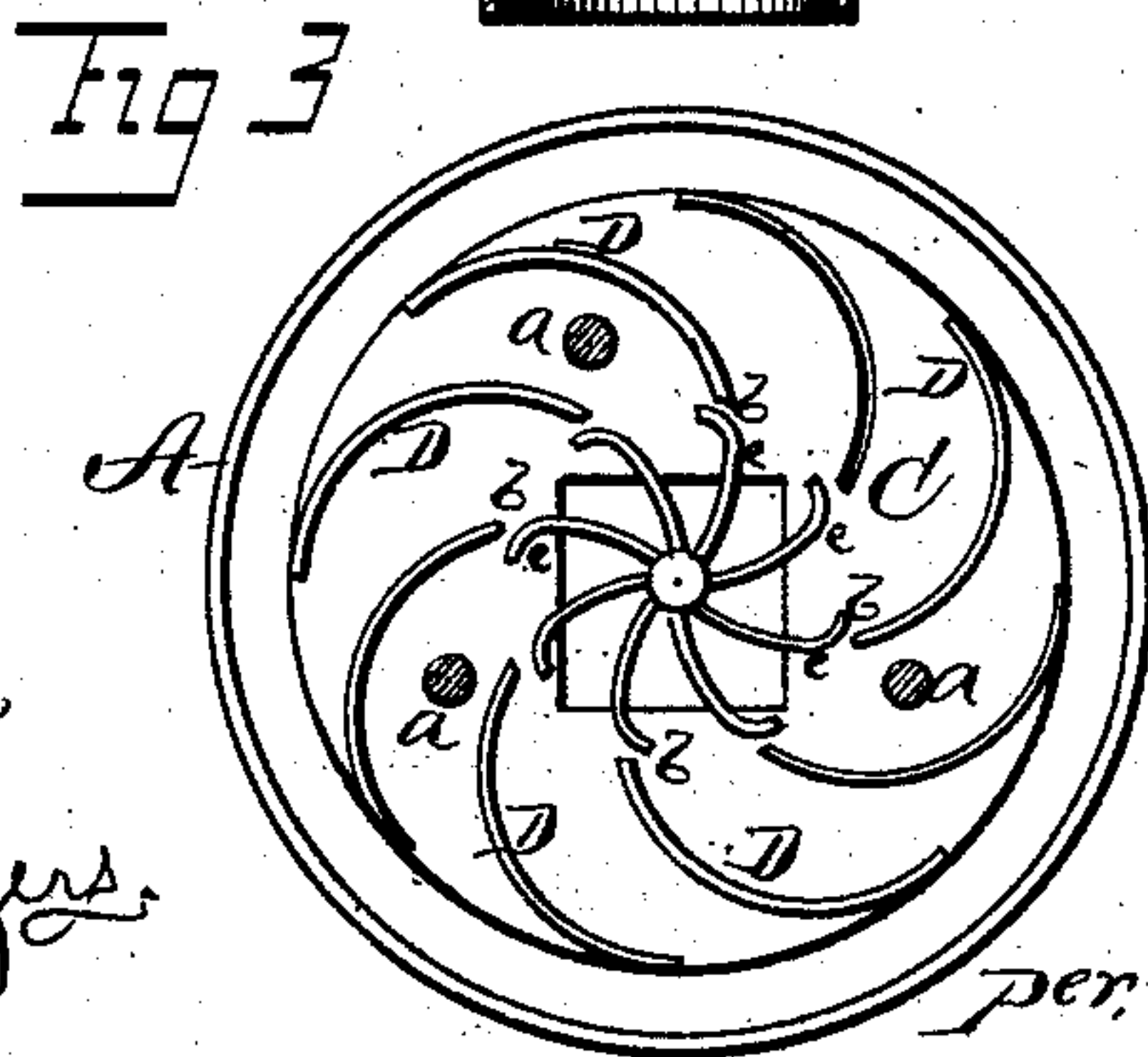
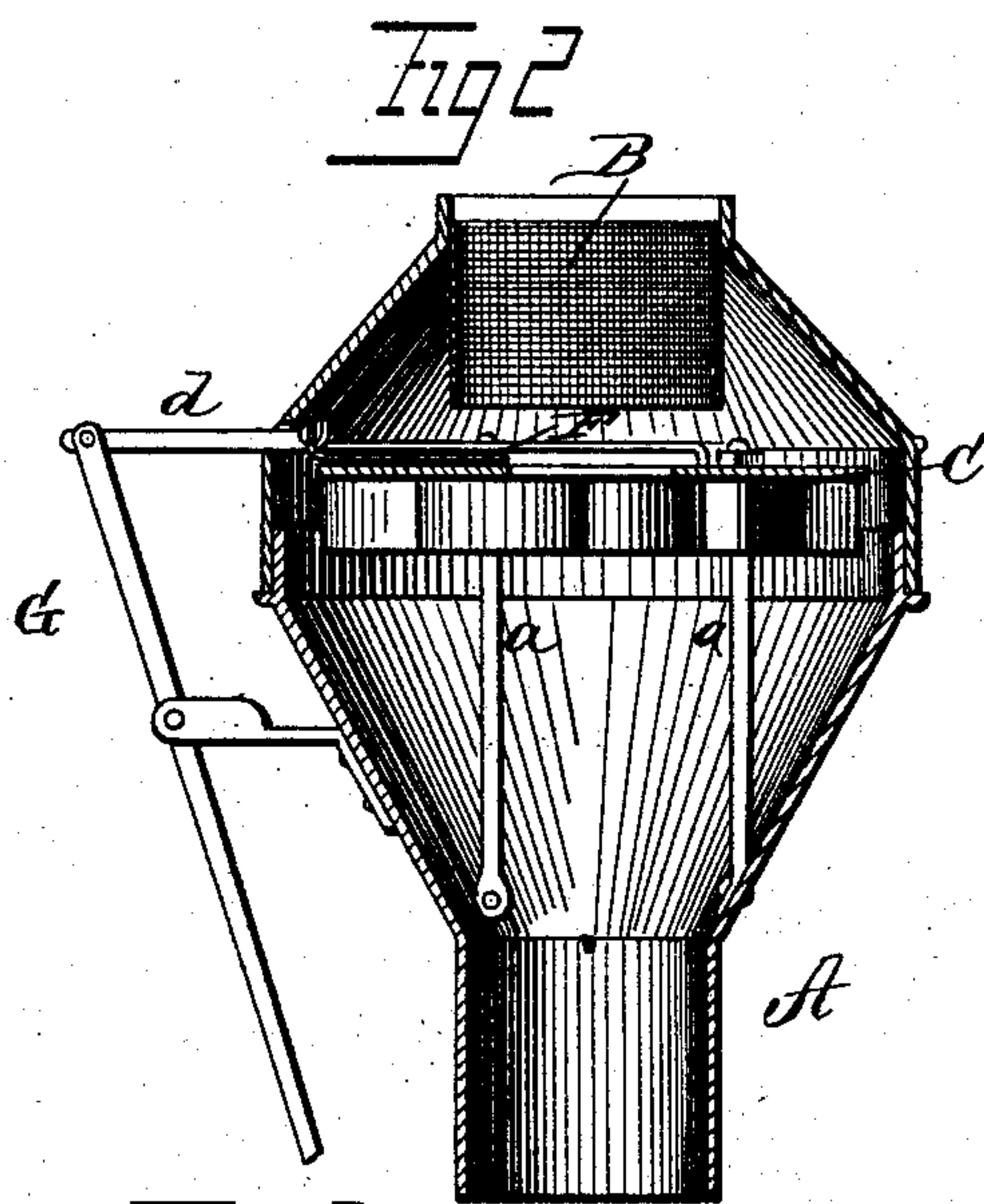
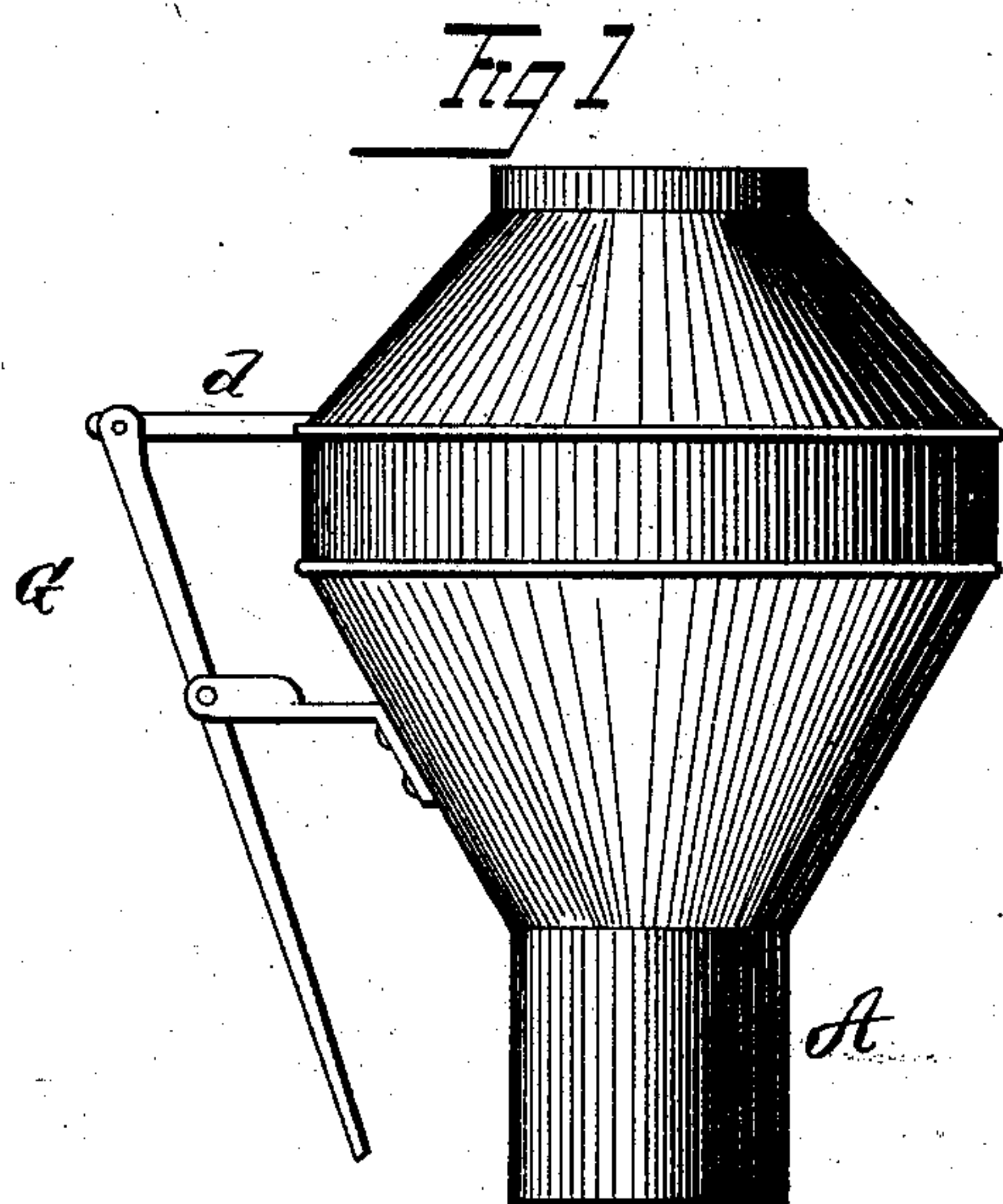


J. E. WIGGIN.  
Spark-Arrester.

No. 224,497.

Patented Feb. 10, 1880.



Witnesses;

W. C. Arthur

John C. Rogers

Inventor

John E. Wiggins

per Alexander M. Smith

Attorneys



# UNITED STATES PATENT OFFICE.

JOHN E. WIGGIN, OF HOUSTON, TEXAS.

## SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 224,497, dated February 10, 1880.

Application filed December 19, 1879.

*To all whom it may concern:*

Be it known that I, JOHN E. WIGGIN, of Houston, in the county of Harris and State of Texas, have invented certain new and useful  
5 Improvements in Spark-Arresters; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon,  
10 which form part of this specification.

The nature of my invention consists in the construction of a spark-arrester adapted to the smoke-stack of any locomotive, as will be hereinafter more fully set forth.

15 In the annexed drawings, Figure 1 is a side elevation of a smoke-stack embodying my invention. Fig. 2 is a central vertical section of the same. Fig. 3 is a bottom view of the spark-arrester.

20 A represents the smoke-stack of a locomotive constructed in any of the known and usual ways, and provided at its top with a cylindrical screen, B, of wire-gauze or other equivalent material, extending downward into the  
25 stack for a suitable distance. A little below the lower end of this screen and in the largest part of the stack is placed the spark-arrester, which consists of a circular plate, C, supported by rods *a a*, and of such diameter as to leave a  
30 suitable space between it and the walls of the stack.

The under side of plate or disk C is provided with two separate series of radially-curved wings, D D and *e e*, those marked *e e* radiat-  
35 ing from the center of the plate C, and their outer ends bent to a sharper curve than their remaining portion. These wings may extend in length almost, if not quite, one-half the distance from the center of the plate to its  
40 circumference, as fully shown in Fig. 3.

The wings D D are curved from their outer starting-point—i. e., the circumference of the plate C—to their inner ends, which terminate a little beyond and over the curved ends of

wings *e e*, thus leaving openings *b b* between 45 the inner ends of the outer wings and the outer ends of the inner series. This peculiar arrangement, by producing a partial vacuum, will prevent not only the emitting of black smoke, but will also effectually reduce the larger 50 sparks to a degree from which no danger may be apprehended.

In the center of the plate C is an opening covered by a slide or other valve, F, which, by a rod, *d*, is connected to a lever, G, to be 55 operated from the cab by the engineer. When this valve is opened the smoke will pass directly upward, giving more perfect draft in damp or foggy weather in raising steam, &c., whenever necessary. 60

My invention may be applied to the smoke-stack of any locomotive.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is— 65

1. In a spark-arrester, the combination, with a smoke-stack, of plate C, having its under side provided with the central curved wings *e e* and circumferential curved wings D D, all being constructed and arranged relatively to 70 each other as and for the purposes set forth.

2. The combination, with a locomotive smoke-stack, of the cylindrical screen B, plate C, and wings D, having cavities or openings *b*, substantially as and for the purposes herein 75 set forth.

3. The combination, in a spark-arrester, of the plate C, having its under side provided with curved wings arranged as set forth, with valve F, lever G, and rod *d*, all constructed 80 as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN E. WIGGIN.

Witnesses:

I. BRASHEAR,  
ED. DUNN.