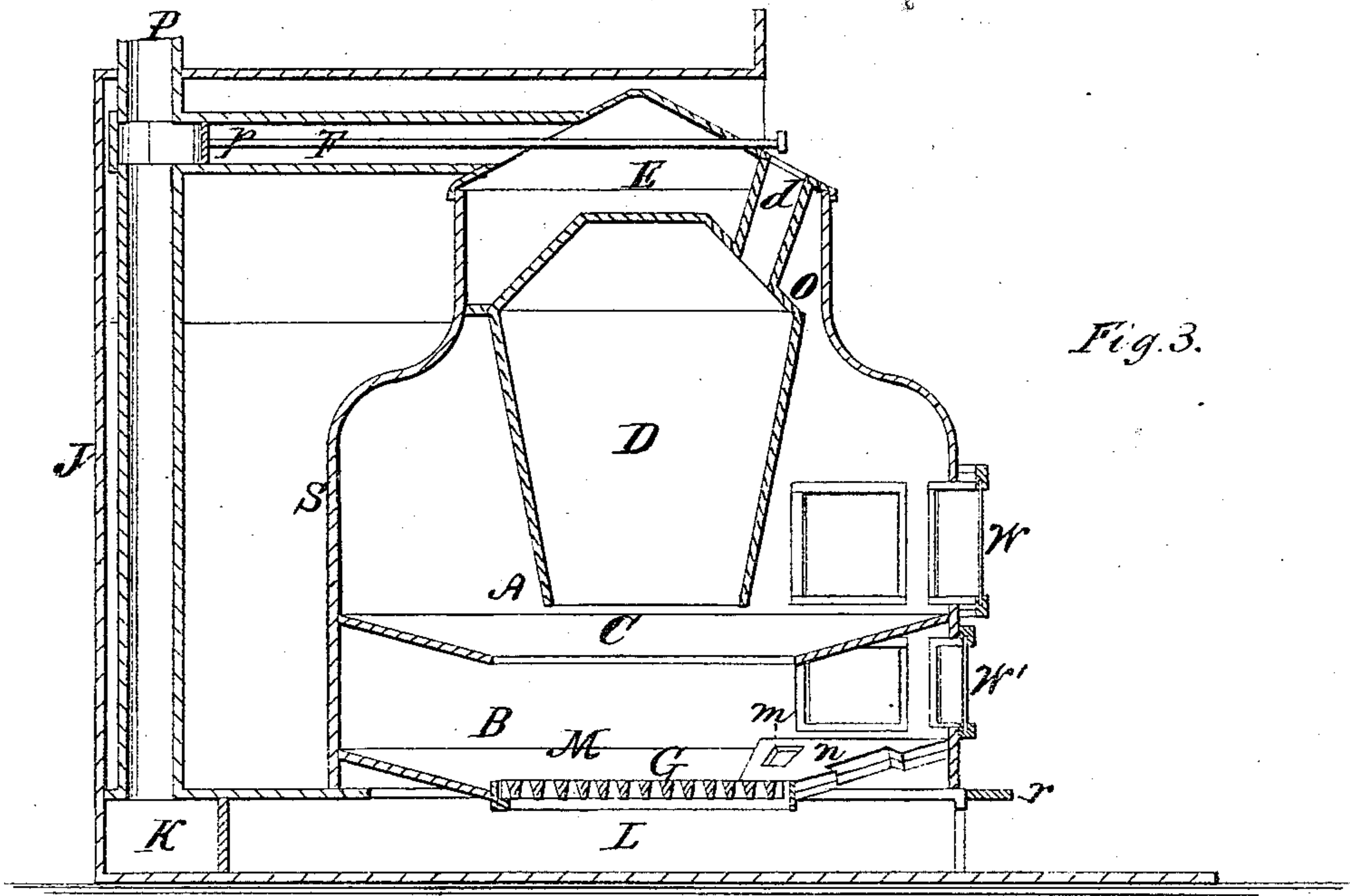


Fig. 3.

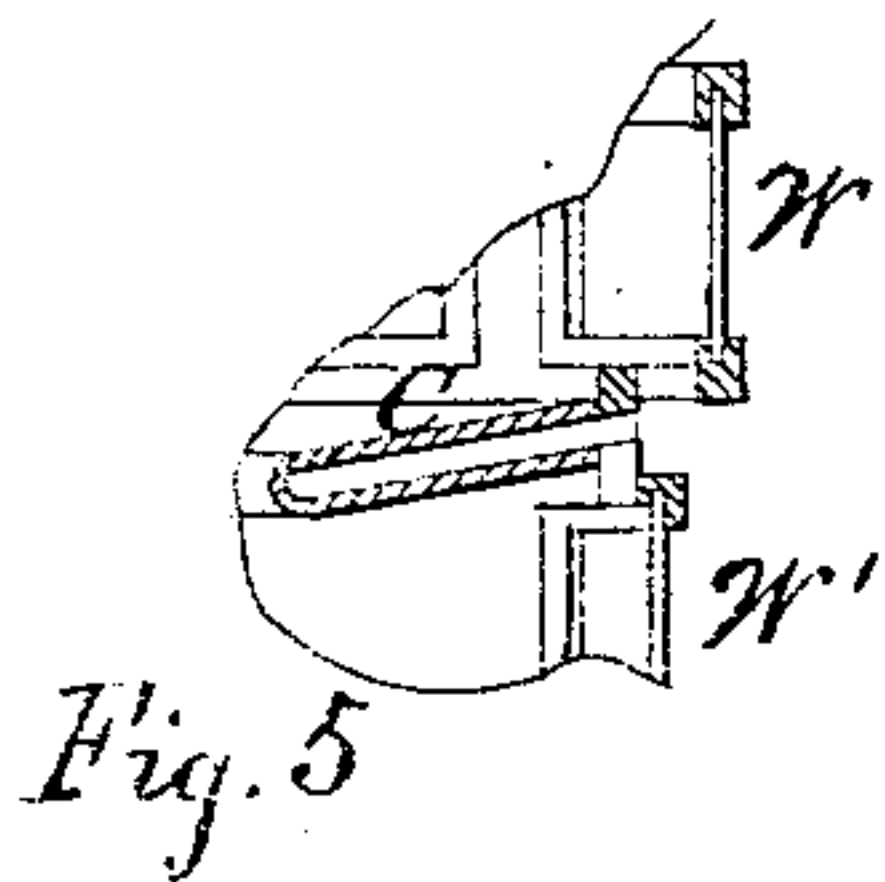
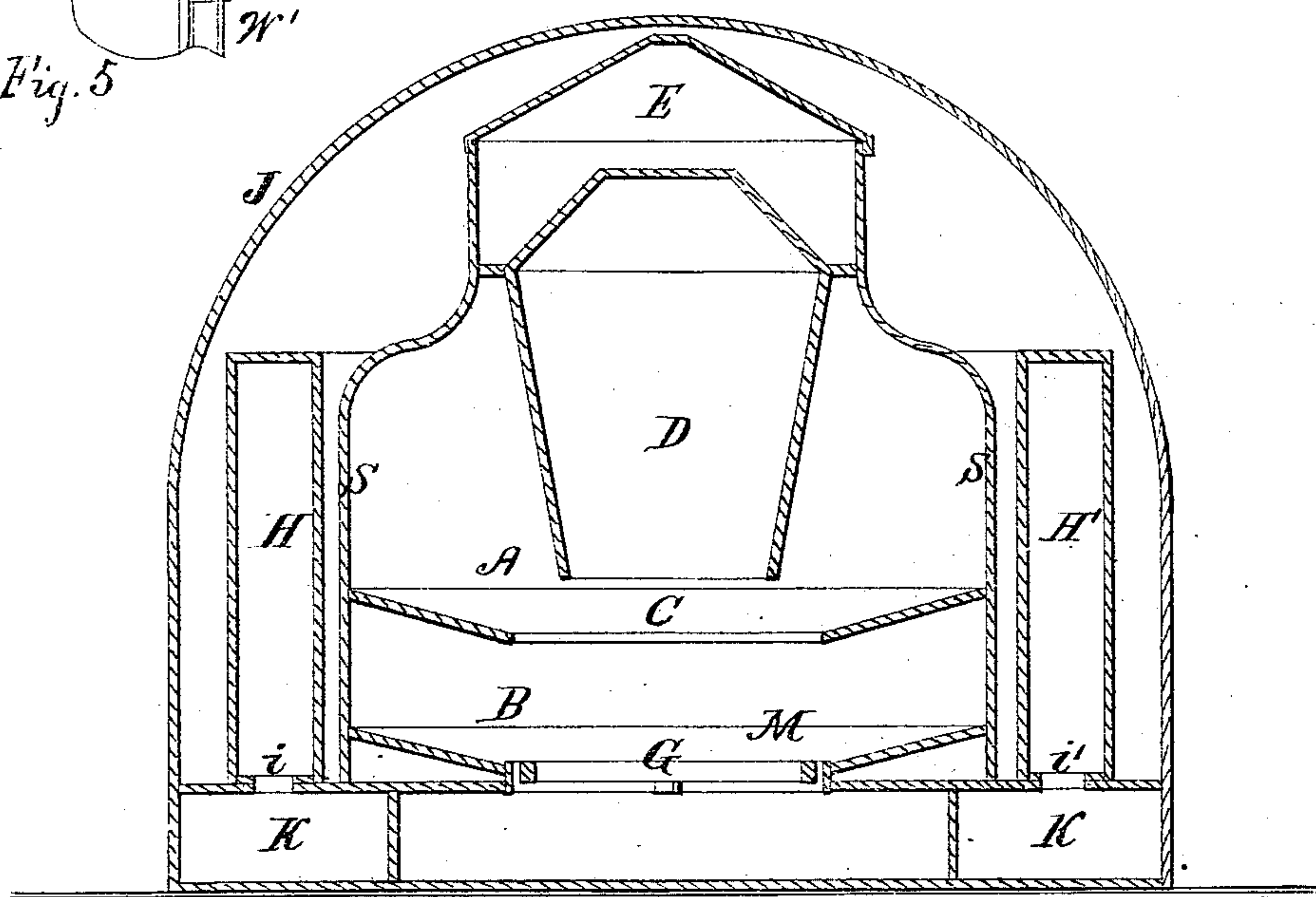


Fig. 5.

Fig. 4.



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UNITED STATES PATENT OFFICE

SAMUEL B. SEXTON, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN MAGAZINE FIRE-PLACE STOVES.

Specification forming part of Letters Patent No. 162,108, dated April 13, 1875; application filed December 3, 1874.

To all whom it may concern:

Be it known that I, SAMUEL B. SEXTON, of the city and county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Fire-Place Stoves; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation; Fig. 2, a top view, the frame J and conical top of the stove having been removed; Fig. 3, a vertical section through the center from front to rear; Fig. 4, a similar section from side to side; and Fig. 5, a detached section, showing one mode of constructing the plate C.

Similar letters of reference in the accompanying drawings denote the same parts.

This invention relates to the class of base-burning stoves and heaters, and more particularly to that subdivision of said class in which the stoves or heaters are provided with two rows or series of illuminating-windows, one arranged above the other in the immediate vicinity of the combustion-chamber.

The invention is represented in the drawings as applied to a fire-place heater; but the principles of construction and operation which it involves are capable of ready adaptation to outstanding stoves and all classes of base-burning heaters and stoves without any essential changes, and without departing from the principles herein set forth and claimed.

In stoves of this class, provided with two rows of illuminating doors or windows, a basket-grate or its equivalent has been hitherto deemed essential for the purpose of holding the incandescent coals away from the lower windows, and furnishing an air-space between the coals and the windows to support combustion and to protect the windows. Several important disadvantages, however, result from that construction. The upright grate-bars prevent, to a considerable extent, the radiation of light and heat from the burning coals toward and through the lower windows, and the cold-air currents rising between the grate and the windows intercept and carry away a great amount of heat that would otherwise pass out through the windows, and keep the

lower part of the stove cooler than is necessary.

The object of my invention is to dispense with the basket-grate and the cold-air space, and to radiate light and heat directly, and without any obstruction whatever, from the burning coals to and through the lower windows, and yet to protect said windows from the contact of the coals, ashes, &c., and provide a suitable space between them and the burning coals, in which the gases evolved from the coals may be consumed. To these ends my invention consists, first, in combining the ordinary grate of a base-burning stove with a surrounding flange and a double row of windows separated by an internally-projecting flange; and, secondly, in combining the substantially flat or dishing surface on which the incandescent coals are mainly supported with a supplementary dishing flange or internally-projecting rim, nearly opposite to the lower end of the fuel-supply magazine, on which a portion of the coals at the upper part of the incandescent mass is supported and allowed to spread out, and with the fuel-magazine, and the double row of windows separated by the internally-projecting rim, substantially as I will now proceed to set forth.

In the drawings, S is the body of the stove, and J the jacket or casing, which incloses its sides and rear to form a chamber, from which hot air is supplied to the apartments above. D is the suspended fuel-magazine; G, the grate; E, the chamber immediately over the fuel-magazine; F, the horizontal flue through which the smoke, &c., are conducted from the chamber E to the direct and indirect draft-passages; H H', two heating-drums, arranged as shown in Figs. 2, 4; I I', indirect draft-pipes leading from flue F into drums H H', respectively; K, a semi-annular chamber or passage in the base of the stove, extending around the sides and rear of the ash-pan L, and communicating at its front ends with the drums H H', as shown at *i i'*; *k k'*, small doors at the extreme front ends of the passage K; P, the smoke escape or exit pipe, extending upward from the middle of the passage K at the rear of the stove; *p*, the damper, which controls the direct and indirect drafts; *d*, the

pipe or conducting-tube, through which fuel is supplied to the magazine D; and O, a semi-annular passage, through which the smoke and other products of combustion pass up from the combustion-chambers into the chamber E, said passage being arranged at the front side of the stove, in order to direct said heated currents to the front, and cause them to radiate as much heat as possible into the apartment in which the stove is situated.

When the direct draft-passage is open, the smoke, &c., escape from the chamber E, through the flue F, directly into the vertical pipe P, and thence up the chimney; but when said direct draft is closed, the smoke and other volatile products of combustion pass from the chamber E through the horizontal flue F, and then dividing, dive through the two descending pipes I I' into the drums H H', pass forward to the openings *i i'*, descend through said openings into the passage K, move around to the rear of the stove, and, meeting again at the lower end of the pipe P, pass up together through said pipe into the chimney. The two drums are therefore heated equally, and impart their heat uniformly to the air-currents at both sides of the stove. The smoke and unconsumed gases evolved from the coal are caused to travel a great distance, and come in contact with a large expanse of heating-surface, before they finally escape, and thus their heat, which would otherwise be practically wasted, is utilized to as great an extent as possible. If preferred, the drums H H' may each be divided into several communicating passages, through which the heated currents may be made to travel backward and forward in a zigzag manner, to increase the amount of heat derived therefrom.

The fire-pot—or, in other words, that part of the stove in which combustion takes place—is divided, by an annular flange, C, into two chambers, A B. The flange may extend entirely or only partially around the stove, and may be made of a continuous plate of metal or other refractory material, or in separate plates or bars projecting toward the center of the fire-pot. When made of metal, it may be protected by a covering of fire-brick or soap-stone, or the inner edge thereof may be thus protected, in order to insure greater durability. It may be made solid or hollow, and, when made hollow, may be used as a water-back or air-chamber, in which water, steam, or air may be heated for any purpose, such water, steam, or air, by their circulation through its interior, cooling and protecting it from injury by the heat. Preferably it slopes from its outer edge downward toward the grate, as shown in Figs. 3 and 4, but this is not an essential requisite. It projects so far inward as to form a shelf or ledge, upon which a portion of the coals rest when the magazine is full, thus dividing the whole mass of coals below the magazine into two conical piles, one of which burns in the upper compartment A, and the other in the lower compartment B.

The advantages of thus separating the mass of coals are very many and important, and can only be partially enumerated here. Among these advantages are the following: It increases the incandescent surface, and thus increases to a very marked degree the quantity of light and heat radiated; it enables the air to penetrate the mass of coals more generally and support a free combustion; it protects the lower windows or doors, and enables me to dispense with the basket-grate and other devices for holding the coals away from said windows; it provides an enlarged air-space around the coals, in which the gases can freely burn; it enables the gases to burn as they are evolved from the sides and front of the mass of coals; it deflects the currents of air, &c., away from the windows; and it assists in supporting the mass of coals, and thus relieves the grate; in fact, it supports the coals to such an extent that the bottom of the mass—or, in other words, the lower conical pile—may with care be raked completely out, and the grate turned over and cleared from clinkers, &c., without disturbing the upper conical pile around the lower end of the suspended magazine.

Around the grate is another inclined flange or surface, M, arranged similarly to the flange C, but extending down to the edge of the grate, to support the outer edge of the lower conical pile of coals. This plate may be constructed like the upper flange in the respects hereinbefore enumerated, and may be attached and supported in any suitable manner. It is made very low and flat, at least on the front side, in order to allow the lower conical pile of coals to spread out in thin layers beyond the edge of the grate, and in order also to present no obstacle to the diffusion of light and heat from this part of the burning fuel through the lower windows into the apartment in which the stove is situated. On the front side of the stove this plate may be provided with an opening, or series of openings, *m*, and a registering plate or slide, *n*, may be combined with it, so that air may be admitted or excluded at this part of the stove at will, but more particularly for the purpose of providing means for removing the ashes from around the edge of the lower pile of coals to the ash-pan without shaking the grate, and without taking the ashes out through the mica windows or doors.

Any suitable provision may be adopted for turning the register-plate *n*, to bring its openings in line with, or out of line with, the holes in the plate M.

W W are the upper series of windows, and W' W' the lower series. These two series may be constructed of equal size, or the windows of either series may be made larger or smaller than those of the other series, according to the form of the stove and the fancy of the manufacturer.

In outstanding stoves one, two, or more plates, C, may be employed, dividing the coals

into two, three, or more conical piles; and a series of windows may be provided for each combustion-chamber thus made, no matter how many there may be.

The plates C and windows W W' may be effectually employed in any stove which is supplied with fuel through the top, whether it have a suspended magazine or not, as the effect will be nearly the same so far as combustion is concerned.

To prevent ashes from falling from the mica doors, when open, upon the floor at the front of the stove, I provide a horizontal flange, r, projecting outward around the front of the stove above the ash-pan. This plate may be secured to the stove in any convenient manner, and may be made removable, if desired.

Having thus described the construction and operation of my improved stove, I claim as my invention—

1. The grate G and flat or slightly-inclined surrounding flange M, combined with the overhanging flange C and double row of windows

W W', substantially as described, for the purposes specified.

2. In a base-burning stove, the combination of the suspended magazine D, the flat or dishing surface G M, which mainly supports the weight of the burning coals, and allows them to spread out nearly or quite to the walls of the stove, the dishing-flange C, projecting inward from the walls of the stove slightly below the level of the lower end of the magazine, for the purpose of supporting the weight of a portion of the coals at the upper part of the incandescent mass, and allowing them to spread out at that point nearly or quite to the walls of the stove, and the double row of illuminating-windows, one above and the other below the flange C, substantially as and for the purposes described.

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Witnesses:

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