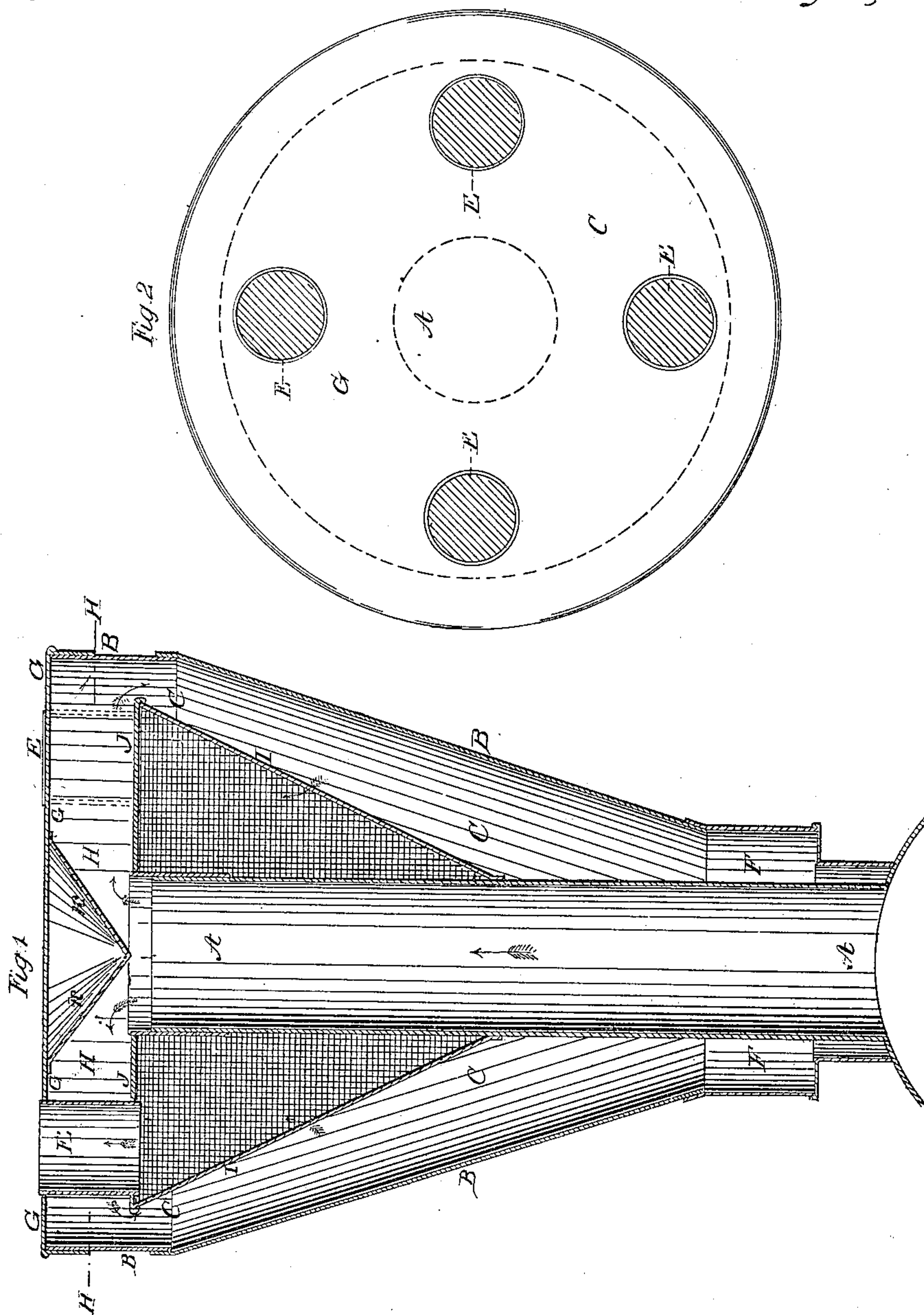


L. Phleger,
Spark Arrester.

N^o 42,792.

Patented May 17, 1864



Witnesses.
A. Moore
Jr. D. Patton

Inventor:
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UNITED STATES PATENT OFFICE.

LEONARD PHLEGER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SPARK-ARRESTERS.

Specification forming part of Letters Patent No. 42,792, dated May 17, 1864.

To all whom it may concern :

Be it known that I, LEONARD PHLEGER, of the city and county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Spark-Arresters; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a longitudinal vertical section through the spark-arrester, showing its interior arrangement. Fig. 2 represents a top plan of the spark-arrester.

I am aware that several attempts have been made to take the sparks, cinders, and smoke from the chimney and carry them against a wire-gauze or perforated plate in the shape of an inverted cone; or of a cylinder, for the purpose of separating the smoke, &c., from the heavier matter, and allowing the former to pass out, while the latter were retained in the stack; but they have failed to go into use from two causes, which are fatal to their practical introduction—viz., they have either spoiled the draft through the chimney or have choked up and become worse than useless. In some cases the escaping products of combustion have been turned into a series of small avenues, which throttled the draft and rendered that construction useless. In other cases the screen was made cylindrical, and on these the sparks and cinders clung, so as to fill up and stop all the escape of the smoke, so much so that the originators of this plan had to devise other openings, which were to be used when the cylinder became choked; but these other openings passed sparks and cinders, and hence this plan was also a failure. I propose to use this heretofore impracticable plan of sifting the crude matter from the smoke and gases, but to do it in such a way as neither to choke nor throttle the draft, nor yet to accumulate the cinder on the screen, so as to prevent the free escape of the smoke; and my invention relates to the manner in which I have arranged and combined the spark and gas passages with the conical screen, by which I avoid all the hitherto evils of this plan, while I avail myself of that mode

of separation which is really valuable and useful; and my invention consists in combining with a central chimney having an inverted conical chamber at or near its top, and extending downward therefrom (said chamber being formed of a woven-wire or perforated plate surrounding) a large chamber or passage over the top of the chimney and screen, and between them and the top plate of the stack, into which the escaping products are hurled, and from which they pass against the screen, the smoke passing through the screen and out of the stack, and the cinders falling from the screen into the receptacle below.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A is the chimney, surrounded by the jacket B, so as to form a chamber, C, between them. I is a conical-shaped screen surrounding the top of the chimney, to stop the cinders on its outer side, while the smoke may pass through it and out through the pipes E, while the cinders drop into the space F. Between the top of the chimney and the top plate G of the stack there is a large passage, H, into which the sparks, smoke, &c., are hurled and their velocity partially checked by the expansion of this passage as compared with the area of the chimney; thence, as shown by the arrows, they pass over the top plate, J, of the screen and down against its sides, where the smoke passes through and out of the pipes E, while the cinders drop down, as explained. The screen I may be made of woven wire or of perforated metal plates, the latter not holding the sparks or cinder so much as the former. The conical form of the screen I caused the cinder, &c., to drop off and fall down into F, there being nothing to support it, and its accumulation is the very means of its falling off when of any great amount. The large passage H, with the deflecting-surfaces K, deadens the velocity of the flying cinders and turns them gently toward their final destination without impairing the requisite draft through the stack. Any attempt to pass these escaping products into small passages or to deflect them suddenly renders the apparatus worthless. The large passage between the heads J

G is therefore an important element in my construction.

Having thus fully described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

The arrangement of the chimney A, conical screen I, wide passages H and C, and exit

pipes or passages E, as and for the purposes herein described and represented.

L. PHLEGER.

Witnesses:

A. B. STOUGHTON,
XAVIER FENDRICH.