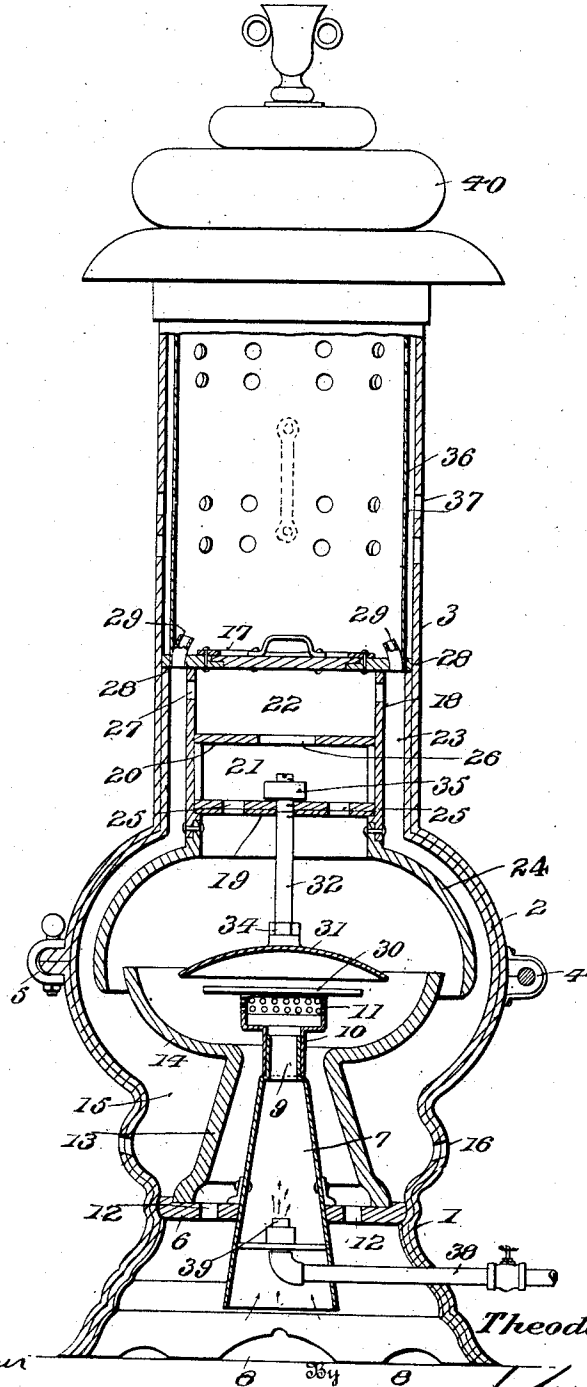


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GAS STOVE.

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Witnesses

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# UNITED STATES PATENT OFFICE.

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## GAS-STOVE.

No. 906,998.

Specification of Letters Patent.

Patented Dec. 15, 1908.

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*To all whom it may concern:*

Be it known that I, THEODORE BOLLIN, of Ashland, in the county of Boyd and State of Kentucky, 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 appertains to make and use the same.

This invention relates to an improvement in gas-stoves of the type designed primarily for heating purposes, and is more particularly directed to a construction tending to the complete combustion of the gas and the avoidance thereby of the manifest disadvantage of the escape of a portion of the gas from the stove in unconsumed condition.

The main object of the present invention is gained by the use of a plurality of retort-disks and the arrangement of the air inlets in such manner that a strong current is engendered, and utilized to direct the escaping products of gas against the retort-disks, with the effect to thoroughly consume such product.

The invention in the preferred embodiment of details will be described in the following specification, reference being had to the accompanying drawing, in which the figure is a vertical section, partly in elevation, of a stove constructed in accordance with my invention.

The stove of the present invention is of metallic construction and includes a base 1, body 2, and drum 3, the body being preferably divided transversely and the sections thus provided connected by a hinge joint 4, and a diametrically opposed lock or catch 5, of appropriate type.

The base 1, which is of flaring formation is provided about centrally of its height with a division plate 6, formed with a central opening in which is snugly fitted an open end mixing cone 7, which extends above and below the plate. The lower or larger end of the cone terminates just above the lower edge of the base, and is fed with air through openings 8, formed by cutting the lower edge of the base at intervals, while the upper end is circumferentially reduced and cylindrically projected at 9, to receive and support the burner proper.

The burner comprises a sleeve 10, fitting the projection 9, of the mixer and carrying

an enlarged cylindrical body 11, at the upper end. The vertical wall of the body 11, is perforated for the passage of the gas and ignition occurs at this point.

The division plate 6, beyond the mixing cone is formed with an annular series of openings 12, and with this exception the plate is solid. Secured upon the plate 6, beyond the openings 12, relative to the mixer, is a deflector 13, including a truncated cone shaped lower section projected in spaced parallel relation to the wall of the mixer and terminating below the burner, where it emerges into the upper section 14, of flaring disk-shape, which lies wholly within the body 2, with the upper open end extending above the burner.

The chamber 15, between the deflector 13 and the wall of the base is open to the atmosphere through a series of openings 16, formed in the wall of the base above the division plate 6, so that the spaces between deflector and mixer and the deflector and base are closed against each other so far as the admission of air is concerned.

The lower portion of the drum is provided with a transverse supporting plate 17, secured to the wall of the drum, and carrying a depending cylindrical wall 18, closed at the bottom by a plate 19, and transversely divided interiorly by a partition 20, the formation providing two independent heat boxes 21 and 22 arranged in superimposed relation. The exterior diameter of the wall 18, is less than the interior diameter of the drum, so that with the wall 18, in place, an annular space or chamber 23, surrounds the heat boxes, as clearly shown.

From the lower edge of the wall 18, depends a dividing shell 24, of flaring shape, which projects in approximate parallelism into the wall of the body and terminates slightly below the upper edge of the deflector and about mid distance between the deflector and body wall. By the dividing shell the air finding it way through chamber 15 will be in part directed within the shell and in part beyond the shell into the space 23.

The plate 19 forming the bottom of the heat box 21, is formed with a series of openings 25, while the partition 20, forming the bottom of the box 22, is formed with a central opening 26. The wall 18, within the plane of the box 22, is formed near the supporting plate with openings 27, establishing communication between the box 22 and the

chamber 23. The plate 17, in alinement with the chamber 23, is formed with openings 28, in which are fitted pipe sections 29, projecting into the drum above the plate 17, and preferably inclined toward the center of the drum. The section of the stove below the plate 17, is thus in communication with the drum only through the pipe-sections 29, and the heated products passing through the heat boxes must follow the comparatively tortuous course through the openings 25, the opening 26, and the openings 27, before reaching the pipe sections.

The top of the burner 11, is in the form of a flat disk 30, of greater diameter than the body of the burner and provides one of the retort disks of the stove. A second retort disk 31, of somewhat greater diameter than that of the disk 30, and of concavo-convex shape in section, is arranged above the disk 30, being supported by a rod 32, threaded into an opening 33, is the bottom plate 19, of the lower heat box. The upper retort disk is thus vertically adjustable relative to the lower retort disk, the rod 32, adjacent the lower disk being enlarged and of angular shape in section, as at 34, for convenience in adjusting the disk, while the upper end of the rod has a stop-nut 35, to prevent undue lowering of the disk. The retort disks are preferably of copper or similar soft metal, which under the influence of the heat from the burner becomes incandescent to an appreciable extent to provide for consuming the otherwise unconsumed particles of the gas. The walls of the oven 3, are of double thickness, the inner wall 36, being spaced from the outer wall to permit a circulation of the heated air, both walls being perforated at 37, to provide for the desired escape of the heated air into the room.

The gas is admitted to the mixer 7, through a valved supply pipe 38, led through the wall of the base and through the mixer below the division plate 6. Within the mixer the pipe 38, terminates in a tip 39, through which the gas is delivered directly into the mixer. The top of the drum is closed by an ornamental top 40, usual in stoves of this character.

In use gas admitted to the mixer, is delivered to the burner 11, drawing through the bottom of the mixer sufficient air for initial combustion. The heat of the flame affects the retort disks as noted at the same time so heating the dead air within the body as to draw air through the openings 16 and 12. This air rising through chamber 15, is divided by the shell 24, part passing into the vicinity of the retort disks and part rising through chamber 23; while that flowing through the openings 12, is led directly to the burner. A powerful blast is created by the air passing thus into the body, which tends to force all particles of the air in the

body and within the shell 24, into more or less intimate contact with the retort disks, with the effect to thoroughly consume all unconsumed particles of gas. This effect is further induced by the comparatively restricted escape of the air within the shell through the heat boxes as previously explained. The air rising through the heat boxes is thus highly heated and passing through the openings 27, chamber 23, and pipe sections 29, finds its way into the drum for distribution. The air rising beyond the shell 24, directly into the chamber 23 is also heated by the radiation of the adjacent stove parts, and increases the supply within the drum, the comparatively unrestricted flow of the latter current tending to maintain the desired circulation and oxygenate the air directly contacting with the burner and retort disks. The disks are adjustable to vary the space between them in accordance with the supply of gas admitted through the top 39, the disks being separated as the supply of fuel is increased to provide for the passage of a greater quantity of air between the disks in a given time, for obvious reasons.

The construction described tends to a complete consumption of the gas within the body of the stove, and insures an even steady supply of heated air entirely free of gaseous odor.

What I claim is:

1. A gas stove having a base section, a mixer supported in and spaced from the sides of the base section, a burner carried by the mixer, a fuel supply leading to the mixer, and a deflector in the space between the mixer and base section, said deflector being flared outwardly from a point below the burner and opening at its upper end above the latter, the space between the deflector and base being in communication with the atmosphere.

2. A gas-stove having a base, a body supported above the base, a division plate arranged in the base, a mixer supported in the division plate and opening above and below the same, a burner supported by the mixer, retort disks arranged above the burner, means for dividing the space between the mixer and the base wall into two distinct chambers, the outermost chamber being in communication with the atmosphere through openings formed in the base wall, the innermost chamber communicating with the atmosphere through openings formed in the division plate, and a drum arranged above the body.

3. A gas-stove having a base, a body, and a drum, a burner arranged in the body, a mixer supported in the base and communicating with the burner, a deflector encircling and spaced from the mixer, means for admitting air on each side of the deflector, the upper end of the deflector terminating above

the burner, heat boxes arranged in the drum, and a dividing shell depending from the heat boxes and terminating below and beyond the upper edge of the deflector.

5 4. A gas-stove having a base, a body, and a drum, a burner arranged in the body, a mixer supported in the base and communicating with the burner, a deflector encircling and spaced from the mixer, means for admitting air on each side of the deflector, the  
10 upper end of the deflector terminating above the burner, heat boxes arranged in the drum, said heat boxes being of less exterior diameter than the interior diameter of the drum  
15 to provide a chamber beyond said boxes.

5 5. A gas-stove having a base, a body, and a drum, a burner arranged in the body, a mixer supported in the base and communicating with the burner, a deflector encircling and spaced from the mixer, means for admitting air on each side of the deflector, the  
20 upper end of the deflector terminating above the burner, heat boxes arranged in the drum, said boxes being arranged in superimposed relation and closed against direct communication with the drum.  
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6. A gas-stove having a base, a body, and a drum, a burner arranged in the body, a mixer supported in the base and communicating with the burner, a deflector encircling and spaced from the mixer, means for ad-  
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mitting air on each side of the deflector, the upper end of the deflector terminating above the burner, heat boxes arranged in the drum, a chamber arranged between said boxes and the drum wall, a plate formed with openings and closing the upper end of the chamber, the openings forming communication with the chamber adjacent the heat boxes, and the drum.  
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7. A gas-stove including a base, a body, and a drum, a mixer supported in the base, a fuel supply leading to the mixer, a burner supported by the mixer, a deflector surrounding the mixer and spaced therefrom, independent air supply openings for the spaces within and beyond the deflector, retort disks arranged above the burner and within the upper edge of the deflector, heat boxes arranged within the drum and spaced from the wall thereof, a plate closing the space beyond the boxes and formed with openings, and a dividing shell depending from the boxes and terminating below and beyond the upper edge of the deflector.  
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In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

THEODORE BOLLIN.

Witnesses:

F. W. STEINBAUER,  
C. S. GAMMON.