

D. B. STALKER.
Spark-Arrester.

No. 225,886.

Patented Mar. 23, 1880.

Fig. 1.

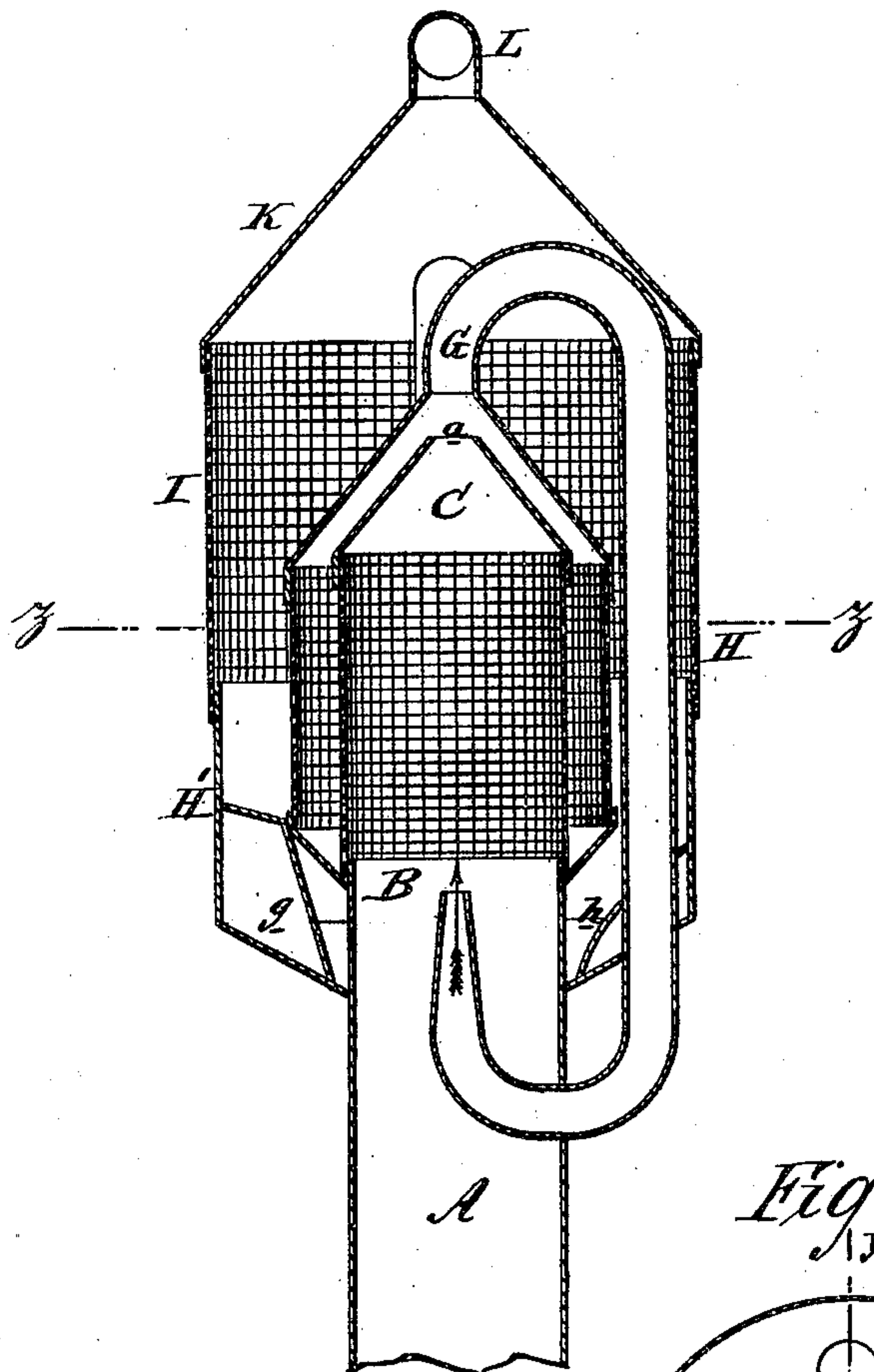


Fig. 2.

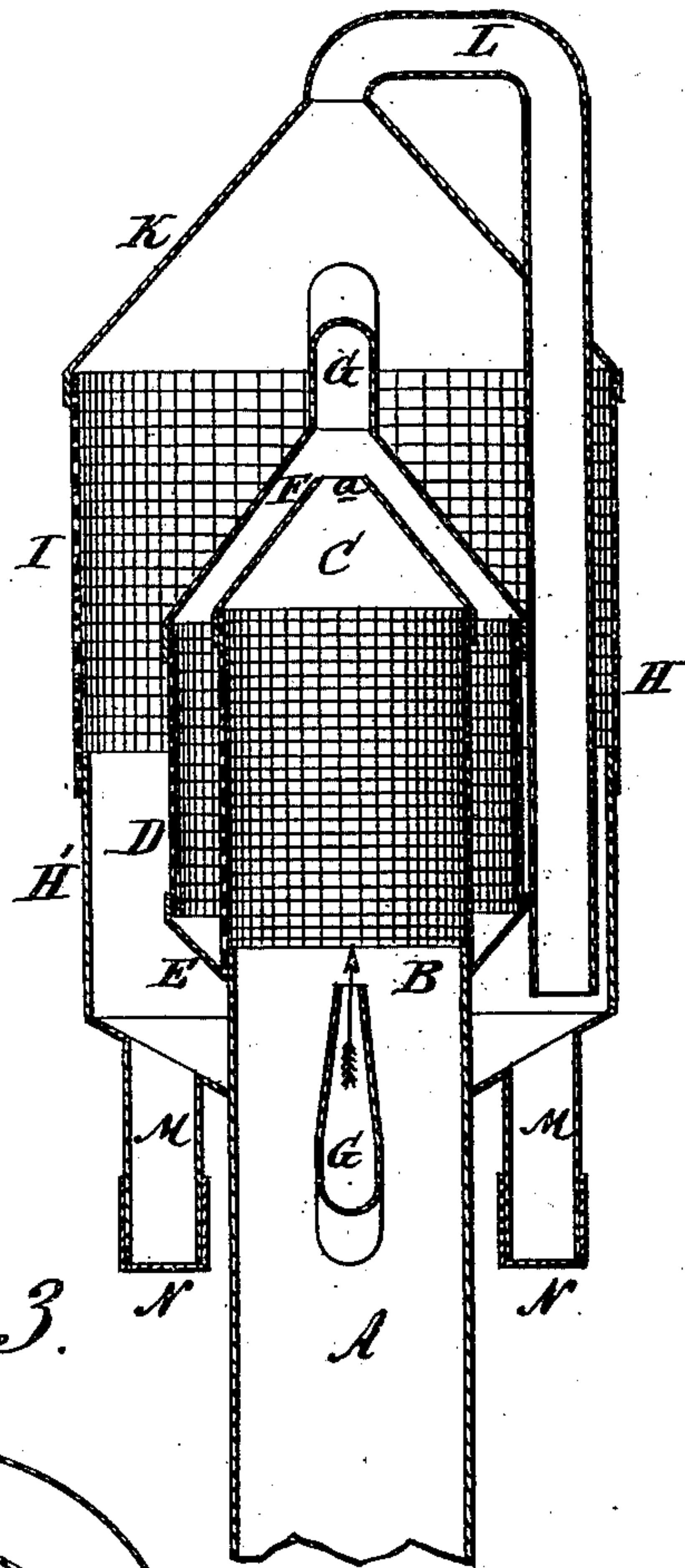
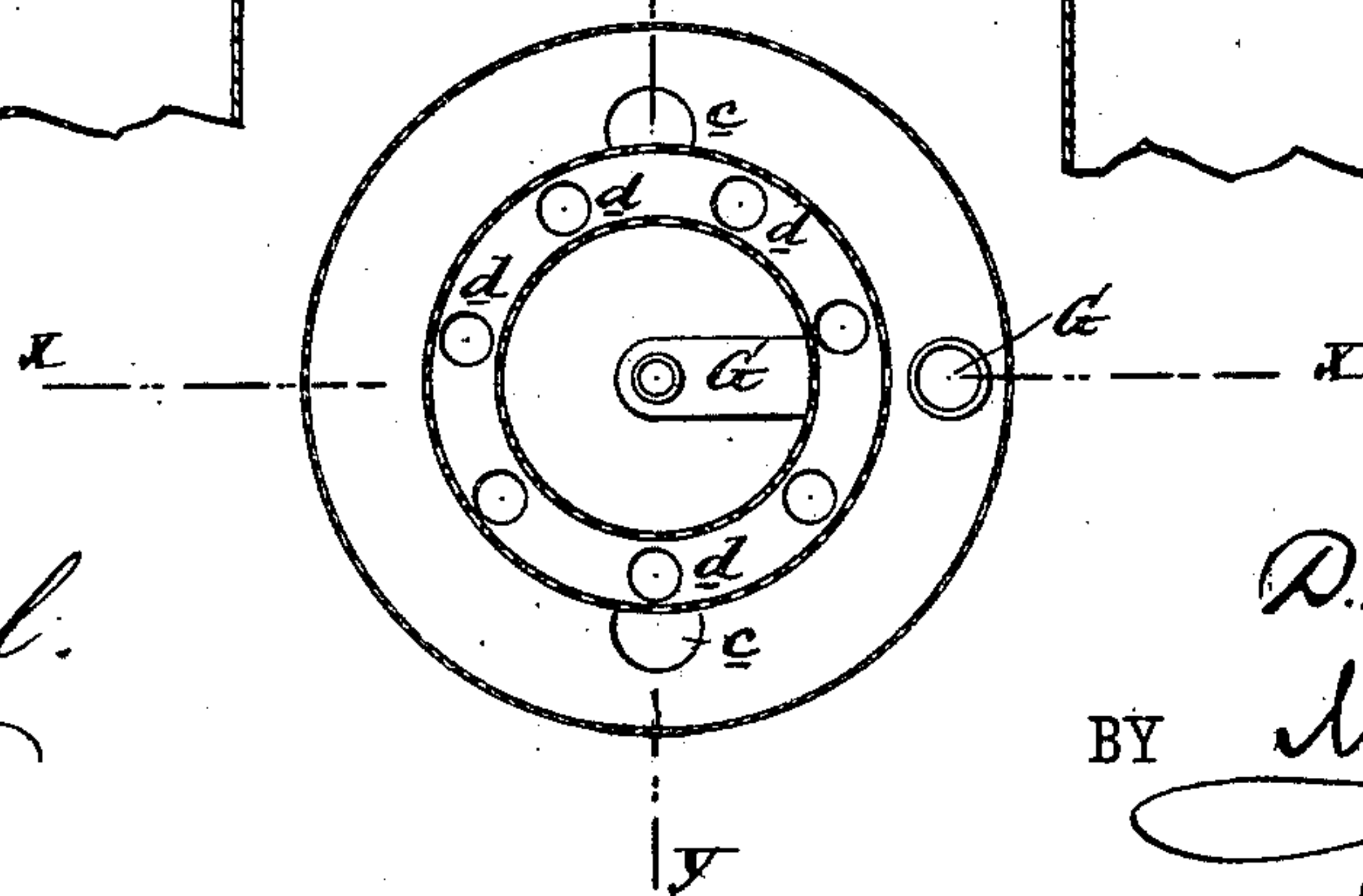


Fig. 3.



WITNESSES:
A. Schehl.
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UNITED STATES PATENT OFFICE.

DANIEL B. STALKER, OF NEW PETERSBURG, OHIO.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 225,886, dated March 23, 1880.

Application filed January 9, 1880.

To all whom it may concern:

Be it known that I, DANIEL B. STALKER, of New Petersburg, in the county of Highland and State of Ohio, have invented a new and Improved Spark-Arrester, of which the following is a specification.

Figure 1 is a vertical sectional elevation of the device on line *x x*, Fig. 3. Fig. 2 is a vertical sectional elevation of the same on line *y y*, Fig. 3. Fig. 3 is a transverse sectional plan view of the device on line *z z*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to that class of devices that are designed for the purpose of preventing the escape of sparks and cinders from the stacks of locomotive and other boilers.

The invention consists of three cylindrical wire screens set concentrically one within another, and fixed in a vertical position on the top of a boiler smoke-stack, and provided with caps and tubes and other devices for aiding in arresting and disposing of the sparks and cinders that may escape from the stack.

In the drawings, A represents a smoke-stack, on the top of which is fixed a cylindrical coarse wire screen, B, whose upper end is partly closed by a sheet-metal cone, C, provided with an opening, *a*, in its apex. Surrounding this screen B is a finer cylindrical screen, D, attached at its bottom to the stack A by a perforated metallic cone, E, and this screen is also capped by a metallic cone, F, which terminates in a pipe, G, that extends upward a short distance, and then turns downward parallel with the smoke-stack, then curves and enters the smoke-stack below the screens, and then turns upward in the vertical axis of the said smoke-pipe. Surrounding and inclosing the upper part of this smoke-stack, the screens B E, and their cones or caps, and all but the lower portion of the pipe G, is a cylinder, H, the lower part, H', of it being made of sheet metal and the upper part of fine wire screen I, which cylinder is surmounted by a conical cap, K, to whose top is connected the pipe L, which is extended horizontally for a short distance, and then turned straight downward to pass through the cap K to nearly the bottom of the cylinder H, and

between it and the cylinder D. Connected with the holes *c c* in the conical bottom of the cylinder H are the pipes M M, which extend downward a short distance and have their ends closed by caps N N. In the bottom H' of this outer cylinder, H, is seen a metallic support, *g*, against which the lower edge of the cylinder D rests, and whereby it is steadied in position, and opposite this, within the cylinder H, is seen another raised support, *h*, down through which the pipe G passes, and by which it is steadied. Many of the sparks and cinders passing up the smoke-stack A will pass through the coarse wire screen of the cylinder B, and escape thence through the two concentric cylinders D H, while the coarser sparks and cinders (most of them) will be carried up by the blast or draft from the smoke-stack, to escape through the opening *c* in the top of the smaller cylinder B, and will fall down into the space between the two cylinders B and D, and thence through the perforations *d* in the conical bottom E into the bottom of the outer cylinder, H, where they will remain until they burn out or become extinguished; and a portion of the sparks and cinders that are not disposed of in this manner will be carried by the blast into the pipe G, and thence again into the smoke-stack A, to be carried again upward in the direction of the arrow. If there be still other sparks and cinders that are not disposed of by either of these methods, but escape into the outer cylinder of the device, they will, if not too large, pass through the screen I, fall into the bottom of the said cylinder H, and thence into the pipes M M, where they will gradually become extinguished, and whence they may be drawn from time to time by the removal of the caps N N.

A chief advantage of this device is that while it makes the escape of large sparks and cinders into the open air impossible, it disposes of them without clogging the boiler-flues or tubes or the screens of the spark-arrester.

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

1. A spark-arrester made, substantially as

herein described, of three concentric conically-capped wire cylinders, B D H, with their respective pipes G L M M, as herein set forth.

2. The combination, with the smoke-stack
5 A B C, open at *a*, of the cylindrical screen D, attached to the stack at bottom by the perforated cone E, and provided with a top cone, F, terminating in a pipe, G, that passes
10 screens, as shown and described.

3. In a spark-arrester, in combination with the inner cylinders, B D, the outer cylinder, H, composed of the lower conical portion, H', wire screen I, and conical cap K, and provided with pipes L M M, substantially as and for
15 the purpose described.

DANIEL BURGESS STALKER.

Witnesses:

ISAAC HIATT,
CHARLES OATES.