

(No Model.)

V. E. RANDALL.
HEATING OIL STOVE.

No. 521,813.

Patented June 26, 1894.

Fig. 5.

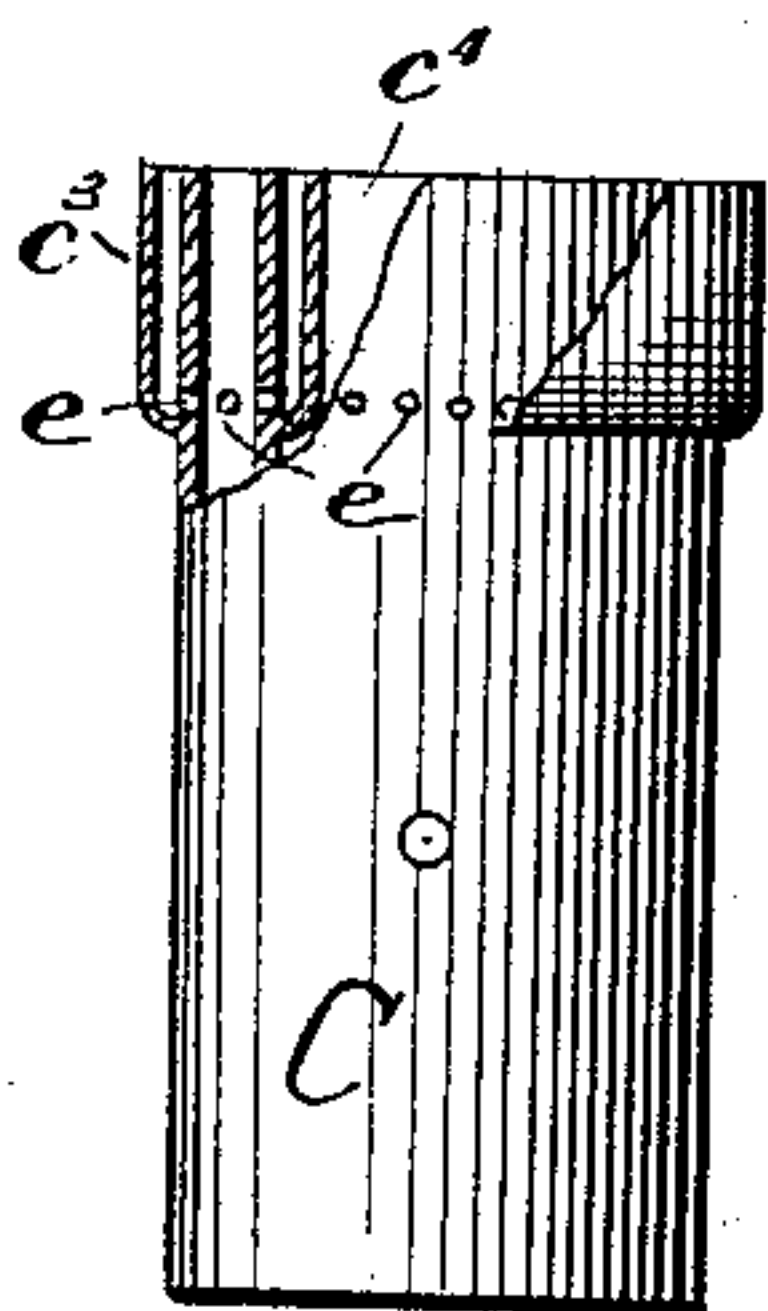


Fig. 6.

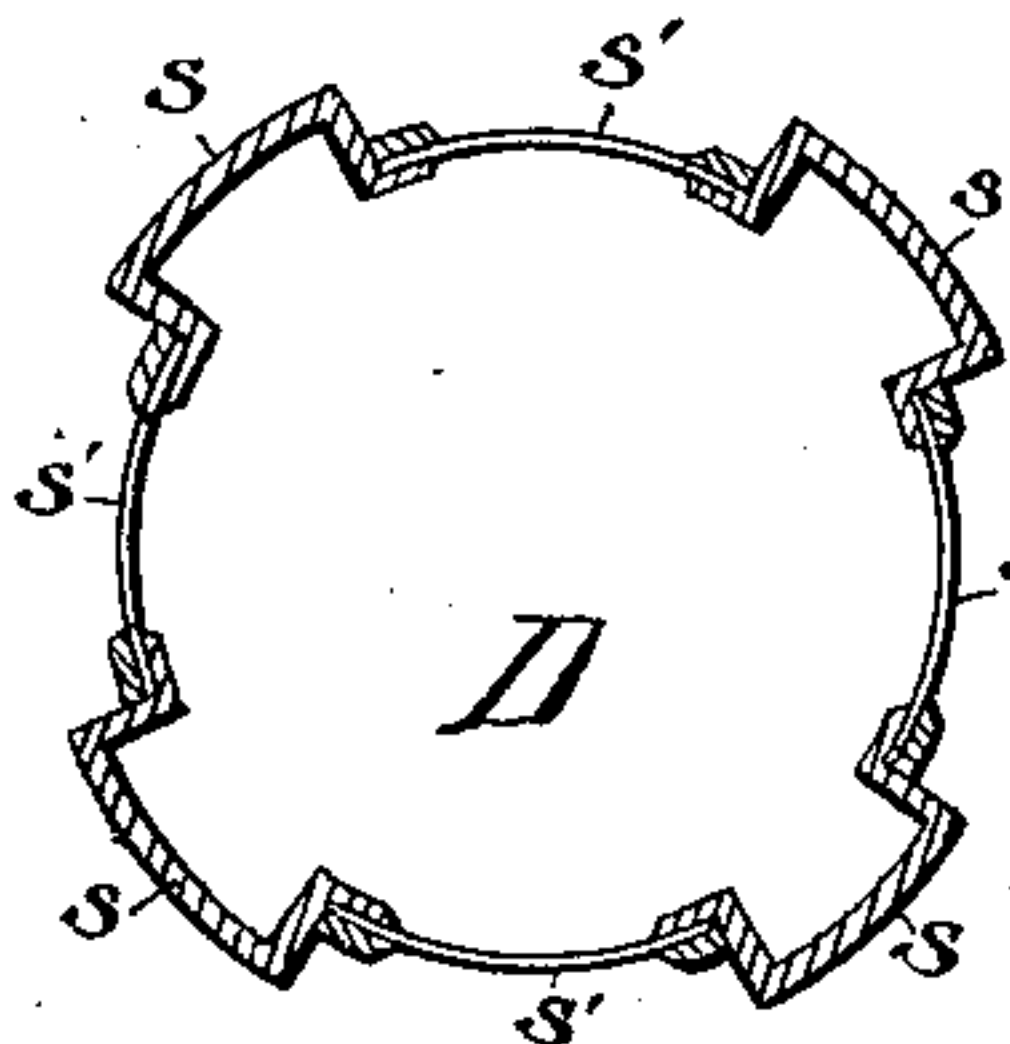


Fig. 1.

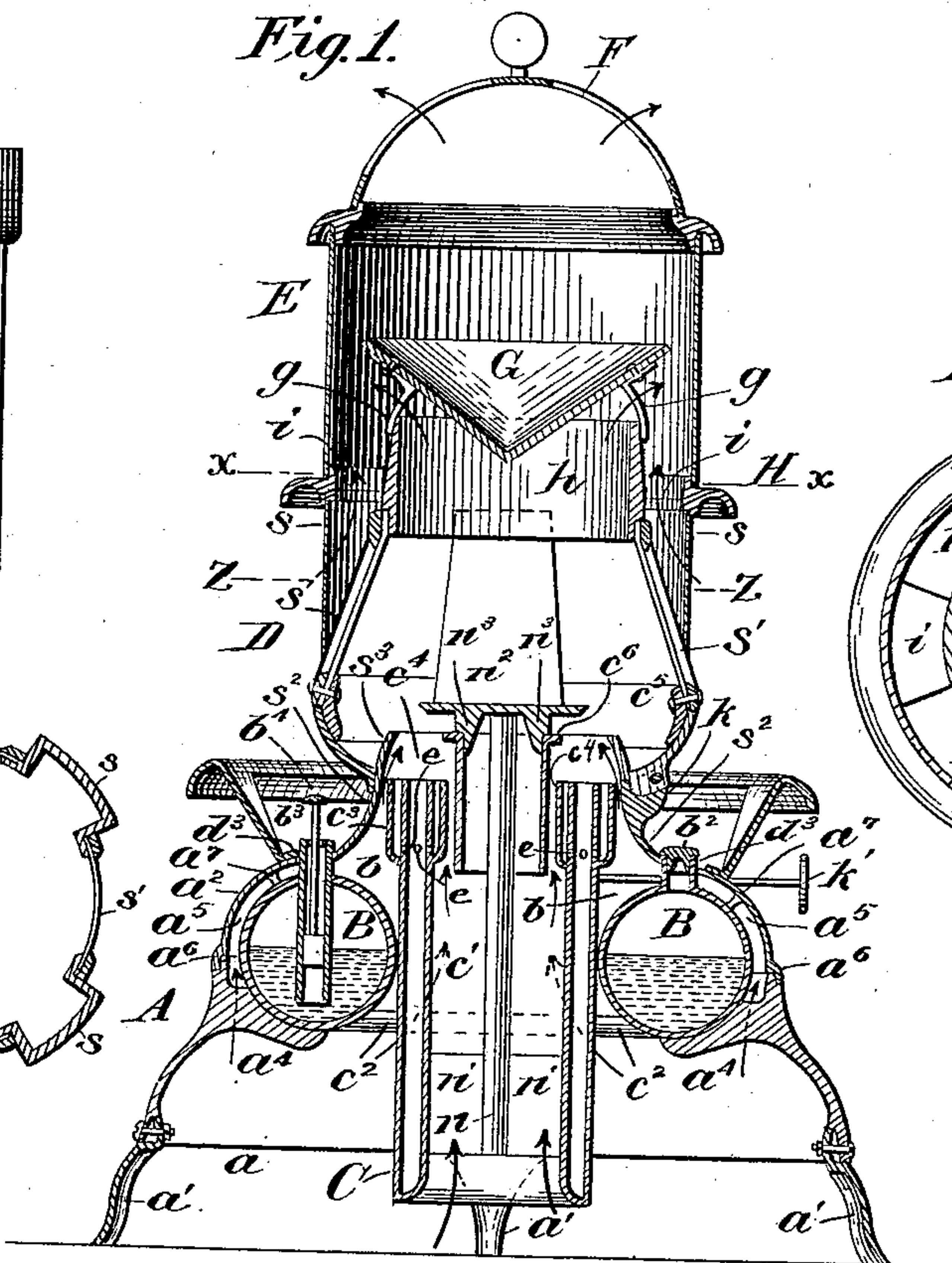


Fig. 4.

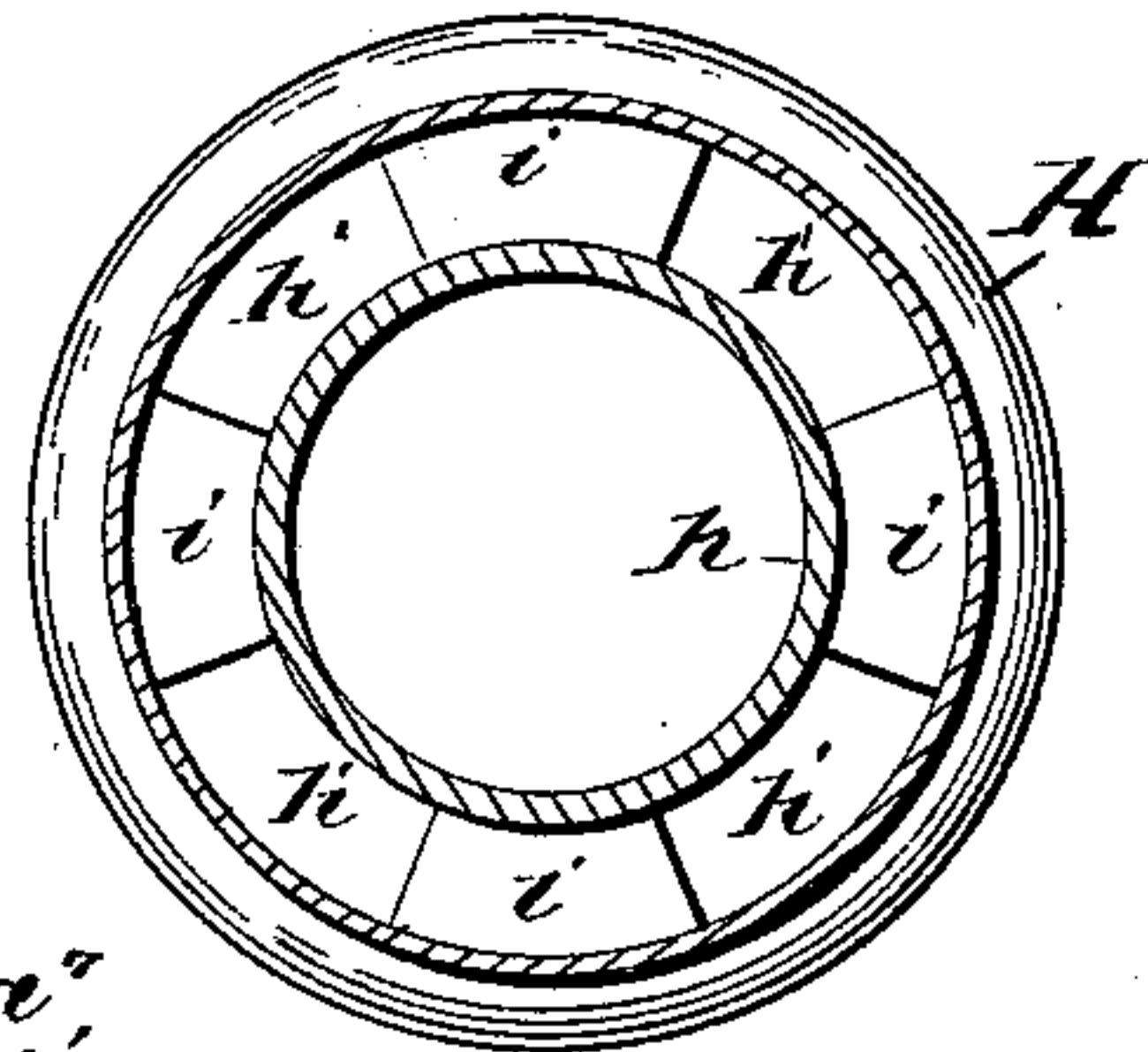


Fig. 2.

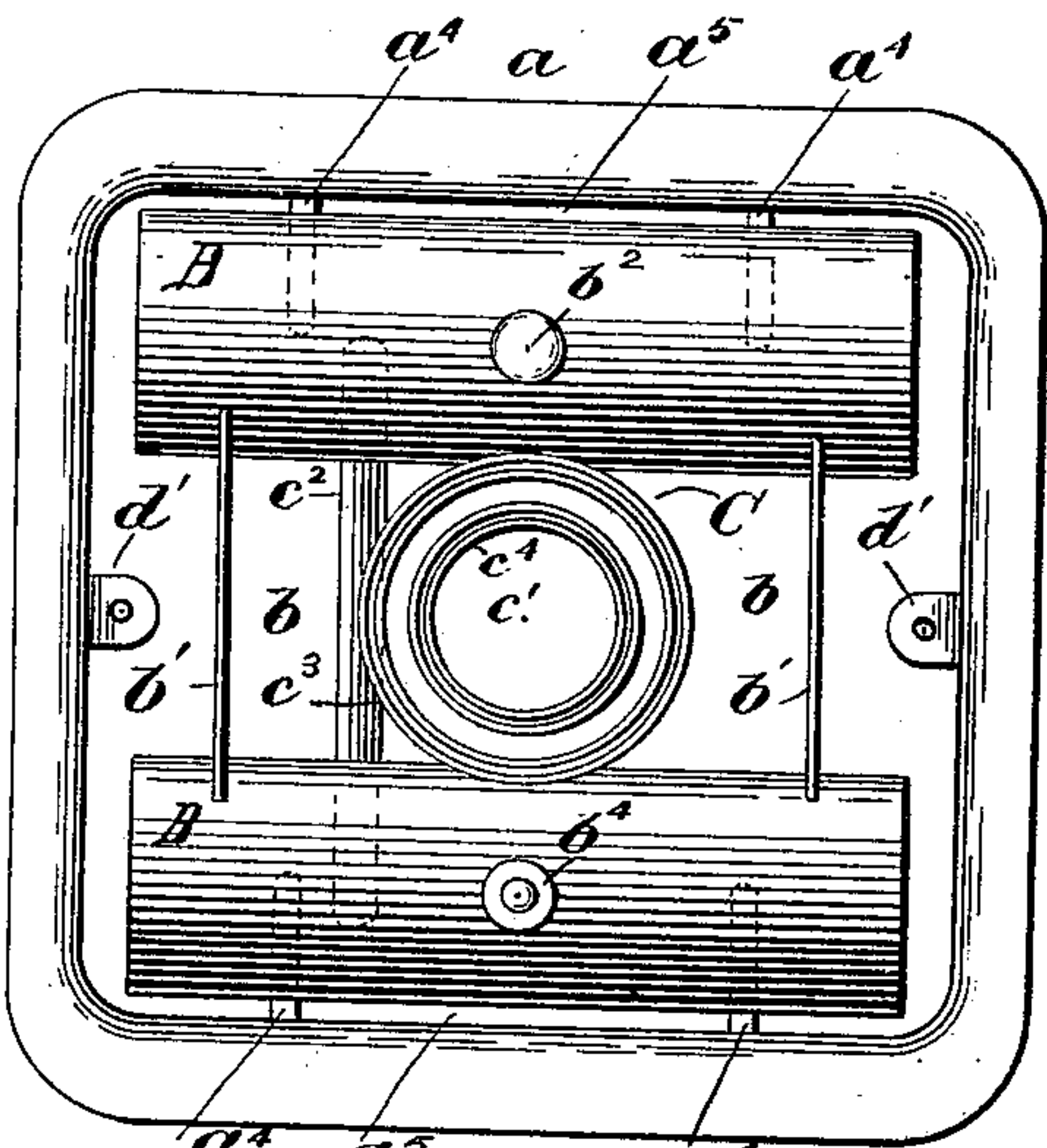
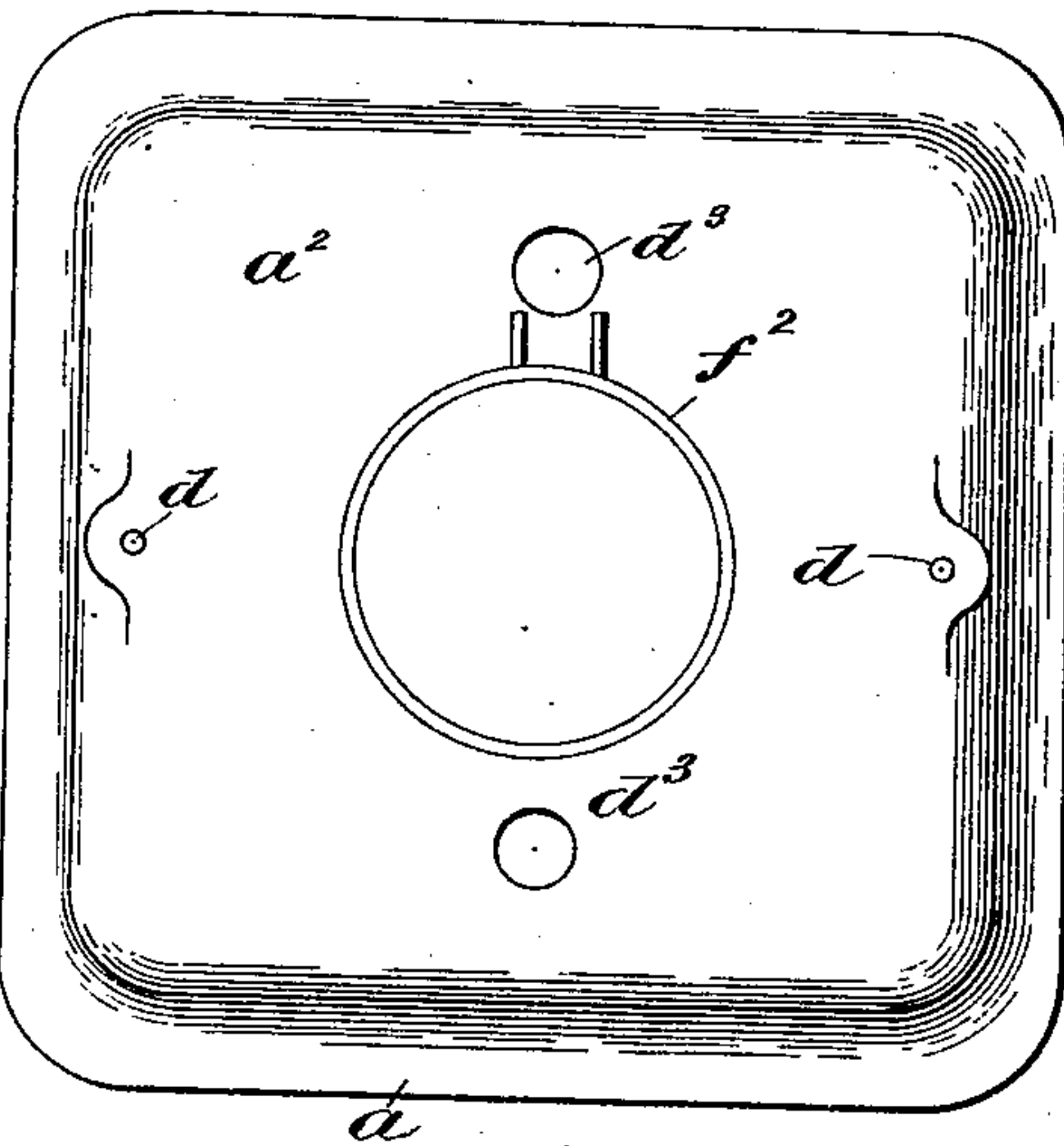


Fig. 3.



Witnesses:

Frank M. French
Schuyler C. French

Inventor.

Victor E. Randall

UNITED STATES PATENT OFFICE.

VICTOR E. RANDALL, OF BURLINGTON, MICHIGAN.

HEATING OIL-STOVE.

SPECIFICATION forming part of Letters Patent No. 521,813, dated June 26, 1894.

Application filed February 27, 1893. Serial No. 463,843. (No model.)

To all whom it may concern:

Be it known that I, VICTOR E. RANDALL, a citizen of the United States, and a resident of Burlington, in the county of Calhoun and State of Michigan, have invented a new and useful Heating Oil-Stove, of which the following is a correct description.

The invention relates to that class of stoves in which hydrocarbon or other oils adapted to the purpose are employed as fuel, the same being supplied from a reservoir to any desired or convenient number of wicks.

The invention consists in certain novel parts or co-operating assemblages of parts in an oil stove whereby the oil reservoir may be constructed with less material and labor; whereby the burner tube and oil reservoir may be maintained at a very low temperature; whereby the substructure or base of the stove can be cheaply made and easily placed together; whereby the combustion chamber and drum portion will radiate a great amount of heat, and whereby, exterior air may enter between the combustion chamber and drum section and together with the products of combustion be discharged from the top of the stove.

In the accompanying drawings, which constitute a part of this specification: Figure 1 represents a transverse vertical section of my improved stove, the arrows indicating air passage ways. Fig. 2 is a plan of the lower base section, with the oil reservoir and burner intact. Fig. 3 is a plan of the complete substructure or base section. Fig. 4 is a plan of the lower drum section, on the line x, x , of Fig. 1. Fig. 5 is a vertical and part section of the wick or burner tube in detail. Fig. 6 is a plan of the combustion chamber on the line z, z , Fig. 1.

In the drawings like letters of reference refer to corresponding parts in the views.

The base a , of the stove A, consists of a rectangular downwardly and outwardly flaring air receiving section which is supported upon legs a' , a' , a' , &c. The base top a^2 , together with the upper portion of the base bottom a , forms the oil reservoir section, the reservoirs B, B, resting upon the downwardly and inwardly curved brackets or lugs a^4 , a^4 , &c., of the lower base section. The reservoir section embraces the upper portion of

the rectangular base a , the rectangular base top a^2 , the outer or secondary rectangular air passage a^5 , the cylindrical and parallel twin or double reservoirs B, B, the primary or inner air passages b , b , an annular wick tube or burner C, and the annular and inner draft portion c' , of the burner C, formed by the interior wall of said burner.

The cylindrical oil reservoirs B, B, are received upon the curved and downwardly indrawn lugs a^4 , a^4 , &c., of the lower or base section a ; the cylindrical oil reservoirs B, B, are spaced therefrom and lie parallel with respect to each other; an annular burner C, or burners, being centrally located therein between; an oil conduit c^3 , uniting the oil reservoirs and engaging at the side of the burner C, whereby the latter may be supplied with oil; cross stays or braces b' , b' , together with the burner C, firmly soldered to said reservoirs, tend to make the said assemblages of parts intact and very rigid.

The rectangular and upwardly indrawn base top section a^2 , is, in its lower portion, fitted with a rabbet or interior seat a^6 , which overlaps a corresponding upper section of the substructure or base bottom a .

The reservoir section B, B, and the burner C, having been suitably placed upon the lugs a^4 , a^4 , of the base section a , the upper base section a^2 , is then placed thereon; tightening bolts d , d , (Fig. 3) are received through the top section a^2 , and pass through the lugs d' , d' , (Fig. 2) of the lower base section a , of the stove; as the tightening bolts d , d , are drawn together the lugs a^7 , a^7 , &c., of the upper base section are caused to impinge the oil reservoirs B, B, and firmly secure the parts a , a^2 , and B, B, firmly together.

b^2 , is an oil inlet to the reservoirs B, B, and b^3 , is a tube entering one of the oil reservoirs opposite to the oil filling aperture; the said tube b^3 , contains a float b^4 , which not only indicates the presence and absence of oil in the said reservoirs, but also forms a vent by which the air may enter the said oil reservoir and allow for the free combustion to the burner or burners, and it also allows the oil to seek its level in the oil reservoir with the one from which oil enters in the manner of replenishing.

The base top section a^2 , has holes or aper-

tures d^3 , through which the oil filling tube b^2 , and the oil indicating float b^4 , may protrude for the easy and quick facilitating, or operation of the stove.

5 The annular combustion chamber or section D, commencing at a point near its lower end and extending upwardly is fluted, the portions s , s , &c., being vertical and the mica or window sections s' , s' , &c., trend inwardly
10 at a point from near the bottom thereof. The bottom of said combustion chamber being bowl shaped and adapted to fit over a raised or neck portion s^2 , of the base top section a^2 , of the stove. Within the bottom of the combustion chamber or section D, is an annular
15 open and upwardly indrawn air deflector s^3 , which forms with the neck portion s^2 , of the base top section a^2 , an annular air passage around the upper end of the burner C. Surmounting the combustion section D, is the casing or drum section E. Upon the neck or upwardly indrawn portion of the top base section a^2 , are suitably provided ears k , k , which coincide and operate with similar portions on
25 the bowl shaped portion of the combustion section D, and connectively pivoted therewith, forming a hinge by which the said combustion section may be tilted as occasion may desire in the operation of snuffing the
30 wick, &c.

Within the central or draft section c' , of the burner C, is a vertical post n , secured to the burner by the arms or wings n' , n' , &c., this post extends above the burner one and five
35 sixteenths of an inch and is surmounted by the horizontal flame spreading section n^2 , whose periphery is coincident with the inner walls of the burner C, at points near the periphery of said flame spreading section and protruding from the lower surface thereof are lugs
40 n^3 , n^3 , &c., which are located about five-sixteenths of an inch within the circle of the wall of the burner C. A collar or air distributing band c^6 , is received upon the lugs n^3 , n^3 , &c., of the flame spreading section n^2 , and its upper edge is burred or turned outward and extends above the burner tube proper about
45 eleven sixteenths of an inch.

A collar H, forms a union with the drum E,
50 and the upper extremity of the combustion section D. The collar H, is annular and the outer portion forms an ornamental band, while connected therewith and forming a portion thereof is a widened inner and cylindro-conical portion h , its lower portion being received by the indrawn or mica sections s' , of the combustion section D, while its upper or top portion extends up within the drum section E, and is surmounted by the inverted
60 cone section G supported therefrom by the legs g , g , &c. The exterior or ornamental portion and the inner and cylindro-conical portion h , of the collar H, are united with the horizontal web sections h' , h' , &c., and are
65 cast with and form a part of the said collar. Between the web or horizontal sections h' , h' , &c., of the collar H, are apertures i , i , &c., the

apertures i , i , aforesaid being aligned with the indrawn or mica sections s' , s' , &c., of the combustion section D. The web or horizontal
70 section h' , h' , &c., of the collar H, are fitted upon and cover the vertical or ribbed section s , s , &c., of the combustion section D. Surmounting the drum section E, are the usual top collar and discharge dome F, of the usual
75 construction and k' , is the usual rack and pinion operating wick spindle for regulating the flame.

The operating of the stove to persons skilled in the art will be in the main apparent
80 from the foregoing description of its construction. The oil reservoir having been duly filled and the wick having been lighted, air will be supplied to the flame internally through the central draft passage c' , of the burner, distributing it between the walls of the collar c^6 ,
85 and the inner burner tube and between the flame spreading section n^2 , and the collar c^6 ; exteriorly the air passes upward and around the burner between the indrawn or neck portions s^3 , of the base top section a^2 , which opens
90 into the space above the burner and within the deflecting collar s^3 , therewith uniting with the air currents from the interior of the burner and together are discharged into the combustion section D. The air currents which
95 are received by the combustion section D, and the secondary air inlets i , i , &c., are intermingled as they approach the exit formed between the radiating or drum section E, and the inverted cone-section G. It will be evident that as the exterior air currents pass upward and over the highly heated surfaces of the mica sections s' , s' , &c., and unite with
100 the products of combustion from the combustion section D, between the highly heated surfaces of the cone section G, and the radiating or drum section E, until discharged from the top of the stove are subjected to extreme caloric.
110

Having set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an oil stove, the combination with a burner, of cylindrical oil founts lying parallel and spaced therefrom by an oil burner, an oil conduit uniting with the burner and connecting the said founts, one of the said founts being provided with an inlet aperture, the other with an indicating float, and braces connecting the ends of said founts, substantially
115 as specified.

2. In an oil stove in which the base constitutes two rectangular sections, the lower portion having a downwardly and outwardly
125 flaring bottom and its top adapted as a seat for an upper section; brackets or lugs extending inwardly and curved downwardly from near the top of said section; an upper section adapted to rest upon the lower section
130 and curved inwardly and upwardly and terminating in an annular neck; two cylindrical oil reservoirs connectively united by an oil conduit and braces, one of said reservoirs

being provided with an inlet filling orifice, the other having an oil indicating float; an annular burner centrally located between said reservoirs; an oil conduit connecting said tanks with burner; air passages encircling said oil reservoirs and burner between the said base sections; said burner adapted to extend up within the neck portion of said top base section and even with the top therewith and spaced therefrom by an annular air passage; the said oil reservoirs adapted to be seated upon the downwardly and inwardly curved brackets of the lower base section; the upper base section having integral lugs adapted to impinge upon the cylindrical oil reservoirs; said upper base section having orifices through which the oil filling and oil indicating mechanism may protrude; tightening bolts passing through the upper base section and connectively uniting with the lower base section for securing the parts aforesaid intact in combination, substantially as and for the purposes specified.

3. In an oil stove in which an annular burner or wick tube is centrally located between two parallel cylindrical oil reservoirs; said oil reservoirs being connectively engaged by connecting braces and an oil conduit, the said oil conduit connectively engaging at the side of said burner tube for the purpose of supplying the same with oil; an oil inlet entering one of said oil reservoirs and an oil indicating float connectively operative with an opposite oil reservoir from the one which the reservoirs are filled with oil.

4. In an oil stove in combination with a base and burner located therein, of a combustion chamber surmounting said base, said chamber constituting vertical non-illuminating sections and intermediate upwardly indrawn illuminating sections, the bottom consisting of a bowl shaped portion and having an annular and upwardly indrawn air deflecting collar, the said collar and combustion chamber registering with a corresponding seat of an upper base section, and pivotally connected therewith, substantially as set forth.

5. In an oil stove, in combination with a burner; a combustion chamber surrounding the upper end of the burner; a radiating drum surmounting the combustion chamber; an inverted cone-shaped diaphragm suitably supported within the radiating drum and spaced therefrom, the said drum arranged so that the exterior air will enter the same from between the combustion chamber and said drum, and the products of combustion at a

central lower portion, the products of combustion and exterior air commingling as they make their exit upward between, respectively the aforesaid diaphragm and drum.

6. In an oil stove in combination with a burner, a combustion chamber surrounding the upper portion of the burner; a radiating drum surmounting said combustion chamber; an inverted cone-shaped diaphragm supported within said drum and spaced therefrom; a perforated plate dividing the combustion chamber from the radiating drum, said plate constituting an outer ornamental portion and an inner cylindro-conical section; the said cylindro-conical section adapted to receive the products of combustion, the perforated portion adapted to receive cold air from the exterior the products of combustion and the cold air from the exterior entering the drum below the cone-shaped diaphragm, substantially as specified.

7. In an oil stove the combination of a base, a burner located therein; a combustion chamber surmounting said base and encircling the burner; said combustion chamber having an annular bowl shaped bottom; a centrally located upwardly curved and indrawn air deflecting collar adapted to form a seat upon an upper neck portion of the base section, the walls of the said combustion chamber being fluted, alternately formed recesses trending upward and inwardly toward the top thereof constituting mica sections, intermediate vertical sections or flutations constituting non-illuminating portions.

8. In an oil stove in combination with a base, an oil burner located therein; a combustion chamber surmounting said base and encircling the burner, said combustion chamber being fluted, alternating upwardly indrawn portions constituting mica sections, intermediate vertical flutations constituting non-illuminating sections; a heating drum surmounting said combustion chamber and spaced therefrom by a perforated collar, said perforated section registering with indrawn mica sections of the combustion chamber for the admission of exterior cold air to the drum, the blank sections of said collar registering with vertical fluted walls of the combustion chamber, substantially as and for the purposes hereinbefore set forth.

VICTOR E. RANDALL.

Witnesses:

C. F. RICKETT,
S. C. FRENCH.