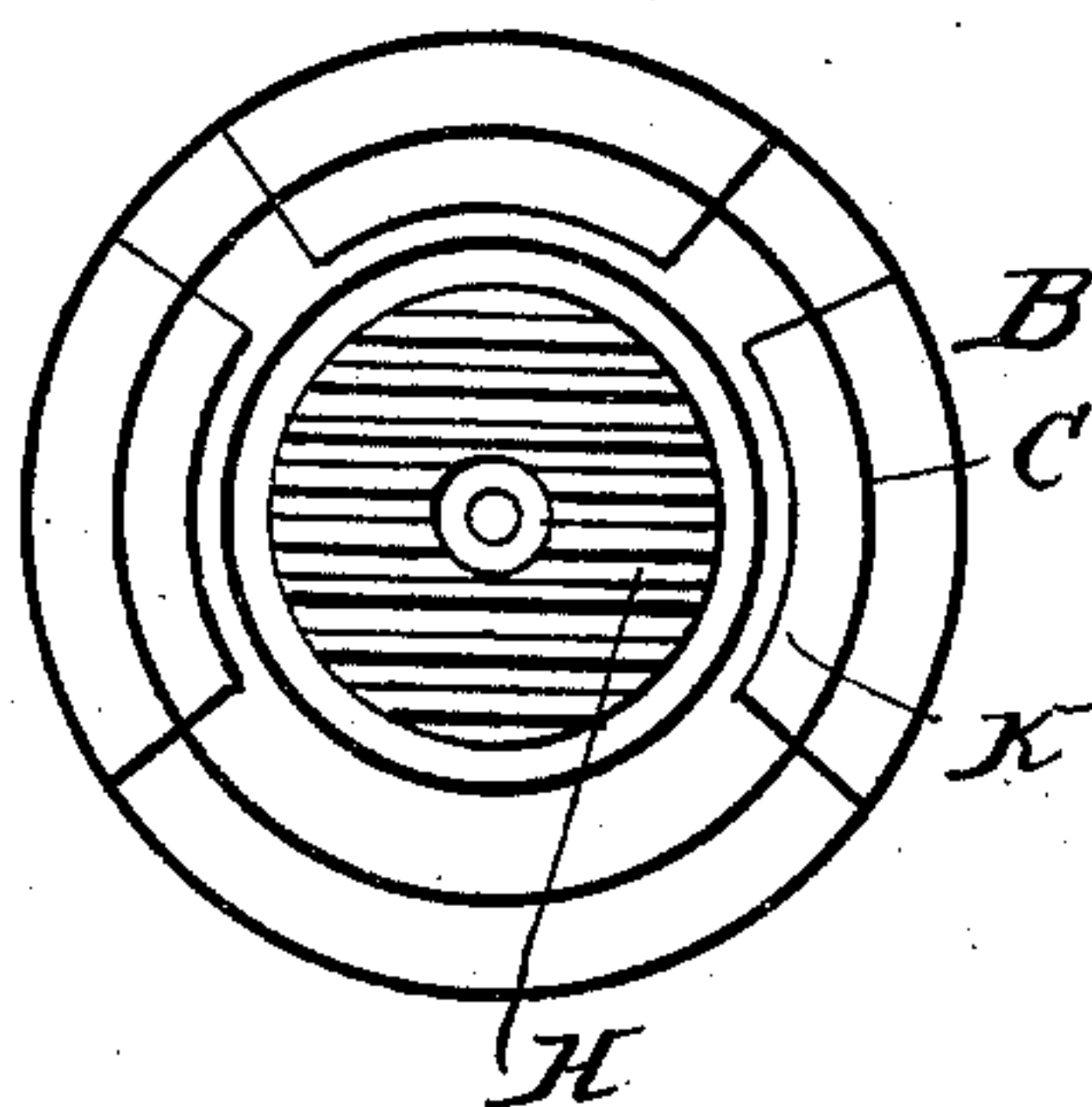
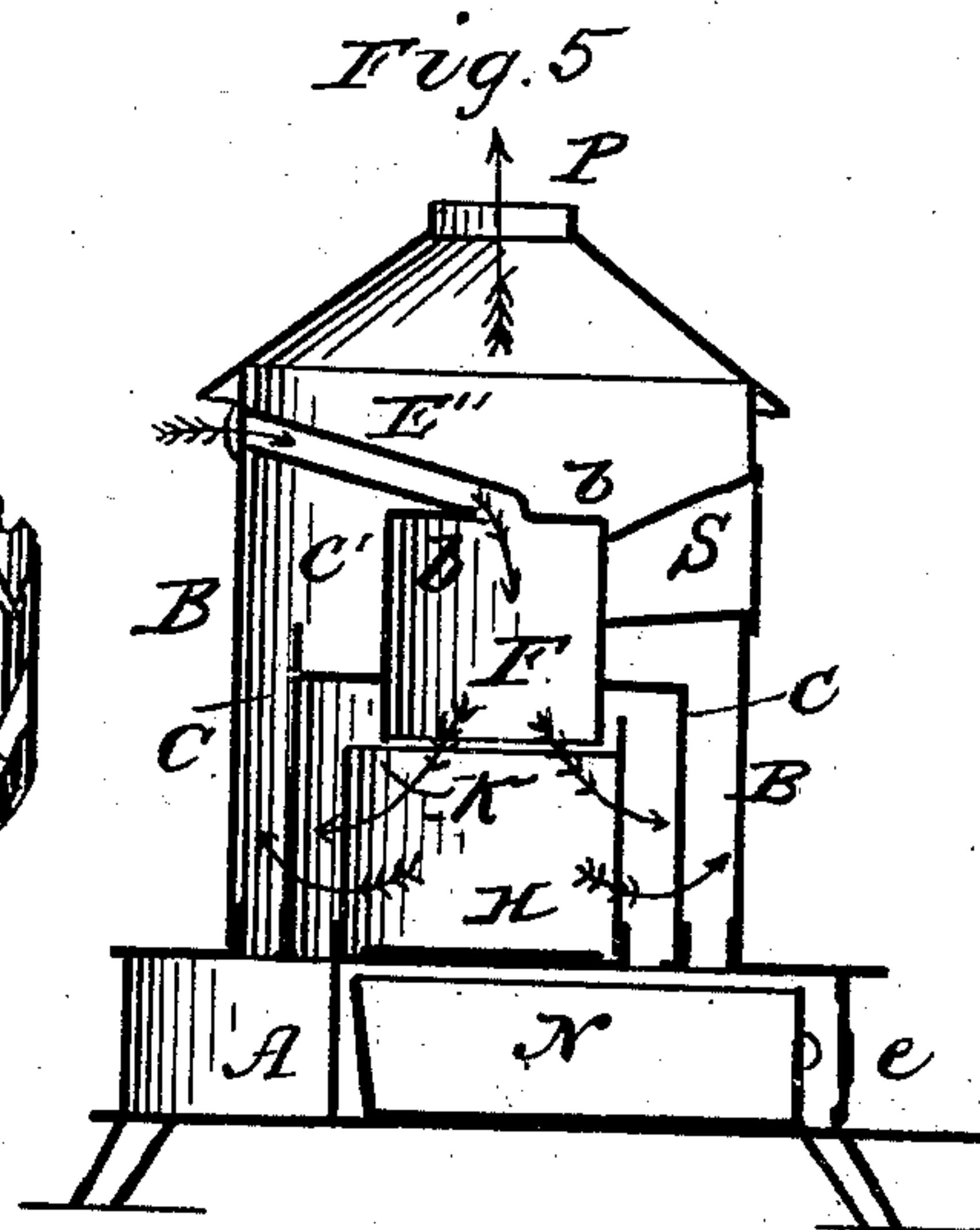
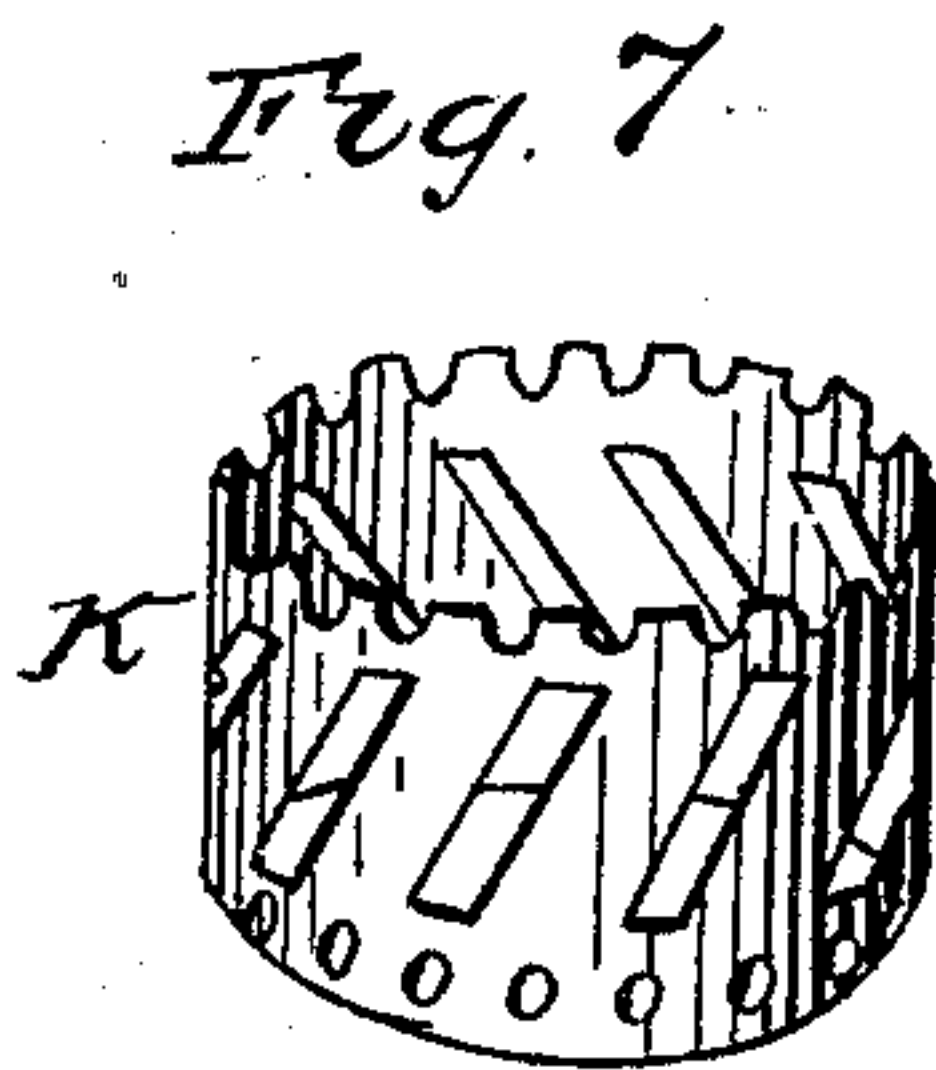
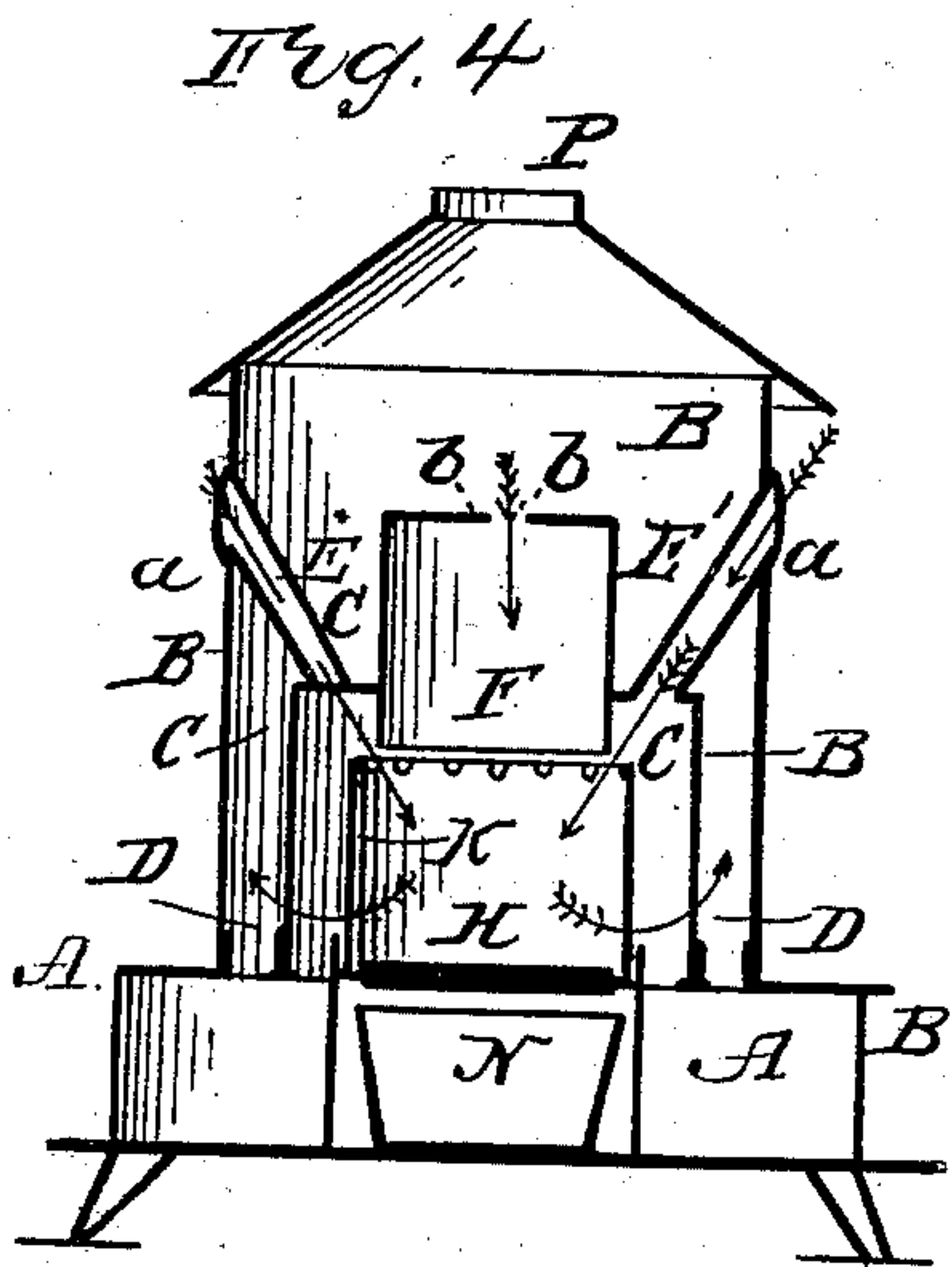
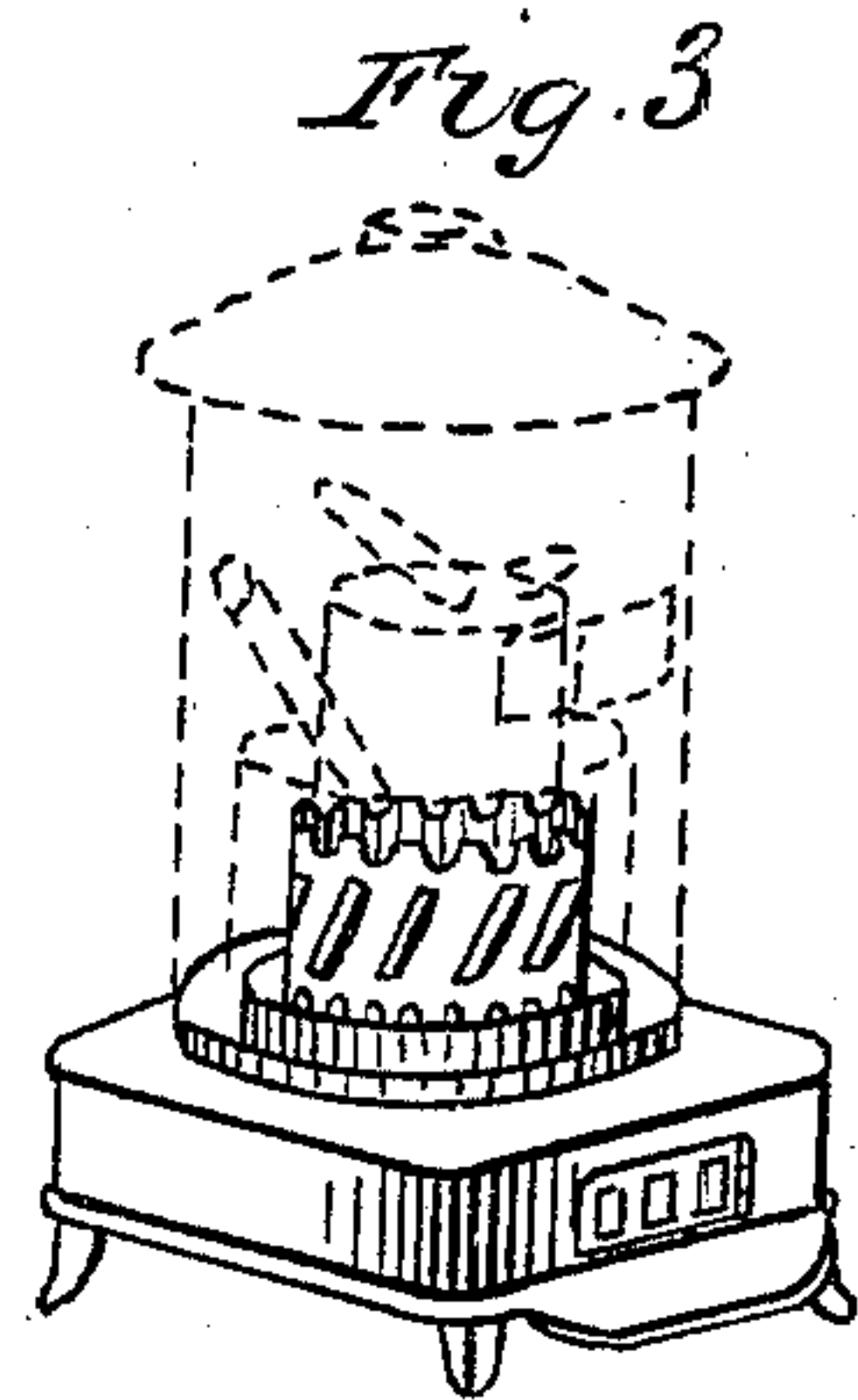
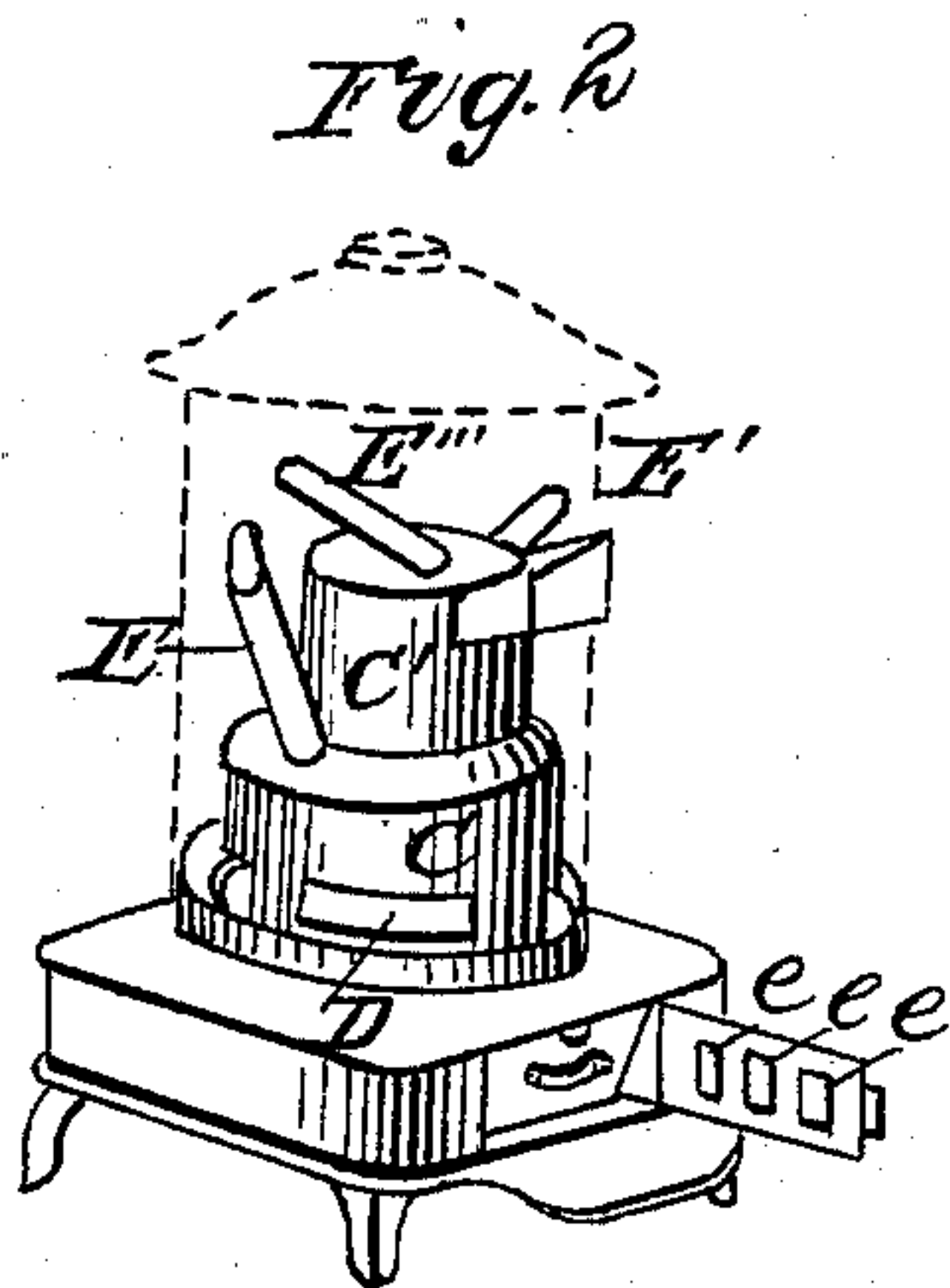
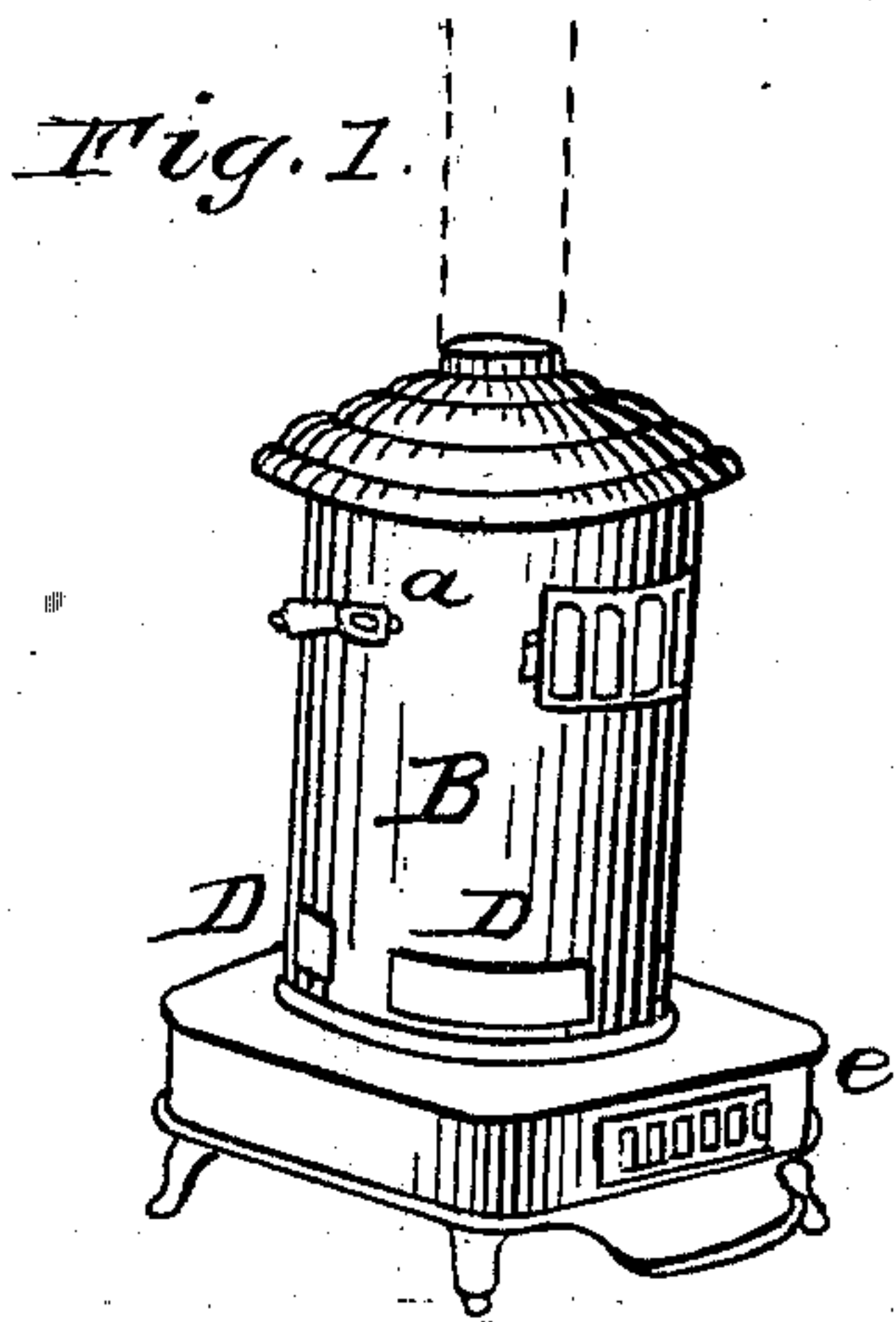


M. BREEN.
Heating Stove.

No. 91,821.

Patented June 29, 1869.



Witnesses
Charles D. Kellum
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Inventor
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United States Patent Office.

MOSES BREEN, OF TROY, NEW YORK.

Letters Patent No. 91,821, dated June 29, 1869.

IMPROVEMENT IN COAL-STOVES.

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

To all whom it may concern:

Be it known that I, MOSES BREEN, of the city of Troy, in the county of Rensselaer, and State of New York, have invented certain new and useful Improvements in "Heating-Stoves," which said improvements are specially adapted to and for the burning of bituminous or soft coal; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being hereby had to the accompanying drawings, which form and make a part of this, my specification.

Like letters represent and refer to like or corresponding parts.

Figure 1 is a perspective view of a stove containing my improvements, more fully hereinafter described and set forth.

Figure 2 is also a perspective view, with the outer casing or cylinder removed.

Figure 3 is a view showing the construction of the fire-pot or chamber of combustion, more fully hereinafter described.

Figure 4 is a vertical section, showing the interior construction of a stove containing my invention and improvements, and the several parts thereof, each of which is more fully hereinafter described and set forth.

Figures 5 and 3 are views showing modifications of the internal construction of a stove, and containing my invention and improvements, herein described and set forth.

At these figures, it will be seen that the atmospheric air, to supply the downward draught for combustion, is admitted to the chamber F, above the combustion-chamber or fire-pot K, by means of a pipe or tube, E', extending outward, and through the outer casing, B, in which case there must be one or more openings in the top plate or covering of the cylinder C', substantially as shown at *b b*, fig. 5, and more fully hereinafter described and set forth.

These openings may be of any form or shape, and may contain coverings or movable slides or dampers, as the case may require.

Fig. 3 is mainly designed to show the construction of the fire-pot K, or walls of the combustion-chamber, and the arrangement and combination of the same with the base of the stove, and the several cylinders resting thereon, and surrounding the same in the manner shown, and substantially as hereinafter described and set forth.

Other parts are there represented by dotted lines.

Figure 6 is a cross-section on the line A-B of fig. 4, showing the fire-grate H, and the several cylinders and chambers surrounding the chamber of combustion, each of which is more fully described and set forth hereinafter.

Figure 7 is a perspective view of the fire-pot or chamber, more fully hereinafter described.

The nature of my said invention and improvements

consists in the use and employment of an outer and inner cylinder, in combination with the fire-pot or chamber of combustion, all arranged and combined substantially in the manner and for the purposes more fully hereinafter described and set forth.

It also consists in the use and employment of one or more conducting-pipes or tubes, for admitting air to the combustion-chamber, and arranged and combined with said fire-pot and the outer and inner cylinder, substantially in the manner and for the purposes hereinafter more fully described and set forth.

It also consists in constructing the fire-pot of one or more pieces of cast-iron, firmly riveted together, and having diagonal cuts or other perforations therein, whereby combustion is aided, substantially in the manner and by the means more fully hereinafter described and set forth.

It also consists in the construction and arrangement of the inner cylinder, surrounding the fire-pot or chamber of combustion, and so arranged and combined therewith as to facilitate and aid combustion, substantially in the manner and by the means hereinafter described and set forth.

To enable others skilled in the art to which my invention relates, to make and use the same, I will here proceed to describe the construction and operation thereof, which is as follows, to wit:

A, at all the figures, represents the base of the stove, which I design to make of cast-iron, and of any size and shape deemed best.

Attached to said base A, and in size to correspond thereto, is the outer cylinder B, which I design to make of sheet-iron, and of such pattern and form as may be hereafter deemed best to use.

The inner cylinder is made in two parts or sections, C and C', and it is also attached to the base, A.

This inner cylinder C, I design to make of cast-iron, and in size and form to correspond with the outer cylinder B.

Said cylinder C has suitable openings or apertures in the bottom of the same, marked D, figs. 2 and 4, which are for the purpose of allowing the heated air to escape into the outer cylinder A, as more fully hereinafter described.

The operation of my stove requires a downward draught, and in order to secure this, I construct one or more pipes or tubes, of sheet or cast-iron, or of tin, connecting said outer and inner cylinders, B and C, which are fully shown at figs. 2, 4, and 5, in the accompanying drawings, and are marked E E' E".

These pipes or tubes, at their lower ends, connect and open into that chamber within the cylinder C and C', as shown at figs. 4 and 5, and at their upper ends open into the room or open air, except when a direct draught is desired, when they are closed by the dampers *a a*, fig. 4.

These tubes or draught-pipes E E', &c., may be of

any desired size, but at all times should be large enough to supply the fire-chamber with sufficient air for heating-purposes.

H, figs. 4, 5, and 6, represents the fire-grate, which may be of any construction deemed best to use.

Surrounding said fire-grate H, and extending to any desired height, is the fire-pot K, shown at fig. 7.

This fire-pot I construct of one or more pieces of cast-iron, firmly riveted together, and it may be of any size and strength deemed best.

This fire-pot has openings or apertures in the same, at or near the bottom thereof, of any desired form, so as to aid in the combustion of the fuel placed therein, as described hereinafter.

In the accompanying drawings, N represents the ash-pan, and P, the exit-pipe or flue.

b b, figs. 4 and 5, are openings or apertures in the upper part of the inner cylinder, C', through which the products of combustion pass when the direct draught is open, as hereinafter described.

At fig. 4 of accompanying drawings, when I admit the atmospheric air, for the downward draught in the combustion-chamber, by the means of pipes or tubes E E', I generally use but one opening in the top plate of the cylinder C', for the purposes of facilitating the operations of the direct draught, substantially as shown by the dotted lines b b, same figure, which opening may contain a valve, or be constructed in other form, and containing a damper, if deemed best so to construct and arrange the same.

The openings D, figs. 1, 2, and 3, may be of any size, form, or shape, or number, deemed best to use in the construction and operation of stoves containing my said invention and improvements, and the same be upon any part of said cylinder B, at or near the lower end of the same, whereby to carry out the more perfect operation of my said invention and improvements, herein contained and set forth.

The various parts of my said stove may be constructed of any suitable material, and of any size, form, or shape desired, in order to carry out more successfully the said invention and improvements.

The operation of my said heating-stove, above described, is as follows:

A fire having been kindled on the grate H, the coal is put upon the fire, thus kindled in the fire-pot K, through the opening S, fig. 5.

The damper e, in the hearth, being open, and the dampers a a, fig. 4, closed, the draught is direct, and the products of combustion pass from the fire-pot K into the chamber F, and from thence, through the openings b b, figs. 4 and 5, into the outer cylinder B, and from thence direct through the exit-flue P, to the chimney.

After the fire has been started, and the circuitous draught is desired, the damper e, figs. 1 and 5, in the hearth, is closed, and the dampers a a, figs. 1 and 4,

opened. The draught is then downward, and the air, coming through the pipes or tubes E E', fig. 4, carries the products of combustion downward and through the fire, where all, or nearly all, the smoke and combustible gases are consumed.

The heated air then escapes through the openings or apertures in the sides of the fire-pot K, into the inner cylinder F, from whence it passes through the openings D D, within the cylinder C, into the outer cylinder B, where it is confined until allowed to escape through the exit-pipe P.

A damper may be placed in the exit-pipe P, if deemed best, for the purpose of regulating the fire, or combustion of the fuel in the fire-chamber.

My improved heating-stove is chiefly designed for burning soft or bituminous coal, where the products of combustion contain large quantities of smoke and combustible gases, and the consumption of the gases and smoke, arising from the burning of such bituminous coal, is most perfect when the downward draught is used in connection with my improved stove, as fully hereinbefore described; but when hard or anthracite coal is used as fuel, the consumption of the fuel is more perfect than in any stove now in use, as all the gases and smoke arising therefrom are thoroughly burned and destroyed before the heated air passes through the fire-pot, and reaches the outer cylinder B, as fully hereinbefore described and set forth.

Having thus described the nature of my said invention and improvements,

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The outer cylinder or heating-chamber B, in combination with the inner cylinder c and c', chamber of combustion F, and the fire-pot K, all arranged, combined, and operating substantially in the manner and for the purposes herein described and set forth.

2. The pipes or tubes E E', or their equivalents, in combination with the fire-pot K and chamber of combustion F, substantially in the manner and for the purposes herein described and specified.

3. The fire-pot K, constructed substantially as herein described, in combination with the inner cylinder C C', in the manner and for the purposes substantially as herein described and set forth.

4. The outer chamber B, inner combustion-chamber F, pipes or tubes E E', and fire-pot K, all arranged, combined, and operating substantially in the manner and for the purposes herein fully described and set forth.

In testimony whereof, I have hereunto set my hand, this 16th day of January, 1869.

MOSES BREEN.

Witnesses:

CHARLES D. KELLUM,
EDWARD J. BREEN.