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SMOKE CLEANING DEVICE.
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Fig. 2.

Fig. 1.

WITNESSES
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To all whom it may concern:

Be it known that I, CHARLES E. BARRY, a citizen of the United States, residing at Baltimore city, State of Maryland, have invented certain new and useful Improvements in Smoke-Cleaning Devices, of which the following is a specification.

This invention relates to means or apparatus for cleaning smoke.

10 It has always been desirable from a sanitary standpoint, that smoke be cleansed in some manner before being discharged into the atmosphere, and it has become a necessity, in late years, owing to laws imposing penalties, to provide means whereby no black, poisonous, or otherwise offensive soot laden smoke is permitted to escape into and contaminate the air. Owing to these facts the attention of inventors, mechanics and 15 engineers has been drawn to the subject and mechanisms have been installed in smoke stacks, chimneys and other smoke escapes, to effect the cleansing and purification of the smoke passing therethrough, many of such appliances being complicated, expensive and more or less ineffective.

It is the object of the present invention to provide an improved mechanism of the character specified and one which will be simple 20 and economical in construction and installation, effective in operation, and readily removable and replaceable for purposes of renewal or repair.

With this and other objects which may hereinafter appear in view, the invention consists in the improved construction, arrangement, and combination of parts of a smoke cleaning apparatus which will hereinafter be fully described, and afterward specifically claimed.

In order that the construction and operation thereof may be readily comprehended, I have illustrated an approved embodiment of my invention in the accompanying drawings and will proceed to fully describe the invention having specific reference to said drawings, in which—

Figure 1 represents in vertical sectional view, the improved smoke washing or cleaning chamber or tank, and Fig. 2 represents in diagrammatic plan view, the cleaning or washing chamber or tank connected for joint operation with a locomotive round-house.

Like reference characters mark the same parts of my improved apparatus, wherever they appear in the several figures of the drawings.

In the drawings my improved washer is shown in connection with the usual locomotive round-house which is provided with the ordinary turn-table 6 and smoke directing pipe 15, the same being connected by a pipe 16 to an exhaust fan 17 for drawing the smoke from the pipe 15 and directing it through the pipe 18 to near the bottom 20 of the improved washing chamber 19, said bottom being constructed water-tight to form a receptacle or tank for water as hereinafter described.

In the chamber 19 is erected a baffle plate or partition 21 of wedge shape, being thickest at the bottom and gradually thinner to the top as at 22, and a short distance from the top 23 of the chamber 19, above said baffle partition and adjacent thereto is a water pipe 24 adapted to discharge water in such a manner as to cause it to flow down over both surfaces of the partition. Projecting downward from the top 23 into the chamber is a pipe 25 (or a series of pipes side by side if so desired) which is perforated so that it will discharge jets of water in all directions, forming, as it were, a baffle wall of water and spray extending from the top to the bottom of the chamber. Erected in the chamber beyond the pipes 25 is another baffle plate or partition 26 which may be a duplicate of the partition 21, or may have one vertical and one inclined side as clearly shown in Fig. 1.

In the side of the chamber 19 opposite to that into which the pipe 18 enters, and at a proper distance from the bottom, is a water discharge or overflow pipe 27 and immediately above it is a discharge or exhaust pipe 28 for the cleaned smoke, in which exhaust pipe is a fan 29 mounted in any suitable manner, as in brackets 30, and driven through the medium of bevel gearing 31 and a shaft 32, by any suitable power.

A locomotive having been stored in the round-house, the draft created by the fan in the casing 17 through the pipe 15, draws the smoke from the round-house and directs it through the pipe 18 into the cleaning chamber 19. The heavier particles of the smoke are projected against the baffle partition 21, and the lighter portion carrying
some heavier portions then pass over said partition into the spray on the opposite side. The spray deflects the remaining heavy particles against the rear side of said partition to be carried off by the water running down said rear side. The smoke then passes through the spray, from the pipe or pipes 25, and over the top of partition 26, thence through pipe 28, its passage being facilitated, or forced, by the exhaust fan 29. The smoke is then clean and is discharged into the atmosphere without offense or violation of the law.

The water discharged into the chamber 19 laden with the impurities washed or extracted from the smoke, falls into the tank at the bottom of the chamber and passes out through the overflow pipe 27 either into the sewer or other drainage receptacle, or into an apparatus which may be used to extract by-products therefrom, if desired. The smoke is thoroughly and absolutely cleaned, the heated gases of the smoke coming in contact with the waters in the tank causing the formation of a vapor which rises, and causes the carbon particles, much heavier than the vapor, to fall into the water in the bottom of the chamber.

The locating of the water pipe 24 at the apex of the baffle 21 leaving a passage for the smoke above said water pipe is an important feature of this invention, in that, when the heavy laden smoke issues from the inlet pipe 18 into the chamber, the heavier particles in the smoke will be directed against the side of the baffle opposite said inlet and be caught by the water flowing down said side, allowing the lighter gases to rise and pass over the pipe 24 without having been moistened. In other words, the heavier particles in the smoke are initially separated therefrom before the lighter gases are subjected to the washing. This method facilitates the passage of the gases through the washer and prevents any restriction of the circulation at the inlet of the washer by moisture laden smoke.

While I have shown and described my invention embodied with a locomotive round house, it will be obvious that it may, with equal facility, be applied to any outfit where offensive black smoke is discharged, and it will also be obvious that changes and variations in the construction of the specific elements may be made without departing from the spirit and scope of the invention as defined in the claims.

Having thus fully described the invention, what is claimed as new is—

1. A device of the character described, comprising a chamber, a smoke inlet and outlet near the bottom at opposite sides of said chamber, a wedge-shaped baffle projecting upward from the bottom of said chamber, a pipe to supply water to the sides of said baffle, said pipe being positioned adjacent the top edge of said baffle leaving a smoke passage between it and the top of the chamber, a second baffle in said chamber, and means for producing a water baffle between the above mentioned baffles.

2. A device of the character described, comprising a chamber, a smoke inlet and outlet near the bottom at opposite sides of said chamber, a wedge-shaped baffle projecting upward from the bottom of said chamber, a pipe to supply water to the sides of said baffle, said pipe being positioned adjacent the top edge of said baffle leaving a smoke passage between it and the top of said chamber, and means between the wedge-shaped baffle and the outlet for producing a spray from the top to the bottom of said chamber.

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

CHARLES E. BARRY.

Witnesses:

E. WALTER BREWINGTON, HOWARD D. ADAMS.