J. LYONS.

SMOKE AND DUST CONSUMER.

APPLICATION FILED MAY 25, 1911.

1,066,930. Patented July 8, 1913.

Fig. 1.

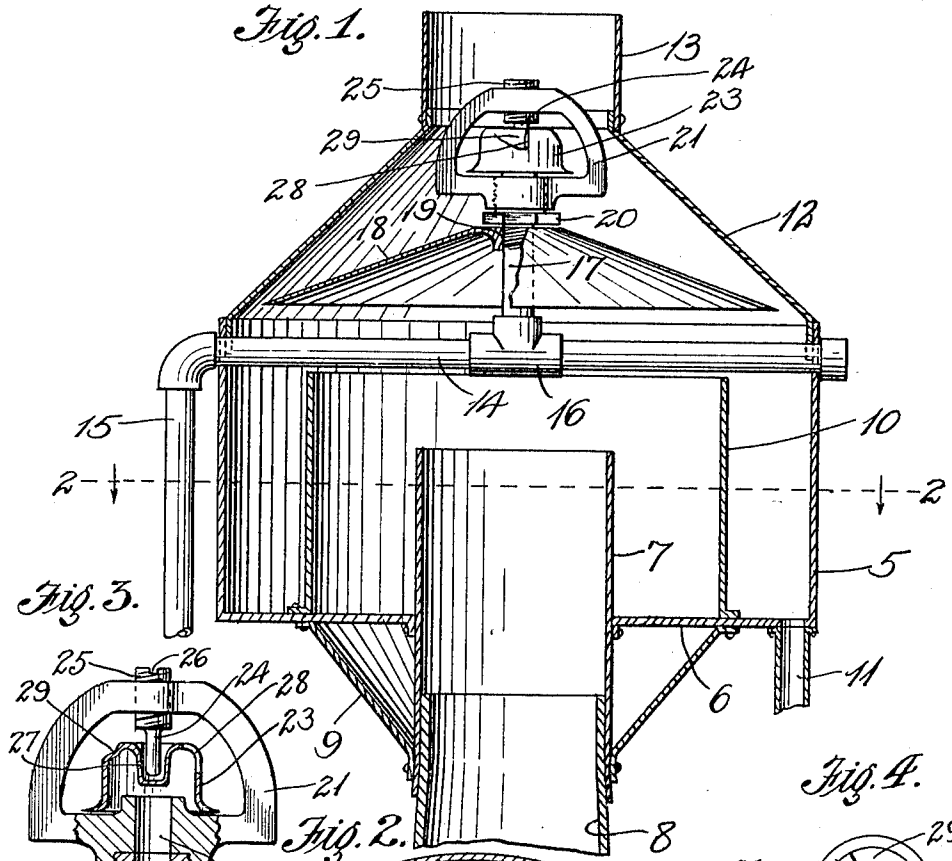


Fig. 3.

Fig. 2.

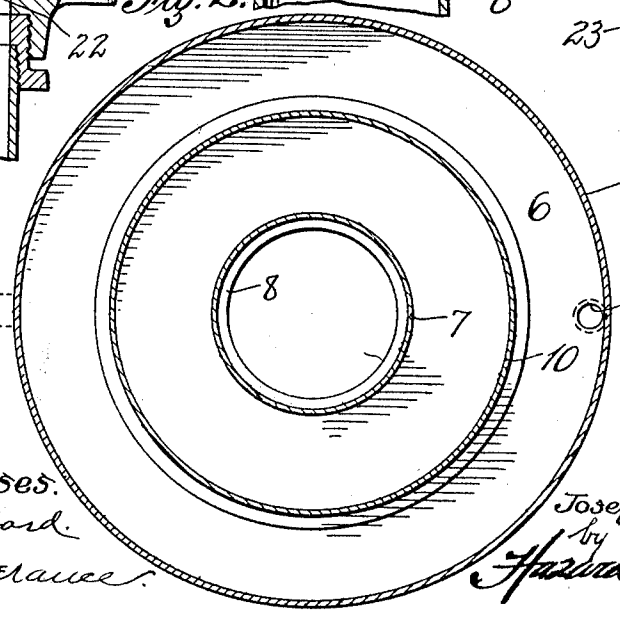
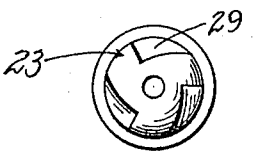


Fig. 4.



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SMOKE AND DUST CONSUMER.

1,066,930. Specification of Letters Patent. Patented July 8, 1913.

Application filed May 25, 1911. Serial No. 629,311.

To all whom it may concern:

Be it known that I, JOSEPH LYONS, a citizen of the United States, residing at Riverside, in the county of Riverside and State of California, have invented new and useful Improvements in Smoke and Dust Consumers, of which the following is a specification.

This invention relates to improvements in smoke and dust consumers and has particular relation to a mechanism adapted to be placed upon a stack or flue, so that the smoke or dust coming from said flue may be arrested and carried off to any suitable point for collection.

It is an object of the invention to provide a smoke or dust consumer which will be capable of conducting the smoke or dust in such a manner that water or other cleansing liquid may be spread and passed through the same so as to wash and carry off the particles which would otherwise pass out with the smoke or dust.

It is also an object of the invention to provide a casing through which smoke or dust may be caused to spread and within which water may be sprayed or spread, so as to pass through the smoke and remove all foreign or objectionable substances which it is desired to arrest before escaping from the device, the water collecting and carrying off such foreign substance or products of combustion for depositing the same at any desired point.

In the accompanying drawing forming a part of this specification, Figure 1 is a vertical central sectional view through the improved smoke consumer forming the subject matter of the present invention. Fig. 2 is a transverse horizontal sectional view taken upon the line 2—2 of Fig. 1. Fig. 3 is an enlarged view partially in section and partially in elevation of the water distributing means employed in connection with this invention. Fig. 4 is a detail plan view of the rotating water spreader employed in this device.

The details of the invention will now be more particularly described, reference being had to the drawing in which the preferred form of the consumer is illustrated.

As shown in the drawing 5 indicates a casing which is made of considerably larger diameter than the flue or outlet upon which the mechanism is to be employed. The said casing 5 is preferably made cylindrical and provided with a horizontal floor 6 through the center of which projects a flue engaging tube or pipe 7. The said tube or pipe 7 projects downwardly below the casing 5 and is adapted at the lower end to fit upon any ordinary flue as 8 from which smoke, dust or other substances are being discharged. The lower end of the tube or pipe 7 is generally braced with respect to the casing 5, by means of an annular inclined collar portion 9, which extends from the said pipe or tube 7 upwardly and outwardly to the bottom of the casing 5. The inner end of the said pipe or tube 7 projects well into the casing 5 and usually somewhat above the central portion thereof. A wall 10 is mounted within the casing 5 and preferably concentric with respect thereto and between the same and the pipe or tube 7, the said wall 10 extending from the bottom 6 to a point near the top of the casing. The casing 5 is provided with an outlet pipe 11 which is adapted to drain the outer compartment or annular space formed therein between the wall 10 and the side wall of said casing 5. The casing 5 is adapted to be covered by a frusto-conical top or cover portion 12 which fits upon the upper edge of said casing 5 and is tapered toward an outlet or discharge tube or pipe 13 at the top as clearly shown in Fig. 1.

Extending across the top of the casing 5 is a pipe 14 which rests in apertures or notches formed in said casing and is connected with a supply pipe 15 which extends up the side of the said casing 5. The pipe 14 is provided with a T coupling at the central portion thereof from which a vertical stand pipe 17 projects and upon the upper end of which is mounted a water discharging and distributing mechanism. Below the upper end of said pipe, however, a baffle plate 18 is secured which is approximately conical in shape and flares outwardly and downwardly to a position near the upper edge of the casing 5, an annular passage, however, being left between the edges thereof and the walls of the cover 12. The said baffle plate 18 may be formed with a screw threaded aperture 19, so that it can be screwed into place upon the upper threaded end of the pipe 17. Above the baffle plate 18 and upon the upper end of said pipe 17 is screwed a nipple 20 of ordinary form and provided with inner and outer threads, and a yoke 21 is adapted to be screwed upon the upper end of said

nipple 20 as shown in Fig. 5, the bottom portion of said yoke being formed with a screw threaded socket for this purpose. The yoke is provided with a central opening 22 through which materials from the pipe 17 may be discharged. Loosely mounted within the yoke 21 is a movable spreader 23, the said spreader being held in position by means of a pin 24 which extends downwardly into said yoke from the top portion thereof. The pin 24 is formed with an enlarged threaded aperture 25 adapted to engage a threaded aperture in the top of the yoke, the said enlarged portion 25 having a bight 26 formed therein by which the pin may be adjusted. The spreader 23 is usually made in the form of a hollow cylindrical casing having a flaring lower edge and formed with a central depressed portion 27 to receive the lower end of the pin 24. The end of the said pin forms a bearing for the spreader, which is carried upwardly against the same by water or other substance discharged through the pipe 17. The spreader is also formed with apertures 28 arranged at intervals around the upper peripheral edges thereof, the adjacent portions of the spreader being depressed at 29 so as to form tangential water directing surfaces at the outlets 28. The mounting of the spreader is thus such that when water is discharged through the pipe 17, it will tend to rotate the said spreader and water will be spread and thrown outwardly in an even spray, between the baffle plate 18 and the top 12, so as to thoroughly pass through all smoke or other substances which are being discharged through the casing 5.

The device above described is particularly well adapted for the removing of the objectionable particles and noxious substances from smoke or other materials discharged from flues or stacks.

In use the device is placed upon any suitable flue, stack or other discharge outlet for smoke, noxious vapors, dust or the like and water or other suitable liquid is caused to flow through the pipes 15, 14 and 17 so as to engage the spreader, which will be rotated thereby and caused to thoroughly and evenly spread the water between the cover 12 and the baffle plate 18. The smoke or other noxious substance will escape from the pipe 7 and pass about the baffle plate 18 on its passage to the outlet pipe 13. The smoke passing around the edge of the baffle plate 18 will be met by the thoroughly spread water and loose particles of carbon or other objectionable substance or gases in the smoke will be carried downwardly by the water and caught in the annular space between the inner wall 10 and the outer wall of the casing 5. The water collected in said space will drain out through the passageway 11 and may be carried to any desired point for discharge. The wall 10 insures the keeping of all moisture away from the pipe 7 and the stack 8 so that steam will not be formed and the water together with materials washed from the smoke will be properly collected in the casing 5 and disposed of. The spraying and spreading of the water by the movable spreader 23 prevents the escape of any smoke before it has been thoroughly washed.

The device is of simple structure and is effective for the purpose designed.

What I claim is;

A smoke consumer, comprising a casing provided with a bottom and having a tubular socket adapted to fit upon a flue, a concentric wall interposed between said casing and said socket forming an annular liquid space between said wall and said casing, a discharge tube leading from said annular space, a frusto-conical top mounted upon said casing provided with a discharge opening, a liquid supply pipe carried by said casing, a conical baffle plate carried by said pipe, a rotatable spreader mounted at the outlet of said pipe and adapted to distribute a tangentially directed spray of liquid upon and over said baffle plate and into said annular liquid space, for removing objectionable particles from circulating smoke.

In witness that I claim the foregoing I have hereunto subscribed my name this 19th day of May, 1911.

JOSEPH LYONS.

Witnesses:
HERSCHEL L. CARRAHAN,
HENRY INGRAM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."