

V. E. LOMBARD.
SMOKE AND FUME CONSUMING APPARATUS.
APPLICATION FILED MAY 13, 1910.

970,520.

Patented Sept. 20, 1910.

2 SHEETS—SHEET 1.

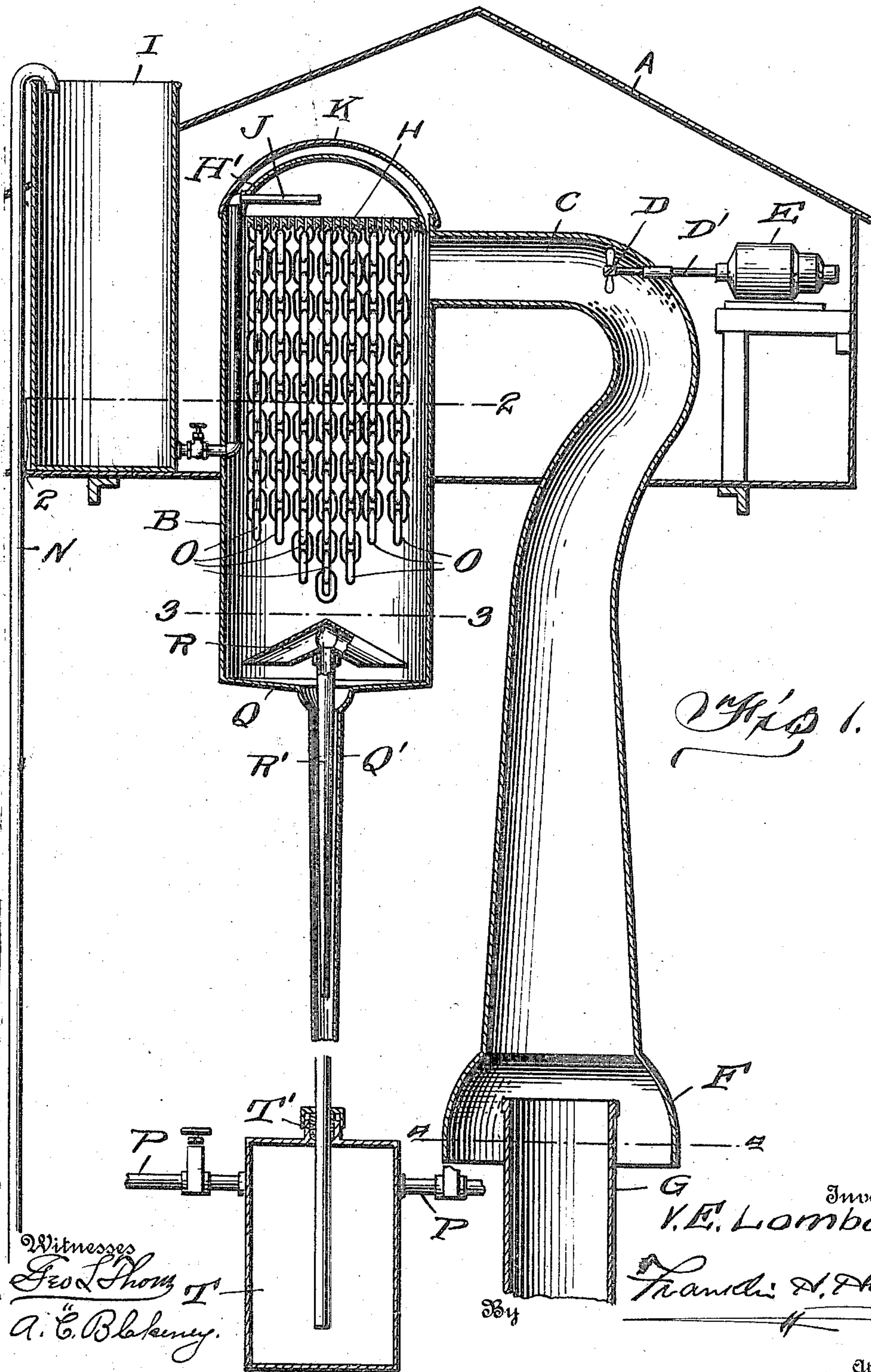


Fig. 1.

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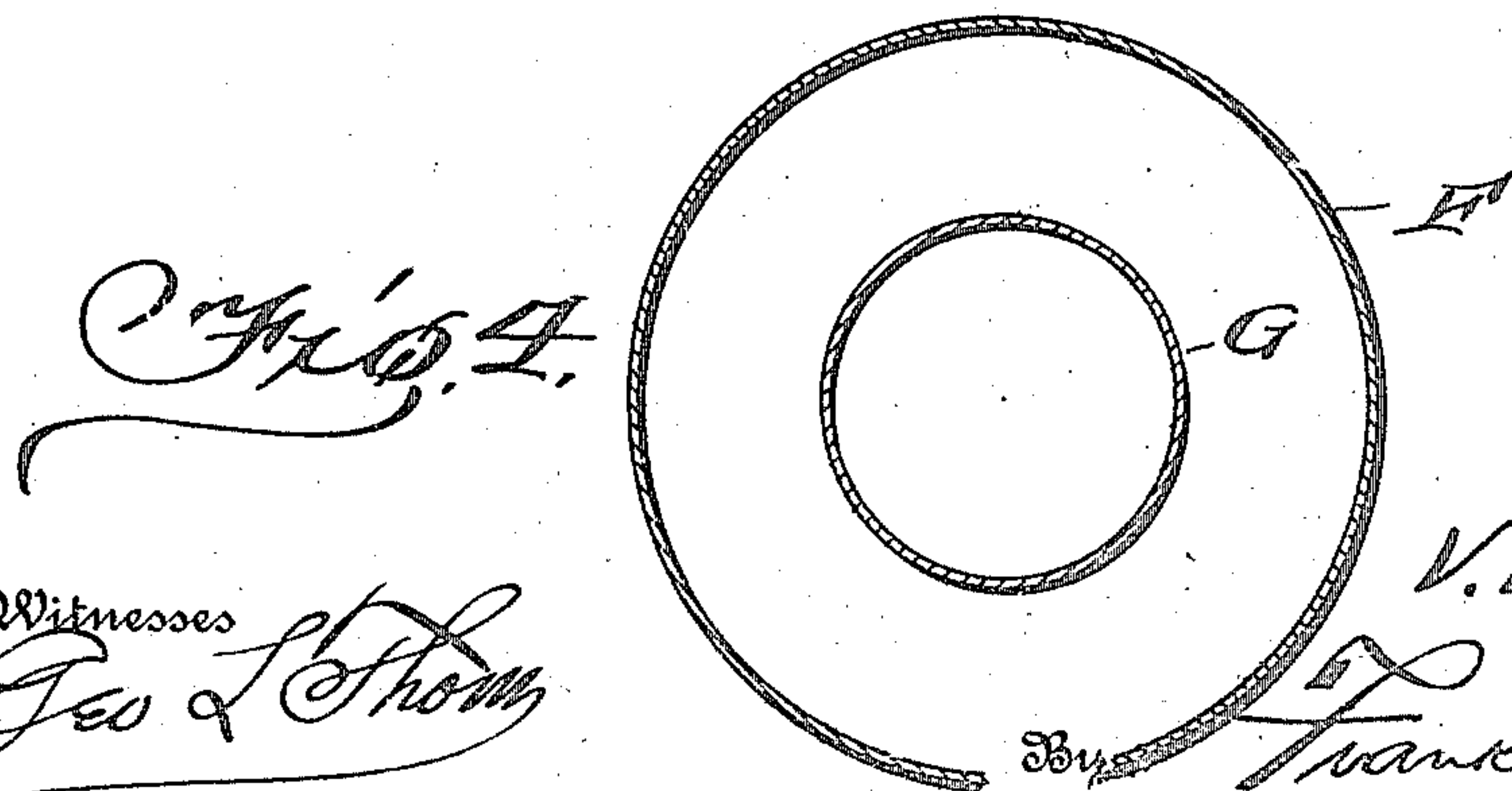
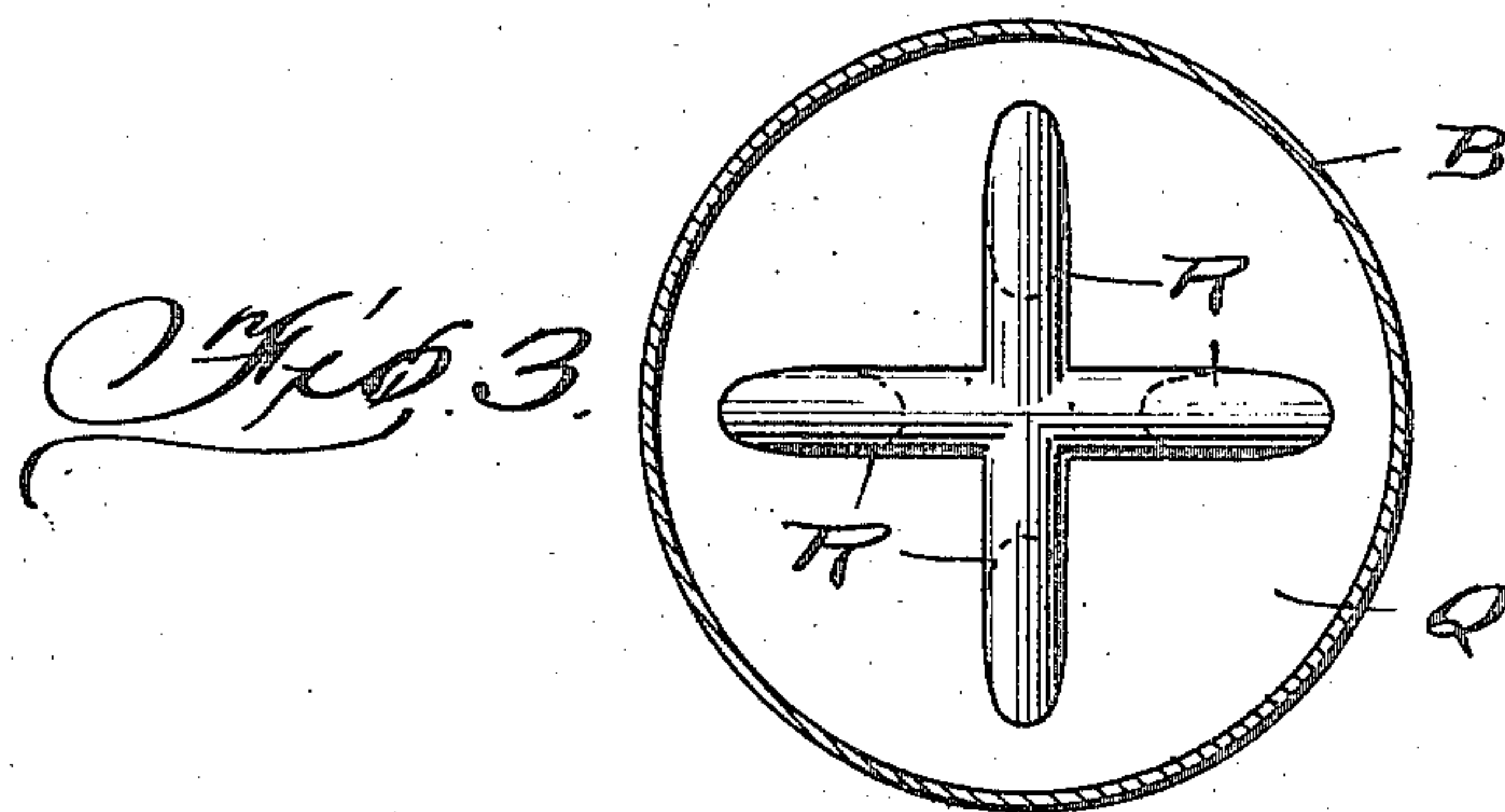
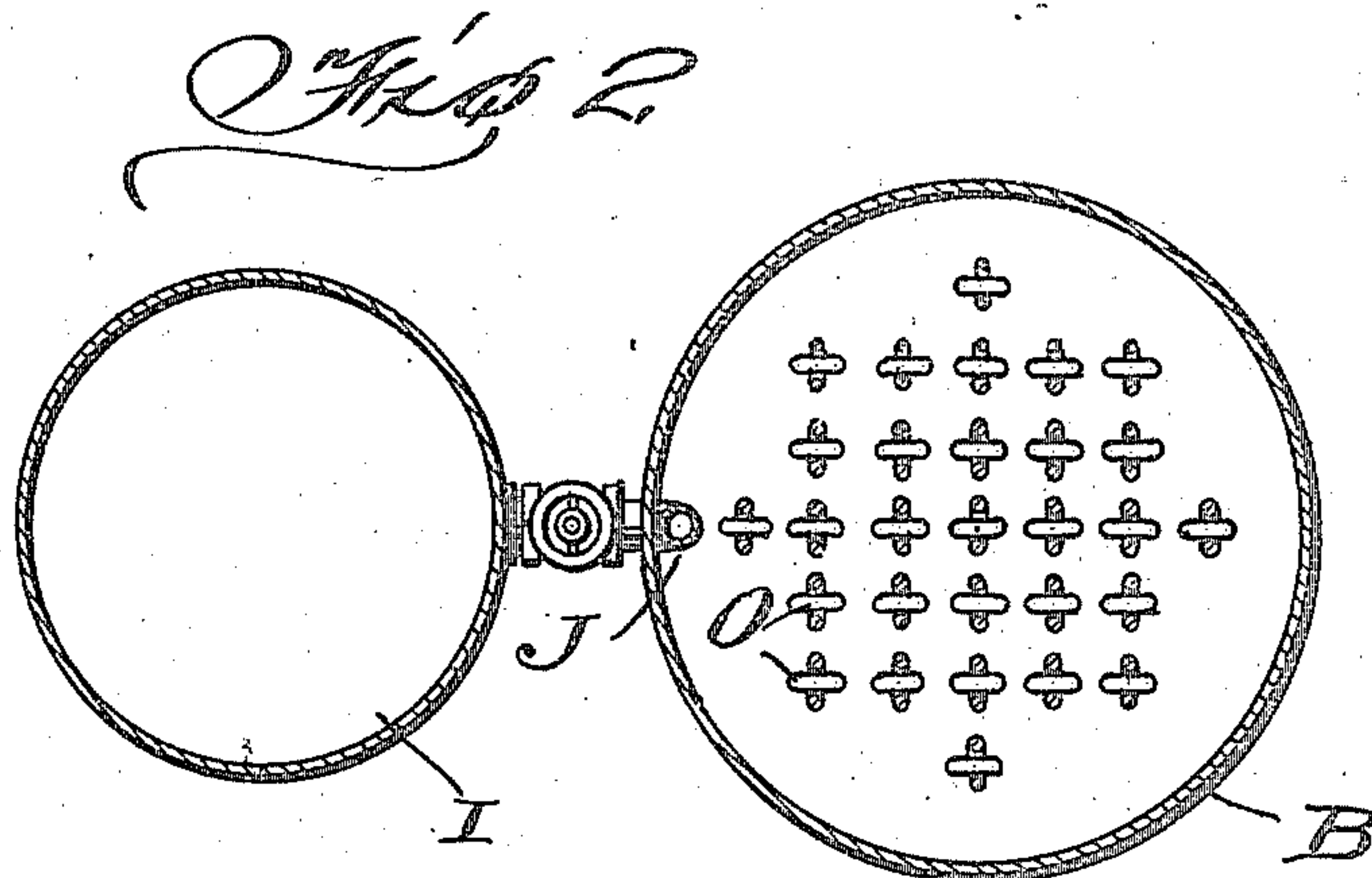
Attorney

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2 SHEETS—SHEET 2.



Witnesses
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UNITED STATES PATENT OFFICE.

VICTOR E. LOMBARD, OF FORT SMITH, ARKANSAS.

SMOKE AND FUME CONSUMING APPARATUS.

970,520.

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To all whom it may concern:

Be it known that I, VICTOR E. LOMBARD, a citizen of the United States, residing at Fort Smith, in the county of Sebastian and State of Arkansas, have invented certain new and useful Improvements in Smoke and Fume Consuming Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in smoke and fume consuming apparatus for smelter smoke stacks, etc., and comprises a simple and efficient means having various details of construction and combinations and arrangements of parts which will be hereinafter fully described and then specifically defined in the appended claim.

I illustrate my invention in the accompanying drawings, in which:—

Figure 1 is a vertical central sectional view through the apparatus. Fig. 2 is a sectional view on line 2—2 of Fig. 1. Fig. 3 is a sectional view on line 3—3 of Fig. 1, and Fig. 4 is a sectional view on line 4—4 of Fig. 1.

Reference now being had to the details of the drawings by letter, A designates a housing adapted to partially close the apertures and in which a receptacle B is partially located and which receptacle passes through the flooring of the housing and has communication near its upper end with the contracted end of the inflow pipe or stack C. Said stack or pipe C has positioned in a curved portion thereof a fan D fixed to a motor shaft D' which is journaled in suitable bearings in an aperture in said pipe or stack C, said motor shaft being connected to a motor within the casing E. The lower portion of said pipe or stack C flares outwardly and has a hood F at its lower end into which the upper end of the smoke stack G extends a slight distance and into which it opens a space being left about the circumference of the exit end of the stack G and said hood and through which space air may be drawn in with the smoke as it passes to and is fed into the receptacle B. The upper portion of said receptacle has a perforated

disk H therein upon which water from the tank I is fed through the valve-regulated pipe J, which latter leads through the wall of the receptacle B and also through the partition H' and has its exit end positioned above the disk H. A cover or hood K fits over said receptacle and exit end of the pipe J. The tank I is adapted to be supplied with water through the pipe N from any suitable source of supply. In the drawings I have shown the tank as resting upon the floor of the housing and its upper end extending through the roof thereof as the pipe N empties into the upper portion of the tank.

Depending from the under surface of the perforated disk H is a series of chains, each series designated by letter O. Said chains extend at any suitable length and are adapted to swing freely therein.

The bottom Q of the receptacle B is slightly funnel-shaped and is provided with a tapering exit tube Q' which may be of any suitable length and adapted to communicate with a tank T by said tube passing through a suitably packed gland T' formed about an aperture in the top of the tank and with which tank valve-regulated pipes P communicate. Mounted within the bottom of the receptacle B are radially disposed pipes R, disposed at inclinations and having their lower ends positioned in a plane a slight distance above the bottom of the receptacle. Leading from the upper portions of said radial pipes is an ejector tube or nozzle R', which extends part way through the pipe Q'.

The operation of my invention will be readily understood and is as follows:—The smoke from the smelter stack G as it issues from the exit end thereof will pass up through the stack or pipe C, being drawn therein by the rapid rotary movement of the fan positioned at the curved and reduced portion of the pipe C. The smoke and fumes as they are drawn into the pipe C will also draw outside air into the space intermediate the wall of the hood and the stack G, thus producing a sufficient quantity of oxygen for furthering the combustion of the smoke. As the smoke as it passes through the pipe C becomes cooled, a partial vacuum will be formed which will further tend to create a suction for drawing the air and smoke upward through the pipe and introducing the same into the receptacle B. Water being supplied to the tank I will be

fed by gravity or otherwise through the pipe J above the disk H in the top of the receptacle. The water spraying down through the perforations in the disk will run down on the chains against which the smoke and fumes from the pipe C contact as they enter the receptacle B. The soot and other foreign matter accumulating upon the chains will be washed down by the water which, aided by the steam generated by the water coming into contact with the heated gases, will cause an agitation within the receptacle, having a tendency to keep the chains cleared of deposits and, as the heavier portions which are precipitated from the smoke settle to the bottom of the receptacle, they will be carried with the current of water which makes exit through the pipe Q'. As a swift current of water will be continuously discharging through the pipe Q', a suction will be formed in the nozzle R', causing the lighter particles of the smoke which are not precipitated to be drawn into the open ends of the inclined pipes R and down through the ejector or nozzle R' and mixed at the exit end of said nozzle with the rapidly descending current, coursing through the pipe Q' and into the reservoir or air trap T below. It will thus be noted

that, by the provision of an apparatus as shown, all lighter particles of smoke not condensed or precipitated may be withdrawn from the receptacle.

What I claim to be new is:—

A smoke consuming apparatus comprising a receptacle with depending chains supported therein, a smoke and air induction pipe communicating with the upper portion of the receptacle, the lower end of the latter having a tapering exit pipe and a trap with which the same communicates, a water supply tank, a pipe communicating between the same and the upper portion of the receptacle, a series of radially disposed inclined pipes in said receptacle with their lower ends open, and an ejector pipe communicating at its upper end with the upper ends of said inclined pipes and extending partially through said exit pipe, the lower ends of said inclined pipes being positioned in a plane a slight distance above the bottom of the receptacle.

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

VICTOR E. LOMBARD.

Witnesses:

ADOLPH ECKER,

BURT BROWNING LOMBARD.