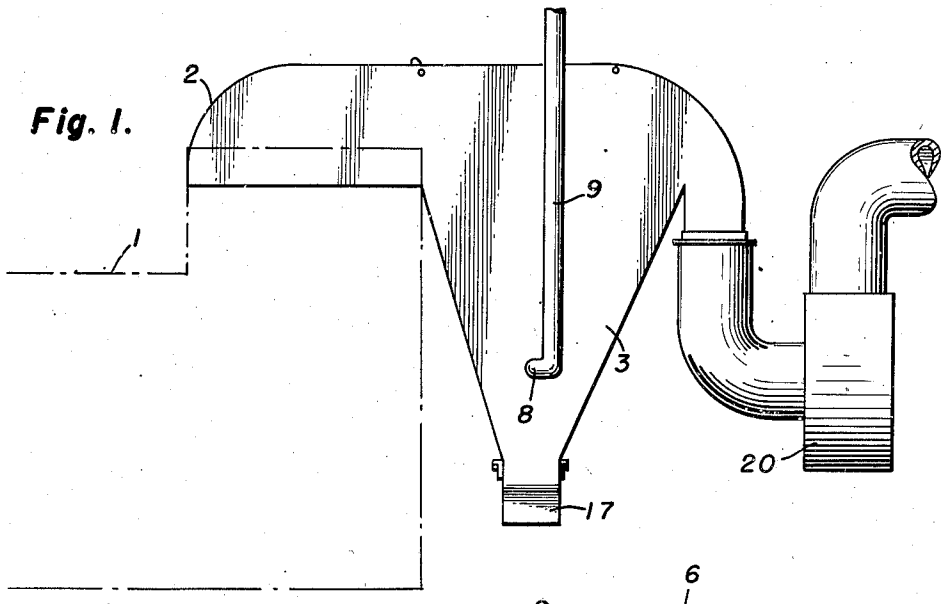
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SMOKE CONSUMING DEVICE

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Fig. 1.



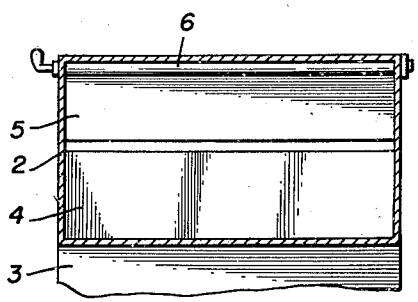


Fig. 5.

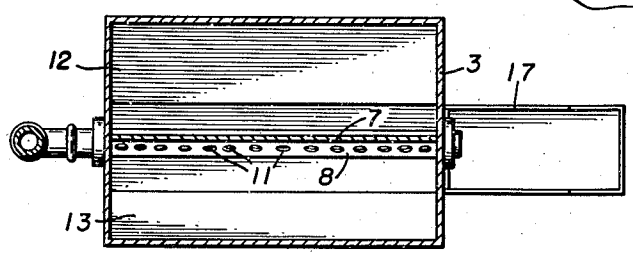


Fig. 4.

Inventor

Willis Veazey

By Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

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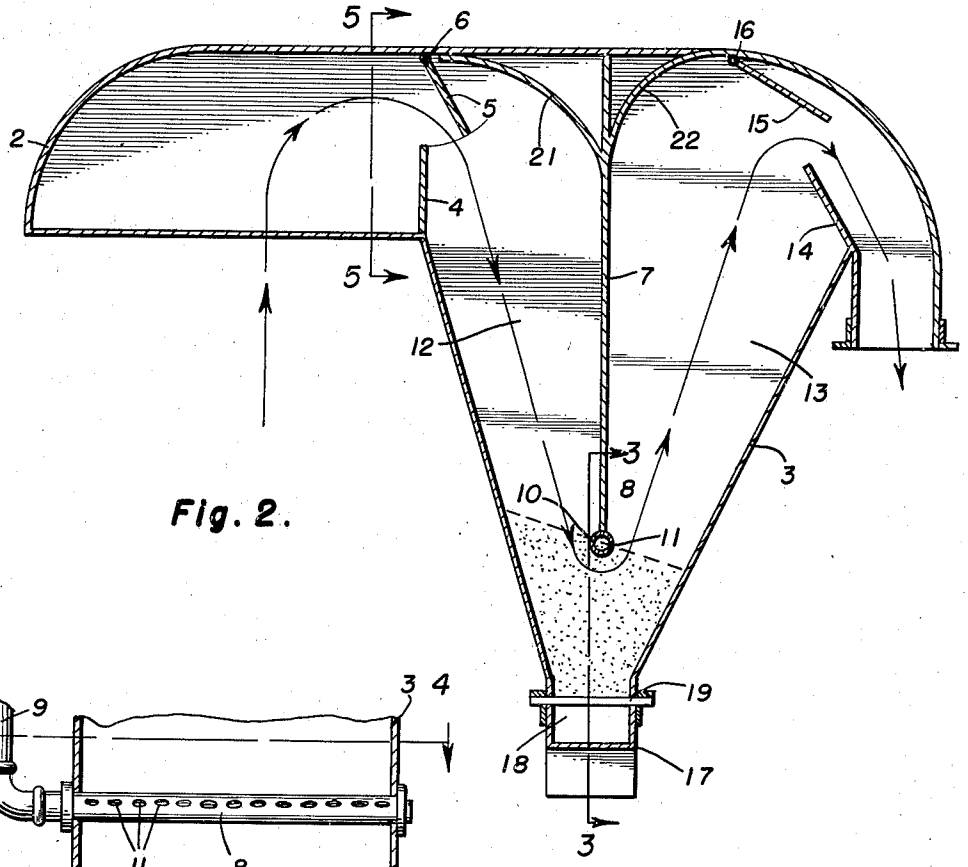


Fig. 2.

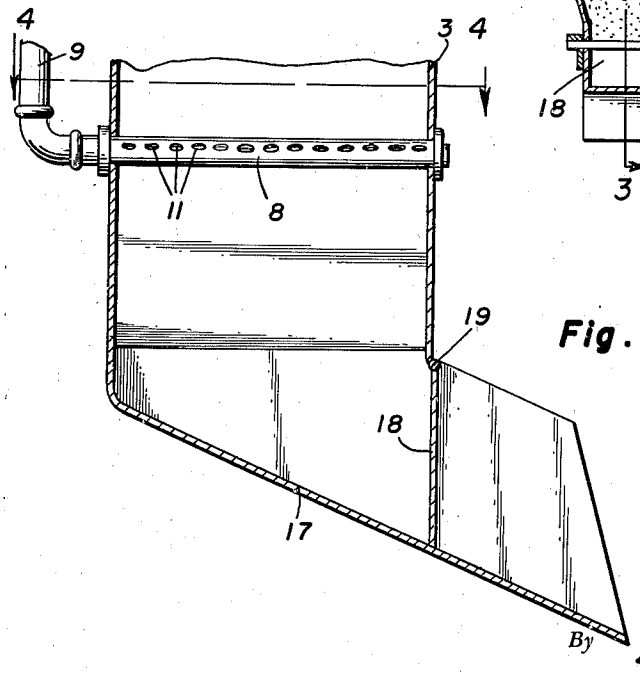


Fig. 3.

Inventor

Willis Veazey

By Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

Patented Dec. 20, 1949 2,491,840

UNITED STATES PATENT OFFICE

2,491,840

SMOKE CONSUMING DEVICE

Willis Veazey, New Iberia, La., assignor of fifteen per cent to Frederick J. Gesevius, Jr., New Orleans, La.

Application April 2, 1947, Serial No. 738,970

2 Claims. (Cl. 183—21)

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This invention relates to smoke consuming devices.

An object of the invention is to provide an improved consuming device for boilers which will eliminate the fly ash and smoke which are generally permitted to escape into the air either by means of a suction fan with no smokestack being provided, or through a smokestack with natural draft.

Another object of the invention is to provide an improved smoke consuming device which will have a flue gas inlet adapted to fit any boiler breeching for controlling the gas and ash flow to pass twice through a spray of water for water-soaking the ash causing the same to drop into an ash outlet trough which is provided with a balanced weight or trap door for controlling said outlet door at the proper opening so as to let out the ash and prevent any counter-draft from coming in to lessen the amount of oxygen coming through the regulator to cause improper burning in the furnace, while allowing the flue gas to escape in the draft and be blown out as a clean white steam.

A further object of the invention is to provide an improved form of smoke consuming device for eliminating fly ash and black soot and ash laden smoke from the blowers or stacks attached to large industrial boilers.

Another object of the invention is to provide an improved smoke consuming device for eliminating fly ash and smoke, said device being highly efficient in operation, and relatively inexpensive to manufacture and produce.

Other objects will appear as the description proceeds.

In the accompanying drawings which form a part of this application:

Figure 1 is a side elevation of the improved smoke consuming device;

Figure 2 is a vertical sectional view taken through the improved smoke consuming device;

Figure 3 is a sectional view taken on the line 3—3 of Figure 2;

Figure 4 is a sectional view taken on the line 4—4 of Figure 3; and

Figure 5 is a sectional view taken on the line 5—5 of Figure 2.

In carrying out the invention, there is illustrated in broken lines in Figure 1 of the drawings, a boiler breeching generally designated by the reference numeral 1, the same being adapted to be connected with the hooded flue gas inlet 2 formed at one side of the V-shape smoke consuming housing or eliminator 3.

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A baffle plate 4 will be fixed transversely in the lower portion of the space between the hooded flue gas inlet tube and the smoke consuming housing 3, and an adjustable flow regulator or damper 5 will be hinged at 6 at the top of said hooded flue gas inlet 2 for regulating the flow of the fly ash and smoke entering into the smoke consuming housing or eliminator 3.

A central depending partition plate 7 will be supported from the top of the smoke consuming housing or eliminator 3, terminating at a point adjacent the lower end thereof.

A water spray header 8 will extend transversely of said smoke consuming housing or eliminator 3 immediately below the lower end of the partition plate 7, and will be connected by means of the water inlet pipe 9 with any suitable source of water supply (not shown). Oppositely disposed rows of water spray perforations or apertures 10 and 11 will be formed through the spray header 8, whereby the water spraying through the apertures 10 will be directed at an upward angle across the inlet side 12 of the smoke consuming housing or eliminator 3, while the water spraying through the apertures 11 on the opposite side of said header 8 will be directed in a downward angle across the lower end of the outlet side 13 of said smoke consuming housing or eliminator 3.

A transversely extending fixed baffle plate 14 will be disposed at the lower side of the outlet from the smoke consuming housing or eliminator 3, while a second adjustable flow regulator or damper 15 will be hinged at 16 to the top of said housing 3 for regulating and controlling the time for the light impurities and black dirt to be water-soaked enough to have the proper weight to separate from the flue gas, and at the same time allowing the same to escape in the draft and blow out.

If the regulator is not opened wide enough, the amount of steam created becomes too great and forms a back pressure which will travel down to the water and ash torque 17 which is connected with the bottom of the smoke consuming housing or eliminator 3, and be blown out through the self-actuating weight-balanced trap door 18, hinged at 19 across or adjacent the discharge end of the downwardly inclined trough 17, thus decreasing the amount of oxygen taken from the furnace causing improper burning in the furnace.

The adjustable flow regulator or damper 5 in the hooded flue gas inlet portion 2 of the smoke consumer 3 also regulates the amount of oxygen drawn out of the furnace for proper burning.

In addition, the water spray header 8 may be turned at any desired angle so as to apply water to the gas and ash at the required distance from the water and ash outlet trough 17 as required for best separation of the ash from the flue gas.

In operation, all burner and dirty flue gas or oxygen together with fly ash enters the eliminator or smoke consuming housing 3 by way of the hooded flue gas inlet 2 directly from the boiler breeching 1.

Since the gas and ash is slightly lower in temperature than the temperature in the furnace, it will indicate that the gas and ash is very hot and dry at that point. The amount of gas and ash taken into the eliminator is controlled by the regulator or damper 5 permitting the same to flow downwardly through the inlet side 12 to the upwardly angled water spray. The ash being water-soaked becomes heavy and drops out from the flue gas down into the ash trough 17.

The light and fine powdered impurities continue onward and upward with the flue gas to the second water spray in the outlet side 13 of the housing 3, rendering the impurities heavier than the flue gas, therefore, by weight these impurities and black dirt are separated from the flue gas and dropped down into the ash trough 17, to be carried out by the water to a place where the ash is desired to be disposed of.

All of the flue gas going through the second spray of water becomes nothing but a clean white steam which continues upward through the second regulator or damper 15 through the outlet of the eliminator 3 to be drawn off by a suitable suction fan 20 connected therewith when no smokestack is needed, or on natural draft in connection with a smokestack (not shown).

Arcuate baffles 21 and 22 will be disposed at the opposite sides of the partition plate 7 at its upper end to guide and direct the ash and flue gas through the eliminator 3.

From the foregoing description, it will be apparent that there has been devised and provided a highly efficient form of smoke consuming device which will thoroughly separate the flue ash and other impurities from the flue gas and deposit the same into an ash trough, while said flue gases pass out of the eliminator in the form of clean white steam.

While the preferred embodiment of the instant invention has been illustrated and described, it will be understood that it is not intended to limit the scope of the invention thereto, as many minor changes in detail of construction may be resorted to without departure from the spirit of the invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A fly ash and smoke eliminator comprising an inverted V-shape housing, a fly ash and flue gas inlet on an upper side edge of said housing connectible with a boiler breeching, an outlet at the opposite upper side edge of said housing, a suction fan connected with said outlet, a water sprinkler header adjacent the lower end of said housing, means for supplying water thereto, a regulated damper interposed between said fly ash and flue gas inlet and said housing, a regulated damper interposed between said outlet and said suction fan, said water sprinkler header being rotatably adjustable and formed with oppositely disposed sprinkler openings through its wall for varying the angle of the water spray wall through which the fly ash and flue gas pass, a depending partition plate disposed centrally of said housing and terminating immediately above said water spray header, a downwardly angled ash collecting trough disposed at the lower end of said housing, and a weighted trap door pivoted in the discharge end of said ash collecting trough.

2. The combination of claim 1 and arcuate guide baffles disposed in the upper end of said housing at the opposite sides of said partition plate.

WILLIS VEAZEY.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
228,765	Kennedy	June 15, 1880
416,124	Reeves	Nov. 26, 1889
1,078,659	Barry	Nov. 18, 1913
1,609,611	Dovel	Dec. 7, 1926
1,841,556	Stelz	Jan. 19, 1932

FOREIGN PATENTS

Number	Country	Date
203,242	Germany	Apr. 6, 1906