No. 797,558. PATENTED AUG. 22, 1905.

W. CLINE.

DEVICE FOR SEPARATING THE PRODUCTS OF COMBUSTION.

APPLICATION FILED OCT. 11, 1904.

2 SHEETS—SHEET 1.

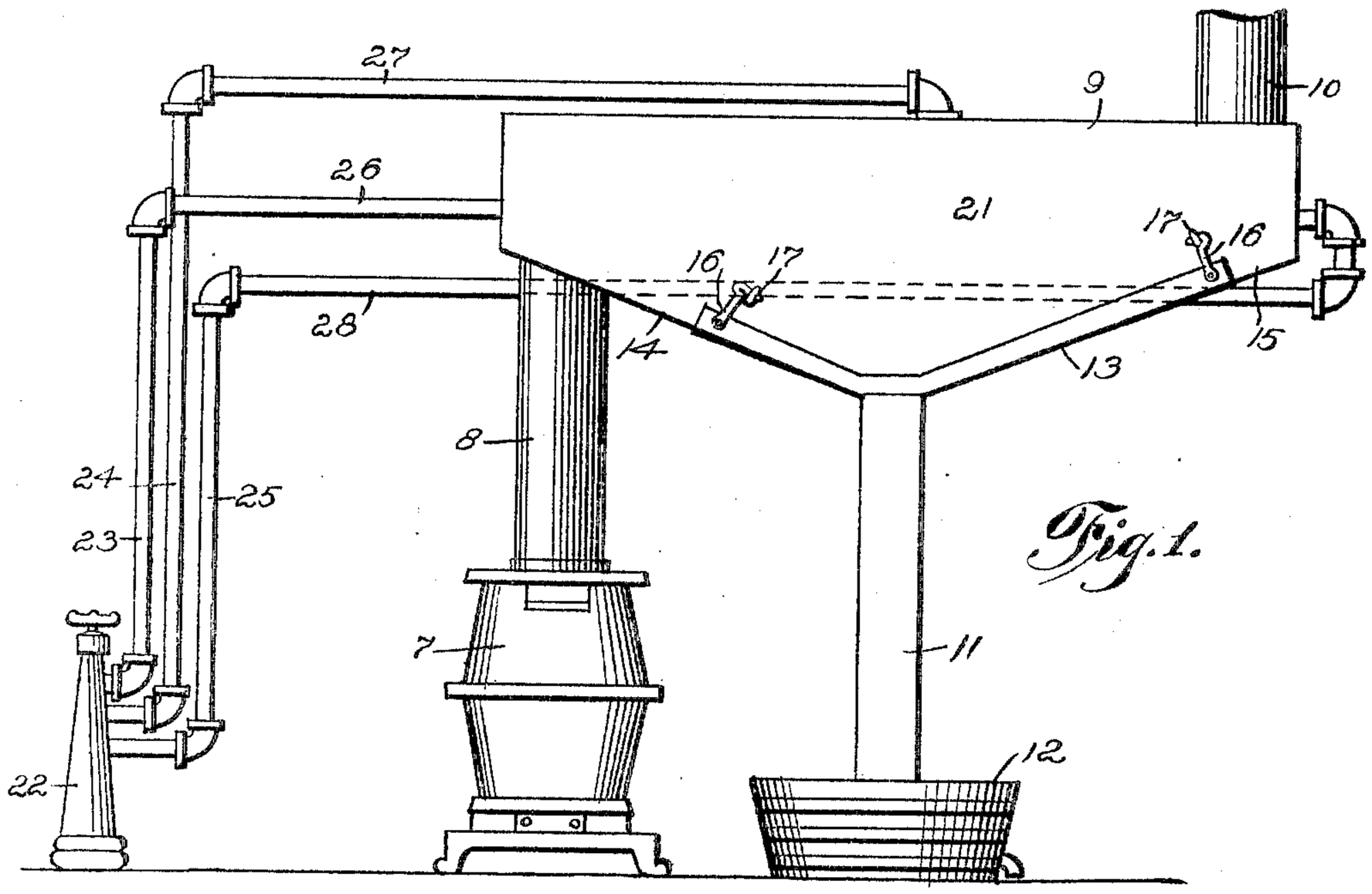

Fig. 1.

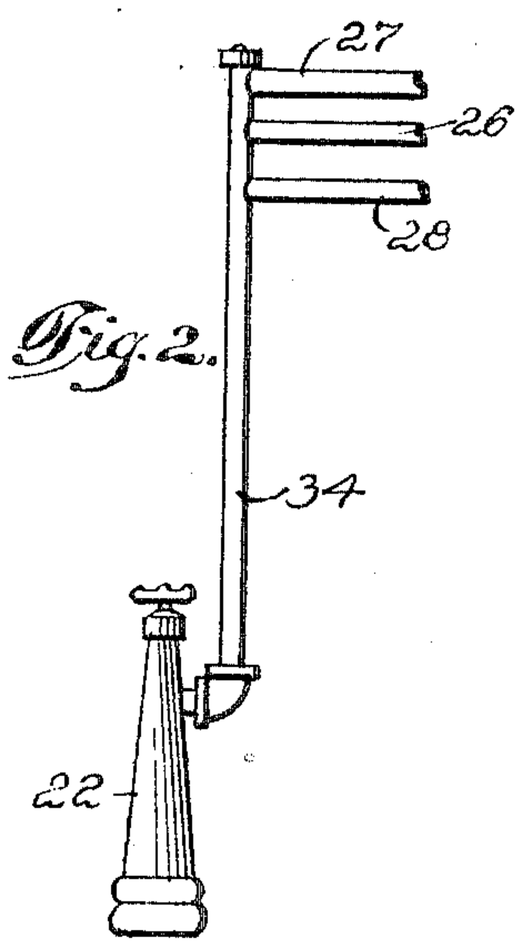

Fig. 2.

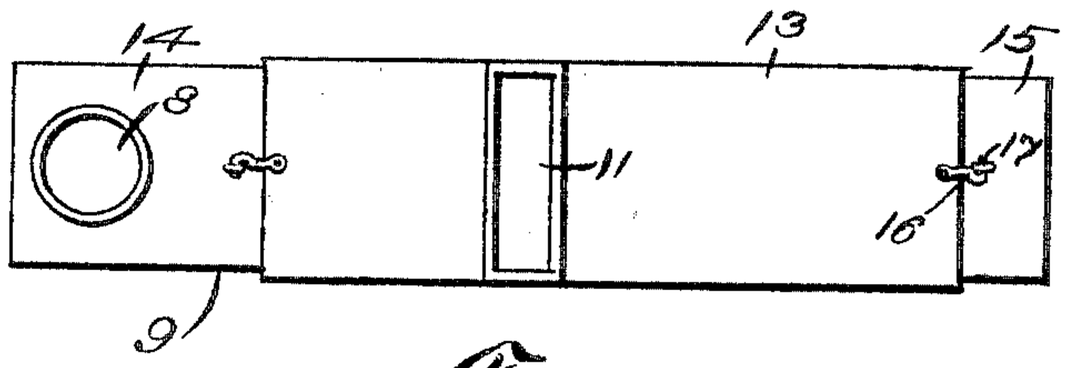

Fig. 3.

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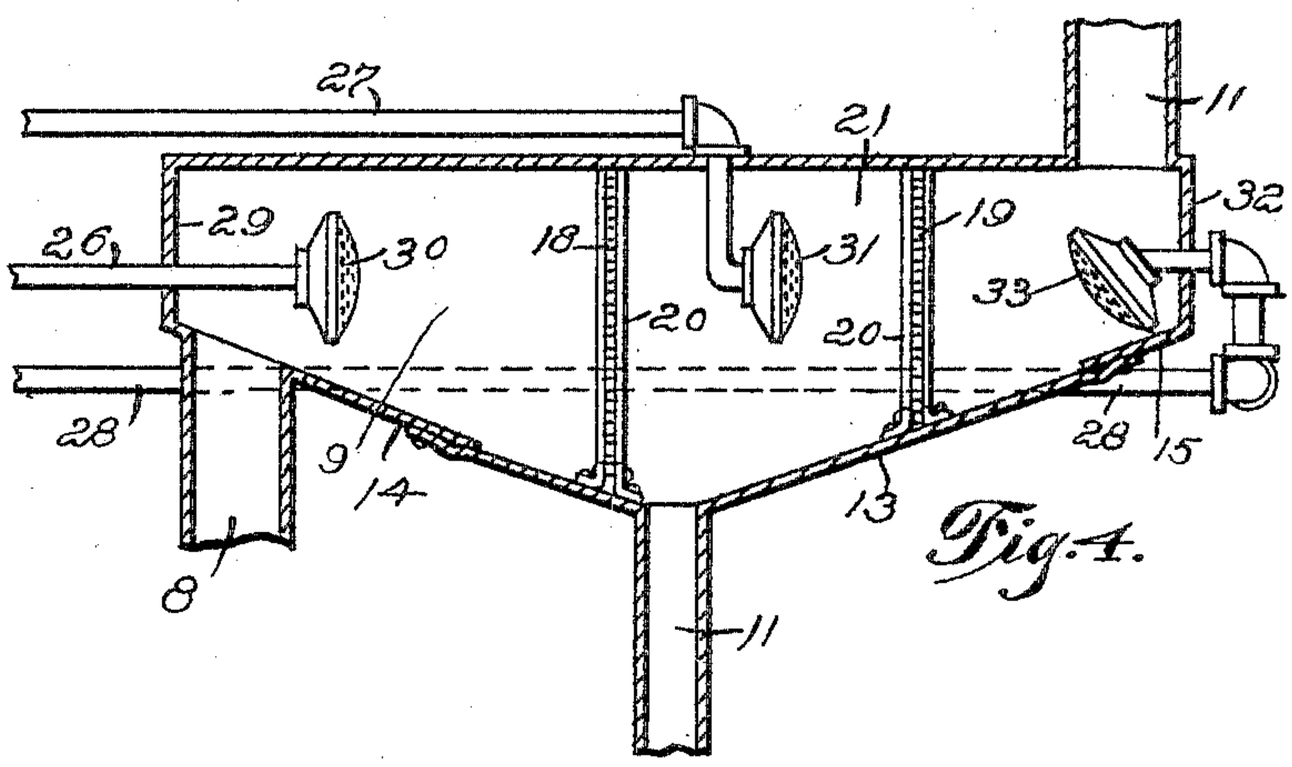

Fig. 4.

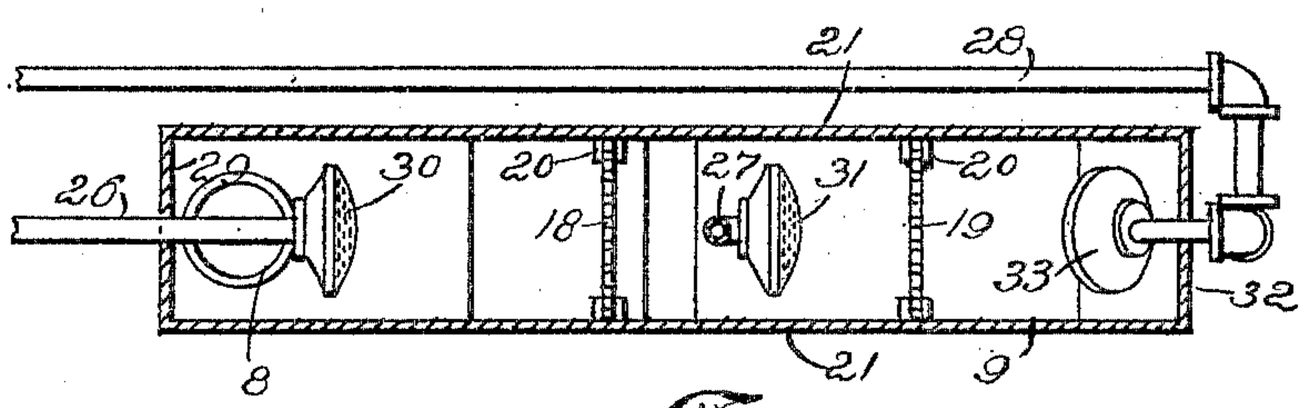

Fig. 5.

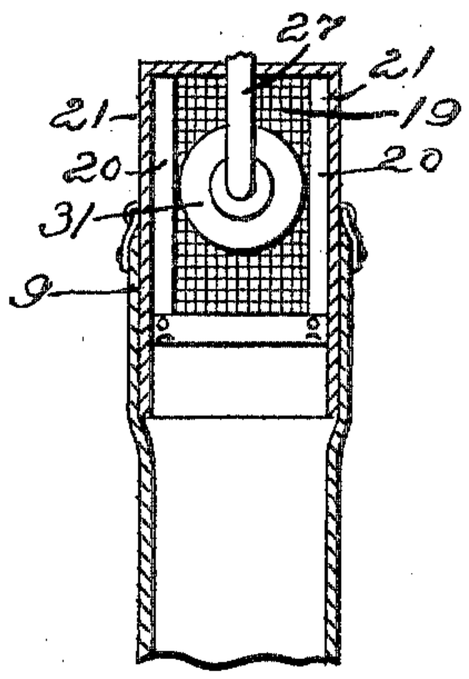

Fig. 6.

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UNITED STATES PATENT OFFICE.

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DEVICE FOR SEPARATING THE PRODUCTS OF COMBUSTION.

No. 797,558. Specification of Letters Patent. Patented Aug. 22, 1905.

Application filed October 11, 1904. Serial No. 228,004.

To all whom it may concern:

Be it known that I, WILLIAM CLINE, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Devices for Separating the Products of Combustion, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in that class of devices designed to separate soot and other extraneous matter from the gases that pass from the fire up through the chimney; and the object of the invention is to permit the free passage to and through the chimney of the gases of combustion and at the same time prevent the passage of the extraneous matter thrown off by the fire with the gases.

The invention consists in the construction and combination of the various parts, as hereinafter fully described and then pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is an elevation of a stove or furnace and a device embodying my invention; Fig. 2, an elevation of a modified construction of the sprayer-pipes, and Fig. 3 a bottom plan view of said device. Fig. 4 is a longitudinal vertical section of the separator-chest; Fig. 5, a top plan view thereof, the top being removed; and Fig. 6, a vertical sectional view of the separator-chest.

Similar numerals indicate like parts throughout the several views.

Referring to the details of the drawings, 7 indicates a stove or heater, 8 the stovepipe conveying the products of combustion to the separator-chest 9, and 10 the chimney or pipe through which are discharged the gases delivered to the separator-chest by stovepipe 8.

Separator-chest 9 is elongated and has the bottom thereof sloping downward from the ends toward the center, from which depends a pipe 11, wherethrough the soot and other extraneous matter mixed with the gases are discharged into a tub or receiver 12. The section 13 of the bottom of the separator-chest is removably secured to the other and rigidly-attached sections 14 and 15, respectively, by pivoted hooks 16 and staples 17, or in any other suitable manner, and the depending pipe 11 is permanently attached to said section 13 of the bottom.

18 and 19 respectively indicate vertical sieves disposed transversely of the interior of the separator-chest and located between stovepipe 8 and chimney 10. These sieves are permanently secured to the removable section 13 of the bottom of said chest, and when section 13 is removed the screens are removed with it for cleaning or to be replaced by others. When the section 13 is replaced, the sieves are guided to their places by grooves formed by cleats 20, fastened to the side walls 21 of the separator-chest. These cleats also prevent any swaying of the sieves under the pressure to which they are subjected, as will be described.

22 indicates a hydrant or plug, wherethrough water is forced up vertical pipes 23, 24, and 25 and through horizontal pipes 26, 27, and 28. Horizontal pipe 26 passes directly through end wall 29 of the separator-chest, and it has on the end thereof in said chest a sprayer 30, that sprays on sieve 18. Pipe 27 extends over the separator-chest, then down into the same, and on that end and directed toward sieve 19 is a sprayer 31, and pipe 28 passes behind the separator-chest for its whole length and curves around and into the end 32 of said chest and has on the end thereof a sprayer 33, directed toward the bottom of the chest.

In Fig. 2 is illustrated a modification of the connection of the horizontal pipes with hydrant or plug 22. In this construction there is but one vertical pipe 34, and from this the pipes 26, 27, and 28 are fed.

In operation the products of combustion are carried up stovepipe 8 and successively to the sieves 18 and 19. The gaseous portions of said products pass through said sieves and up through chimney 10; but the soot and other extraneous matter carried by said gases are moistened by the sprayer and caught by the sieves, that which passes through sieve 18 being arrested by sieve 19. This extraneous matter is washed from the sieves by the sprayers and is carried by the water therefrom down to and through pipe 11 to receiver 12. Sprayer 33 washes the bottom of the separator-chest behind sieve 19.

I do not limit myself to any particular number of sieves or sprayers, nor do I restrict myself to any particular location for the same other than that said sieves must be placed between the stovepipe and the chimney. Neither do I restrict myself to the construction and arrangement of the other parts herein shown and described, as it is obvious

that many alterations may be made therein without departing from the principle and scope of my invention.

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

1. In a device of the character described, a separator-chest having an inclined bottom terminating in an outlet, said chest interposed directly between the outlet for products of combustion from a heater and an offtake or chimney, a series of sieves arranged in the chest at right angles to the travel of products of combustion therethrough, a spraying-nozzle, for each sieve, entering the chest and discharging against the same in a direction corresponding to the travel of the products of combustion, and a spraying-nozzle arranged beyond the last sieve in series and discharging obliquely into the chest toward the inclined bottom of and outlet from said chest.

2. The combination, in a device for separating the products of combustion, of a separator-chest interposed between the heater and the chimney and having a removable bottom, the bottom sloping downward from the ends toward the center, a discharge-pipe at the meeting of said slopes, a sieve secured to the removable section of the bottom on each side of said discharge-pipe and disposed transversely of the separator-chest, a sprayer in front of each sieve, and a sprayer at the front end of the separator-chest and directed toward the bottom thereof.

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Witnesses:
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