

(Model.)

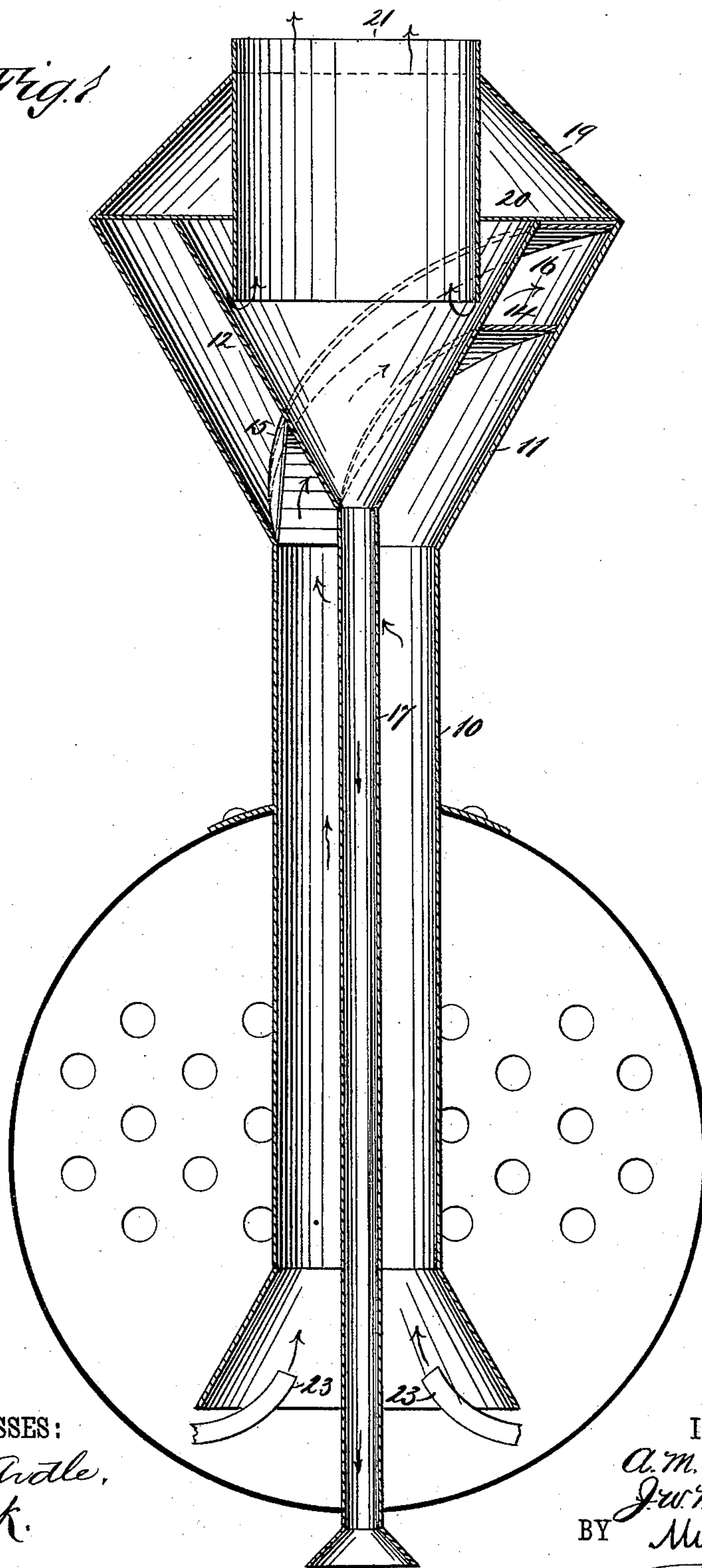
2 Sheets—Sheet 1.

A. M. HENDERSON & J. W. MARTIN.
SPARK ARRESTER.

No. 378,507.

Patented Feb. 28, 1888.

Fig. 1



WITNESSES:

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INVENTOR:

A. M. Henderson,
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ATTORNEYS.

(Model.)

2 Sheets—Sheet 2.

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Fig. 2.

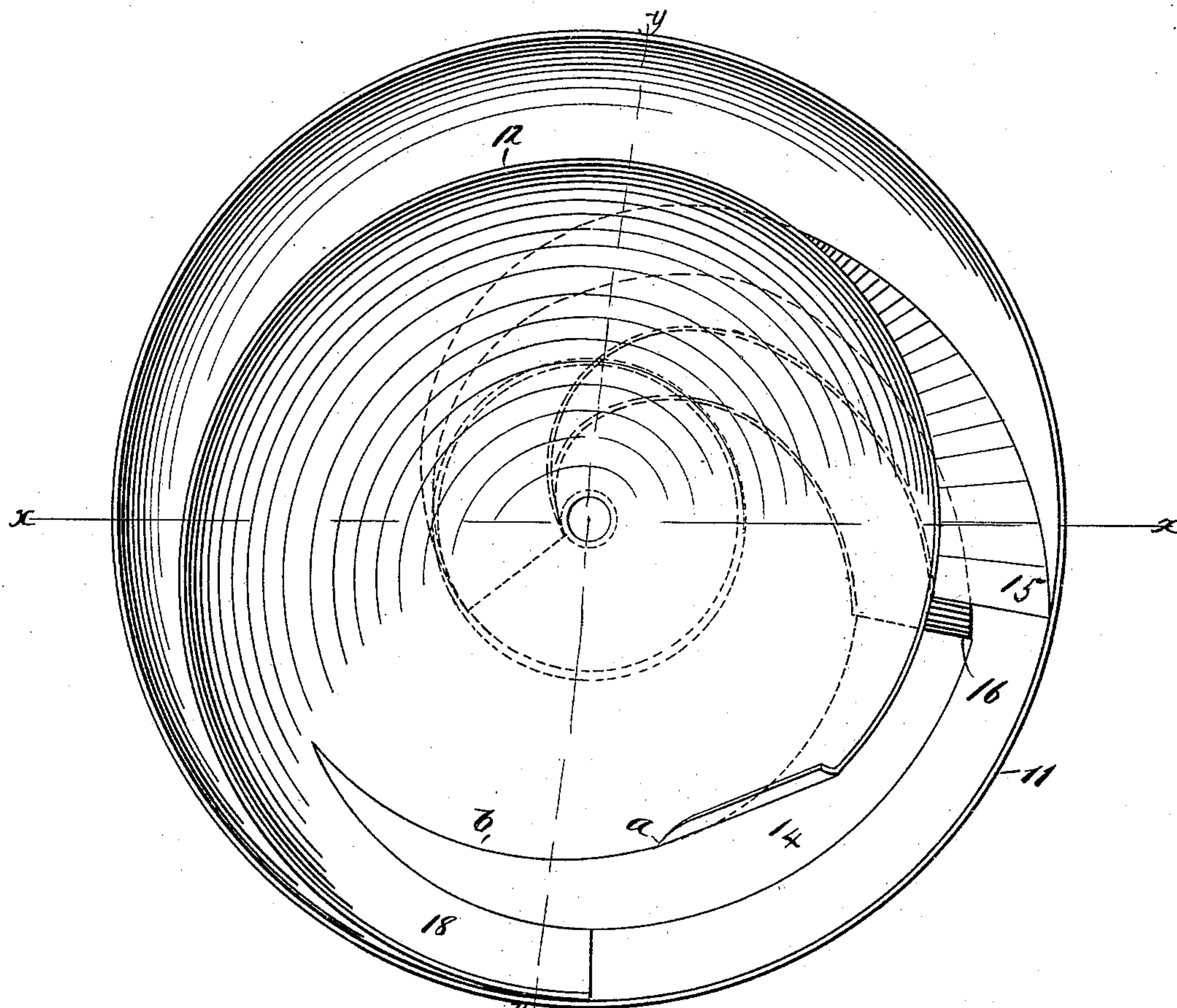
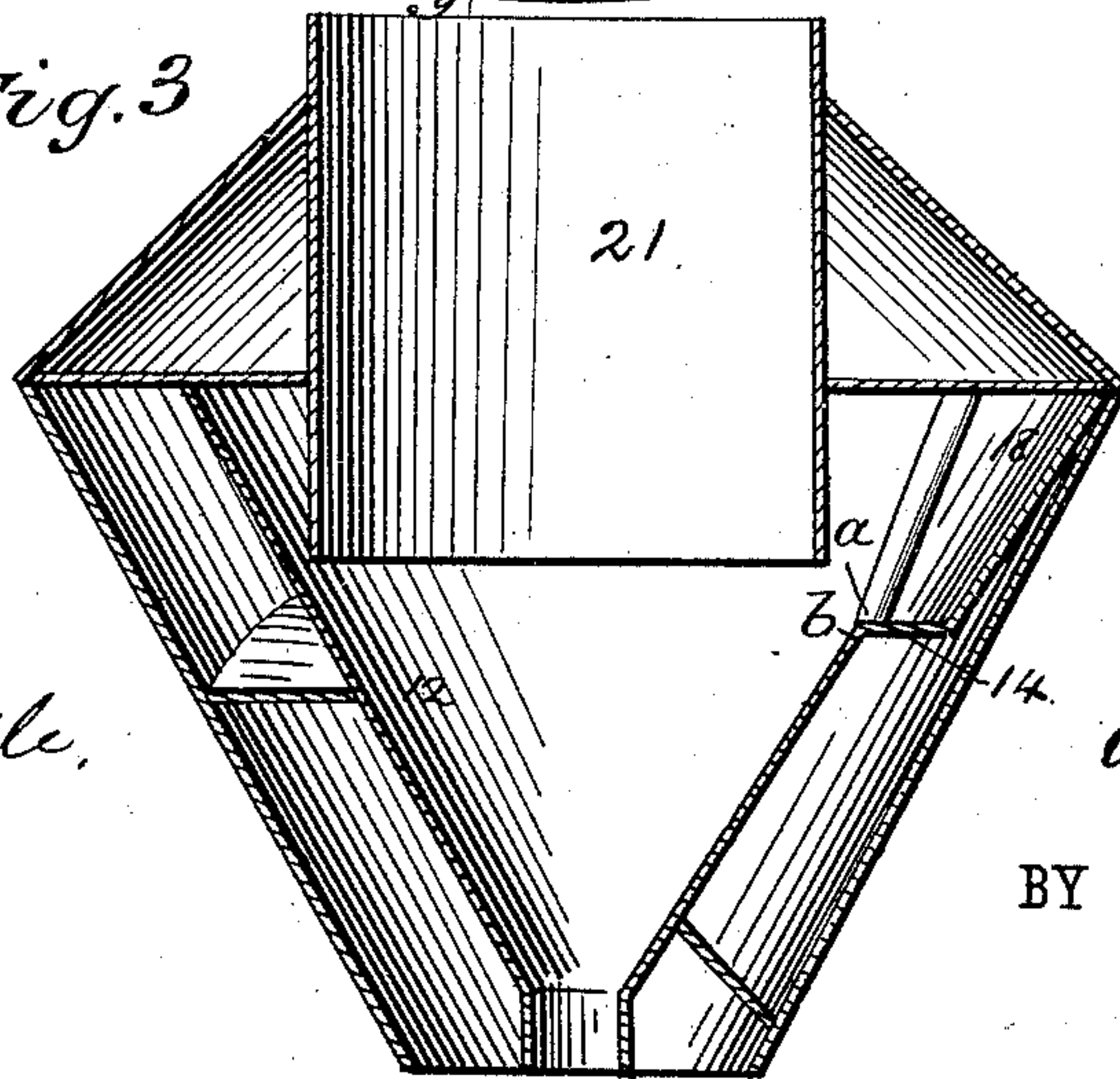


Fig. 3



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UNITED STATES PATENT OFFICE.

ANDREW M. HENDERSON AND JOHN W. MARTIN, OF FORT COLLINS,
COLORADO.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 378,507, dated February 28, 1888.

Application filed June 2, 1887. Serial No. 240,047. (Model.)

To all whom it may concern:

Be it known that we, ANDREW M. HENDERSON and JOHN W. MARTIN, of Fort Collins, in the county of Larimer and State of Colorado, have invented a new and Improved Spark-Arrester, of which the following is a full, clear, and exact description.

This invention relates to a novel form of spark-arrester that is applicable for use in connection with the boilers of stationary engines and of locomotives, the object of the invention being to intercept the sparks that are carried to the stack and to return them to any properly-located receptacle, all as will be hereinafter more fully explained, and specifically pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a central sectional elevation of our improved spark-arrester, the spark-arrester being shown as it appears when arranged in connection with a horizontal boiler, the view being taken on a line corresponding with that of the line *x x* of Fig. 2. Fig. 2 is a plan view of the spark-arrester with the cap removed. Fig. 3 is a vertical section of the upper end of the arrester on the line *y y* of Fig. 2.

In constructing such a spark-arrester as the one forming the subject-matter of this application we prefer to employ a stack with an inverted-bell-shaped projection at its upper end, the stack being shown at 10 in the drawings above referred to, while the inverted-bell-shaped projection is shown at 11. Within the projection 11 there is mounted an inner case, 12, between which case and the projection 11 there are two spirally-arranged division-walls, 14 and 15, a spiral passage, 16, being thus formed between the two walls, said passage running from the stack proper upward and about the inner case, 12. A small pipe, 17, is secured to the lower open end of the case 12, and this pipe extends downward within the stack 10, as clearly shown in Fig. 1.

The case 12 is not entirely concentric with the projection 11, as the wall of the case is

parted from the upper edge to the point marked *a*, and then there is formed a horizontal cut, *b*, the flap 18 produced by the cuts above described being bent outward and being secured to the inner face of the projection 11, while the dividing wall or partition 14 is carried along in a horizontal plane and connected to the two edges of the cut *b*, as illustrated.

The projection 11 is surmounted by a cap, 19, which has a horizontal partition, 20, and a central downwardly-extending tube, 21, the lower edge of which tube closely approaches, but does not touch, the inner face of the case 12. In order to produce the necessary draft, steam-jets 23 may be located as indicated in Fig. 1.

The stack 10 is connected to the boiler in the ordinary manner, and in operation the products of combustion will pass up through the stack and will enter the passage 16 between the partitions 14 and 15, passing thence into the cone-shaped chamber formed by the case 12, and outward through the discharge-pipe 21, the preponderance of particles—such as soot, cinders, &c.—being lodged upon the wall 14, to fall thence by their own gravity downward through the stack 10, such particles, however, as may be carried within the chamber formed by the case 12 dropping downward through the pipe or tube 17 and into a proper receptacle that is located beneath the discharge end of the pipe.

Such a spark-arrester as the one above described will be found to be exceedingly effective, as well as cheap and durable, and the apparatus may be used in connection with most any form of boiler or furnace.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. In a spark-arrester, the combination of an inverted-bell-shaped projection, an inner casing mounted in the projection and having its wall cut at *a b*, forming a flap, 18, which is secured to the inner face of the projection, and division-walls arranged between the projection and inner casing, substantially as herein shown and described.

2. In a spark-arrester, the combination,

with a stack, of a projection extending upward
from the upper end thereof, a case arranged
within the projection, a tube extending down-
ward from the case, dividing walls arranged
5 spirally between the case and the walls of the
projection, and a cap fitted upon the projec-
tion and provided with a central tube which

extends downward within the inner case, sub-
stantially as described.

ANDREW M. HENDERSON.
JOHN W. MARTIN.

Witnesses:

SANFORD DARRAT,
VOLNEY CHAPMAN.