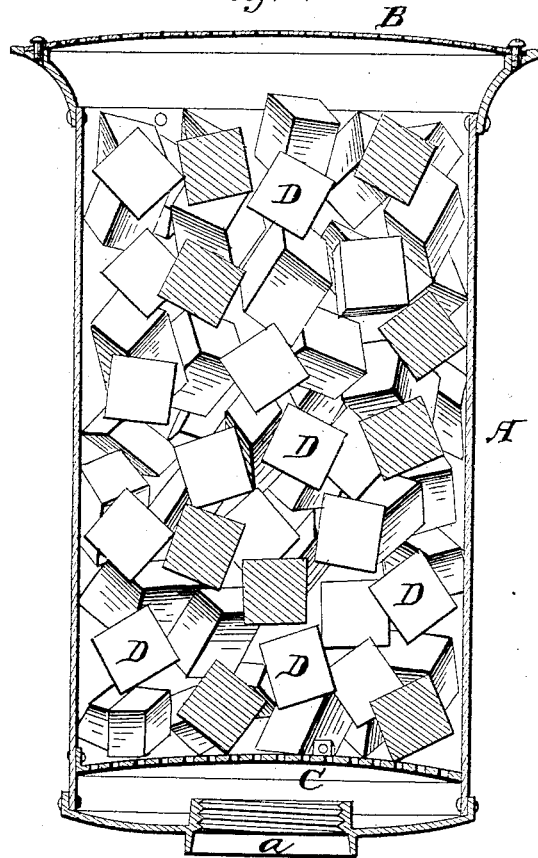


F. W. & E. D. EAMES.  
Noise-Muffler for Vacuum-Brakes.

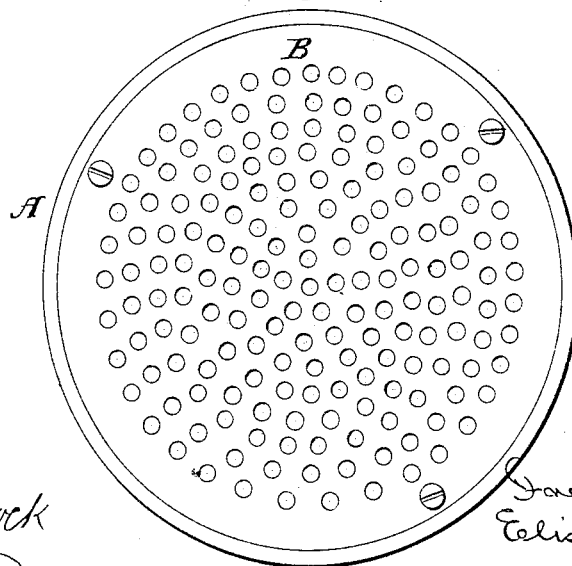
No. 215,593.

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*Fig. 1.*



*Fig. 2.*



*Attest:*

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*by Amelie Allen*  
*Att'y.*

# UNITED STATES PATENT OFFICE.

FREDERICK W. EAMES AND ELISHA D. EAMES, OF WATERTOWN, N. Y.

## IMPROVEMENT IN NOISE-MUFFLERS FOR VACUUM-BRAKES.

Specification forming part of Letters Patent No. **215,593**, dated May 20, 1879; application filed February 25, 1879.

*To all whom it may concern:*

Be it known that we, FRED. W. EAMES and ELISHA D. EAMES, of Watertown, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Noise-Mufflers for Vacuum-Brakes; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our invention relates to devices for muffling or deadening the noise of escaping steam, or the noise caused by steam and air under pressure when allowed to escape to the open air.

The device is more particularly adapted and intended for use in connection with the ejector device, which is operated by steam, and employed for the purpose of creating a vacuum in the railroad vacuum-brake apparatus heretofore invented and put in use by Frederick W. Eames, and known as the "Eames Vacuum-Brake Apparatus."

The device, however, may be employed in connection with the safety-valves of locomotive and other boilers, and in any position where it is desirable to muffle or deaden the noise of escaping steam or other vapor or gas under pressure.

The invention consists in a suitable receptacle filled, or partially filled, with small blocks of wood or other suitable material, through and between which the escaping steam must pass before it reaches the external atmosphere, the result being that in its effort to escape the column of steam is divided up or separated, and the noise completely deadened or muffled.

In the accompanying drawings, Figure 1 is a vertical sectional view, and Fig. 2 a top view, of a device embodying our invention.

Referring to the parts by letters, A represents a hollow cylinder, which may be made

of any suitable material, but preferably of copper or other sheet metal.

The lower end of the cylinder may be provided with a head having a central opening, *a*, and flanges, screw-threaded, or otherwise formed for the purpose of securing the cylinder to the tube or pipe through which the escaping steam or vapor under pressure passes.

The upper end of the cylinder may be made flaring, as shown in Fig. 1, or may be left cylindrical, as found most convenient and desirable. The upper end of the cylinder should also be provided with a perforated cap or cover, B, which can be readily removed and replaced when required.

C is a perforated diaphragm, secured within the cylinder at or near its lower end, and which may be of any suitable material, or may be in form of wire net-work, or of any other construction, so long as it permits steam or other vapor to pass through it, and is of sufficient strength to sustain the blocks of wood D, with which the cylinder A is filled.

While we prefer to have the diaphragm C or its equivalent, it will be obvious that it is not absolutely essential to the operation of our device, as any open guard which will prevent the blocks D from falling into the escape-pipe and permit the escaping steam or vapor to pass through it will serve the same purpose. Nor is it essential to employ the perforated cover B; but for convenience it is preferable to use it, in order to prevent the blocks from being thrown out of the cylinder.

In operation, the escaping steam or other vapor causes considerable movement of the blocks, so that there is no tendency to form a compact mass through which the steam cannot penetrate, there always being sufficient space between the blocks for its passage, but in so minutely a divided form that the noise consequent on its escape through a tube or other confined opening is entirely muffled or suppressed.

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

1. As a means of suppressing or muffling the noise of escaping steam, blocks of wood or like material inclosed within a suitable receptacle, through which the escaping steam or vapor passes, substantially as specified.

2. A noise-muffler constructed, as described, of the cylinder A, having the opening *a*, and perforated diaphragm C, blocks D, made of wood or like material, and removable perforated cover B, substantially as and for the purpose specified.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

FRED. W. EAMES.  
E. D. EAMES.

Witnesses:

DE WITT J. CUMMINGS,  
CHAS. D. BINGHAM.