

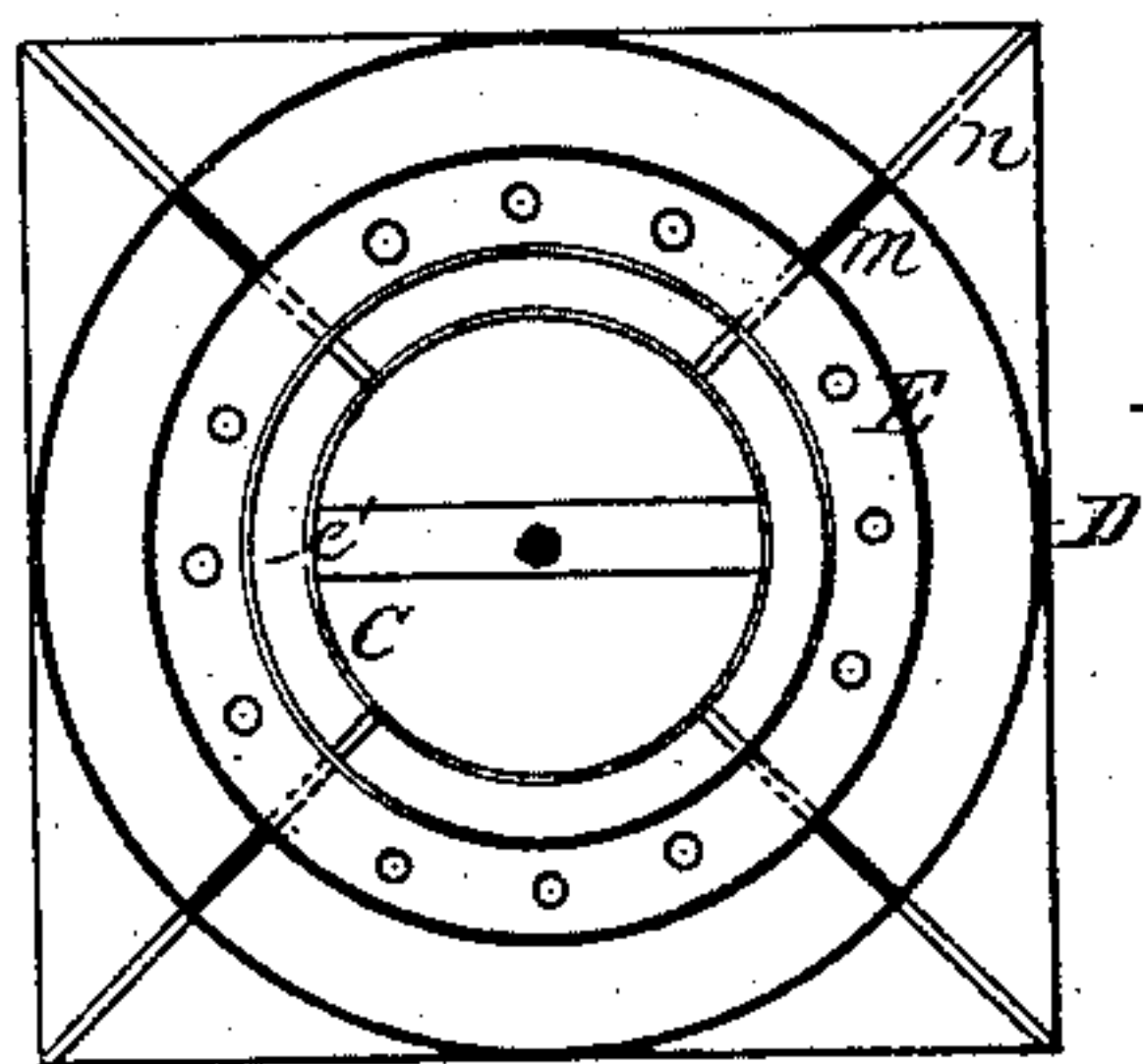
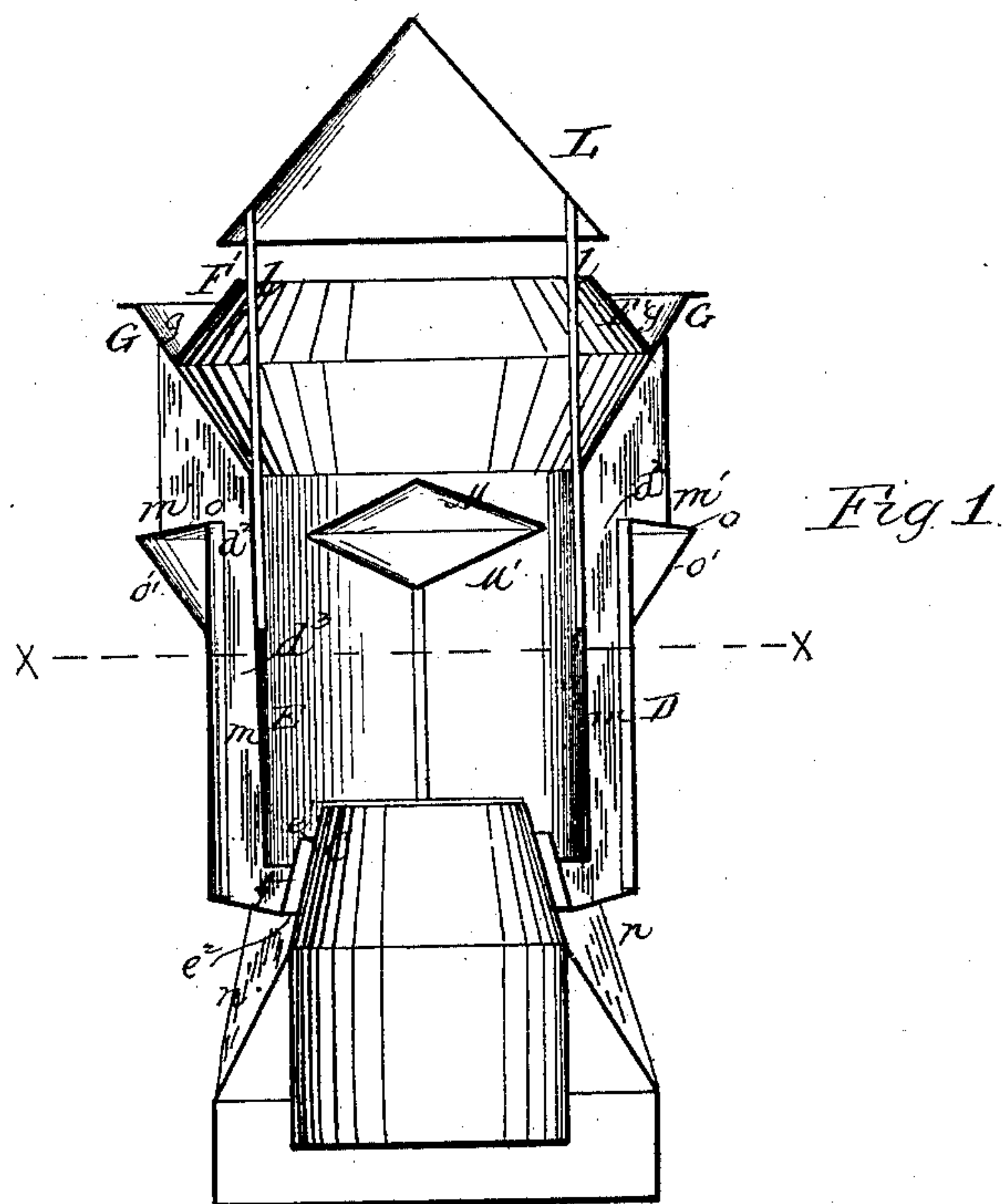
(No Model.)

C. W. CARLL.

CHIMNEY TOP.

No. 338,249.

Patented Mar. 23, 1886.



Witnesses  
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# UNITED STATES PATENT OFFICE.

CHARLES W. CARLL, OF CAMDEN, NEW JERSEY.

## CHIMNEY-TOP.

SPECIFICATION forming part of Letters Patent No. 338,249, dated March 23, 1886.

Application filed February 27, 1885. Serial No. 157,218. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. CARLL, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Chimney-Tops; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a central vertical section of a chimney-top embodying my improvements. Fig. 2 is a horizontal section of the same on the lines  $xx$  of Fig. 1.

This invention has for its object to provide a chimney-cap which will more effectually deflect currents of air blowing toward the top of the cap from various directions, and which, while preventing said currents from blowing down the chimney or smoke-stack, will utilize them so as to increase the draft by causing them to pass the mouth of the chimney vertically, and thereby promote a strong suction.

My improvements consist in the peculiar construction and combination of parts, hereinafter set forth, having reference particularly to the following points: first, the combination with a central smoke-pipe, an external air-jacket and a hood, of an annular deflector  $V$ -shaped in cross-section, located above the mouth of the smoke-stack, and so constructed that the wind, whether striking above or below said deflector, will be caused to pass upward beyond the smoke-stack; second, to the combination, with the smoke-stack and a casing, cylinder, or tube applied thereto and supporting a deflector  $V$ -shaped in cross-section, of a surmounting conical head so constructed as to deflect the air-currents down upon the outer flange of the deflector, and cause the same to pass upwardly from said flange and produce an upward suction within the casing, cylinder, or tube; third, to the combination, with the smoke-stack and the deflecting appliances, of guards to direct the deflected currents in vertical directions and limit their horizontal circulation; fourth, to certain details of construction, as hereinafter fully set forth and specifically claimed.

In an application filed by me on the 25th day of October, 1884, Serial No. 146,455, I

have shown and described a special construction of chimney-cap, the essential features of which may be adopted in carrying my present invention into effect; but I do not limit myself to any special form of cap or cowl, but will describe such as I think best adapted for the purposes of my improvement.

The cap shown in Fig. 1 embodies the principal features described in my application before referred to, and comprises the pipes  $D$   $E$ , surrounding the smoke-stack  $C$  and forming the two air-inlets  $d^2$   $e^2$ , the space  $d^3$  between the two pipes  $D$   $E$  being in communication with the inlet  $d^2$  above the pipe  $D$ , while the inlet  $e^2$  is in communication with the interior of the pipe  $E$ . The pipe  $D$  has an upturned internal flange,  $e'$ , which rises a short distance in the space between the smoke-stack  $C$  and the pipe  $E$ , leaving between the pipe  $E$  and flange  $e'$  annular space  $f$ , for the passage of the currents deflected downward through inlet  $d^2$  and space  $d^3$ .

In my previous application I described and showed the pipe  $E$ , which supports the conical top  $F$ , as a cylinder funnel-shaped at its upper end.

As the principal feature of my present improvement, I add to the funnel mouth or flange  $G$  an internal flange,  $F'$ , of conical inclination, its incline or pitch being the reverse of the funnel, thus producing between the two flanges a channel,  $g$ ,  $V$ -shaped in cross-section; and I find that this construction greatly increases the efficiency of the device, as any currents which otherwise might enter the funnel and blow downward and into the smoke-stack are now caused to strike the inner flange,  $F'$ , and to circulate around the  $V$ -shaped channel and rise above the mouth of the casing  $E$ . As the flange  $F'$  rises somewhat above the upper edge of the funnel, the wind, whether blowing horizontally or downward, will impinge against said flange and be deflected upwardly, the outer flange aiding the directive tendency.

$L$  designates a conical hood supported by rods  $ll$  above the mouth of the chimney-top and a sufficient distance above the  $V$ -shaped deflector  $G$   $F'$ , to afford a free passage in a horizontal direction for the air-currents. This hood I prefer to make of such a diameter at its base and of such a taper that the horizontal or other air-currents impinging against its



sides will be deflected downward and against the inner surface of the flange G, from which they will be deflected inwardly and across the mouth of the stack.

5 Guards or partitions are shown at *m m* attached to the outer surface of the pipe E and radially arranged, so as to divide the annular space between the pipes E and D into vertical channels, whereby the air-currents entering  
10 said space will be caused to travel in vertical lines, and thus impinge against such deflecting flanges or parts as will insure their passage across the mouth of the stack. These partitions or guards are wider at their upper  
15 portions than at their lower, and are shouldered at *m' m'*, so as to rest upon the flaring top of the pipe or casing D, which thus constitutes the support for the pipe E, the partitions serving not only as deflecting mediums,  
20 but as means for maintaining the casings D and E at suitable distances apart. The widening of the partitions above the pipe D further increases the efficiency of the former as means for promoting the proper directive tendency  
25 of the air-currents striking the outer surface of the casing or pipe E above the mouth of the pipe D.

It will be observed that the flaring top of the tube D is formed of two flanges, *o o'*, converg-  
30 ing outwardly, thus producing a double conical head or deflector, the surfaces of which have a tendency to deflect vertical and other currents, so that they will enter the spaces between the partitions, and thus become ef-  
35 fective in promoting draft. Guards *n n*, corresponding in lines to the guards *m*, are arranged below the casing D, the latter being supported on the same.

In my previous application I described an  
40 inverted cone, G, for the purpose of preventing the access of cross-currents of wind. I now suggest a modification of the same, consisting in two cones, *M M'*, arranged base to base, the upper cone serving as a water guard  
45 or shed, and adapted for special use on steamships. The water, entering and falling on the cone M, flows down into the dish or cavity formed by the flanged base of the tube D, which base should be perforated to allow the  
50 water to escape. Should the escape be too slow, the rising water will escape over the edge of the flange.

I have described the deflector composed of the flanges F G as being V-shaped in cross-section; but I do not confine myself to this  
55 precise form, as the flanges may be curved and still perform their functions.

I do not claim, broadly, the combination, with a chimney or smoke-stack having a surmounting hood, of a V-shaped deflector, the  
60 same being shown in the patent to Hull, No. 197,033, wherein the V-shaped deflector is applied to a rectangular chimney, while the surmounting hood depends below the upper edge of the inner wall of the V-shaped deflector. 65

What I claim as my invention is as follows:

1. In chimney caps or cowls, the combination, with a smoke-pipe, of a surmounting deflector consisting of two conical flanges, F G, arranged at opposite inclinations and includ-  
70 ing a V-shaped space closed at the bottom and adapted and designed to deflect currents of air, and a surmounting conical hood of a diameter equal to or less than the flange G of said deflector, said hood being arranged with  
75 its base above the top of the flange F', substantially as described.

2. In a chimney top or cowl, the combination, with the body E, provided with the radial partitions or guards *m m*, and having a  
80 V-shaped deflector, G F', arranged at its upper end, of the external casing, D, provided with a double conical deflecting-flange, *o o'*, the partitions *m* being widened and shouldered at their upper portions, so as to rest upon said  
85 flange, substantially as described.

3. In a chimney top or cowl, the combination, with the smoke-stack and the surrounding casing E, separated from said smoke-stack by an annular space, of the external casing, D,  
90 having an upturned flange at its lower edge embracing the lower edge of the casing E, and forming a trough for the reception of water, the base of said trough being perforated and the flange portion being below the mouth  
95 of the stack, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of February, 1885.

CHARLES W. CARLL.

Witnesses:

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LISLE STOKES.