

N. BENINCASA.
SMOKE DILUTER.

APPLICATION FILED SEPT. 21, 1910.

1,038,270.

Patented Sept. 10, 1912.

2 SHEETS—SHEET 1.

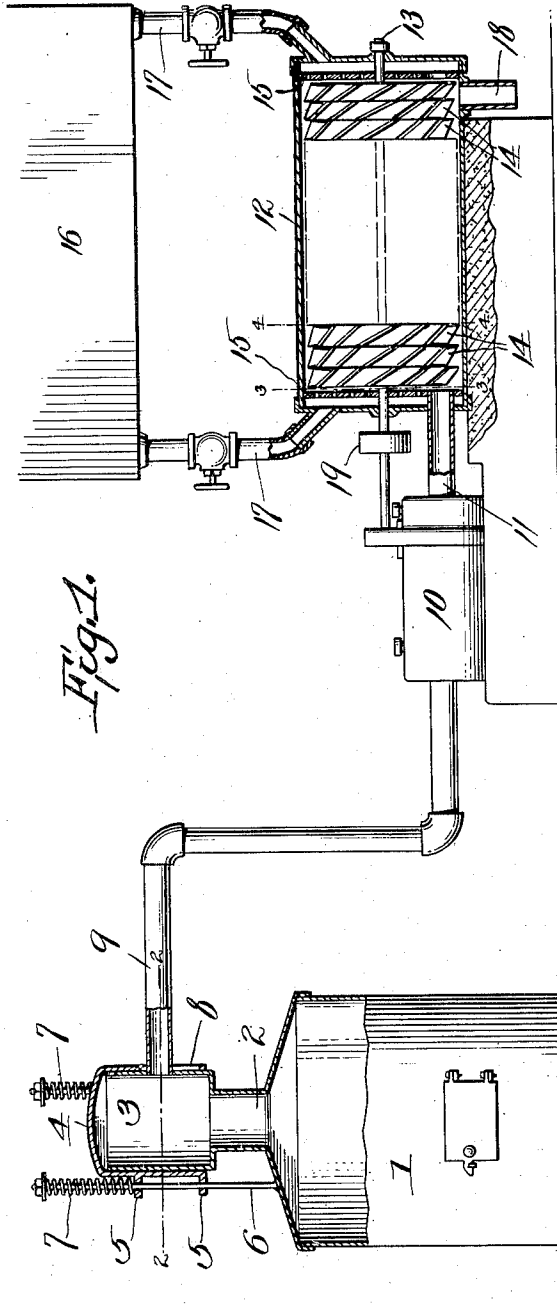
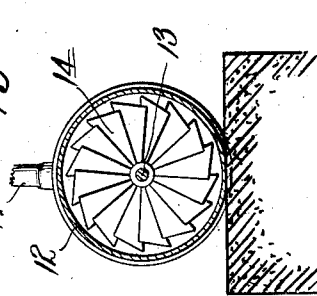
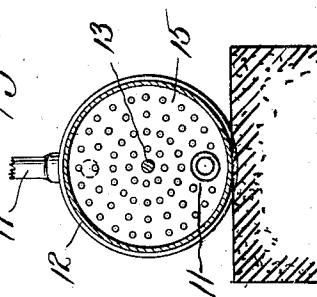
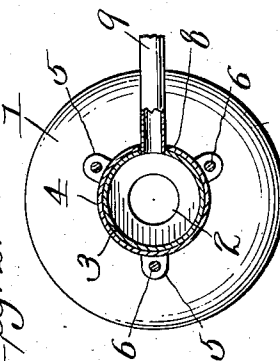


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.



Witnesses

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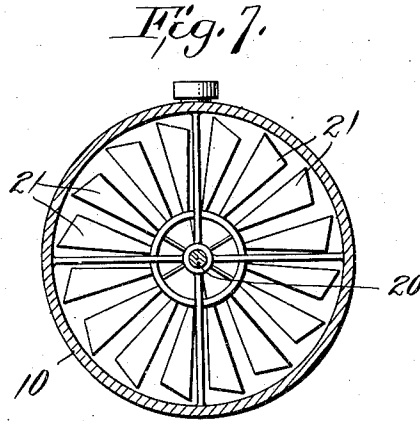
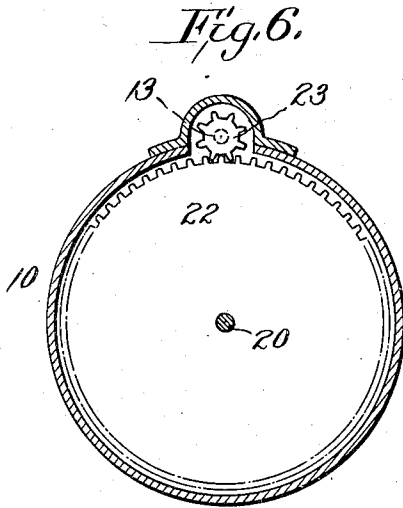
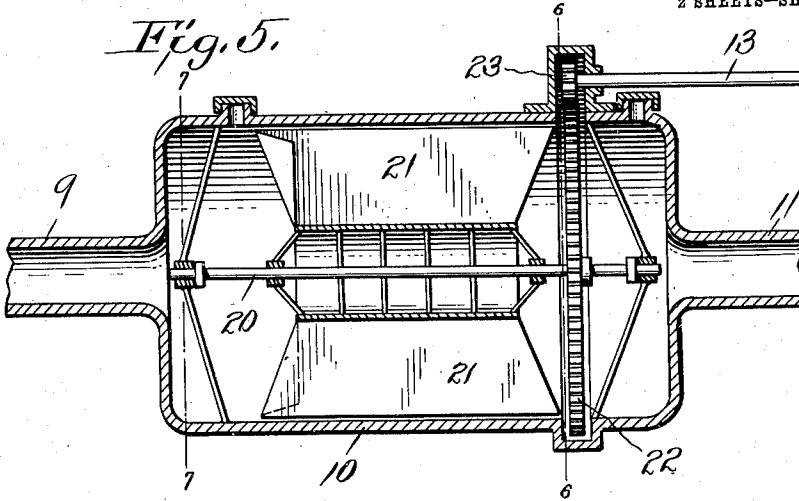
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2 SHEETS—SHEET 2.



Witnesses

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SMOKE-DILUTER.

1,038,270.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, NICHOLAS BENINCASA, a citizen of the United States, residing in Pittsburgh, State of Pennsylvania, have invented a new and useful Improvement in Smoke-Diluters, of which the following is a specification.

This invention relates to a smoke diluter, and the object of the invention is to draw the smoke from a combustion chamber to and through a separate mixing apparatus in which the smoke is mixed and diluted with water, or with a vapor containing a certain percentage of moisture, for the purpose of preventing emission of smoke into the air in a condition to be carried over surrounding territory.

Broadly speaking the object of the invention is to abate the smoke nuisance as it now exists in large cities and at practically all manufacturing points.

The invention consists in a collecting bell carried by the furnace, a mixing tank, fans arranged in said tank, and in a forced draft creating device arranged between the bell and said tank.

In the accompanying drawings: Figure 1 is a side elevation partly in section illustrating a simple form of the invention. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 1. Fig. 4 is a section on the line 4—4 of Fig. 1. Figs. 5, 6 and 7 are details of a forced draft apparatus.

In these drawings 1 represents a furnace of any kind which is provided with a smoke pipe, flue or chimney of any kind, a form of which is indicated at 2. Instead of providing a high stack or chimney as commonly used the stack 2 is very short and carries on its upper end an enlargement 3, said enlargement being in the form of a drum opening upwardly and having a diameter somewhat greater than that of the stack. A collector bell 4 closes the top of the drum, being provided with lugs 5 through which rods 6 pass. Springs 7 carried by these rods serve to hold the bell in place. The bell is vertically slotted upon one side as shown at 8, in order that it may slide freely over a smoke pipe 9 which connects at one side with the interior of the drum 3. Said pipe 9 leads to a pump casing 10 from which leads a pipe 11 to a mixing casing or tank 12. Through the tank 12 passes a horizontal shaft 13 upon which I fix a plurality of suc-

tion fans 14. Adjacent each end of the drum I place a perforated, vertical partition 15. A steam or water supply reservoir 16 is arranged at any suitable point and supply pipes 17 lead from said reservoir to the tank 12, discharging into said tank through the ends, the vapor or water passing through the perforations of the partition 15. The pipe 11 leads directly through both one end and the adjacent partition, and a discharge pipe 18 leads from the opposite end portion of the tank.

A suction pump or forced draft creating device of any kind, operated by any suitable means is inclosed in the casing 10, and in operation the smoke which collects beneath the bell 4 is drawn through the pipe 9, and forced through the pipe 11 into the mixer 12 where it is mixed with steam, water, or in fact any suitable agent which it may be found desirable to employ for this purpose. The suitable pulley 19 mounted upon the shaft 13 is driven in any suitable manner and the rotation of the fans 14 will not only thoroughly mix the smoke with the fluid introduced through the pipes 17, but will also assist in drawing the products of combustion from the furnace.

In Figs. 5, 6 and 7 I have shown the details of the forced draft creating device, consisting of a shaft 20, fan blade 21, a driven gear 22, and a drive pinion 23 on shaft 13.

What I claim is:

1. The combination with a furnace of a smoke discharge pipe leading therefrom, a mixing tank, a shaft passing horizontally through said tank, perforated transverse partitions arranged adjacent the tank ends, blades arranged on said shaft, and between said partitions, the smoke pipe discharging into the lower portion of the tank through one of said partitions, means for discharging water into the upper part of the tank between the tank end and the adjacent partition and means for drawing off said water from the lower portion of the tank at a point between the other partition and the adjacent end of the tank.

2. A device of the kind described comprising a mixing tank, a shaft passing there-through, blades carried by said shaft, a cylindrical pump casing in alinement with the mixing tank, a shaft in said casing, fan blades on the last mentioned shaft, a gear on said shaft and within the casing, the first

mentioned shaft extending to said casing, a
gear on the first mentioned shaft meshing
with the gear on the second mentioned shaft,
means for driving the first mentioned shaft,
5 means for admitting smoke into the casing, a
pipe for conducting smoke from the casing
to the tank, and means for injecting water

into the tank, the blades on the first men-
tioned shaft mixing the smoke and water.

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Witnesses:

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