

(No Model.)

J. J. MOORE & J. T. McKIM.
HEATING STOVE.

No. 440,716.

Patented Nov. 18, 1890.

Fig. 3.

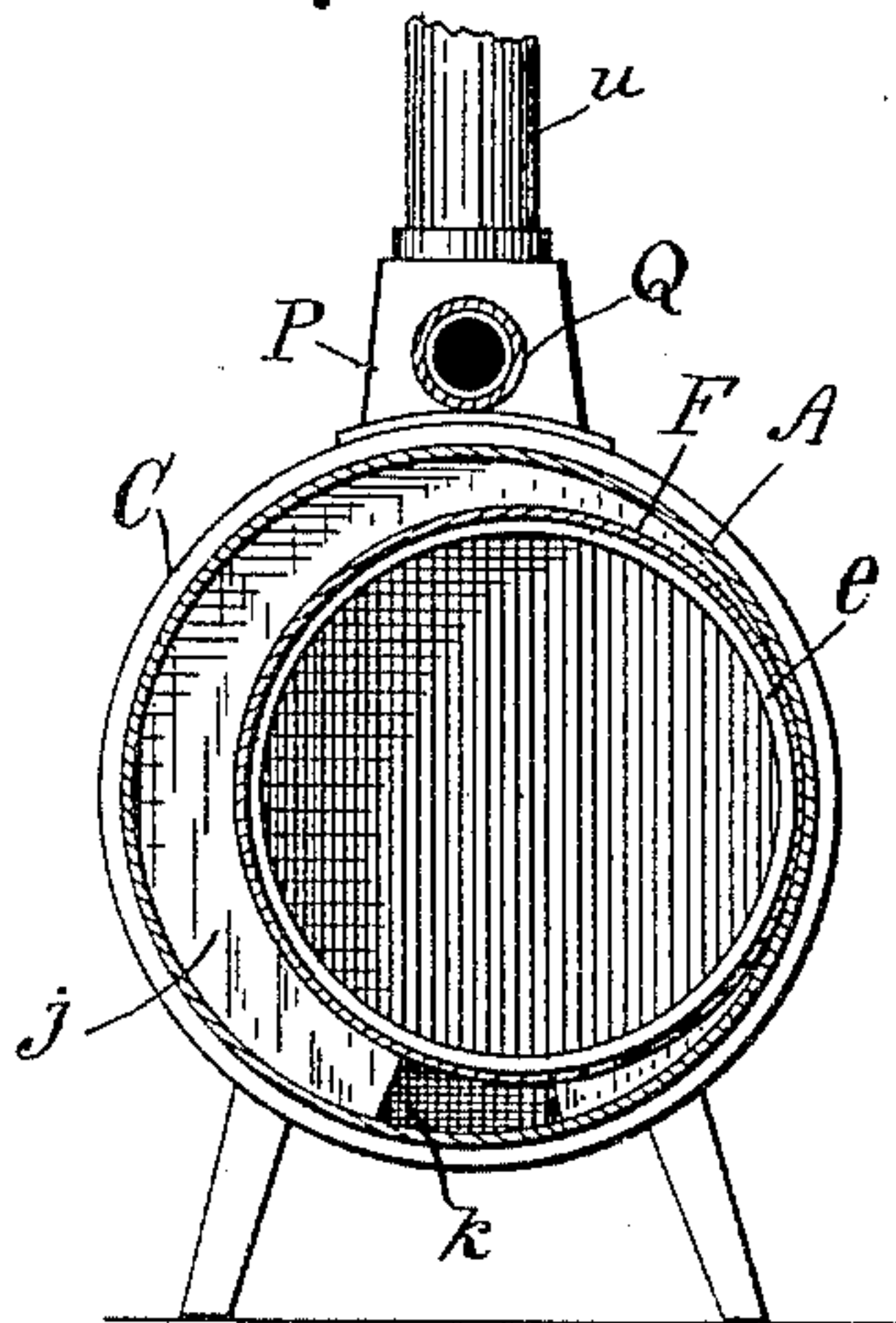


Fig. 2.

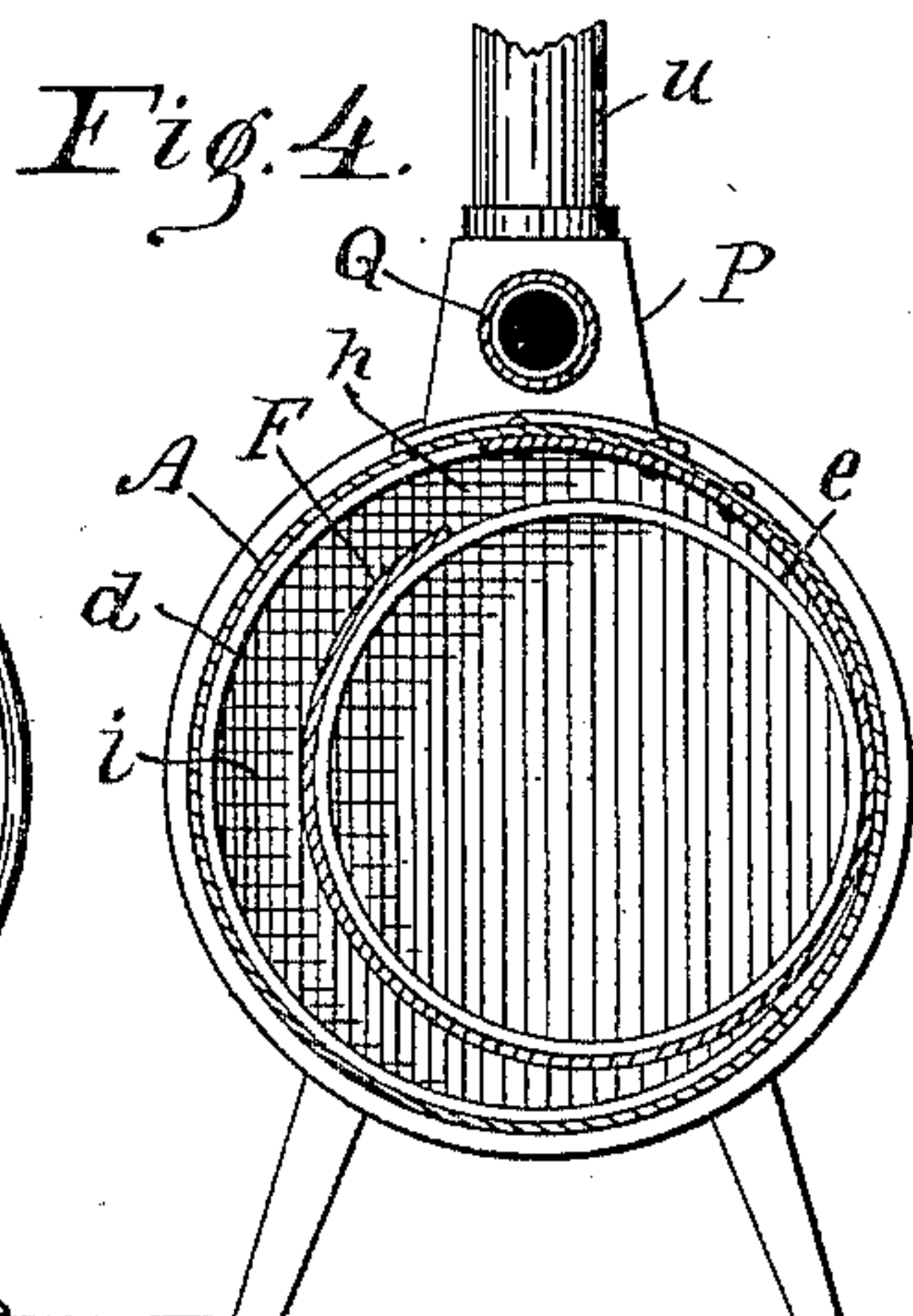
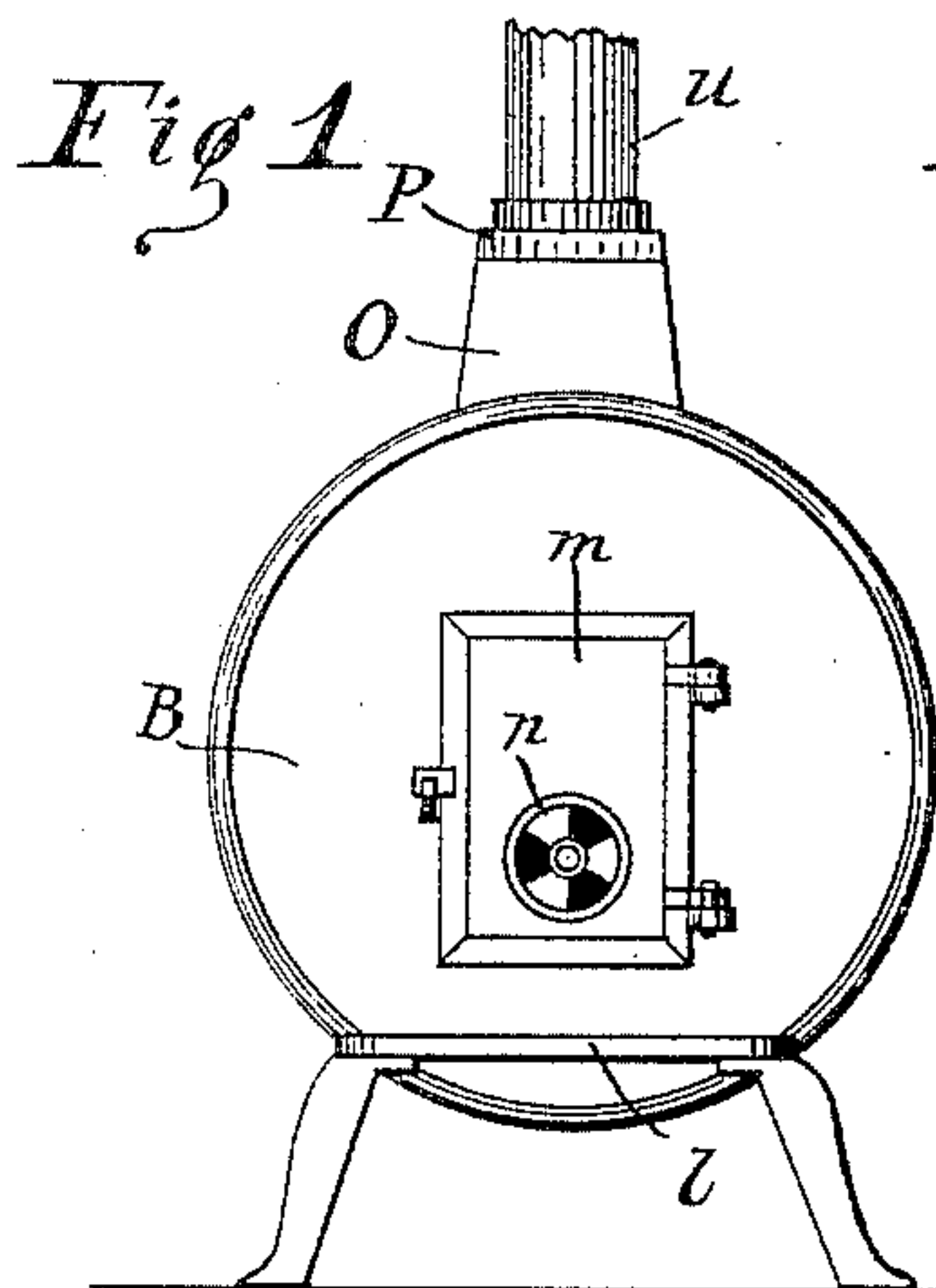
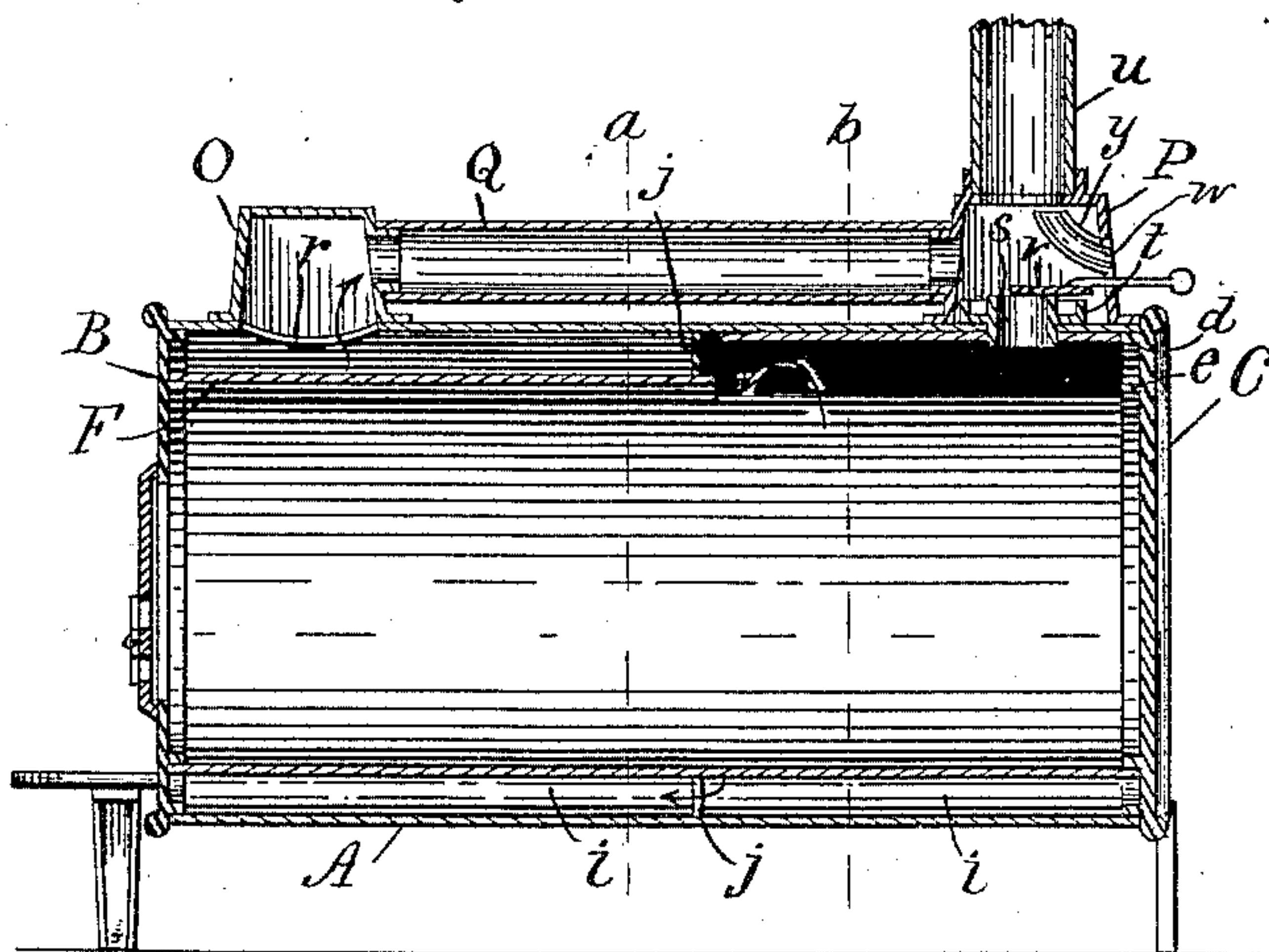
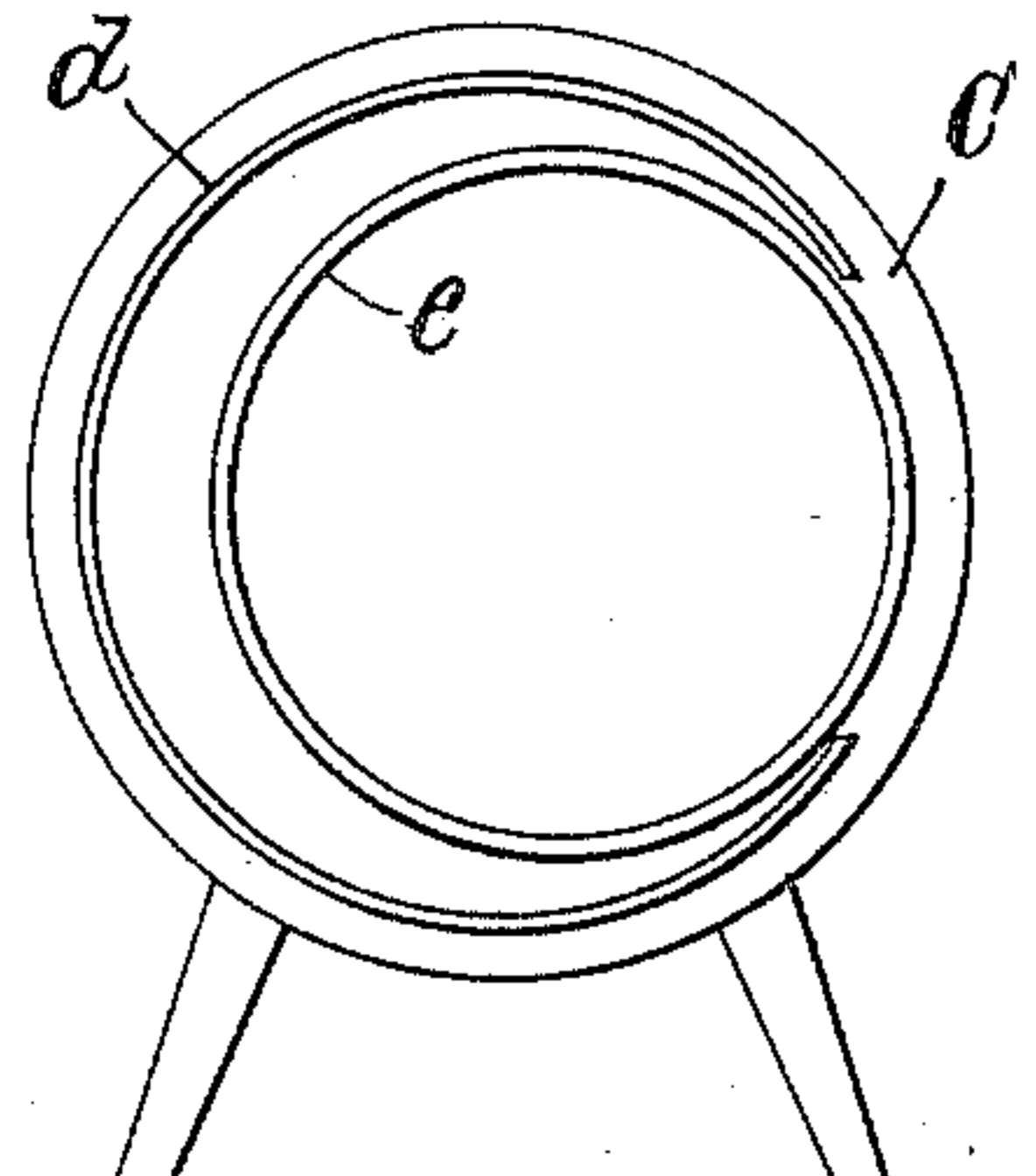


Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

JONATHAN J. MOORE AND JAMES T. MCKIM, OF THORNTOWN, INDIANA.

HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 440,716, dated November 18, 1890.

Application filed May 26, 1890. Serial No. 353,136. (No model.)

To all whom it may concern:

Be it known that we, JONATHAN J. MOORE and JAMES T. MCKIM, citizens of the United States, residing at Thorntown, in the county of Boone and State of Indiana, have invented a new and useful Improvement in Heating-Stoves, of which the following is a specification.

Our invention relates to an improvement in that class of heating-stoves in which the body of the stove is usually made with an outer shell or casing of sheet-iron, mounted in suitable end castings, and an inner fire-chamber of smaller diameter, there being an annular space between the fire-chamber and the outer shell, through which the products of combustion circulate. As heretofore constructed, the fire-chamber in this class of stoves has been arranged concentric to the outer shell, which has been heated mainly, if not wholly, by the circulation of the products of combustion between the fire-chamber and the outer shell.

One object of our improvement is to so arrange the fire-chamber and the outer shell that the latter shall be heated at one side of the stove by direct contact with the fire-chamber, while at the other side of the stove it shall be heated by the circulation of the products of combustion, as heretofore.

Another object of our improvement is to avoid as far as possible the condensation of water and wood-acid in the smoke-flue leading from the stove and to prevent the leakage of the same from the stove, all as hereinafter fully described.

The accompanying drawings illustrate our invention.

Figure 1 represents a front elevation of our stove; Fig. 2, a central longitudinal section; Fig. 3, a transverse section at *a*, Fig. 2; and Fig. 4, a transverse section at *b*, Fig. 2. Fig. 5 is a side elevation of the inner side of one of the ends of the stove.

A is a hollow cylinder, preferably of sheet-iron, having its ends closed by cast plates B and C, which form, respectively, the front and back ends of the stove. Plates B and C are each provided on their inner sides with a circular flange *d* near their outer edges and a second flange *e*, arranged within the first flange and eccentric to it, so that the inner

flange is merged in the outer one at one side of the circle, as clearly shown in Fig. 5.

Cylinder A forms the outer shell of the stove, and is of suitable diameter to fit nicely over the flanges *d* of the end plates B and C.

The fire-chamber consists of a second sheet-iron cylinder F of suitable diameter to fit nicely over the inner flanges *e* and the coincident part of flanges *d* of plates B and C. Cylinder F is split on its upper side for about one-half its length, and one of the edges thus formed is drawn outward and secured to the outer shell, as shown in Fig. 4, to form the longitudinal opening *h*, through which the smoke may escape from the fire-chamber into the annular space *i* between the outer and inner cylinders. The annular space *i* is divided by a transverse partition *j* into two parts, which communicate through an opening *k* in the partition at the under side of the stove. By this construction and arrangement of the fire-chamber and outer shell a space is left between them, in which the products of combustion may circulate at the top, bottom, and one side of the stove, thus heating the outer shell indirectly at these points, while it is quickly heated on the remaining side of the stove by direct contact with the fire-chamber. The front plate B is provided with hearth *l*, a door *m* to admit fuel, and the door is provided with an adjustable draft-opening *n* for the admission of air.

O and P are inclosed domes or chambers mounted on the top of the outer shell and connected by a horizontal pipe Q. Dome O communicates with the front section of the annular space *i* through an opening *r* in shell A, and dome P communicates directly with the fire-space through an opening *s*, formed in the bottom of a plate *t*, having its outer edges and the edge of the opening raised, so as to form a drip-pan adapted to catch any condensation which may fall from the smoke-pipe *u*, which extends upward from the top of the dome. Opening *s* may be partially or wholly closed by a sliding damper *v*.

It is well known that when in this class of stoves it is desirable to keep a slow fire, and the direct inlet and outlet draft-openings are closed for that purpose, a condensation of the products of combustion is liable to occur in

the smoke-pipe, and the wood-acid thus formed finds its way to the outside of the pipe and stove. For the purpose of preventing this condensation, we provide an opening *w* in the side walls of dome P above the damper *v*, and to insure an upward current of air therefrom we mount within the dome and against the opening a short upwardly-turned tube *y*, the effect being to admit beneath the smoke-pipe when the damper *v* and draft-opening *n* are closed a sufficient amount of air to keep up a circulation in the smoke-pipe, and to thus carry off the products of combustion before condensation takes place.

For the purpose of catching and retaining within the stove any condensation which may be formed, we arrange the drip-pan within the dome beneath the smoke-pipe. The drip-pan being in a position to be quickly heated, whatever condensation falls into it is re-evaporated.

In operation, in kindling a fire draft-opening *n* and damper *v* are opened and the smoke passes directly to the smoke-pipe through opening *s* and dome P. Damper *v* being closed, the smoke passes through opening *h* into the rear compartment of the annular space *i*, and thence through opening *r*, dome O, pipe Q, and dome P to the smoke-pipe.

We claim as our invention—

1. In a stove, the combination of an outer shell and an inner fire-chamber of smaller diameter arranged within the outer shell and in contact therewith on one side, there being on other sides a space between said shell and fire-chamber adapted to form a passage for products of combustion, substantially as set forth.

2. In a stove, the combination of the outer

hollow cylindrical shell having closed ends, the inner cylindrical fire-chamber arranged with a portion of its periphery in contact with the interior of the outer shell, having the remainder of its periphery surrounded by an annular flue and having along a portion of its length an opening through which communication is established between the interior of the fire-chamber and said annular flue, the transverse partition dividing said flue into two compartments, which communicate through an opening in the partition, the pair of domes erected on the outer shell, one of said domes communicating directly with the interior of the fire-chamber and the other dome communicating with the annular flue, the horizontal pipe connecting said domes, the damper arranged to cut off direct communication between the fire chamber and its dome, and the smoke-pipe leading from said dome, all arranged to co-operate substantially as set forth.

3. In a stove, the combination of the fire-chamber, the outer shell, the smoke-pipe *u*, and the smoke-dome P, having indirect communication with the fire-chamber and provided with opening *w*, arranged substantially as and for the purpose set forth.

4. In a stove, the combination, with the fire-chamber, the outer shell, the smoke-pipe, and the dome P, of the plate *t*, having raised edges and provided with opening *s* and damper *v*, said plate being arranged within the dome between the fire-chamber and the smoke-pipe, substantially as and for the purpose specified.

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