

(No Model.)

F. P. ZIEGLER.

SPARK ARRESTER.

No. 376,499.

Patented Jan. 17, 1888.

Fig. 1.

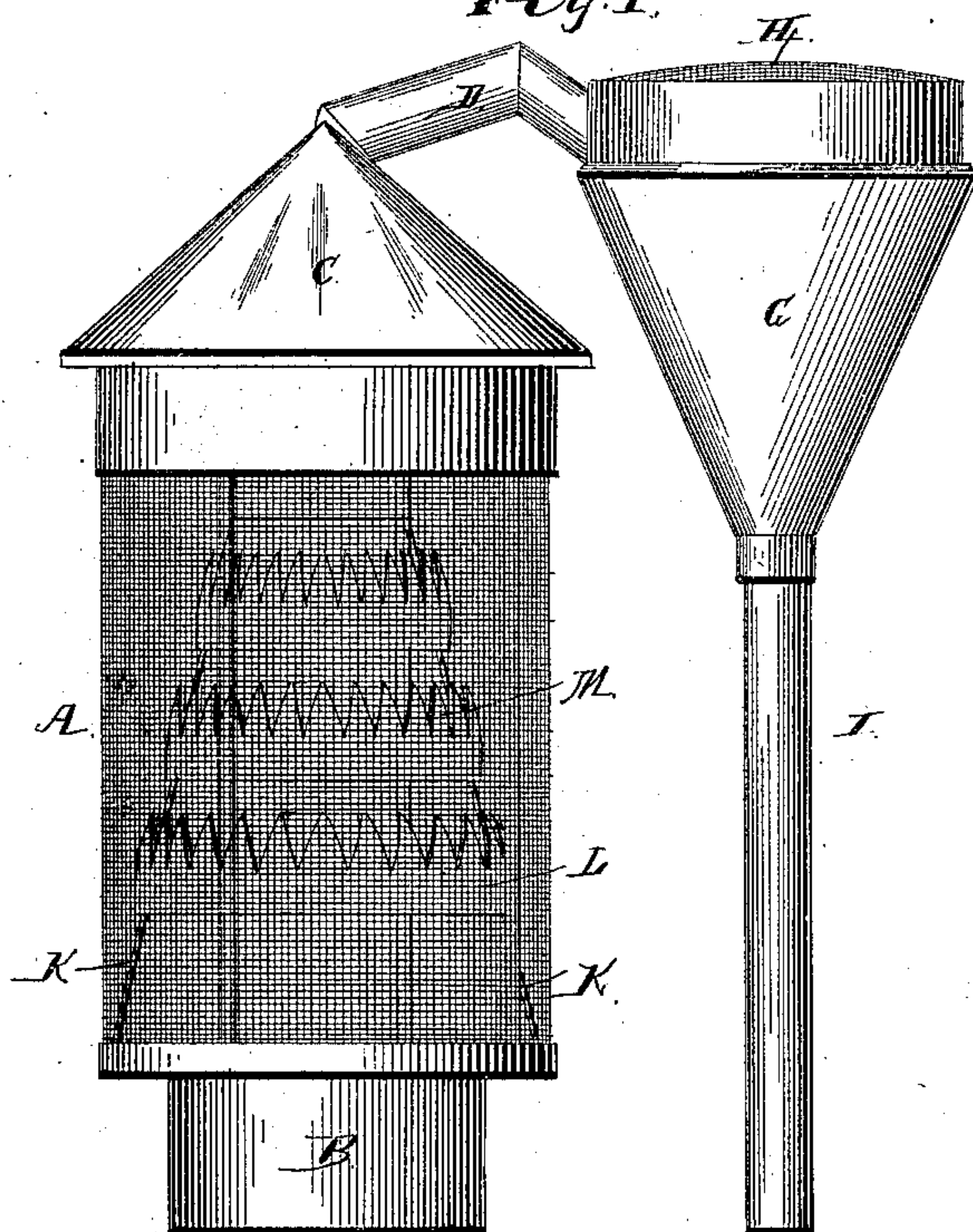


Fig. 2.

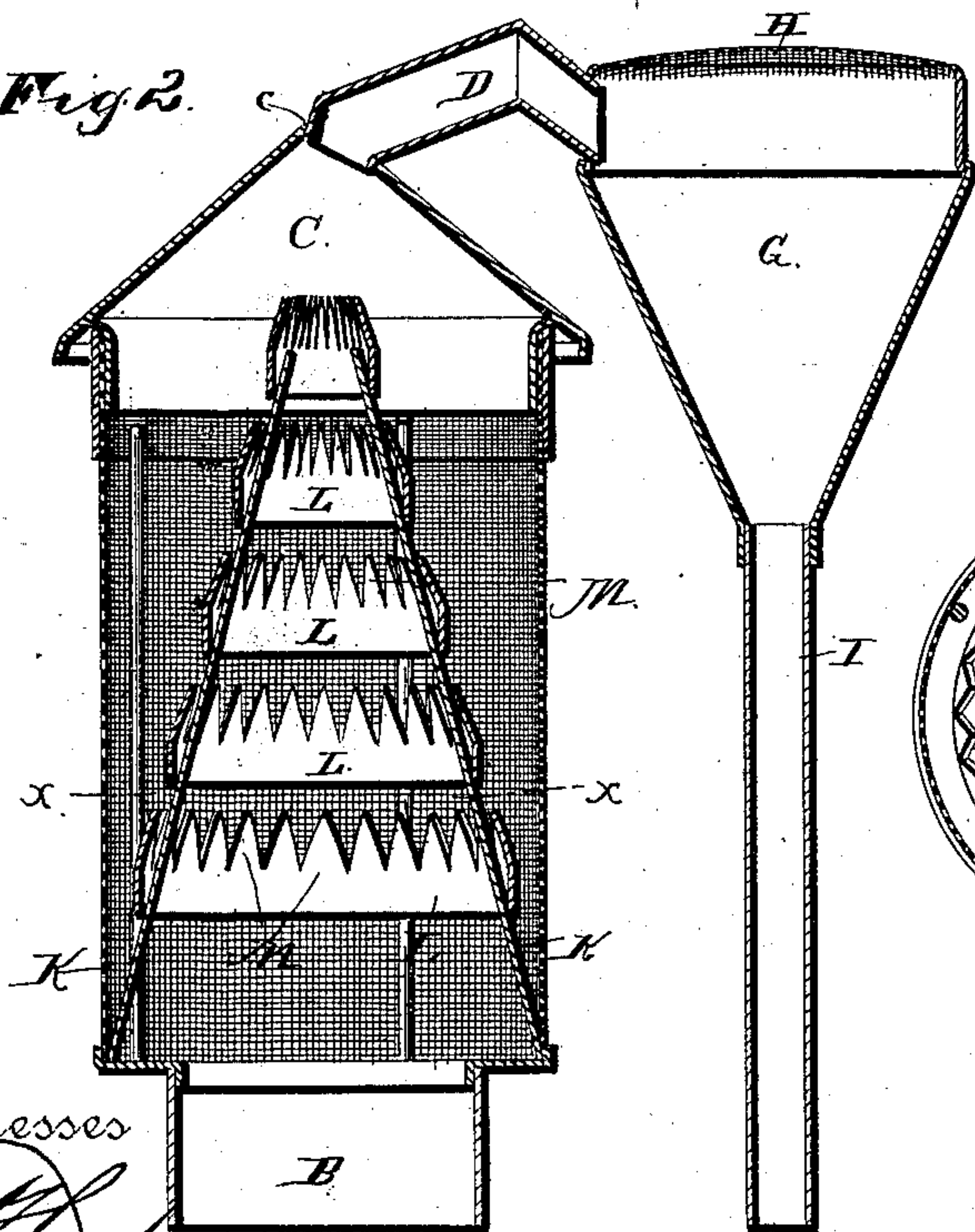
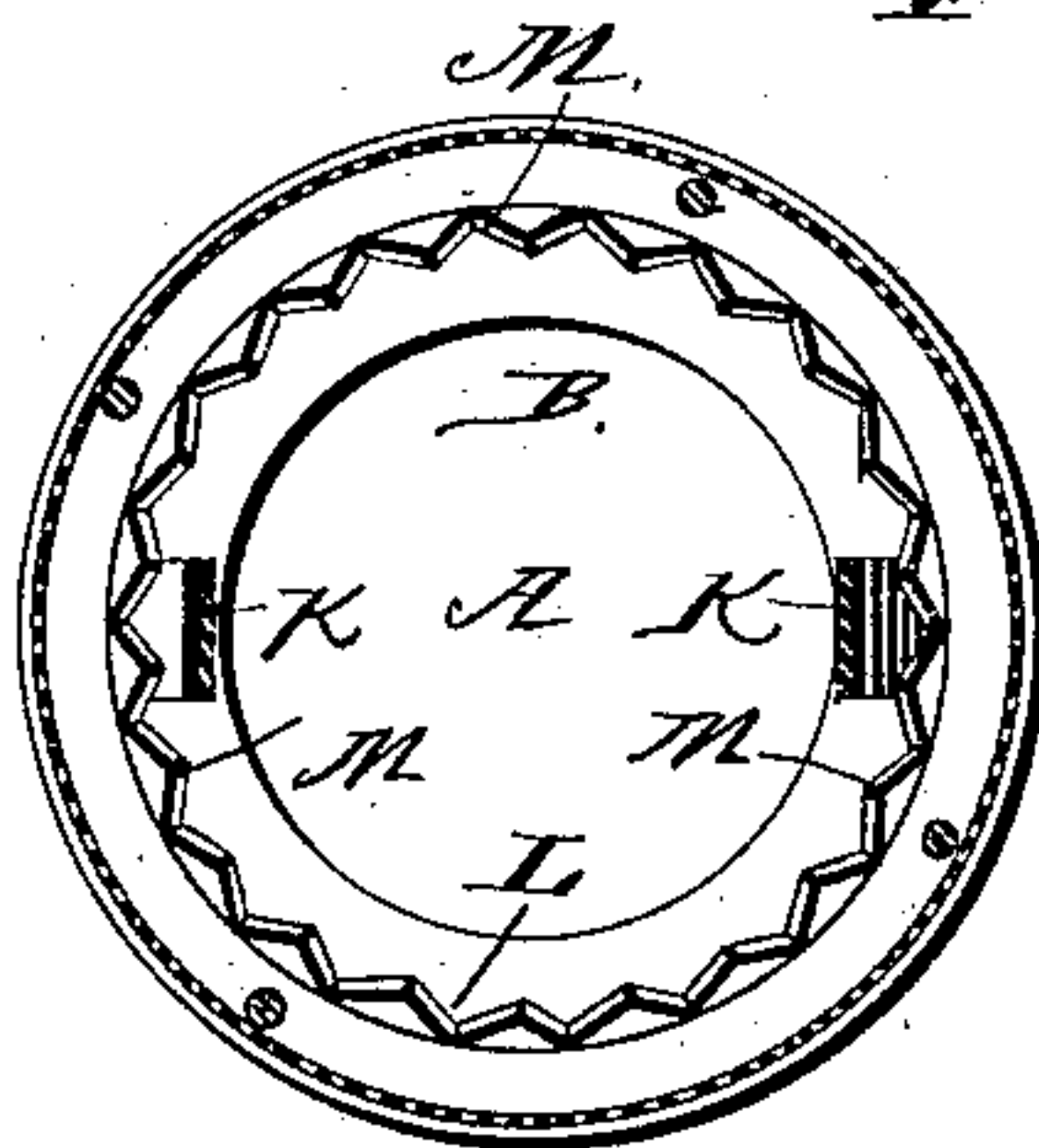


Fig. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 376,499, dated January 17, 1888.

Application filed October 11, 1887. Serial No. 252,046. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK PIERCE ZIEGLER, a citizen of the United States, residing at Abdera, in the county of Clinton and State of Pennsylvania, have invented a new and useful Improvement in Spark-Arresters, of which the following is a specification.

My invention relates to improvements in spark-arresters adapted to be secured to the tops of smoke-stacks; and it consists in a certain novel construction and arrangement of parts, fully set forth hereinafter, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a side view of the device attached to a stack. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a horizontal section on the line *x x*, Fig. 2.

Referring by letter to the drawings; A designates the body of the spark-arrester, which is cylindrical in form, is slightly larger than the stack to which it is attached, and the sides thereof are composed of wire screen.

B designates the collar at the lower end of the body to fit around the upper end of the stack, and C is a conical cap adapted to fit on the upper end of the body. The said conical top is provided at the center with an opening, *c*, to which is attached a flue, D, which leads to a funnel-shaped spark-chamber, G, arranged on one side of the body A. The said spark-chamber is covered at the top by a screen, H, and I designates a flue extending from the lower end of the chamber and adapted to carry the arrested sparks to a place of safety.

K K designate standards or braces arranged in the body A, which are secured at the lower ends to the bottom of the body and converge toward the upper ends.

L L are rings or bands secured to the said supports or standards, and the diameters of the said rings diminish toward the upper end of the body—that is, the rings at the upper end of the body are smaller than those at the lower end. The upper edges of the said rings are provided with upwardly-extending fingers M, which are inclined slightly inward or toward the center of the body.

As the smoke, carrying sparks, ascends through the body A, the fingers on the upper

edges of the rings direct the sparks toward the center of the body, while the smoke is allowed to pass between the rings or bands and escape through the screen. The sparks are drawn closer together as they ascend through the body, and they are at last led to the opening in the center of the conical top C. The flue D then conveys the sparks to the chamber G, from whence they are conducted by the flue I to the ground or other place of safety.

Any smoke which may pass through the flue D into the spark-chamber will be allowed to escape through the screen H over the top of the said chamber.

The object of the converging fingers, arranged as herein described in the body of the arrester, is to prevent the sparks from striking against the sides of the said body, and also to direct them to the flue which is to carry them to the spark-chamber. If the sparks are allowed to strike against the screen, as they do when the screen is arranged across the top of the body, (or the top of the stack,) the said sparks clog the screen, and thus render it impossible after a time for the smoke to escape. Thus the draft of the furnace is reduced.

The fingers herein described direct the sparks, but do not interfere with the escape of the smoke, and if any of the latter is carried through the flue D into the chamber G it readily escapes through the screen H. It will thus be clearly seen that there is nothing to interfere with a strong draft in this arrester, as there is no way by which the screen can become clogged by the sparks.

Further, the extent of screen is very great, thus providing for a very ready escape of the smoke.

This arrester may also be used in connection with the stacks of locomotives with advantage, the lower end of the flue I being in that case connected with the spark-chamber.

Having thus described my invention, I claim—

1. In a spark-arrester, the body A, adapted to be secured on the upper end of the stack, and having the sides thereof composed of screen, the flue D, leading from the center of the top of the said body, and the series of bands L, arranged in the body, having the inwardly-in-

clined fingers thereon, constructed and arranged substantially as and for the purpose specified.

2. In a spark-arrester, the combination of  
5 the body A, having the collar B at the lower end to engage over the upper end of the stack, and the conical top C, provided at the center with an opening, flue D, attached to the said opening, and the series of bands L, arranged  
10 one above the other in the said body and having the inwardly-inclined fingers on the upper edges, each band being smaller than the band below it in the series, substantially as and for the purpose specified.

15 3. In a spark - arrester, the combination of the body A, having the conical top C, flue D, communicating with the center of the top supports, K K, arranged in the body and converging toward the upper ends, and the bands L,  
20 secured to the said supports, and having the inwardly-inclined fingers on the upper edges thereof, for the purpose herein specified.

4. In a spark-arrester, the body A, having a conical top and screen sides, the funnel-shaped spark-chamber G, adjacent to the body, and  
25 having a screen top, the flue D, leading from the top of the body to the spark-chamber, and the flue I, extending from the reduced bottom of the spark-chamber, substantially as and for the purpose specified.

5. In a spark-arrester, the body having the screen sides and a top provided with an opening, and the series of annular intumed fingers  
30 M, arranged in the body, substantially as and for the purpose specified.

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

FRANK PIERCE ZIEGLER.

Witnesses:

J. N. WELLIVER,  
J. J. SHAFFER.