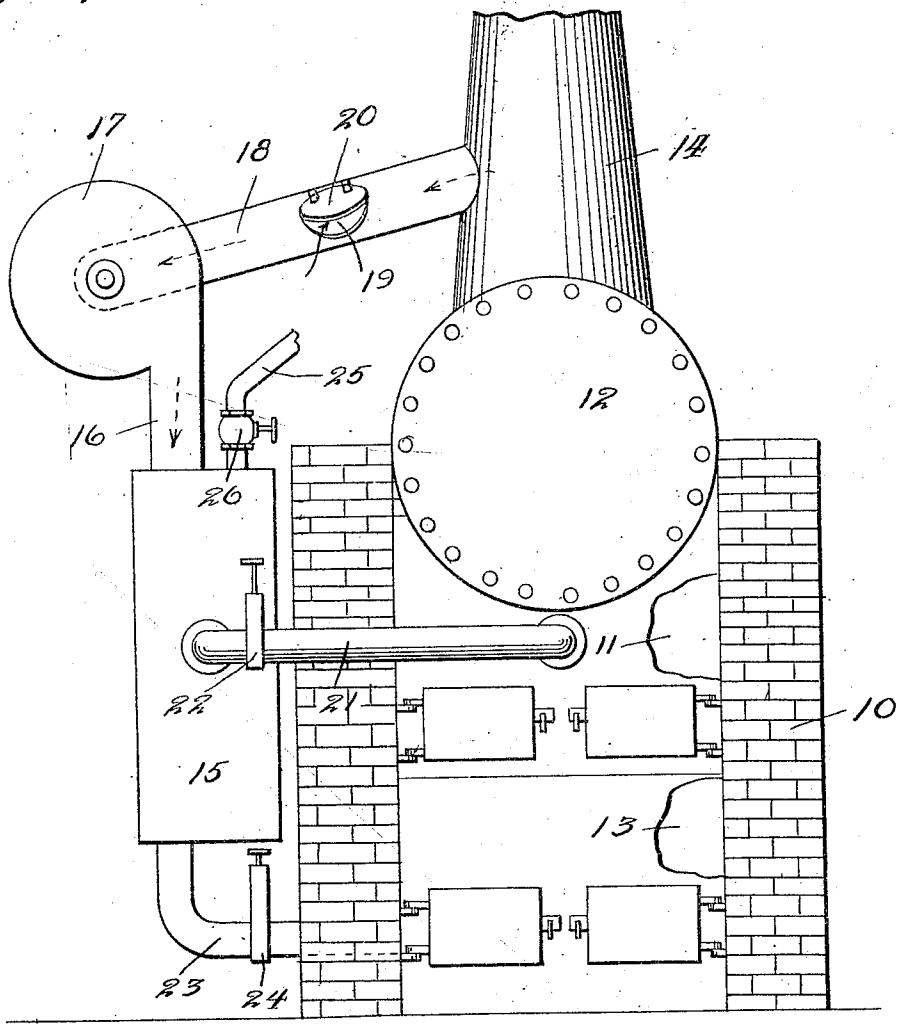
C. W. JOHNS.

SMOKE CONSUMER.

APPLICATION FILED APR. 4, 1912.

1,049,100. Patented Dec. 31, 1912



Witnesses
J. Milton Yeates
Charles V. Wilson

Inventor
C. Wesley Johns

By Chas. A. Briscoe
Attorney

UNITED STATES PATENT OFFICE.

CHARLES W. JOHNS, OF JERSEYVILLE, ILLINOIS.

SMOKE-CONSUMER.

1,049,100. Specification of Letters Patent. Patented Dec. 31, 1912.

Application filed April 4, 1912. Serial No. 688,451.

To all whom it may concern:

Be it known that I, CHARLES W. JOHNS, a citizen of the United States, residing at Jerseyville, in the county of Jersey and State of Illinois, have invented certain new and useful Improvements in Smoke-Consumers, of which the following is a specification.

This invention relates to smoke consumers and has for its object to provide an arrangement whereby the carbonaceous matter, smoke gases, etc., passing from the stack of a furnace may be accumulated in such a manner that the gases will be re-fed to the furnace and entirely consumed; thus increasing the amount of heat produced.

It has been found, and is a well laid principle that the greater part of the heat in coal and other fuel is caused by the burning of gases, and it is also a well known principle that a portion of these gases escape through flues and into the stack. Under these circumstances, these gases which would increase the heat generated within the furnace are lost. By the present invention, these gases are accumulated along with the smoke and carbon being admitted to the furnace and subjecting it to a process which thoroughly separates all the smoke, carbon, etc., and feeds the same to the fire box in such a manner that it may be burned. The utility of this invention greatly increases the amount of heat obtained from each unit of fuel and thus necessarily reduces the amount of fuel now required to produce a given amount of heat.

A still further object of the present invention is to provide an automatic means whereby the carbon and other materials accumulated from the stack may be fed into the ash pit of the furnace. In other words, the present invention applies the principle that thorough combustion eliminates all visible smoke, thus eliminating not only the smoke but the damage which is usually resultant therefrom.

With the above and other objects in view, this invention consists in the combination, construction, and arrangement of parts, all as hereinafter described, illustrated and claimed, wherein:—the figure illustrates a front elevation of the furnace, illustrating the present invention applied thereto.

Referring more particularly to the drawings, 10 indicates a furnace provided with a fire box 11 over which is superposed a boiler 12 and under which is located an ash pit 13, said fire box opening by suitable flues into the stack 14. An accumulation tank or receptacle 15 is located upon one side of the furnace 10 and is connected at its upper terminal with an inlet or feed pipe 16, said feed pipe coöperating with the suction fan or blower 17, adapted to draw the smoke, carbon, etc., to the feed pipe 16. This fan is connected by a pipe 18 to the stack, through which a suction is exerted, tending to draw the smoke, carbon gases, etc., from said stack to the fan, by means of which it is delivered to the feed pipe 16. A supply of fresh air is admitted into the pipe 18 by means of a vent 19 covered by a closure 20, by means of which the supply of air is regulated. A pipe 21 extends from the accumulation tank 15 to the fire box 11 of the furnace 10, said pipe being provided with a gate valve, which is adapted to close said pipe when desired. It will be understood that the gases in the accumulation tank 15 will be located adjacent to the upper terminal thereof, and hence as the pipe 21 enters said tank at a position centrally of the height thereof, the gases in the top of the tank will pass from said tank through the pipe 21 into the fire box 11, where they will be burned as heretofore described. An outlet pipe 23, provided with a gate valve 24 therein, connects the lower terminal of the accumulation tank 15 with the ash pit 13 of the furnace 10. This pipe is to transfer or convey the accumulated carbon or other foreign matter in the bottom of the tank to the ash pit, as heretofore described.

25 indicates a steam pipe connected with the tank 15 at its upper terminal, said pipe being provided with a globe valve 26 to regulate the flow of steam into said tank. By the provision of the steam pipe I am enabled to form a combustible mixture with the discharge products of combustion that is exceedingly inflammable and when conveyed back into the furnace will cause an intense heat.

Having thus fully described my invention, what I claim as new and desire to secure by U. S. Letters Patent, is:—

The combination with a furnace comprising a boiler, smokestack, fire box, and ash pit, of a rectangular accumulation tank laterally of said furnace, an obliquely and

downwardly inclined pipe leading from said smokestack and vertically entering the top of said tank, a rotary fan in said pipe adjacent to said tank adapted to force smoke from the smokestack into said tank, a steam pipe from said boiler connected vertically to the top of said tank introducing steam thereto parallel to the descending column of smoke from the stack to transform said smoke in part into carbon monoxid, a pipe laterally of said tank opening into said fire box to convey inflammable gases from said tank to said fire box, and a pipe from the bottom of said tank to convey precipitated soot from said tank to said ash pit.

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

CHARLES W. JOHNS.

Witnesses:
J. G. MARSTON,
W. S. CORY.