

(No Model.)

A. HASPER.
SPARK ARRESTER.

No. 519,500.

Patented May 8, 1894.

FIG. 2-

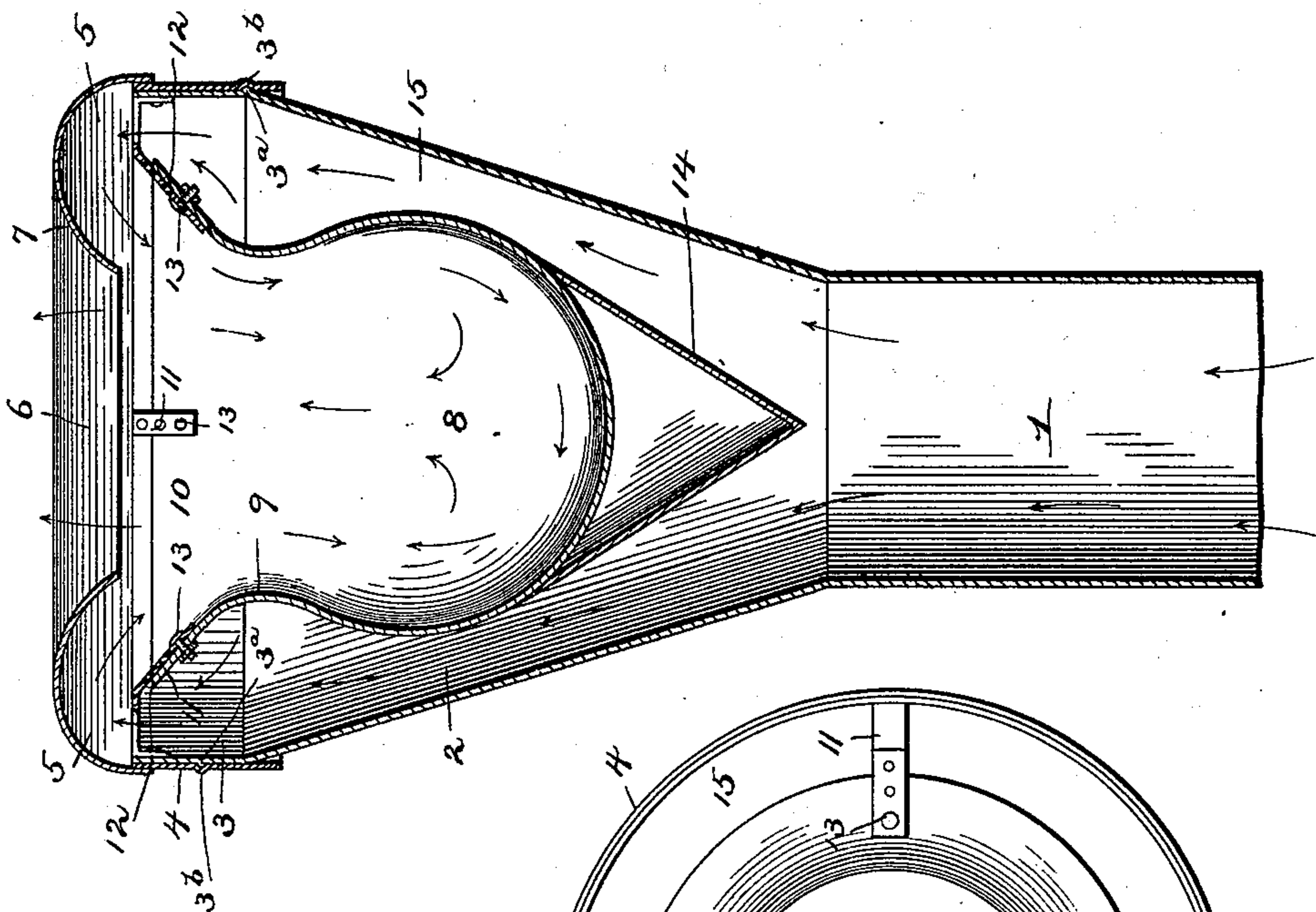


FIG. 3-

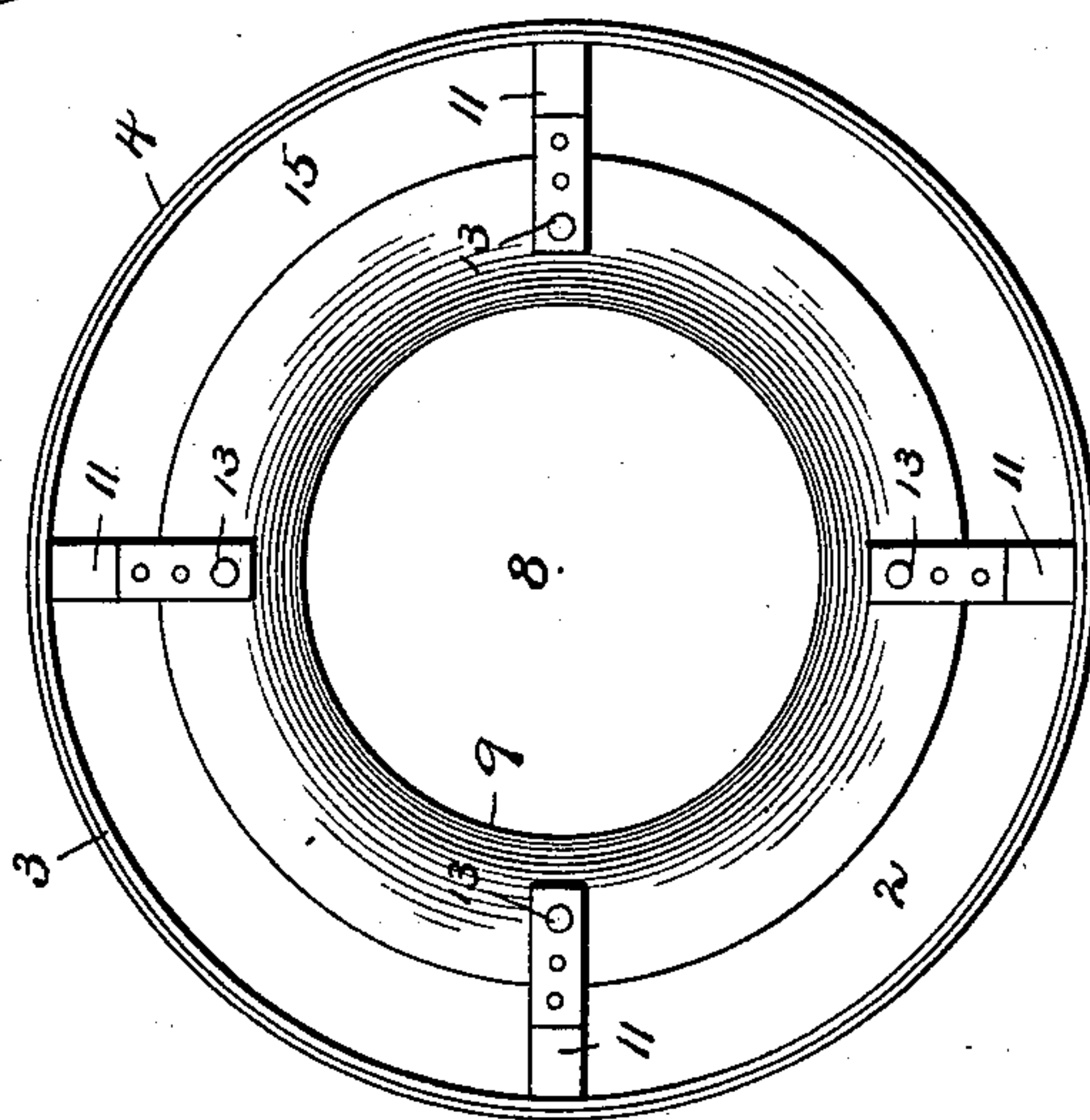
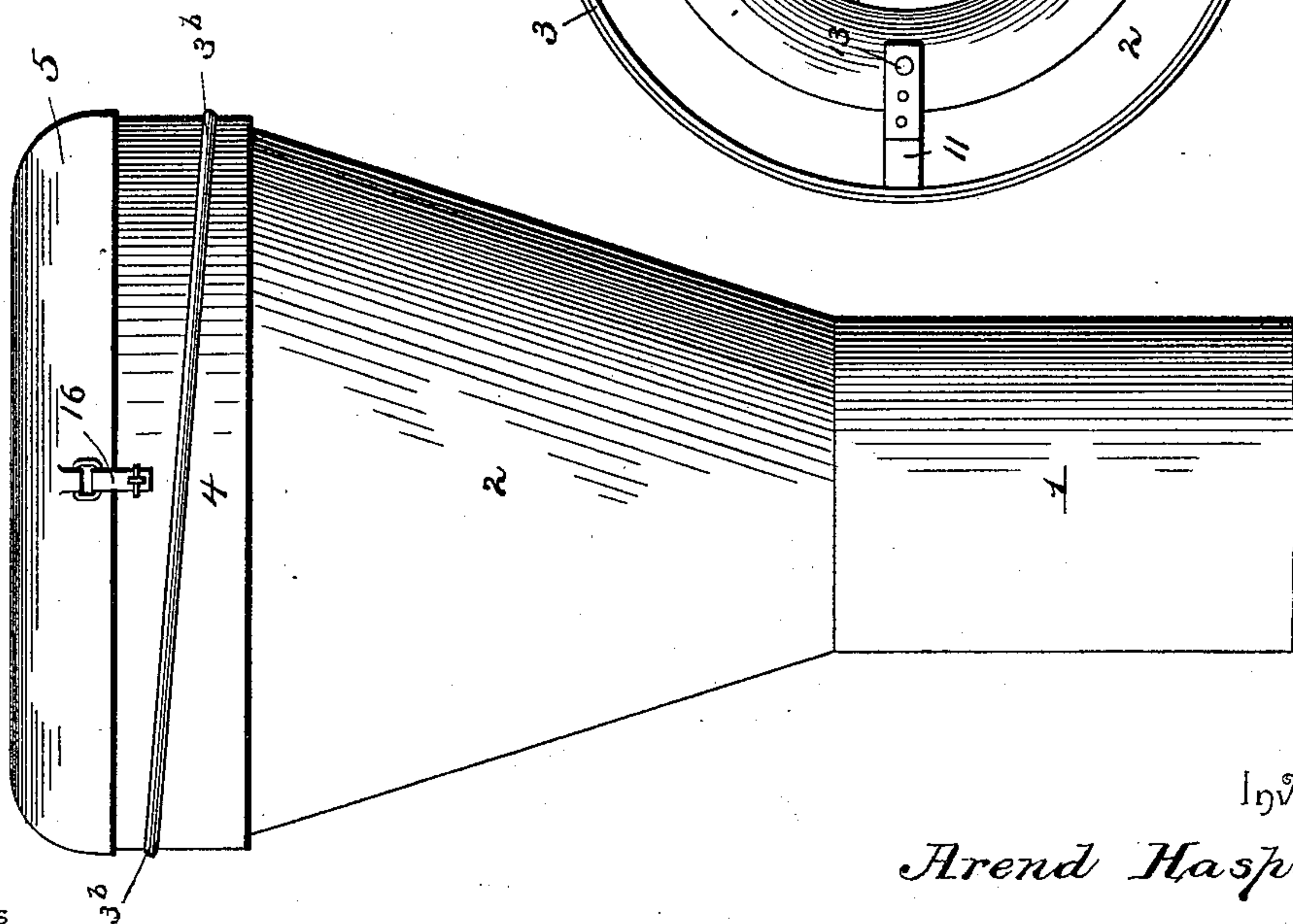


FIG. 1-



Inventor

Arend Hasper.

Witnesses
Harry L. Amer,

By His Attorneys.

[Signature]

[Signature]

UNITED STATES PATENT OFFICE.

AREND HASPER, OF WESTFIELD, NORTH DAKOTA.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 519,500, dated May 8, 1894.

Application filed September 21, 1893. Serial No. 486,139. (No model.)

To all whom it may concern:

Be it known that I, AREND HASPER, a citizen of the United States, residing at Westfield, in the county of Emmons and State of North Dakota, have invented a new and useful Spark-Arrester, of which the following is a specification.

My invention relates to spark arresters, and has for its object to provide a simple and efficient device for arresting sparks in connection with the smokestacks of locomotives, &c., without the use of a screen or other draft-interfering devices; furthermore, to provide means whereby the exhaust steam may be utilized to extinguish the sparks; and furthermore, to provide simple means for effecting the adjustment of the parts whereby the draft secured may be varied according to the requirements.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings: Figure 1 is a side view of a stack provided with a spark-arresting device embodying my invention. Fig. 2 is a vertical central section of the same. Fig. 3 is a plan view with the cap or hood removed.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the cylindrical body-portion of a stack terminating in the usual flared head 2, which is provided with a vertical cylindrical rim 3. This rim is exteriorly threaded at 3^a to receive the interior threads 3^b of the surrounding sleeve 4, which is capable of vertical adjustment by means of such threaded connection. Hinged to the upper edge of this vertically-adjustable sleeve is a deflecting hood or cap 5, having a central exit opening 6, and having the lip 7 surrounding said opening contracted and curved downwardly toward the center of the stack.

8 represents a receptacle of spherically rounded form which is suspended centrally within the head of the stack and is provided with a contracted neck 9 terminating in a flared mouth or flange 10. The receptacle is secured within the head by means of the radially-disposed braces 11, which are secured

at their outer terminals to the vertical portion 3 of the head and are adjustably secured at their inner terminals to the flared mouth or flange of the receptacle. Said braces are provided with a series of perforations 12, to be engaged by the adjusting-bolts 13, whereby the receptacle may be adjusted vertically in the stack. The lower portion or bottom of the receptacle is rounded to avoid the formation of angles for the accumulation of sparks, dust, &c., the entire receptacle being formed preferably of a single sheet of metal by stamping or a similar process. Fixed to the lower end of the receptacle and depending therefrom with its apex in alignment with the axis of the stack is an inverted conical separator 14, which is designed to separate the column of smoke, sparks, steam, &c., and cause it to pass through the annular passage 15, which is provided between the walls of the receptacle and those of the head. The exterior surface of the flared mouth or flange 10 deflects this annular column of products toward the outer side of the deflecting hood or cap, thereby causing the products to follow the concave surface of such hood or cap until projected from the inner edge thereof into the receptacle. In this receptacle the steam is mixed with the sparks and other products, thereby extinguishing them; and as they pass around the receptacle in the direction indicated by the darts in Fig. 2, the contracted neck again deflects them toward the exit opening 6.

By providing a receptacle from which no escape is possible at the bottom, back pressure is prevented and the sparks and other products, together with the steam, progress rapidly and steadily in their passage through the head and escape without interfering with the draft of the furnace or boiler to which the stack is connected.

The free edge of the hood or cap is secured by means of a hasp 16 to the opposite side of the sleeve from the hinge. It will be understood that by means of this adjustable sleeve the hood or cap may be elevated more or less, and thus separated more or less from the flared mouth or flange of the receptacle to increase or retard the draft as may be desired. By means of the sleeve which, as above described, is threaded upon the exterior of the head of the stack, the cap or hood may be en-

tirely removed, and therefore it will be seen that my invention is in the nature of an attachment which may be applied to any stack now in use without materially altering the construction thereof.

5 In practice various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the
10 advantages of this invention.

Having described my invention, what is claimed is—

1. The combination of a stack having a conical head, of a superposed deflecting hood or cap, a rounded receptacle suspended centrally in the head and having a contracted neck terminating in an upwardly flared mouth or flange to direct the products to the outer side of the hood or cap, substantially as specified.
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2. The combination with a stack having a conical head terminating in a vertical rim, of a sleeve surrounding and vertically adjustable upon said rim, a deflecting hood or cap
25 connected to and carried by the sleeve, and a receptacle suspended centrally in the head, substantially as specified.

3. The combination with a stack, of a sleeve

threaded exteriorly upon the upper end thereof, a deflecting hood or cap carried by said sleeve, and a receptacle suspended within the stack, substantially as specified. 30

4. The combination with a stack having a conical head terminating in a vertical rim, of a sleeve surrounding and adjustably connected to said rim, a deflecting hood or cap hinged to the upper edge of said sleeve, and a receptacle suspended within the head, substantially as specified. 35

5. The combination with a stack and a superposed deflecting hood or cap, of a receptacle arranged centrally within the stack and having an upwardly flared-mouth and supporting braces fixed at their outer terminals to the side walls of the stack and adjustably connected at their inner ends to the flared mouth of the receptacle, substantially as specified. 45

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses. 50

AREND HASPER.

Witnesses:

ARNOLT IN. T HELDT,
WIEGER RODENBURG.