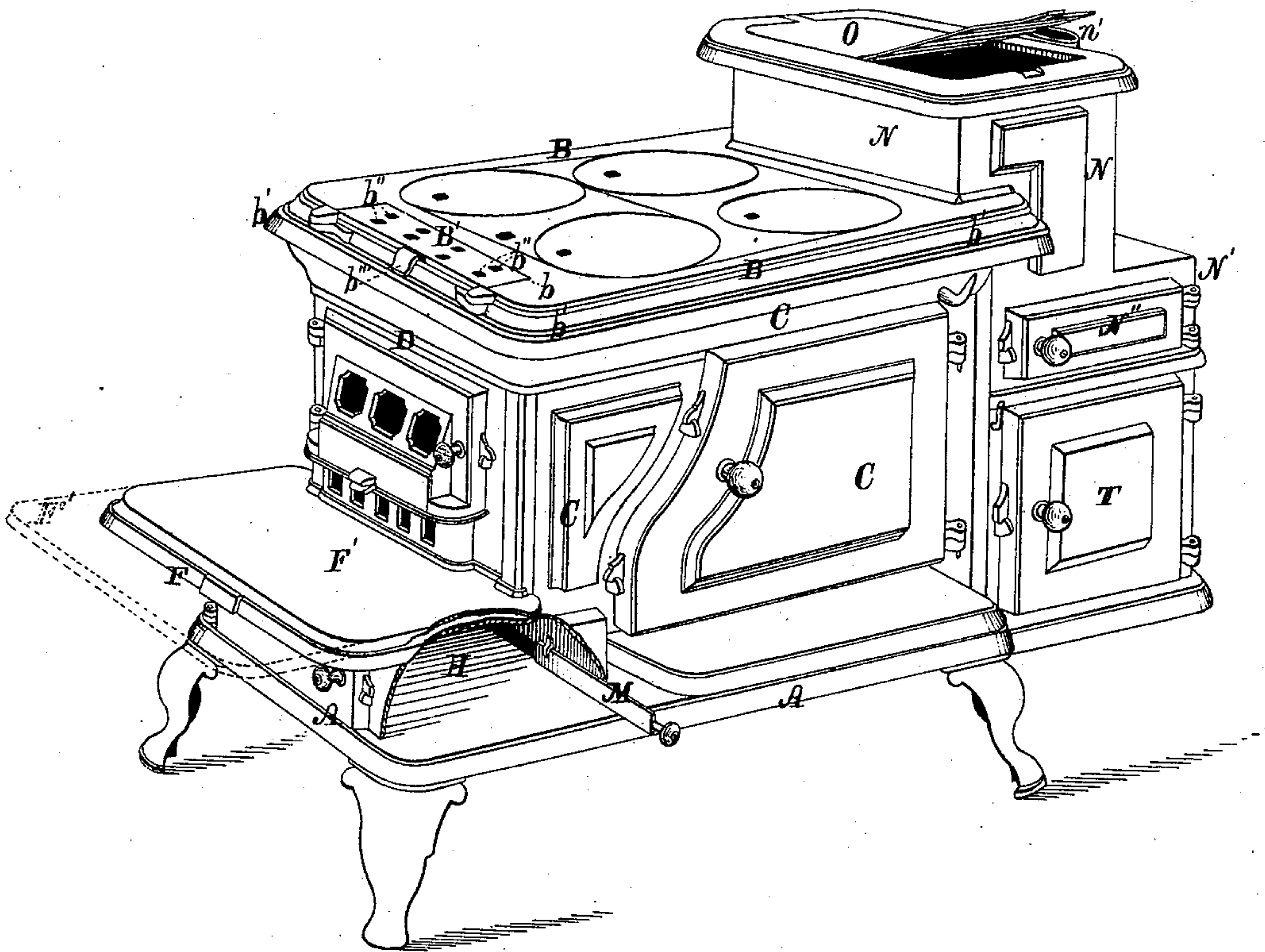


J. A. LAWSON.
Cooking-Stove.

No. 201,256.

Patented March 12, 1878.

Fig. 1.



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Fig. 2.

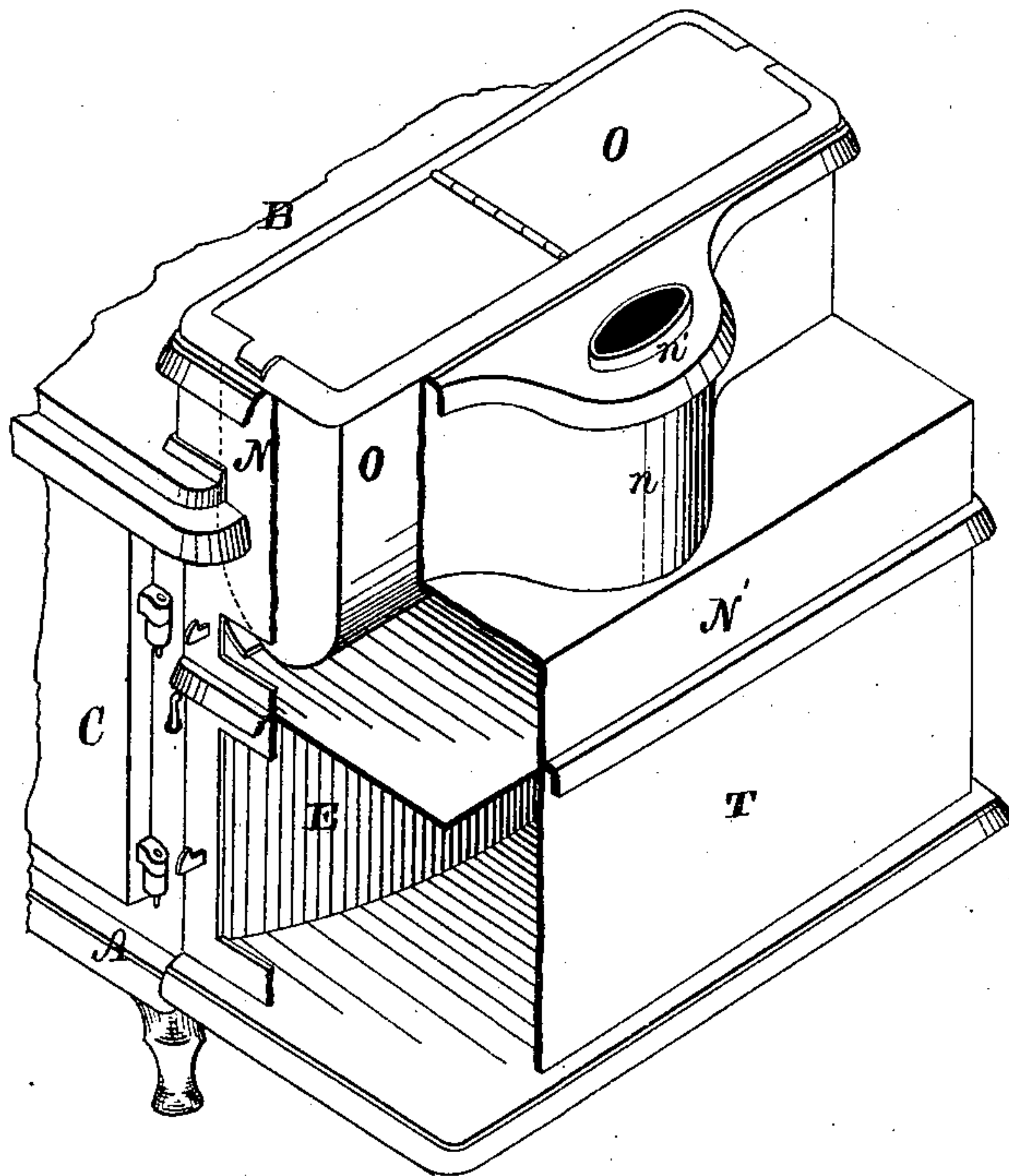
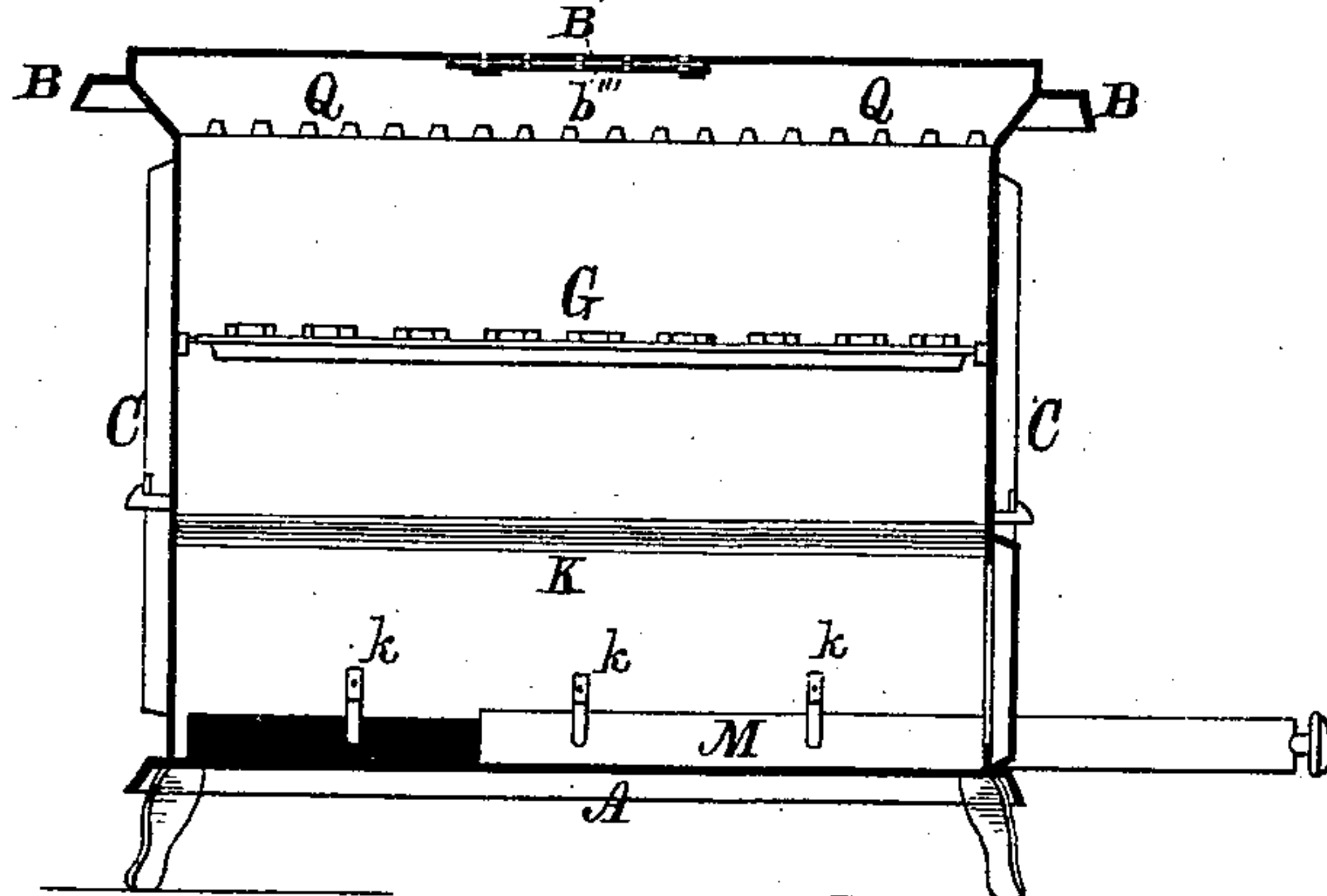


Fig. 3.



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Fig. 4.

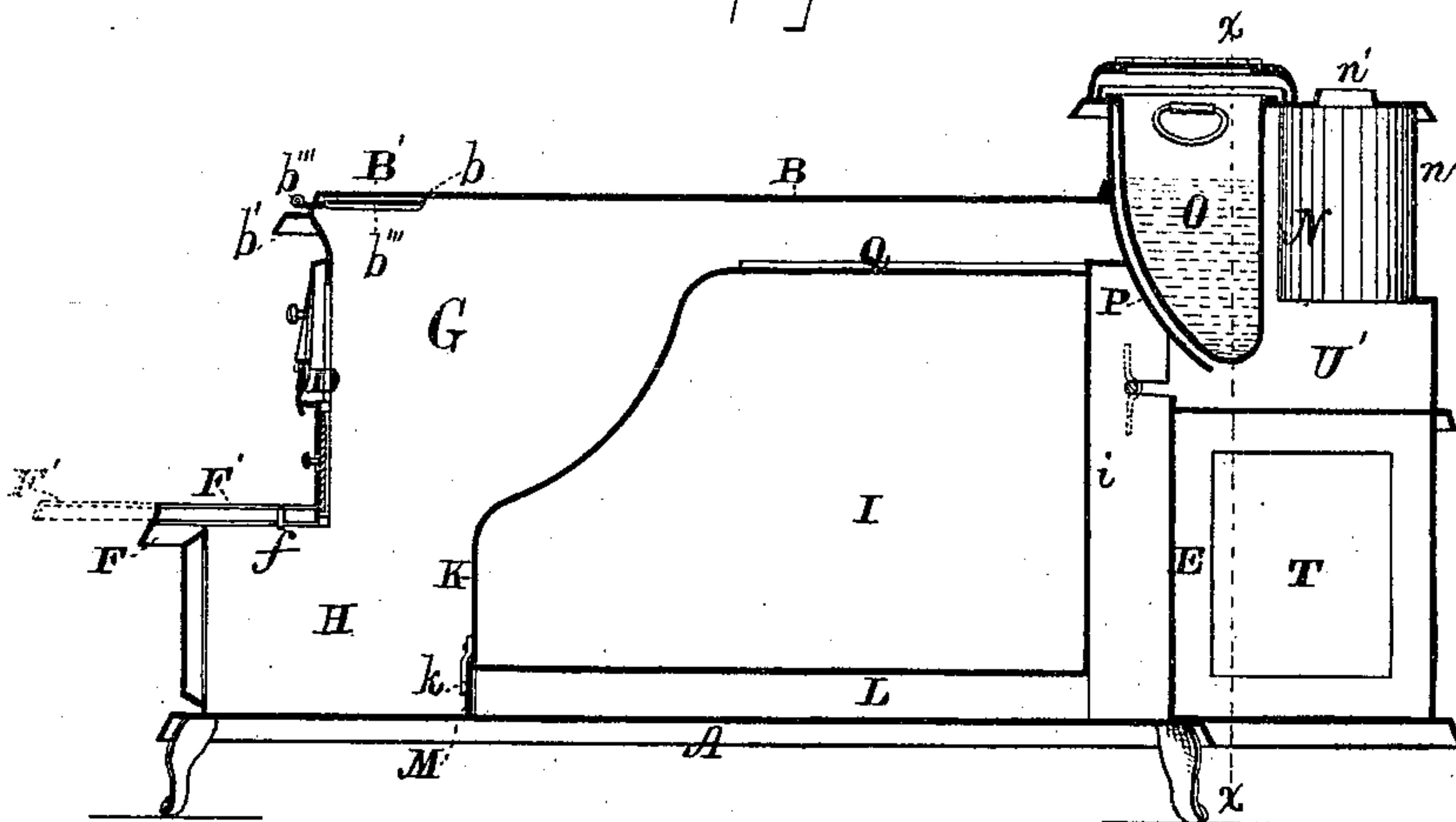
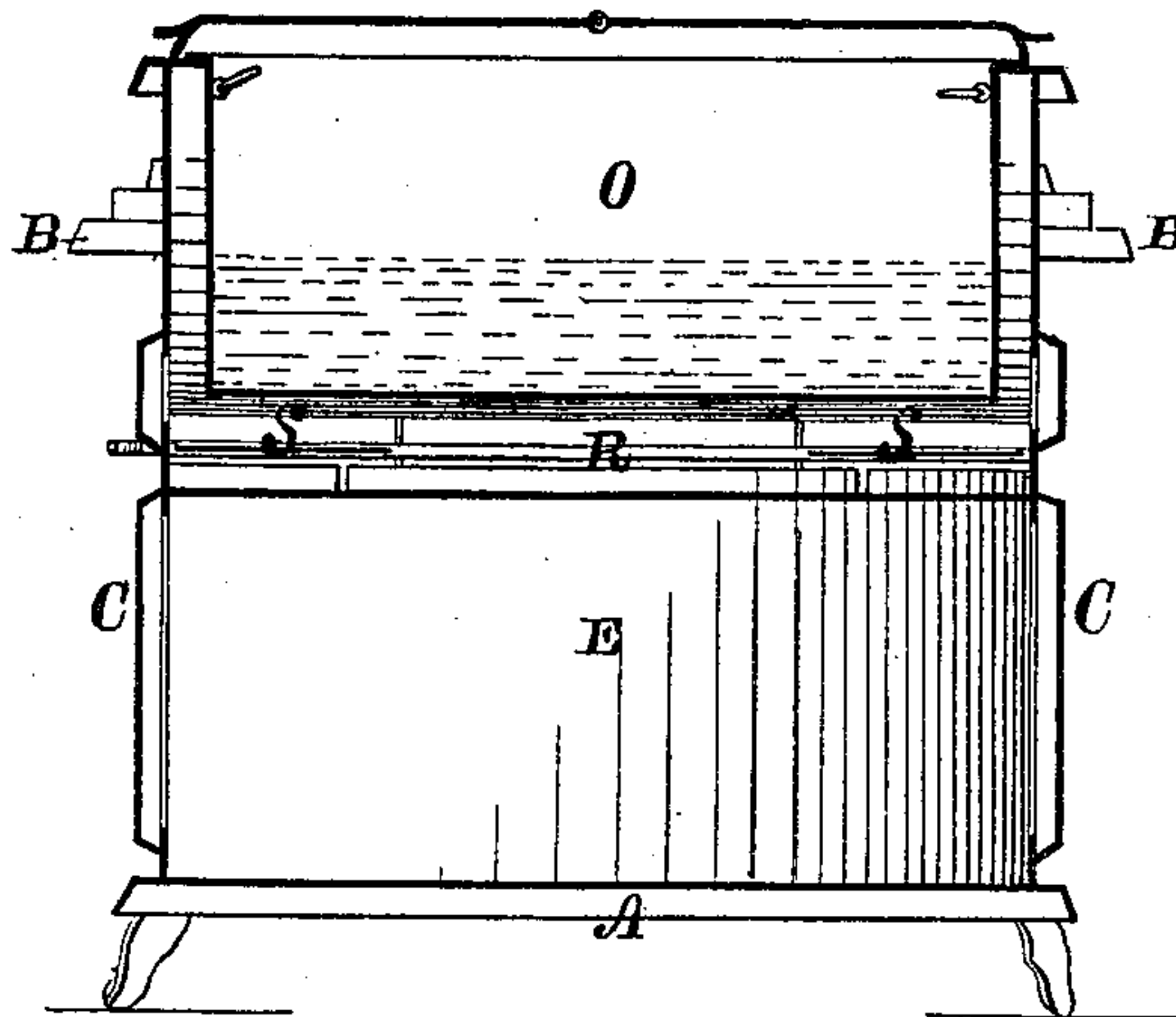


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES A. LAWSON, OF TROY, NEW YORK.

IMPROVEMENT IN COOKING-STOVES.

Specification forming part of Letters Patent No. **201,256**, dated March 12, 1878; application filed October 19, 1877.

To all whom it may concern:

Be it known that I, JAMES A. LAWSON, of Troy, in the county of Rensselaer, and in the State of New York, have invented certain new and useful Improvements in Cooking-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 perspective view of my improved stove, a portion of the ash-pit being removed to show the construction of the flue-stop. Fig. 2 is a like view of the rear end of said stove, a portion of the casing of the reservoir being broken away, so as to show the interior construction of parts. Fig. 3 is a cross-section of the stove through the center of the fuel-chamber. Fig. 4 is a central section of said stove upon a line extending from front to rear, and Fig. 5 is a cross-section of the same upon line *xx* of Fig. 4.

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

The design of my invention is to increase the economy, efficiency, and durability of cooking-stoves, and render the same more easily operated.

It consists, principally, in a cooking-stove having a feed-opening formed within the top plate, and inclosed by means of a pivoted edgewise-swinging door, which is contained wholly within the ordinary lines of said plate, and when opened is upon a line horizontally with the latter, substantially as and for the purpose hereinafter specified.

It consists, further, in a cooking-stove having a supplemental hearth, which rests upon and incloses the ash-pit and entire upper side of the ordinary hearth, substantially as and for the purpose hereinafter shown.

It consists, further, in a cooking-stove provided with an ash-chamber in front of its bottom oven-flues, a flue stop or plate, which incloses the entire front ends of the said flues within said ash-chamber, and is capable of being drawn longitudinally outward through the side plate, so as to entirely uncover said flue ends, substantially as and for the purpose hereinafter set forth.

It consists, finally, in the form of the guard-plate interposed between the rear portion of the stove and the front of the reservoir, substantially as and for the purpose hereinafter set forth.

In the annexed drawings, A represents the bottom plate, B the top plate, C and C the side plates, D the front plate, E the rear plate, and F the hearth, of a stove, which is provided with a fuel-chamber, G, ash-pit H, oven I, and the usual system of horizontal and vertical flues.

The ash-pit H is located partly beneath the fuel-chamber G, and in part beneath the elevated hearth F, and is separated from the oven I by means of a flue-plate, K, which extends downward only to the bottom of said oven, the front end of the bottom flues L being thus left uninclosed.

A plate, M, which corresponds in size and shape to the like features of the open end of the flues L, is fitted over the latter, and is held in place laterally and vertically by means of suitable lugs *k*, that are provided upon the flue-plate K, but is permitted to slide longitudinally and laterally outward through a correspondingly shaped opening, which is formed within one of the side plates C, the arrangement being such as to enable the entire front of said flues to be uncovered whenever it is necessary to remove ashes and soot from their interiors.

The elevated hearth F is provided with the usual vertical opening in front of the front plate D, and upon its upper side has a supplemental hearth, F', which corresponds therewith in size and shape, and is held in place thereon, while permitted to slide forward and back, by means of lugs *f*, which project downward from said supplemental hearth and engages with the lower side of said hearth at the side edges of its opening.

Within the front portion of the top plate B is provided an opening, *b*, through which access may be had to the fuel-chamber G for the purpose of supplying fuel for combustion, which opening extends downward through about one-half the depth of the downward-projecting molded edge *b'* of said plate, and, unlike those usually provided for such pur-

pose, does not divide said plate vertically at such point into two sections, but is contained wholly within and is bounded by solid portions of the latter.

The opening *b* is inclosed by means of a door, *B'*, which exactly fills the same and restores the lines of the top plate *B*, and is hinged or pivoted at one corner to the latter, so as to be capable of being swung edgewise away from or over said opening.

Within the door *B'* are provided a number of openings, *b''*, which may be used to admit air to the upper side of the burning fuel, and are inclosed, when desired, by a damper, *b'''*, that is secured upon and slides over the lower face of said door.

The rear plate *E* is removed from its upper end downward about one-third its depth, and over the opening thus formed is fitted a reservoir-casing, which has the form shown in Fig. 2; and consists of an upper portion, *N*, that corresponds to and contains within its open top the reservoir *O*, and below the same a lower portion, *N'*, which is extended rearward and forms a flue beneath said reservoir.

At the transverse center of the casing *N* a rearward-swelling portion, *n*, forms a flue, which, at its lower end, communicates with the flue *N'*, and at its upper end has a collar, *n'*, for the reception of a smoke-pipe.

The upper portion of the casing *N* extends forward within the top plate *B*, and has its front side nearly upon a line midway between the rear oven-plate *i* and the back plate *E*, while from said top plate at such point a flue-plate, *P*, extends downward and rearward in a curve nearly to the bottom of the flue *N'*, and laterally extends between the side plates *C*.

The reservoir *O* has its bottom formed upon a curved line from front to rear, and its front side curved rearward, to correspond to the conformation of the flue-plate *P*.

The usual dampers for closing communication between the top oven-flue *Q* and the ascending flue *R*, and for regulating communication between the descending flues *S* and the reservoir-casing, being provided, the operation is as follows:

When the direct draft is employed, the heated escaping products of combustion pass rearward and downward through the upper portion of each of the rear flues *R* and *S*, and enter the reservoir-flue *N'* from beneath the lower edge of the flue-plate *P*, from whence they pass upward, and are diffused around the reservoir *O*, and finally escape into and through the exit-pipe *n'*.

When the reverse draft is employed, the heated gases pass in the usual manner downward through the descending flues *S* into and through the bottom oven-flues *L*, and from thence upward through the ascending flue *R* into the reservoir-flue *N'*; but in either case the reservoir *O* receives from said escaping gases so large a percentage of their heat as

to cause its liquid contents to maintain a temperature but little below the boiling-point.

In consequence of the peculiar shape of the bottom of the reservoir *O*, the currents of heated gases impinge upon a rounded surface, and are less interrupted in their flow than would be the case were the bottom of said reservoir square, while from the same peculiarity of construction sediment is less liable to deposit in the interior of the latter, the result of which deposit is the burning out of the metal at such points.

The guard-plate *P* effectually protects the front of the reservoir *O* from the too intense heat of the escaping gases, without in any material degree interfering with the flow of the latter.

In order that the flue or space *N'* beneath the reservoir *O* may be easily freed from ashes and dust, a door, *N''*, is provided at one or both ends, which door enables every portion of said flue to be easily and readily reached for the purpose named.

The space between the bottom of the reservoir-casing and the bottom plate *A* is inclosed by means of a warming-closet, *T*, which is, preferably, formed with or attached to said casing, and, in horizontal shape and dimensions, corresponds to the like features of the same.

The construction of the feed-door *B'* enables the fuel-chamber to be constructed as high in front as in rear, and prevents coal or ashes from dropping out when said door is opened.

By means of the flue-stop *M*, the entire front portions of the bottom flues *L* can be exposed to view, and said flues easily and thoroughly cleaned from ashes or soot, while the supplemental or detachable hearth *F'* enables the entire upper side of the ash-pit to be opened, and greatly facilitates the operation named of cleaning said flues.

I am aware that a door has before been provided at the rear of a stove opening into the space beneath the reservoir, and do not claim such arrangement.

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

1. In a cooking-stove, a feed-opening formed within the top plate and inclosed by means of a pivoted edgewise-swinging door, which is contained wholly within the ordinary lines of said plate, and when opened is upon a line horizontally with the same, substantially as and for the purpose specified.

2. In a cooking-stove, a supplemental hearth-slide, which rests upon and incloses the ash-pit and entire upper side of the ordinary hearth, substantially as and for the purpose shown.

3. In a cooking-stove provided with an ash-chamber in front of its bottom oven-flues, a flue stop or plate which incloses the entire

front ends of said flues within said ash-chamber, and is capable of being drawn longitudinally outward through the side plate, so as to entirely uncover said flue ends, substantially as and for the purpose set forth.

4. In combination with the reservoir O and with the flues N', R, and S, the guard-plate P, which extends downward and rearward in a curve, and is constructed and relatively ar-

ranged in the manner and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 12th day of October, 1877.

J. A. LAWSON.

Witnesses:

HERBERT A. VIETS,
ROBERT S. WOOD.