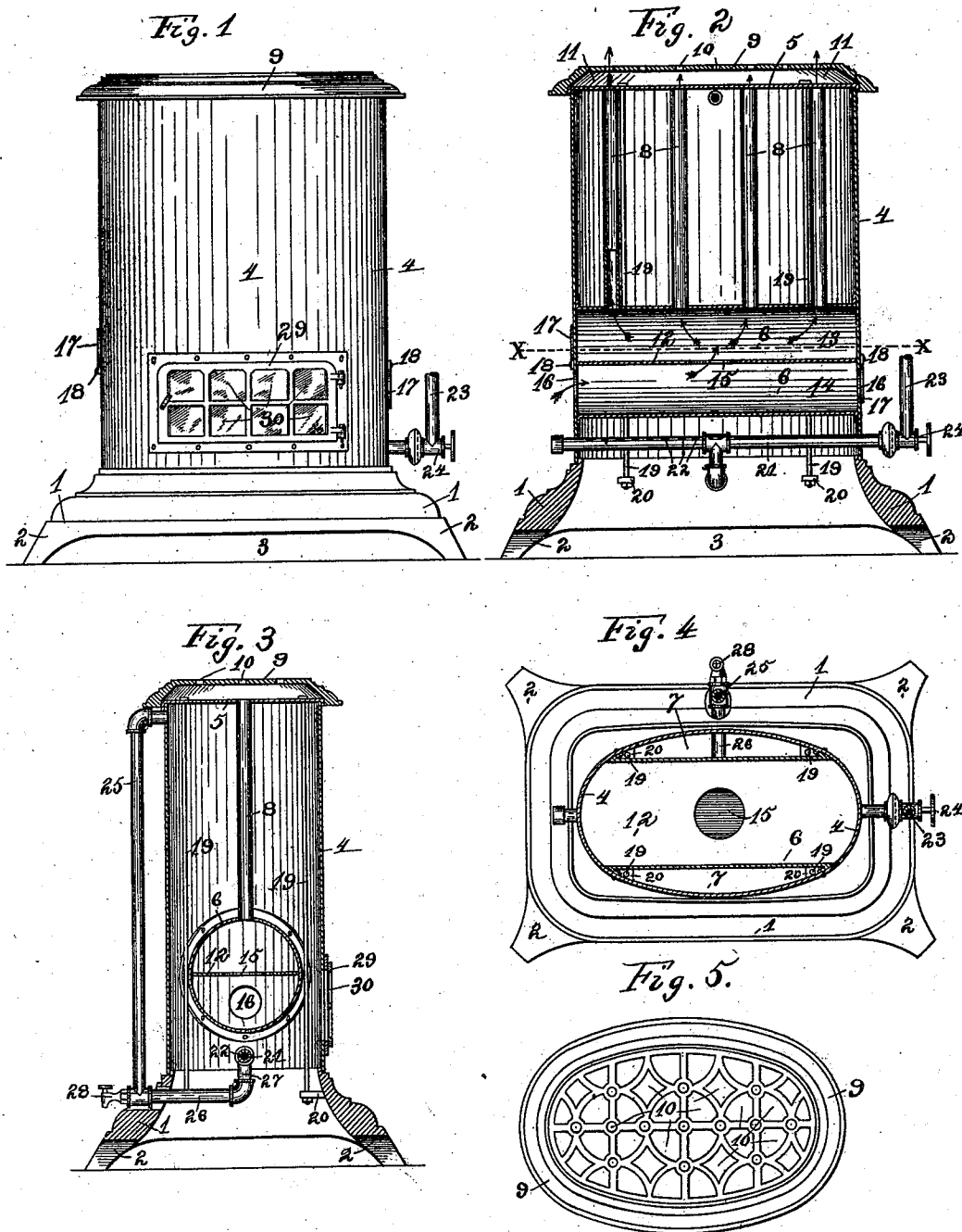


(No Model.)

J. W. COWPERTHWAIT.  
PARLOR GAS FURNACE.

No. 502,658.

Patented Aug. 1, 1893.



Witnesses=  
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# UNITED STATES PATENT OFFICE,

JOHN W. COWPERTHWAIT, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO HENRY MARTINI, OF SAME PLACE.

## PARLOR GAS-FURNACE.

SPECIFICATION forming part of Letters Patent No. 502,658, dated August 1, 1893.

Application filed April 17, 1893. Serial No. 470,629. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN WILLIAM COWPERTHWAIT, of the city of St. Louis and State of Missouri, have invented certain new and  
5 useful Improvements in Parlor Gas-Furnaces, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improved "gas  
10 stove" and consists in the novel construction, combination and arrangement of parts hereinafter described and designated in the claims.

The object of my invention is to provide an  
15 improved stove especially for use in parlors and drawing rooms, which shall be as near as possible devoid of objectionable odors during use; which shall be simple in construction, of reasonable cost and efficient in operation.

In the drawings: Figure 1 is a front side  
20 elevation of a stove embodying my invention. Fig. 2 is a sectional side elevation of same. Fig. 3 is a sectional end elevation of same. Fig. 4 is a sectional plan view taken on line  
25 X-X in Fig. 2. Fig. 5 is a plan view of a perforated and ornamental top-plate detached.

1 indicates the base of the stove, which is preferably cast integral with suitable supporting legs 2 with closed sides and ends, and  
30 open upper and lower sides, so as to form a space 3 beneath said body. A hollow base is thus formed.

4 indicates the body of the stove preferably  
35 made of thin sheet metal. It may be circular, rectangular or oval in cross-section. The lower end of the body 4 is open and is secured upon the base 1 in a manner presently described. The upper end of the body 4 is closed  
40 by a head 5.

Mounted within the body 4 at a point adjacent its lower open end is a heating cylinder or drum 6, extending in a horizontal direction from end to end of the stove, with its  
45 body intermediate of its ends separated from said stove body so as to form a passage 7 upon each side of said cylinder or drum.

A series of vertical tubes 8 are located within the body 4 and have their lower ends  
50 connected to the upper side of the cylinder or drum 6 and their upper ends connected to

the head 5 of the stove, said upper ends passing through suitable apertures or openings in said head.

An ornamental top 9 having a series of openings or perforations 10 is mounted upon the  
55 stove above the head 5, so as to form a space 11 between said head and said top.

The interiors of the tubes 8 are in communication at their lower ends with the interior  
60 of the cylinder or drum 6 and at their upper ends with the space 11.

Within the cylinder or drum 6 a horizontal partition 12 is mounted so as to divide  
65 said cylinder and drum into an upper chamber 13 and a lower chamber 14. This partition is provided at a point about midway of its length with an opening or passage 15, by means of which the upper and lower chambers are placed in communication.

An inlet opening 16 for cold air is formed in each end of the stove opposite the ends of the lower chamber 14 of the cylinder or drum, and said opening communicates with the interior of the said chamber.

Suitable dampers or valves 17 are pivoted to the body of the stove at 18, adjacent the inlet openings 16, so as to swing downward and close said openings and swing upward to  
70 uncover the same.

19 indicates vertical stay rods the upper ends of which are connected to the head 5 and the lower ends of which engage suitable perforated lugs or ears 20 projecting from the base 1, upon the interior of same, for the purpose of securing said base, said head, and the body of the stove in proper relative positions.

A horizontal burner 21 extends beneath the lower chamber 14 of the cylinder or drum 6, parallel to the under surface of said chamber.  
75 The ends of this burner project through the body 4. This burner may be of any known construction, preferably having a series of small apertures 22 formed in its side which is next adjacent the chamber 14. This burner is preferably composed of a tube with the apertures 22 communicating with the interior thereof.

23 indicates a pipe for the supply of gas to said burner. This pipe is connected to a suitable valve 24, and this valve in turn is connected to the burner of the stove.

The top 9 is loosely mounted upon the head 5 of the stove, so that it may be readily detached during use of the stove for cooking and other purposes, in which a utensil is desired to be placed in direct contact with the head 5.

25 indicates a pipe or tube, the interior of which is placed in communication with the interior of the body 4 at a point closely adjacent the upper end of said body, and which extends downward and is connected to a horizontal pipe 26, at one end thereof. The end of the horizontal pipe 26 which is opposite the end which is connected to the pipe 25 is connected to a short vertical pipe 27, and this short vertical pipe connects with the interior of the tubular burner 21, preferably at a point about midway of the length of said burner.

28 indicates a valve or faucet, connected to the lower end of the pipe 25, for a purpose hereinafter mentioned.

The operation is as follows: It is well known that ordinary gas and vapor stoves during use emit or produce an objectionable odor, to such a degree as to render such stoves almost unfit for use in parlors and drawing rooms. This objectionable odor, is caused, as I have discovered by practical experiment, by the discharge within the room of unconsumed particles of fluid or liquid fuel used in the stove. Portions of the gas are discharged from the burners of such stoves in an unconsumed state and are disseminated in the air of the room in such unconsumed state.

These objectionable odors are not present in any appreciable degree during the use of my improved stove, for the following reasons: Gas being supplied under suitable pressure through the supply pipe 23, passes to the regulating valve 24 and thereby has its pressure greatly reduced and enters the burner 21 and is discharged slowly through the small apertures 22 in said burner. Upon applying a flame to the small streams of gas issuing through said apertures the burner will be lighted, and the flames thereof will pass upward coming in contact with the under surface of the lower chamber 14, and the products of combustion passing upward around

and in contact with the cylinder or drum 6 and around the exterior of the tubes or pipes 8 contained within the body 4. The only exit for the products of combustion is at the extreme end of the body 4 by way of the pipe 25, and the said products of combustion (at least those which are unconsumed) pass out of said body through said pipe or tube 25, downward into the horizontal pipe 26 and thence upward through the pipe 27 into the burner 21 and out of said burner through the apertures 22. Said unconsumed products of combustion are thus mingled with the incoming gas from the supply pipe 23, while in said burner, and are discharged with a new supply of gas and pass upward as before and so on until such unconsumed portions are consumed. This construction prevents the dis-

charge of unconsumed portions of the fuel into the room, and so prevents the discharge of objectionable odors into the room. The reason of this is that the heated products of combustion rise in the manner before stated and pass to the upper end of the body 4 of the stove, where they remain a length of time until their temperature falls, and then they pass outward through the pipe 25 and downward in the manner before stated. The upward pressure of the hot products of combustion in the body 4 is sufficient to overcome the very slight pressure of gas in the burner 21, so that there is no danger of the fresh fuel in the pipe 23 passing upward through the pipe 25, as I have found by practical use and operation of the improved stove.

During operation a certain quantity of liquid refuse collects at the lower end of the pipe 25 and in a horizontal pipe 26, and for the purpose of drawing off this liquid, the valve or faucet 28 may be opened from time to time, as may be required. This refuse is formed by the condensation of the unconsumed products of combustion in the pipes 25 and 26 said pipes being comparatively cool, located as they are upon the exterior of the stove and some distance therefrom.

Cold air enters the stove near the floor, through the inlet openings 16, is heated in the lower chamber 14, passes upward through the opening 15 in the partition 12 into the upper chamber 13, thence passes upward through the tubes 8 into the space 11 in the top of the stove, and thence upward through the perforations or openings 10 in the top, and out into the room. When it is desired to partly cut off or decrease the supply of cold air to the stove, the dampers or pivoted plates 17 are moved downward until they cover to a more or less degree the inlet opening 15.

When it is desired to gain access to the cylinder or drum 6 and the burner 21, such access may be had by opening the door 29, which is hinged to the front of the body 4 adjacent the lower end of said body. This door is provided with mica panels 30, whereby a view of the interior of the stove may be had without opening said door.

I have found that the unconsumed portions of fuel and the unconsumed portions of the products of combustion, pass upward around the cylinder or drum 6, through the passages 7, and gather or congregate in the space at the upper end of the body 4 of the stove.

From the above it will be seen that I have provided an improved gas or vapor stove having a body, a burner located at the lower portion of said body, passages leading from said burner upward in said body, by means of which the unconsumed fluid fuel discharged by said burner may pass upward, while heated, to the closed upper portion of said body, and a passage or pipe connecting the interior of said upper portion of said body with the interior of said burner, and located exterior of,

and separated a distance from, said body, by means of which said pipe or passage said unconsumed fluid fuel is forced out of said upper portion of the body into said pipe or passage, where its temperature is considerably lowered, and by means of which said fuel is passed downward in a continuous stream and discharged into said burner and mingled with a fresh supply of fuel in the burner, and again discharged by the burner, passed upward again, and so on until all of the combustible elements of said unconsumed fuel are consumed within the stove, instead of being discharged and mingled with the air of the room.

What I claim is—

1. The improved gas or vapor stove, constructed with a base 1 having a vertical passage therein, a body 4 having its upper end closed by a head 5 and its lower end open and mounted upon said base with its open end in communication with the passage in the base, a horizontal burner 21, located at the lower portion of said body and provided with apertures 22 for discharging fuel upward into said body, a valve 24 connected to said burner to regulate the supply of fuel thereto, a vertical pipe 25, the interior of which communicates with the interior of the upper portion of the body 4, said pipe being located upon the exterior of and separated a distance from said body, a horizontal pipe 26 having one end connected to the lower end of said pipe 25 and its opposite end connected to said burner at the base of the stove, and a valve or faucet 28 applied to drain said pipes, substantially as herein specified.

2. The improved gas or vapor stove, constructed with a base 1, which is hollow and provided with a space 3 beneath it, a vertical body 4 having its lower end open and mounted upon said base, a head 5 mounted upon the

upper end of said body, a heating cylinder or drum 6 mounted within the body 4 at a point adjacent its lower open end and extending in a horizontal direction from end to end of the stove with its body intermediate of its ends separated from said body to form a passage 7 upon each side of said cylinder or drum, a series of tubes 8 located vertically within said body with their lower ends connected to said cylinder or drum and their upper ends connected to said head 5, the interior of said tubes being in communication with said cylinder or drum, an inlet opening 16 for cold air formed in the stove opposite one end of said cylinder or drum and communicating with the interior thereof, means for partly closing said opening, and a burner 21 located in the base of the stove beneath the said cylinder or drum, substantially as herein specified.

3. The improved gas or vapor stove constructed with a vertical body 4, a cylinder or drum 6 mounted in said body and extending across same horizontally, a horizontal partition 12 located in said drum or cylinder and dividing same into an upper chamber 13 and a lower chamber 14, said partition having an opening 15 therein about midway of its length by means of which the upper and lower chambers are placed in communication, an inlet opening 16 for cold air formed in the body of the stove opposite each of the ends of the lower chamber and communicating therewith, means for closing said openings, and a burner located beneath the lower chamber 14 in said body, substantially as herein specified.

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

JOHN W. COWPERTHWAIT.

Witnesses:

E. E. LONGAN,  
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