

(No Model.)

J. K. TAYLOR.

VENTILATOR FOR LOCOMOTIVE CINDER CHAMBERS.

No. 282,404.

Patented July 31, 1883.

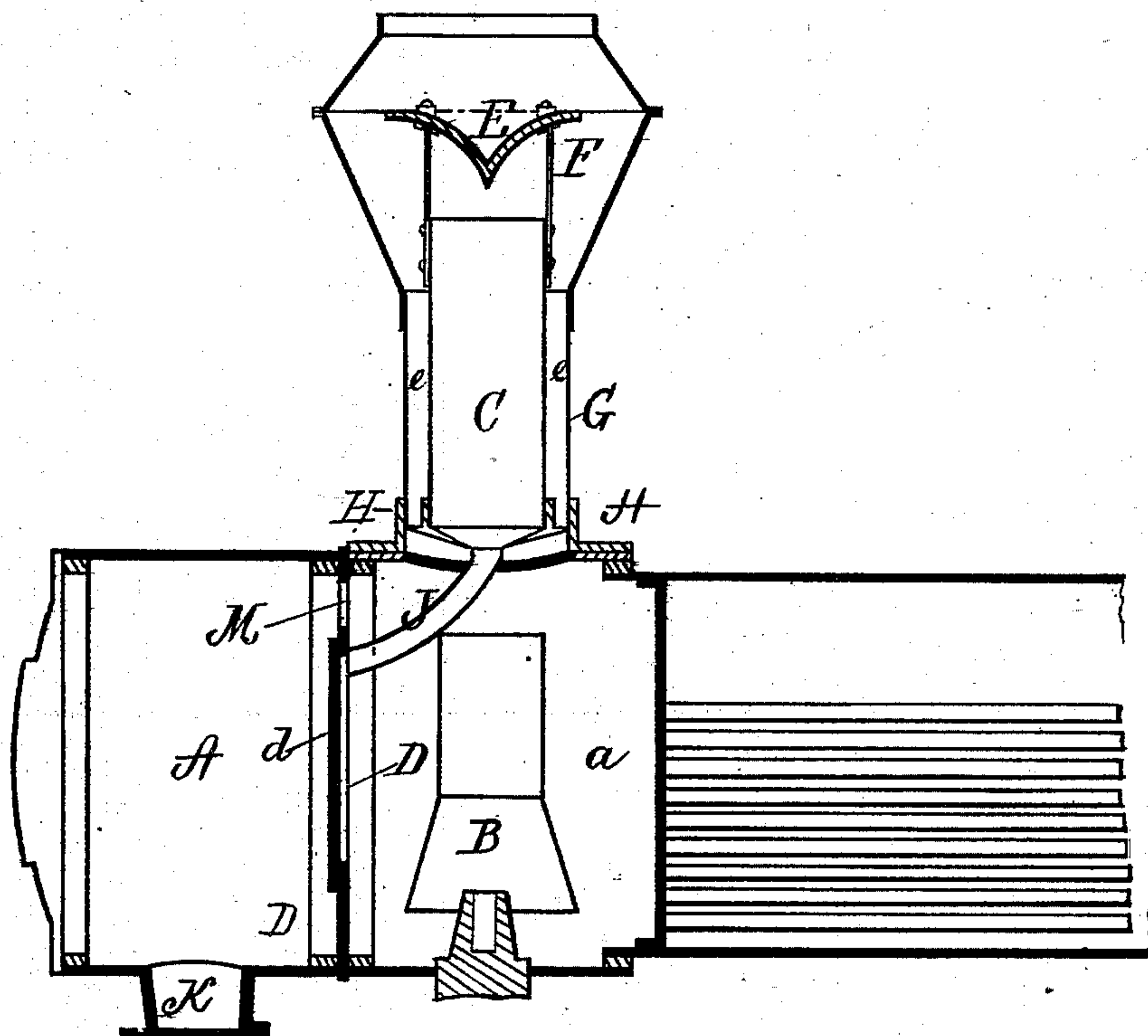


Fig 1

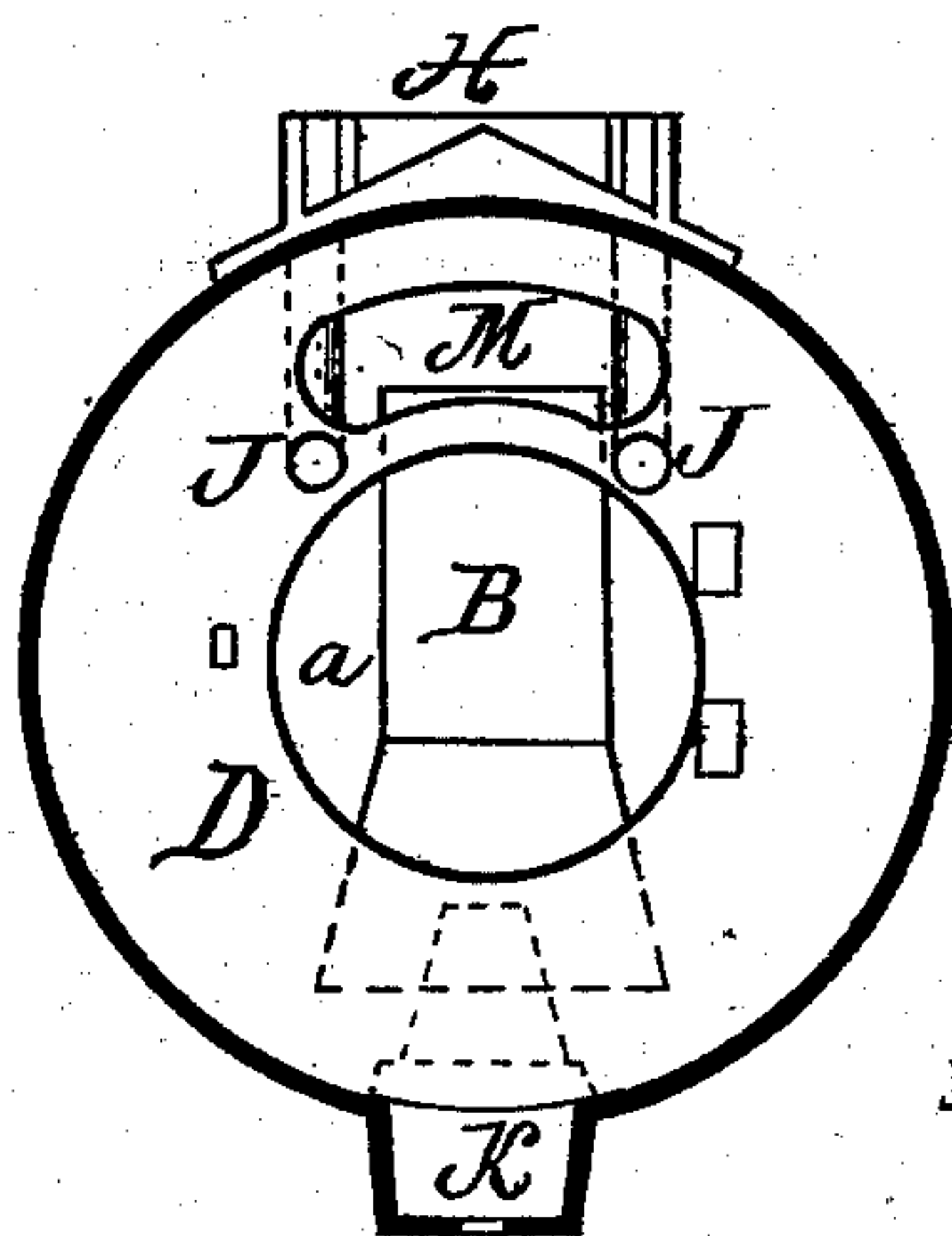


Fig 2

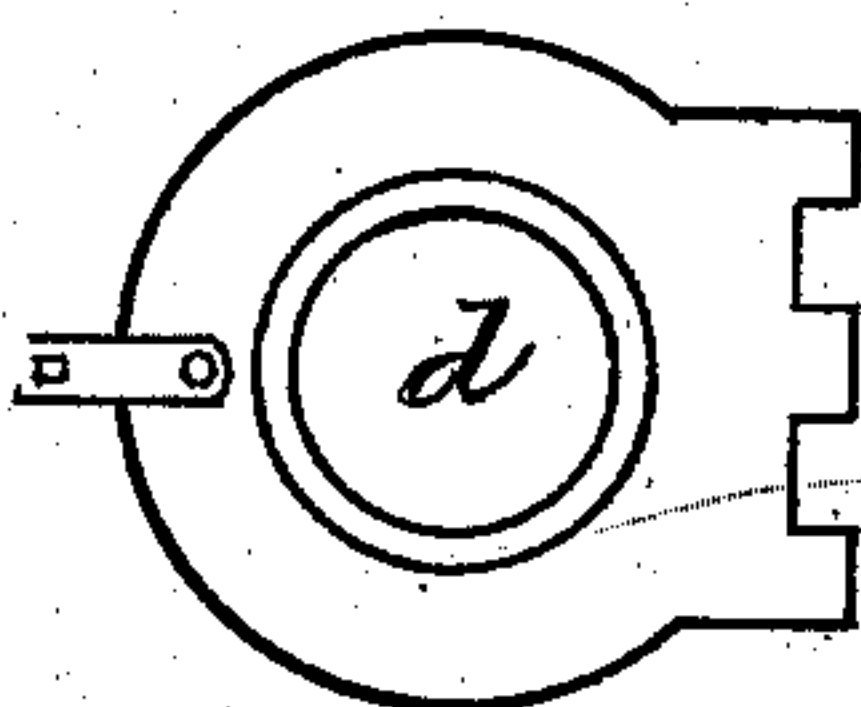


Fig 4

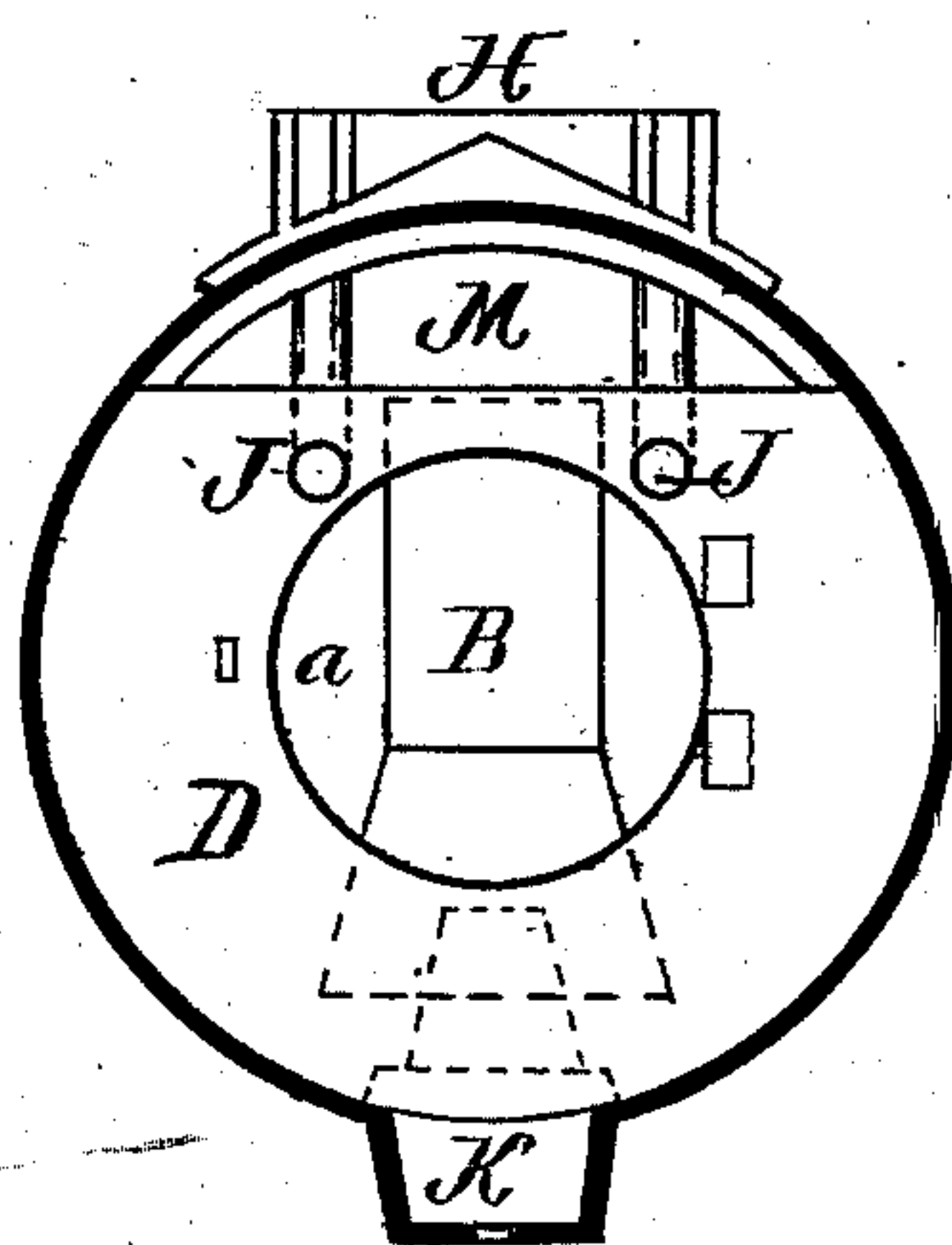


Fig 3

WITNESSES

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# UNITED STATES PATENT OFFICE.

JAMES K. TAYLOR, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO J. K. TAYLOR COMPANY, OF CONCORD, NEW HAMPSHIRE.

## VENTILATOR FOR LOCOMOTIVE CINDER-CHAMBERS.

SPECIFICATION forming part of Letters Patent No. 282,404, dated July 31, 1883.

Application filed April 28, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES K. TAYLOR, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Ventilators for Locomotive Cinder-Chambers; and I do hereby declare that the same are fully described in the following specification and illustrated in the accompanying drawings.

This invention relates to that class of spark-arresters in which the unconsumed portions of fuel drawn by the exhaust into the smoke-arch are carried up by the blast against a cone located in the head of the stack, by which they are deflected through suitable passages into a receptacle provided for them, from which they may be removed as occasion requires.

It has been the practice in some cases to form this chamber in a closed extension of the boiler-shell and separate it entirely from the smoke-arch by a solid impervious partition; but it has been found that the large volumes of exhaust-steam and gases which accumulate in this close chamber, if allowed to remain with the hot mass of cinders and dust, cause a very serious corrosion of the boiler-plates, rivets, and other metallic parts.

The object of this invention is to ventilate the cinder-chamber, so as to prevent the condensation of steam and gases therein, to improve the draft, and to allow the cinders to collect in a dry condition without further disturbance by the exhaust-blast. I accomplish these objects by the arrangement of parts hereinafter fully shown and described.

My invention is illustrated by the accompanying drawings, in which Figure 1 is a longitudinal section through the center of a locomotive, showing my improved cinder-receptacle in the front end of the smoke-arch and the means of ventilating the same. Fig. 2 is a front elevation of the cinder-receptacle, (the outer head of the boiler and the door through the partition being removed,) showing the cinder-pipes leading from the stack and the aperture for passage of the steam and gases into the rear section of the smoke-arch. Fig. 3 is a modification of the same, and Fig. 4 shows the door detached.

In the drawings, A *a* is the extended smoke-

arch, divided into two sections, A *a*, by the diaphragm D, which is usually provided with a solid door, *d*.

B is the petticoat or lift pipe, through which the cinders are carried up by the exhaust into the inner stack, C, and against the cone E in the head F of the double stack C G. This stack is secured upon the hollow saddle H of the boiler, and from it the cinder-pipes J J lead into the section A of the smoke-arch. The hollow saddle H opens directly into the annular space *e* between the sides of the double stack C G.

K is a trap through which the cinders may be removed from section A.

There is at all times free communication between the two sections A *a* of the smoke-arch, preferably at the top, through the passage M, to allow the steam and gases coming from the stack through pipes J J into section *a* to flow out into section *a* and be rapidly carried off by the exhaust. For this purpose the upper part of the diaphragm D is cut away, preferably above the top line of boiler-flues, as shown in the drawings.

The operation is as follows: The cinders, smoke, and other gases are lifted by the exhaust to the head of the stack against the cone, being thoroughly mingled with the exhaust-steam. The cinders and large volumes of steam and gases are deflected by the cone into section A of the smoke-arch. Here the former fall to the bottom of the arch, where they remain in a comparatively dry condition, while the steam and gases instantly rise and flow rapidly through aperture M into section A, and are carried by the exhaust out through the stack.

I claim as my invention—

1. In a locomotive having spark-deflecting apparatus in its stack and cinder pipes J, the vertical diaphragm D, separating the smoke-arch into two sections, A *a*, and cut away or perforated, as described, so as to ventilate the forward section and permit the gases and steam therein to pass into the rear section, and thence escape through the stack, substantially as and for the purpose set forth.

2. In a locomotive, the smoke-arch A *a*, divided into front and rear sections by the perforated diaphragm D, in combination with the



lift-pipe B, double stack C G, cone E in the  
head of the stack, saddle H, and cinder-pipes  
J, all so arranged that the cinders lifted by  
the exhaust-blast are deflected from the head  
5 of the stack into the forward section, A, and  
the steam and gases carried with them flow  
from the front to the rear section direct through  
the opening in the diaphragm, and are carried

off by the blast through the stack, substantially  
as set forth. 10

In testimony whereof I hereto affix my sig-  
nature in presence of two witnesses.

JAMES K. TAYLOR.

Witnesses:

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E. A. PHELPS.