J. P. HIGH & H. C. RATHBUN.

OIL BURNING STOVE.

APPLICATION FILED APR. 21, 1914.

1,160,894.

Patented Nov. 16, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

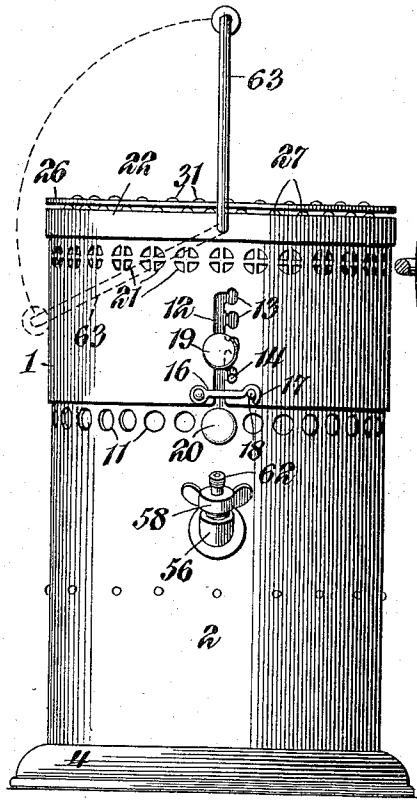


Fig. 3.

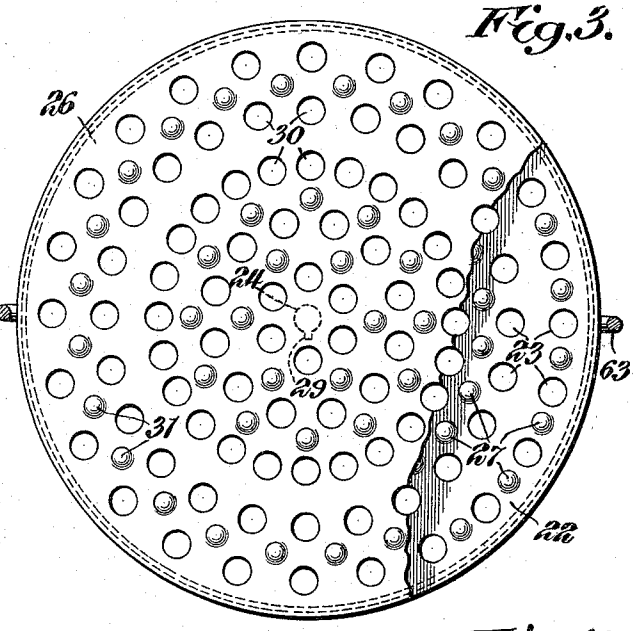


Fig. 4.

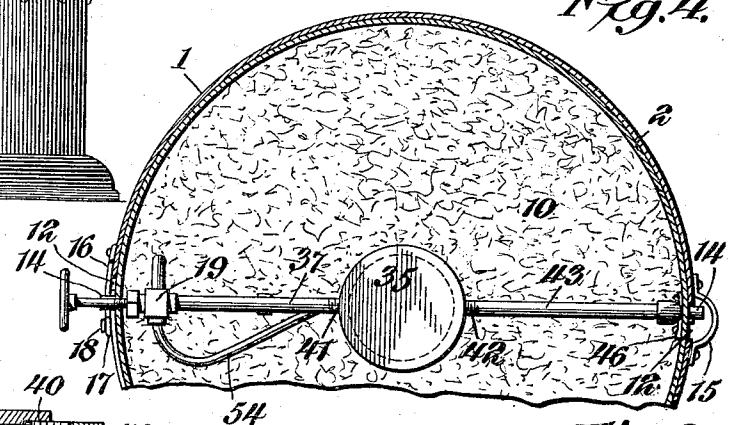


Fig. 8.

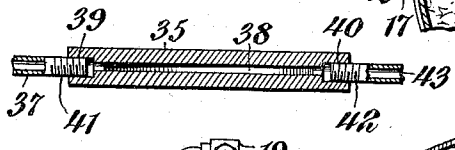


Fig. 9.

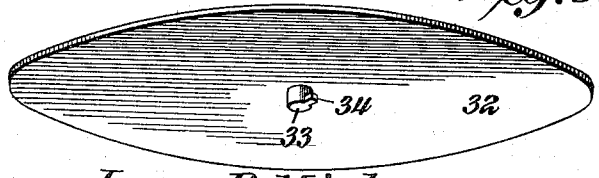
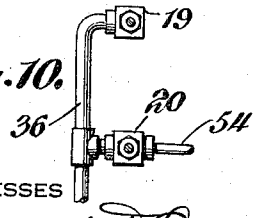


Fig. 10.



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2 SHEETS—SHEET 2.

Fig. 2.

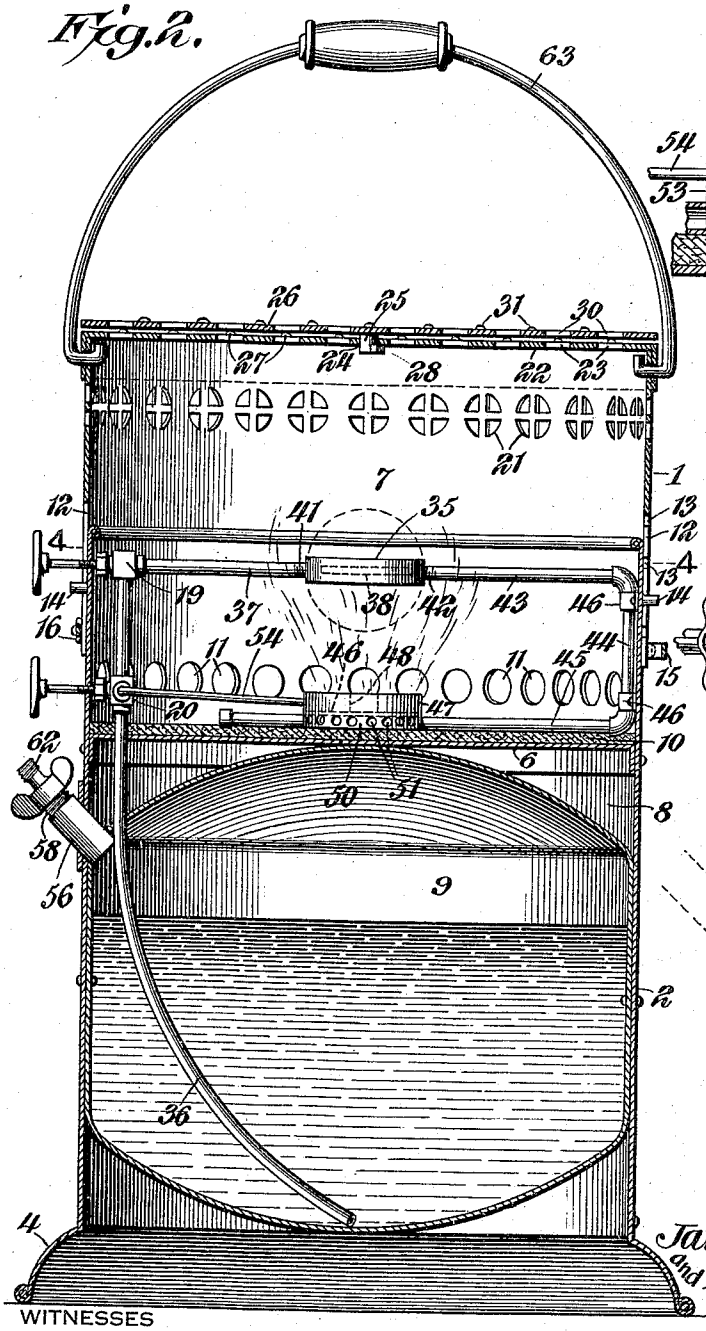


Fig. 5.

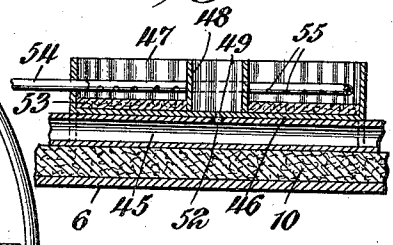


Fig. 6.

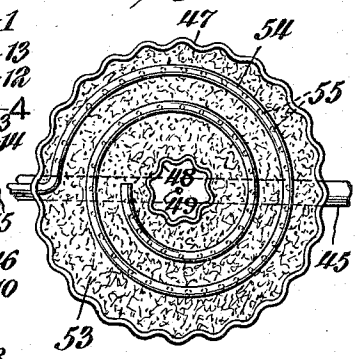
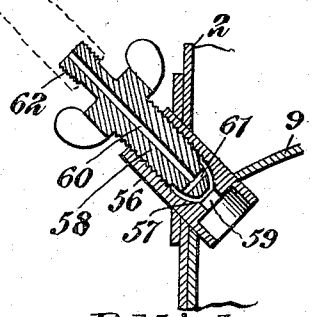


Fig. 7.



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UNITED STATES PATENT OFFICE.

JAMES P. HIGH AND HARRY C. RATHBUN, OF FAIRVIEW, OKLAHOMA.

OIL-BURNING STOVE.

1,160,894. Specification of Letters Patent. Patented Nov. 16, 1915.

Application filed April 21, 1914. Serial No. 833,398.

To all whom it may concern:

Be it known that we, JAMES P. HIGH and HARRY C. RATHBUN, citizens of the United States, residing at Fairview, in the county of Major and State of Oklahoma, have invented a new and useful Oil-Burning Stove, of which the following is a specification.

The invention relates to improvements in oil burning stoves.

The object of the present invention is to improve the construction of oil burning stoves and to provide a simple, safe, and practical heating and cooking stove, which will be free from soot and disagreeable odors, and adjustable to regulate the heat and the disposition thereof to adapt the stove for various cooking operations.

With these and other objects in view the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims hereto appended, it being understood that various changes in the form, size, proportions and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings: Figure 1 is a side elevation of an oil burning stove constructed in accordance with this invention. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a plan view partly broken away to show the top wall of the upper adjustable section of the casing. Fig. 4 is a horizontal sectional view on the line 4—4 of Fig. 2. Fig. 5 is an enlarged central vertical sectional view of the starting device. Fig. 6 is a plan view of the same. Fig. 7 is a detail sectional view illustrating the construction of the combined filling device and air valve. Fig. 8 is a sectional view of the adjustable generator and spreader. Fig. 9 is a detail view of the imperforate disk. Fig. 10 is a detail view illustrating the arrangement of the adjusting and controlling valves.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

In the accompanying drawings, in which is illustrated the preferred embodiment of the invention, the casing of the stove comprises in its construction upper and lower substantially cylindrical telescopic sections 1 and 2, constructed of sheet metal or other suitable material, and adjustable to vary the distance between the top of the stove and an interiorly arranged burner, whereby the heating effect may be varied to adapt the stove for different cooking operations. The lower section is provided at the lower end with an outwardly flared, downwardly extending flange 4, constituting the base of the stove casing. The lower section of the casing is provided with a horizontal partition 6 located at the upper portion of the lower section and dividing the same into an upper combustion chamber 7 and a lower compartment 8 for the reception of a tank 9 for containing oil or other liquid fuel. The tank is riveted or otherwise secured within the lower section 2 of the casing and it is supported above the floor or other supporting surface by a base flange 4. The horizontal partition 6, which is suitably secured at its periphery to the inner face of the vertical walls of the cylindrical lower section, is provided at its upper face with a lining 10 of asbestos or other suitable material, to prevent the heat from the burner affecting the contents of the tank 9. The lower section is provided in its upper portion above the horizontal partition 6 with an annular series of draft inlet apertures 11, which are located in substantially the plane of the top of the burner.

The upper section, which is slidable upwardly and downwardly on the exterior of the lower section, is provided with front and rear vertical slots 12 and has recesses or branches 13 extending horizontally from the slots and adapted to be engaged with lugs or projections 14 mounted on and extending horizontally from the lower section at the front and back thereof. The vertical slots 12 extend upwardly from the lower edge of the upper section, and the latter is provided at the rear slot with an outwardly bowed connecting strap or piece 15 riveted or otherwise secured at opposite sides of the rear slot and affording a rigid connection between the portions at opposite sides of the slot, and adapted to prevent the upper section from spreading. The outward bow of the connecting strap or piece enables the same to clear the horizontally projecting lug in the vertical adjustment of the upper section of the casing. The upper section is provided at the front with a latch 16 pivoted at one end at one side of the front slot

and extending across the same, and having a terminal hook-shaped portion 17 for engaging a lug or projection 18, located at the opposite side of the slot from that at which the latch is pivoted. The latch, which is adapted to prevent the upper section from spreading at the front, may be swung upwardly and rearwardly out of the way, so that exteriorly operable valves 19 and 20, which have stems extending through or in the vertical plane of the front slot, will not interfere with the vertical adjustment of the upper section.

The upper section is provided with upper lateral outlet openings 21 located a short distance below the top wall 22, which consists of a disk or plate suitably secured at its periphery to the vertical sides or walls of the upper section. The top 22 is provided with outlet openings 23, and it has a central opening 24 for the reception of a pivot 25 of an upper adjustable plate or disk 26. The top 22 of the upper casing is provided with exterior protuberances or projections 27, preferably formed by indenting the top 22 from the inner or lower face thereof, and adapted to support the upper adjustable plate 26 in spaced relation with the top 22 of the upper section. The central pivot 25, which is suitably secured to the upper adjustable plate, extends downwardly from the center thereof and is provided with a laterally extending lug or projection 28 adapted to be passed through a notch or recess 29 at one side of the central opening 24. After the lug has been passed through the notch or recess 29, the plate is partially rotated to carry the lug away from the said notch or recess. The top plate, which is detachably interlocked with the top of the upper section by the lug of the pivot and the notch or recess 29, is provided with openings 30 corresponding with the outlet openings 23 of the top 22, and adapted to be arranged completely or partially in register with the said openings 23 to control draft and the disposition of the heat. By adjusting the upper plate the heat may be permitted to pass directly through the openings 23 and 30, or be made to travel outwardly through the intervening space between the top and the adjustable disk or plate, toward the peripheries thereof. The upper adjustable plate is also provided with projections or protuberances 31, preferably formed by indenting the said upper plate from the lower face thereof, and adapted to space a cooking utensil or other receptacle from the upper face of the adjustable plate to permit the heat to pass beneath the said utensil. Also, cooking utensils and other objects to be heated may be placed directly upon the top of the stove by removing the upper adjustable plate. By raising and lowering the upper section of the casing and adjusting the upper disk or plate, the stove may be arranged for various cooking operations. Also, the adjustable top plate may be removed and an imperforate disk or plate 32 may be substituted for the same to adapt the stove for various cooking operations requiring an imperforate heating surface. The disk 32 is provided with a central pivot 33 adapted to be arranged in the central opening 24 of the top 22 and having a projecting lug 34 for engaging the under side of the said top 22. The lug 34 is adapted to be passed through the entrance notch or recess 29 in applying the disk 32 to the stove, and in removing it therefrom.

The oil contained within the tank is forced outwardly therefrom by air pressure, and is delivered to a combined generator and spreader 35 through a supply pipe 36, extending upwardly through the top of the tank and through the horizontal partition, and provided within the upper portion of the lower section of the casing with a horizontal branch 37, which is connected with the generator and spreader at one side thereof. The supply pipe 36 is located adjacent to the front of the casing, and the valve 19, which controls the flow of the oil or other liquid fuel to the generator, is located at the upper end of the supply pipe 36 and preferably connects the same with the horizontal branch 37.

The combined generator and spreader preferably consists of a relatively thin hollow disk forming a shallow interior chamber 38, and adapted to present a relatively large amount of heating surface to the liquid fuel for vaporizing the same. The combined generator and spreader is provided at opposite sides with right and left hand threaded openings 39 and 40, which receive right and left hand threaded terminals 41 and 42 of the branch 37 of the supply pipe, and an upper horizontal branch 43 of a pipe 44 adapted to conduct the vaporized fuel from the generator to the burner. The right and left hand threaded portions of the pipes enable the generator to be partially rotated and to be arranged either in a horizontal position, as shown in full lines in Fig. 2 of the drawings, or in a vertical position, as indicated in dotted lines in said figure. By this construction the generator is adapted to be arranged for spreading or flaring the flame of the burner to cause the outer peripheral portion of the top of the stove to be more or less intensely heated, or to permit the flame to pass directly upward at the center. When the generator is arranged edgewise, the flame will extend upward a greater height than when it is deflected and spread laterally by a horizontal arrangement of the generator. The pipe for conducting the vaporized fuel from the generator to the burner is approximately U-shaped, being composed of

the upper branch 43, a lower branch 45, and a vertical connecting portion which is secured to the inner face of the upper portion of the lower section of the casing at the rear side thereof by clips 46 or other suitable fastening means.

The lower branch 45, which constitutes a burner tube, is arranged upon the horizontal partition 6, and it extends through a starting device. The starting device consists of a horizontal bottom 46, a vertical outer wall 47, and an inner tube 48 extending upwardly from the bottom 46 and surrounding the central opening 49. The starting device is provided with a depending supporting flange 50 consisting of an extension of the outer wall 47 and provided with ventilating openings 51. The lower branch or burner tube 45 passes through the depending base or supporting flange 50 and extends to a point beyond the same, and it is provided with a relatively small jet aperture 52 registering with the central opening 49 of the starting device, and adapted to discharge vaporized fuel through the same and through the inner vertical tube 48, the vaporized fuel or gas igniting at a point between the jet aperture and the generator. The vertical connecting portion of the tube 44 is arranged at the back of the casing and the front terminal of the lower branch or burner tube 45 is closed by a cap or other suitable means.

The space between the outer wall of the starting device and the inner central tube or wall 48 constitutes a cup or receptacle for oil, which is adapted to be ignited for preliminarily heating the generator sufficiently to vaporize the oil. The outer wall 47 and the inner wall or tube 48 are corrugated, and the bottom of the starting cup is provided with a lining or cover 53 of asbestos or other absorbent non-combustible material, adapted to hold a quantity of oil. The oil from the supply pipe is conducted to the starting cup by a small tube 54, consisting of a hollow wire or other suitable material and connected at its outer end with the controlling valve 20 and coiled within the starting cup, as clearly shown in Fig. 6 of the drawings. The tube 54 extends through the outer wall 53 of the starting cup and the controlling valve 20 is located at the front of the casing and is connected with the supply pipe at a point below the regulating valve 19. The coiled portion of the tube 54 is provided at the under side with perforations 55 to permit the oil to flow into the starting cup and spread over and saturate the absorbent lining 53. After a quantity of fuel has been allowed to flow into the supporting cup, it is ignited, and the flame therefrom will heat the generator. The adjusting valve 19 is then opened to permit the fuel to flow into the generator, and the vaporized fuel therefrom will pass through the pipe 44 and be discharged at the jet aperture of the burner tube, being ignited by the flame from the starting cup. As soon as the fuel is vaporized and burns, the controlling valve 20 is closed to cut off the supply of fuel from the starting cup.

The stove is equipped with an inclined filling tube 56 extending through the lower section of the casing at the front thereof and piercing the upper portion of the tank, and provided at an intermediate point with a valve seat 57. The outer portion of the filling tube is interiorly threaded to receive a threaded plug 58, adapted to be screwed tightly against the valve seat to close the opening 59 thereof. The valve plug, which is provided with wings to enable it to be readily turned, has a central longitudinal bore 60 and is provided at the inner end thereof with a transverse passage 61 extending from the bore to opposite sides of the valve plug. The valve plug is also provided at its outer portion with a threaded tubular extension 62, adapted to be connected with an air pump or compressor, as indicated in dotted lines in Fig. 7 of the drawings, to enable air to be compressed within the tank for forcing the liquid fuel therefrom. The valve plug is removed from the filling tube when it is desired to supply the tank with a quantity of fuel, and after the oil has been poured into the tank, the valve plug is replaced and is arranged a sufficient distance from the seat to establish a communication between the interior of the tank and the transverse passage 61. This will enable the air to be forced into the tank, and after a sufficient amount of compressed air is introduced into the tank, the valve is seated, thereby closing both the opening 59 and the transverse air passage 61. The upper section of the casing is equipped with a hinged bail 63 having a suitable handle and adapted to permit the stove to be conveniently carried. The bail is adapted to swing below the top of the stove when in use.

What is claimed is:

1. A stove of the class described including a casing composed of upper and lower telescopic sections, the upper section being provided with slots, means operating in the slots for securing the upper section in its adjustment, a burner located within the casing, and a fuel supply pipe connected with the burner and having an interiorly arranged valve, said valve being provided with a stem extending through one of the said slots and having exterior operating means.

2. A stove of the class described including a casing comprising upper and lower telescopic sections, the upper section being provided with slots having lateral branches, lugs projecting from the lower section and

operable in the slots and adapted to engage the branches thereof to support the upper section at different elevations, a bowed strap fixed to the upper section and spanning one of the slots, a movable latch spanning the other slot and adapted to be carried away from the same, and a burner mounted within the lower section of the casing and having a valve stem extending through the slot at which the latch is arranged.

3. A stove of the class described including a casing comprising upper and lower sections, the lower section having a base portion at its lower end and provided at a point intermediate of its ends with a horizontal partition dividing the lower section into a lower tank receiving compartment and an upper combustion chamber, said casing being provided above the partition with lateral draft openings, a tank arranged within the said compartment, a burner mounted within the combustion chamber, and means for connecting the burner with the tank for supplying the former with fuel.

4. A stove of the class described including a casing comprising upper and lower sections, the upper section being provided with a top having draft openings and provided also with exterior protuberances, an adjustable plate mounted upon the top of the casing and having openings adapted to be carried into and out of register with the draft openings, said adjustable plate being supported upon and spaced from the top of the casing by the said protuberances, which are located between the adjustable plate and the top of the casing.

5. A stove of the class described including a casing comprising upper and lower telescopic sections, the lower section being provided at an intermediate point with a partition dividing the casing into a lower tank receiving compartment and an upper combustion chamber, said lower section having draft inlet apertures at the lower portion of the combustion chamber, and the upper section being provided with lateral apertures at the upper portion of the combustion chamber, a tank located within the said compartment, a burner mounted within the combustion chamber, and pipe connections between the tank and the burner.

6. A stove of the class described, comprising a casing formed of upper and lower sections telescoping one within the other and having means for holding the same in proper relation, the upper section being provided with a stove top and draft openings in the sides beneath said top, the lower section having a transverse solid partition dividing the lower section into a tank-receiving compartment and a combustion chamber, a fuel tank arranged within said compartment, a burner located within the combustion chamber, pipe connections between the tank and said burner, a non-conducting lining provided for said partition, and draft openings provided in the combustion chamber of the lower section.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

JAMES P. HIGH.
HARRY C. RATHBUN.

Witnesses:
F. A. PERKINS,
J. S. BERGTHOLD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."