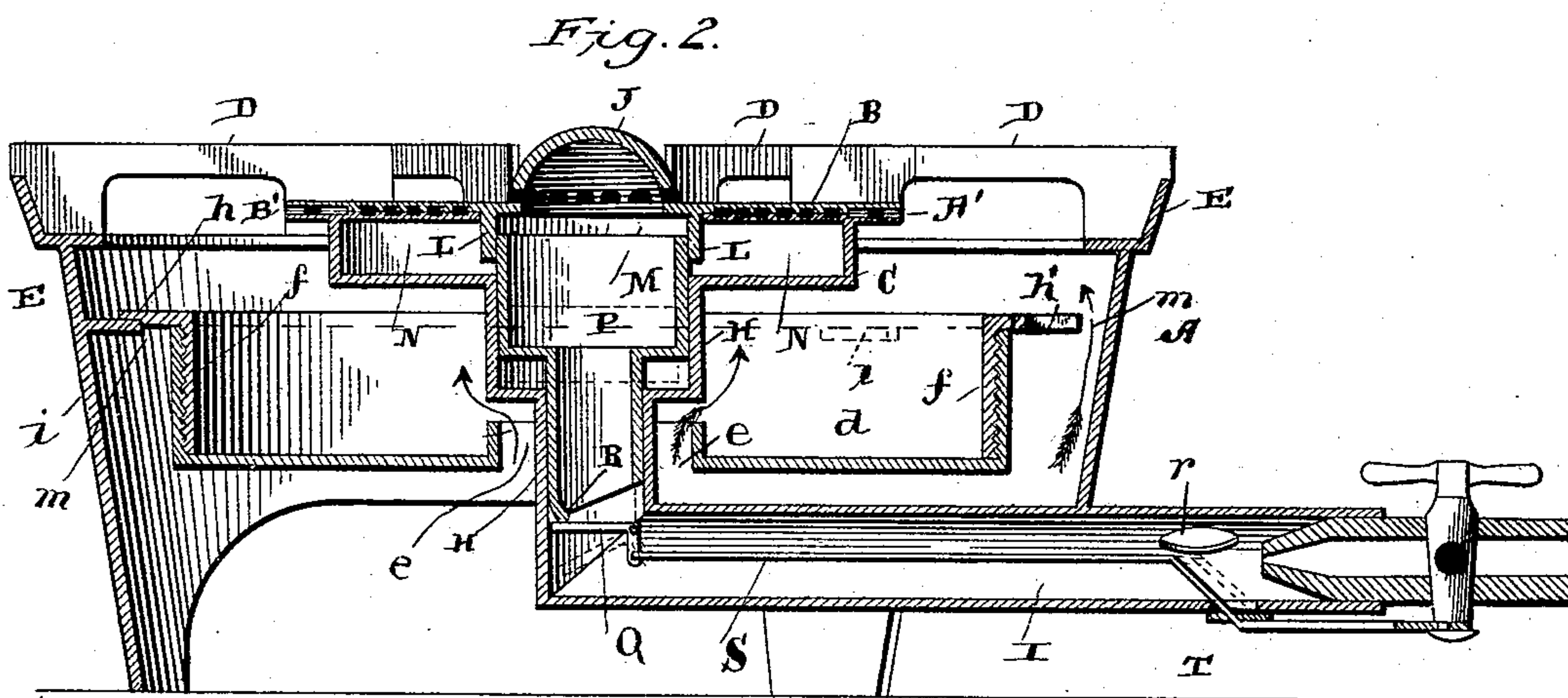
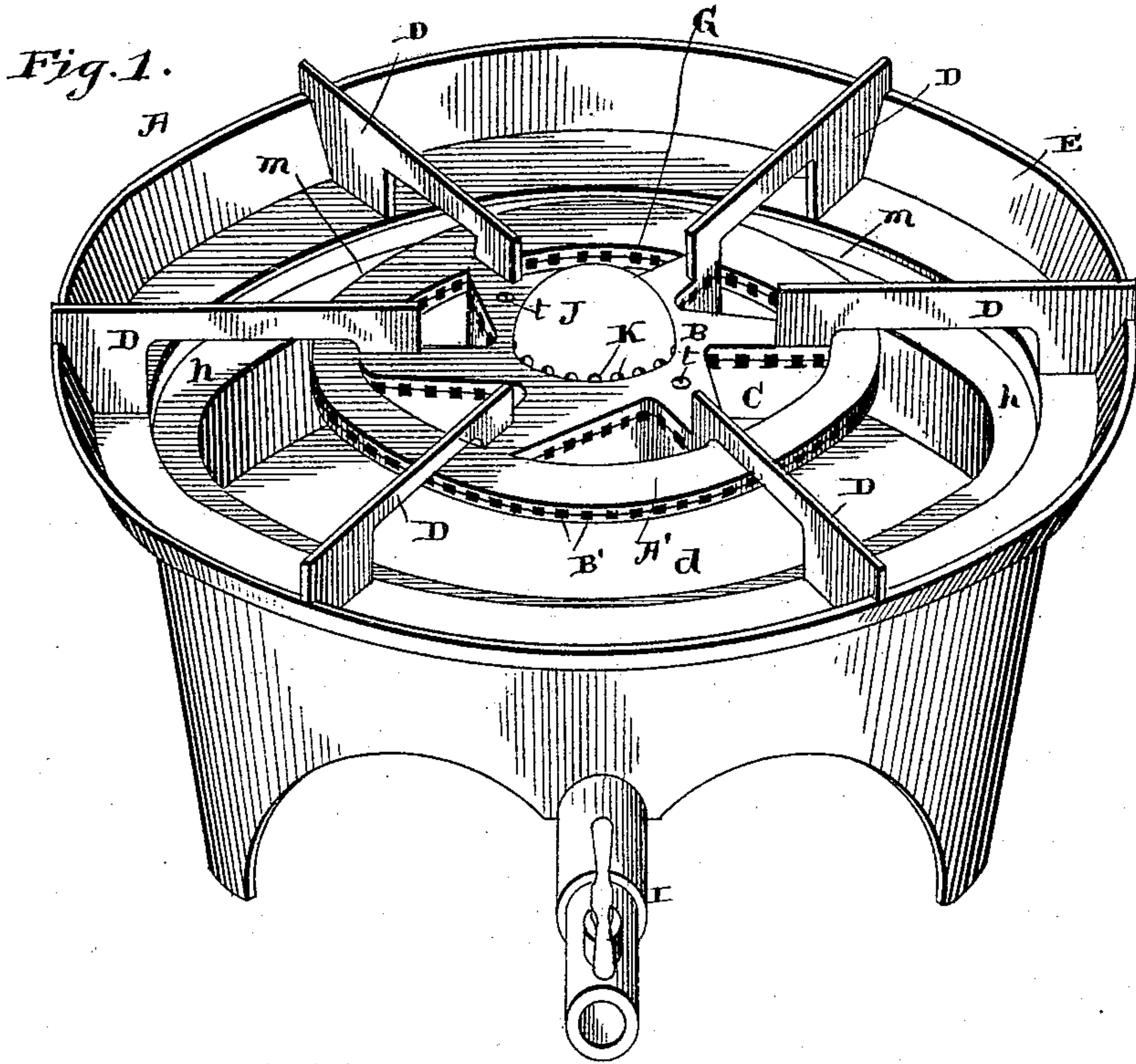


(No Model.)

H. CLAYTON.  
GAS STOVE.

No. 492,712.

Patented Feb. 28, 1893.



WITNESSES\_

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# UNITED STATES PATENT OFFICE.

HERBERT CLAYTON, OF NEW YORK, N. Y.

## GAS-STOVE.

SPECIFICATION forming part of Letters Patent No. 492,712, dated February 28, 1893.

Application filed March 3, 1892. Serial No. 423,665. (No model.)

*To all whom it may concern:*

Be it known that I, HERBERT CLAYTON, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Gas-Stoves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in gas stoves; and it consists in certain novel features of construction which will be fully described hereinafter and particularly pointed out in the claims.

One of the objects of my invention is to provide a burner of the peculiar construction hereinafter shown and described, whereby a greater number of openings are obtained than in the ordinary circular burner, and also to make perfect combustion and thereby prevent the escape of unburned gas, which makes an unpleasant odor, which is common to the ordinary circular burner, by feeding air between the escaping and burning gas flames, which commingles therewith and makes complete combustion, and to further provide against the escape of unburned gas, by also feeding to the outside of the flames a current of air, thus mingling air with the burning gas, which will cause the entire flow of gas to be consumed.

Another object of my invention is to give a uniform heat to the under side of a vessel placed upon the stove, by distributing the flame entirely over its bottom, instead of burning it in a ring as in the ordinary burner, which cooks a portion of the material in the vessel, while the edges and center are only heated, and left comparatively raw.

A further object of my invention, is to provide the burner with a small central burner and a chamber for feeding gas thereto, and with a large surrounding burner, and a chamber therefor, and to provide a means for admitting gas to the small central burner only when the cock or valve is turned a slight distance, which will prevent the escape of unburned gas through the large burner, and then to admit gradually the gas to the large burner as the cock is further opened, thus making it

possible to have only a small flame without the escape of unburned gas into the room which makes an unpleasant and unhealthy odor. Where gas is admitted to the large and small burner in the usual manner, when only a small flow of gas is admitted the flow is not sufficient to supply the large burner with sufficient gas to be caught from the small burner, but at the same time there is a small portion of gas escaping from the large burner which is not ignited, and this I avoid by means of the construction hereinafter shown and described.

In the drawings:—Figure 1 is a perspective view of a stove which embodies my invention complete. Fig. 2 is a central vertical section taken longitudinally through the horizontal portion of the supply pipe.

A indicates a base or frame which is preferably of the construction here shown in detail, but which can be varied if found convenient without departing from my invention.

The burner is composed of the upper portion B and the lower portion C, both of which are made in the shape of a star as illustrated, whereby radiating arms are provided. Extending radially from the upper portion B and preferably cast as a part thereof are the vessel or pan supporting arms D, which have their outer ends connected with the inner periphery of the outwardly and upwardly extending flange E, of the base A, and are also cast as a part thereof. In this manner it will be seen that the base A, the arms D and the upper portion B of the burner are all cast integral, which greatly decreases the cost of manufacture.

The lower portion C of the burner is provided at its upper edge with the gas escape openings G, and is supported in any suitable manner. As here shown, the under portion of the burner is preferably cast integral with the vertical portion H, and horizontal portion I of the supply pipe, but these parts may be made separate if desired. When they are cast together as just described, the lower portion will be secured in place by means of screws *t* which pass through the upper portion into the lower portion.

The object in making the burner in the shape of a star, is to provide it with radiating arms, whereby a greater flame surface is



obtained than where it is made circular or oval in form, and of the same diameter, as will be understood. Also by making the burner with radiating arms, air passes upward  
 5 in the manner hereinafter described between the said arms, and mingles with and between the flames of the adjacent arms of the burner, which makes a perfect combustion, and prevents the escape of unconsumed gas, which  
 10 unconsumed gas would make an unpleasant odor in the room. The escape of unconsumed gas is a common fault with the ordinary circular burner, as it is impossible to get the air to mingle with the flame of a circular burner,  
 15 since it is admitted to the outer side of the flame only.

At the center of the burner is a small dome or burner J, which is provided with a series of escape openings K for the gas. This is  
 20 common, and to it alone I do not make any claim. Depending from the inner side of the upper portion of the burner is a circular flange L, which forms a chamber M for the gas which is fed to the burner J.

25 The lower portion of the burner is provided with a large chamber N which feeds gas to the openings G of the arms of the large burner, and this chamber is connected with the vertical portion H of the supply pipe. The interior diameter of the annular or circular  
 30 flange L is the same as the interior diameter of the vertical portion H of the supply pipe, and sliding and fitting snugly, and yet easily within the flange L and vertical portion H of the supply pipe, is a short tube or cylinder P  
 35 which forms a valve for feeding gas to the burner J alone when raised, and for admitting gas to them both when it is lowered, as shown in dotted lines in Fig. 2. This cylinder  
 40 is operated by means of a bell crank lever Q, which is pivotally supported in any suitable manner within the vertical portion H of the supply tube, with its upper and long end resting against a depending and inwardly  
 45 turned lip R, as shown. Connected to the short and lower end of this bell crank lever Q is an operating rod S which extends outward through the horizontal portion of the supply  
 50 pipe and outside of the supply pipe through an under air opening T, and then along the outside of the pipe to the lower end of the supply cock a. The under or lower extending  
 55 end b of the cock is made in the form of a cam or crank as shown, and the outer end of the operating rod S is formed into an eye c, which surrounds the cam or crank. This cam is placed upon the outer side of the lower  
 60 end of the cock as shown in Fig. 2, so that when the cock is turned as there shown to admit a full flow of gas the lower short end of the bell crank lever is pulled outward as  
 65 shown, and the longer end lowered which allows the cylinder P which rests thereon to drop with its upper edge flush with the lower edge of the large chamber N of the burner, thus admitting gas to the large and small chamber. When the cock is turned around

to extend at right angles to the portion I of the supply pipe the rod S is forced inward, and the long end of the bell crank lever up-  
 70 ward, thus raising the cylinder or valve P up within the chamber M which feeds gas to the small burner J as illustrated in dotted lines.

When the cylinder of valve P is in the position shown in dotted lines, the flow of gas is  
 75 entirely cut off, but when the cock is turned slightly, a small amount of gas is allowed to flow to the cylinder P, and the cylinder P allowed to drop only a short distance, but not  
 80 enough to be below the flange L which forms the chamber M for feeding gas to the burner J. In this manner when a small flow of gas is turned on, the gas is admitted to the small burner only, thus preventing the escape of gas to the large chamber N and from there un-  
 85 consumed through the large burner as would otherwise be the case. As the cock is turned around more and more open, the cylinder is gradually lowered, until gas is admitted to the large chamber N. In this manner the gas  
 90 is allowed to flow gradually into the large chamber N, which will permit of a large or small flow to the large burner as desired. The upper end of the cylinder extends into the  
 95 chamber M sufficiently far to allow of the cock being opened enough to supply as much gas as the small burner will consume before the cylinder drops below the flange L to admit  
 100 gas to the large chamber. When the cock is opened enough to supply more gas than the small burner will consume, then the cylinder drops below the flange L and allows the gas to overflow into the large chamber and be fed  
 105 gradually to the large burner, and as the gas escapes from the large burner it is automatically lighted by the flame of the small burner as will be understood.

Placed within the base A is a pan d, which is provided at its center with an opening having a vertical flange e, and this opening is  
 110 considerably larger than the vertical portion H of the supply pipe which allows the air to flow through this opening up between the arms of the burner, and thereby between the flames of the adjacent arms as indicated by  
 115 arrows, thus furnishing a perfect combustion and completely consuming all of the gas as before described. This pan d is provided at its outer edge with a vertical portion f, and an annular horizontal outwardly extending  
 120 flange h, which rests upon lugs i extending inward from the legs of the base A. The pan d, is smaller than the interior diameter of the base A, to form an annular space m, and air passes through this space outside of the several arms  
 125 while air passes between the arms through the central annular space e, thus making complete combustion, thereby avoiding the escape of unconsumed gas, and the consequent odor. Owing to the flange e, and the vertical portion f, the  
 130 forms a receptacle to catch all drippings or pan overflow from the material being cooked. So also it prevents the heat from the burner being radiated downward upon the table and



instead reflects or radiates it upward, thus increasing the heat of the burner. This pan *d*, is supported within the base by having its flange *h* rest upon lugs *i*, of which there are preferably three and the said flange is provided with a notch *h'*. By this construction the said notch can be made to register with one of the lugs *i*, and the pan removed for removing its contents.

10 The horizontal portion of the feed or supply pipe is provided with air openings *r* in its side and the air opening *T* in the under side. When the small burner alone is burning, and a small supply of gas is being fed, it is advantageous to not feed so much air with the gas as when the large and small burner are both burning, and to accomplish this I provide a plate or disk *s*, which is secured to the rod *S* outside of the under opening *T*.  
 15 When the tube or cylinder valve *P* is up, as shown in full lines, the disk *s* covers the opening *T* and prevents air from entering, but when the valve is down, the plate or disk *s* is drawn back by the rod *S* and air is admitted to the supply pipe. In this manner the amount of air fed to the burner with the gas is automatically regulated according to whether the small burner is being used alone, or the both burners being used.  
 20 I have described my burner as consisting of a star shape, to form radiating arms, for the purpose set forth. However, I show in addition to the star shape, a ring *A'* which connects the outer ends of these radiating arms, which ring is provided with notches *B'* around its inner and outer periphery for the escape of gas to be burned. This enlarges the flame and increases the heating capacity of the burner. In this construction it will be seen that the air will pass up between the arms of the star and the inner edge of the ring, to make perfect combustion, and air supplied to the flame at the outer edge of the burner through the opening at the periphery of the pan.  
 25 pan.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A gas stove comprising a base, a burner having two chambers, one for feeding a small burner and one for feeding a large burner, a supply pipe, a cock therein, a valve for closing the opening to the large chamber, and an operating connection between the valve and the cock, whereby when the cock is turned the valve is simultaneously operated, substantially as specified.

2. A gas burner having a large and a small burner, the small burner being at the center, an annular flange depending below and in-

closing the inlet to the small burner, a chamber surrounding the flange for feeding the large burner, a supply pipe having a vertical portion, a tube which fits within the vertical portion of the supply pipe and the said flange, and a means for operating the said tube, whereby it forms a valve as described, substantially as set forth.

3. A gas burner having a small central burner, and a large surrounding burner, a circular flange depending and surrounding the inlet to the small burner, a supply pipe having a vertical portion, a tube which fits with the said vertical portion of the supply pipe and the said flange, a bell crank lever pivoted below the tube, one end of the lever supporting the tube, an operating rod connected to the opposite end of the lever, and a means for operating the said rod, and thereby the said tube for admitting and cutting off gas to and from the large chamber, substantially as specified.

4. A gas burner having a large and a small burner, the small burner being at the center, a flange depending and surrounding the inlet to the said small burner, a supply pipe having a vertical portion and a horizontal portion, a tube fitting within the vertical portion of the pipe and the said flange for the purpose described, air inlets in the horizontal portion of the supply pipe, a means for raising and lowering the said tube, a rod connected with and operating this means and extending through the horizontal portion of the supply pipe and outside thereof to be operated, a cock to which it is secured and operated, and a plate secured to the said rod outside of the said air opening, whereby when the rod is operated to admit gas to the large burner the air opening is opened, substantially as specified.

5. A gas stove comprising a base, a supply pipe having a vertical and a horizontal portion, a burner secured to the upper end of the pipe and having radiating arms with openings at its edges, and a pan within the base provided with a central opening of greater diameter than the supply pipe to feed air up between the said arms and having an annular upwardly extending flange, the diameter of the pan being less than the interior diameter of the base, whereby air is fed to the outside of the flame, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HERBERT CLAYTON.

Witnesses:

ALFRED S. WILLSON,  
ROLAND A. FITZGERALD.