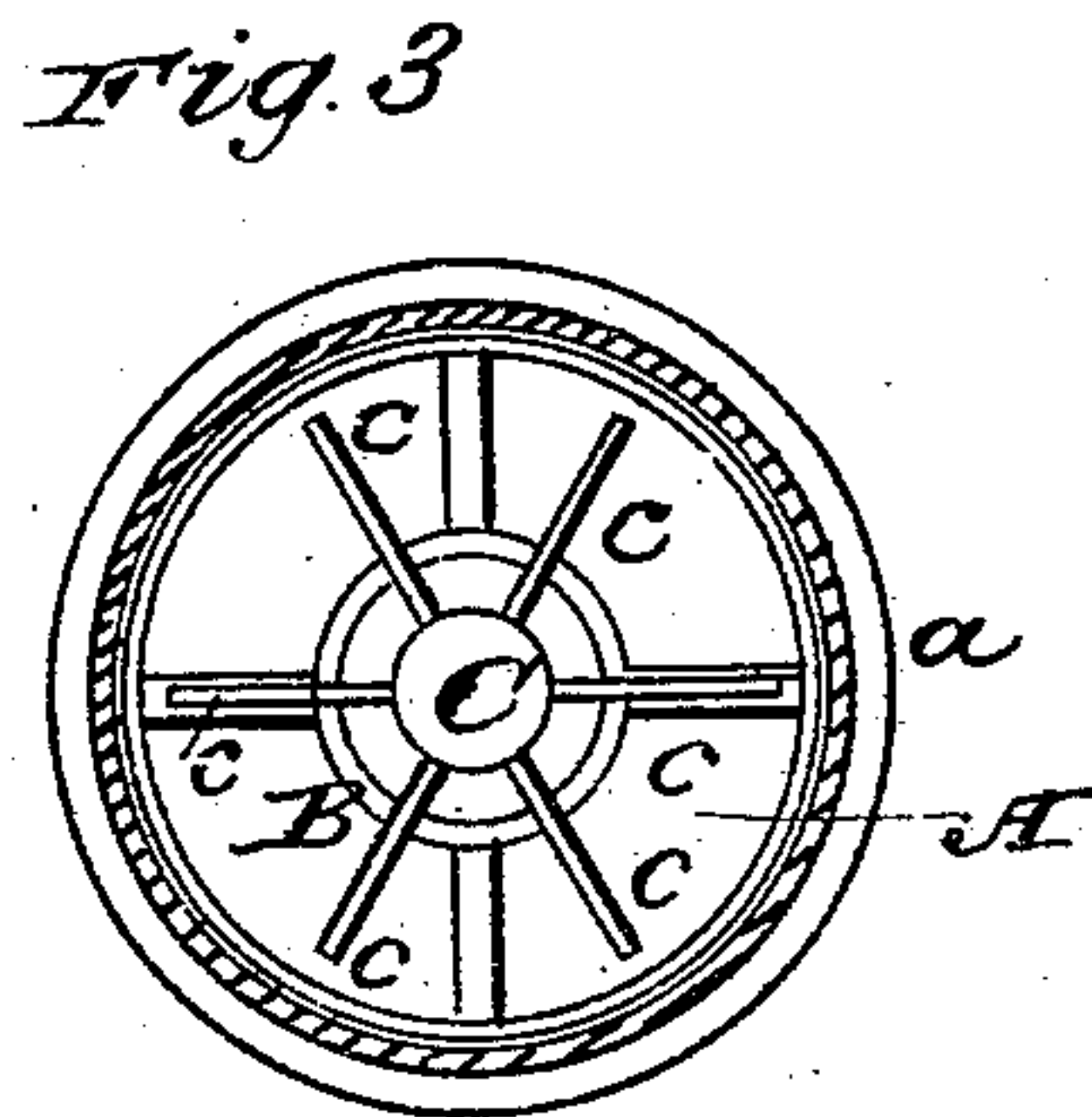
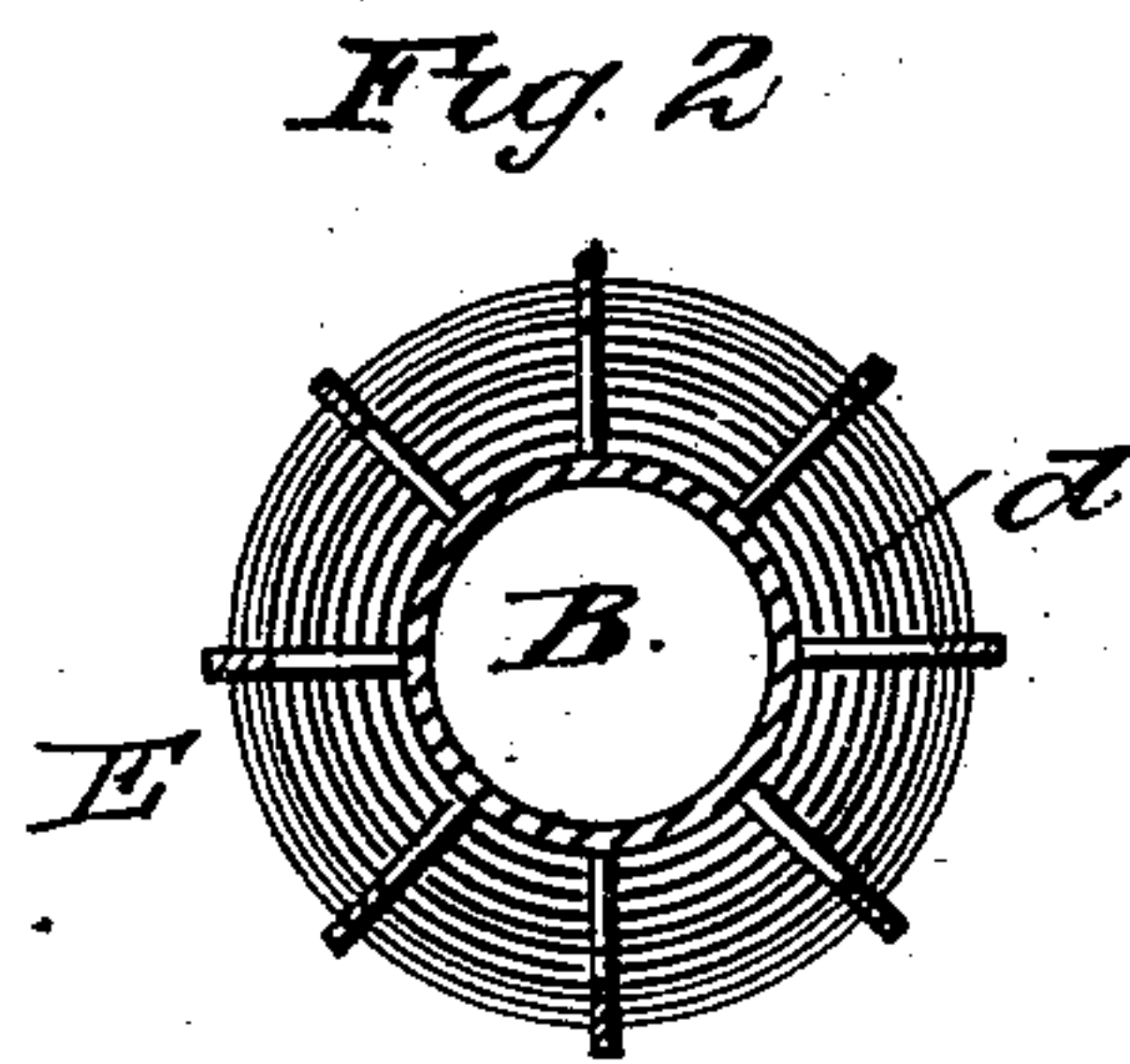
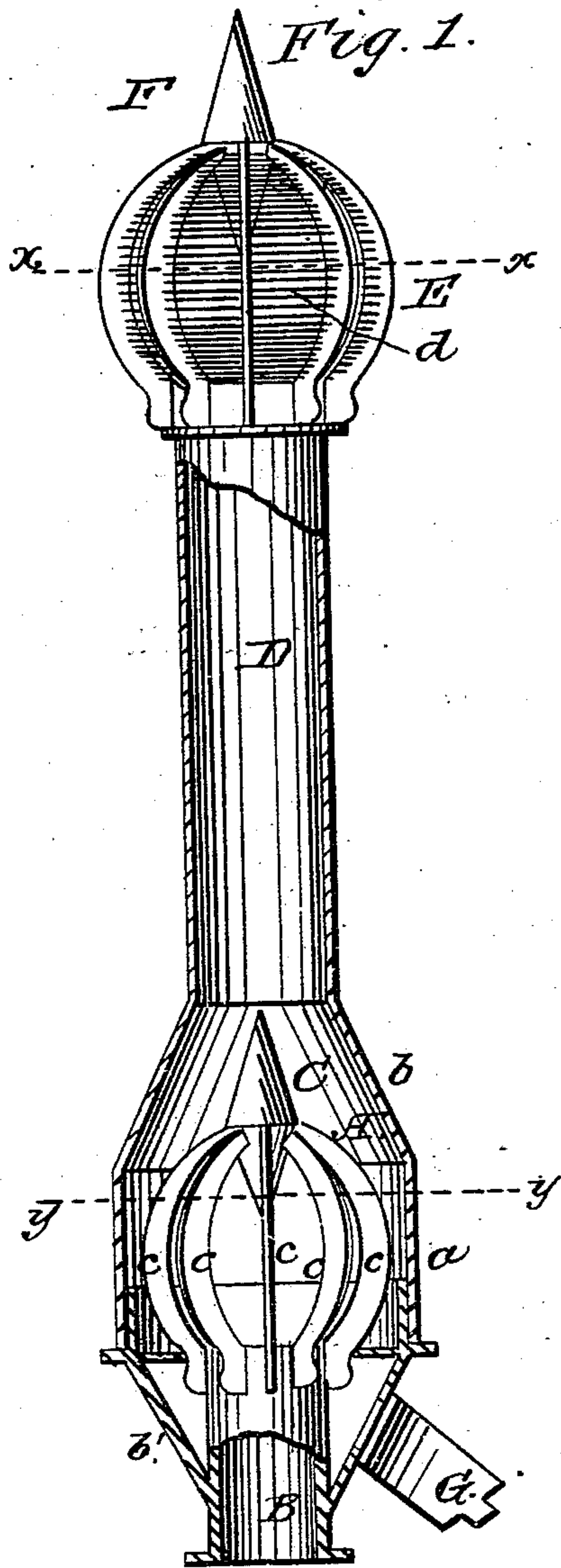


A. WILHELMS.  
Chimney Cowl.

No. 84,600.

Patented Dec. 1, 1868.



Witnesses  
Jm. A. Morgan.  
G. C. Cotton

Inventor.  
A. Wilhelm  
per *[Signature]*  
Attorneys



# United States Patent Office.

AUGUST WILHELMS, OF ST. PETERSBURG, RUSSIA.

Letters Patent No. 84,600, dated December 1, 1868.

## IMPROVEMENT IN CHIMNEYS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, AUGUST WILHELMS, a citizen of the United States of America, temporarily residing at St. Petersburg, Russia, have invented a new and useful Improvement in Chimneys; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to a new and useful improvement in chimneys, for the purpose of causing smoke to be consumed in furnaces or fire-chambers, the invention being applicable to stationary chimneys, or those which are attached to fixed buildings, as well as to those which are attached to steamboats, locomotives, &c.

In the accompanying sheet of drawings—

Figure 1 is a vertical central section of my invention.

Figure 2, a horizontal section of the same, taken in the line *x x*, fig. 1.

Figure 3, a horizontal section of the same, taken in the line *y y*, fig. 1.

Similar letters of reference indicate corresponding parts.

The chimney may be of masonry, or constructed of iron plates, up to what I term "the rectifier," A, which should be of iron plates, the central portion, *a*, being of cylindrical form, the upper part, *b*, of conical form, and the lower part, *b'*, of inverted conical form, as shown clearly in fig. 1.

B is a tube, which enters the lower end of the rectifier, A, and extends upward therein to a level with the upper end of the part *b'*, and has a series of curved arms, *c*, attached, which approximate in form to a skeleton sphere, and support a biconical deflector, C, the upper end of which reaches the level of the upper end of the part *b* of the rectifier.

If the chimney is to be applied to a locomotive-boiler, the base of the pipe B should be about on a line with the top of the boiler.

D is a tube, which exceeds the diameter of the tube B, and is secured on the top of the rectifier, as plainly shown in fig. 1.

And on the top of the tube D there is secured a spherical frame, E, encompassed by a wire grating, *d*, said frame having a biconical deflector, F, fitted in the centre of its top.

The radius of the frame E is equal to the diameter of the tube D. The deflector F, at its centre, has a diameter equal to the radius of the tube D, and the deflector C, at its centre, has a diameter equal to the radius of the tube B.

The height of the chimney, and diameter of the tubes and rectifier, may vary, according to circumstances.

When the fire is kindled, the draught will be comparatively slight, but sufficient to cause a proper ignition of the fuel, but as the rectifier becomes heated, the draught of course increases.

All the products of combustion, when the fire is first lighted, pass up through the tube B, the ashes being directed, by the deflector C, against the sides of the rectifier, fall into the portion *b'*, from which they can be removed, when desired, through the door G.

When the heat in the rectifier increases, the pure carbon separates itself from the drawn-up ashes and incombustible gases, and completely fills the rectifier, gradually increasing in volume until the pipe B is also filled; and, as this pipe joins the furnace, the pure carbon is, as it were, backed up into the latter, where it remains so long as the heat is continued, so that the carbonic-oxide and other combustible gases are consumed within the furnace.

The incombustible gases being lighter than pure carbon, pass through it, and escape through the pipe D.

It will be understood that comparatively little heat escapes upward from the rectifier.

The pressure of the cold air at the top of the chimney is averted by the deflector F and wire grating *d*.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

The rectifier, A, with the biconical deflector C at the lower part of the chimney, in connection with the deflector F and spherical frame E, covered with an iron grating, *d*, on the top of the chimney, all constructed and arranged substantially as and for the purpose set forth.

The above specification of my invention signed by me, this 25th day of April, 1868.

AUGUST WILHELMS. [L. s.]

Witnesses:

J. F. HERRICK,  
B. J. CLAY.