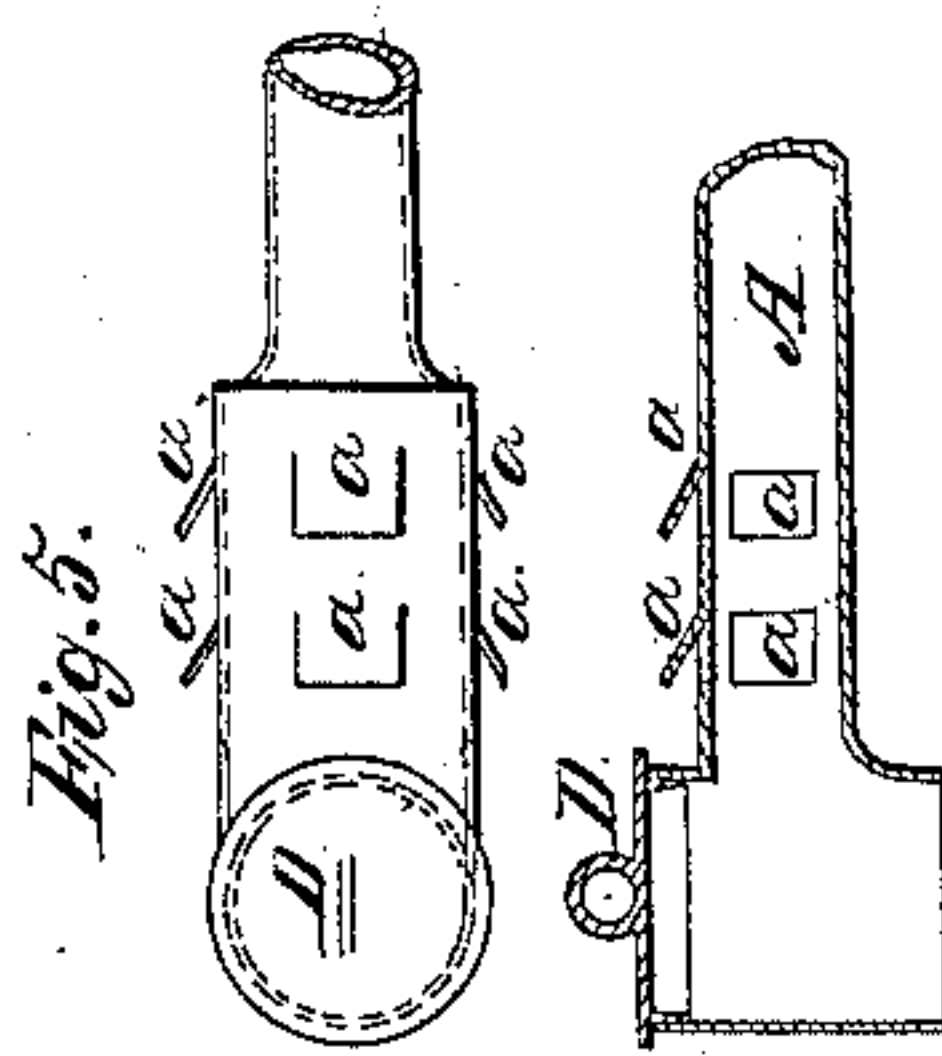
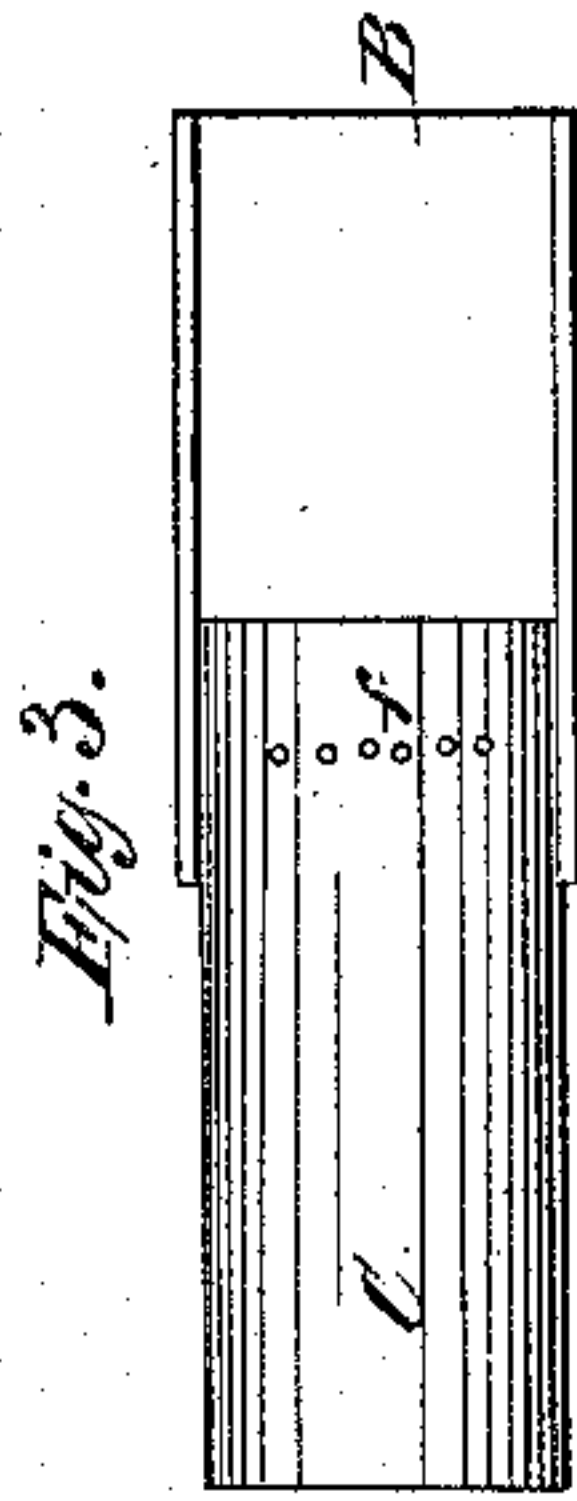
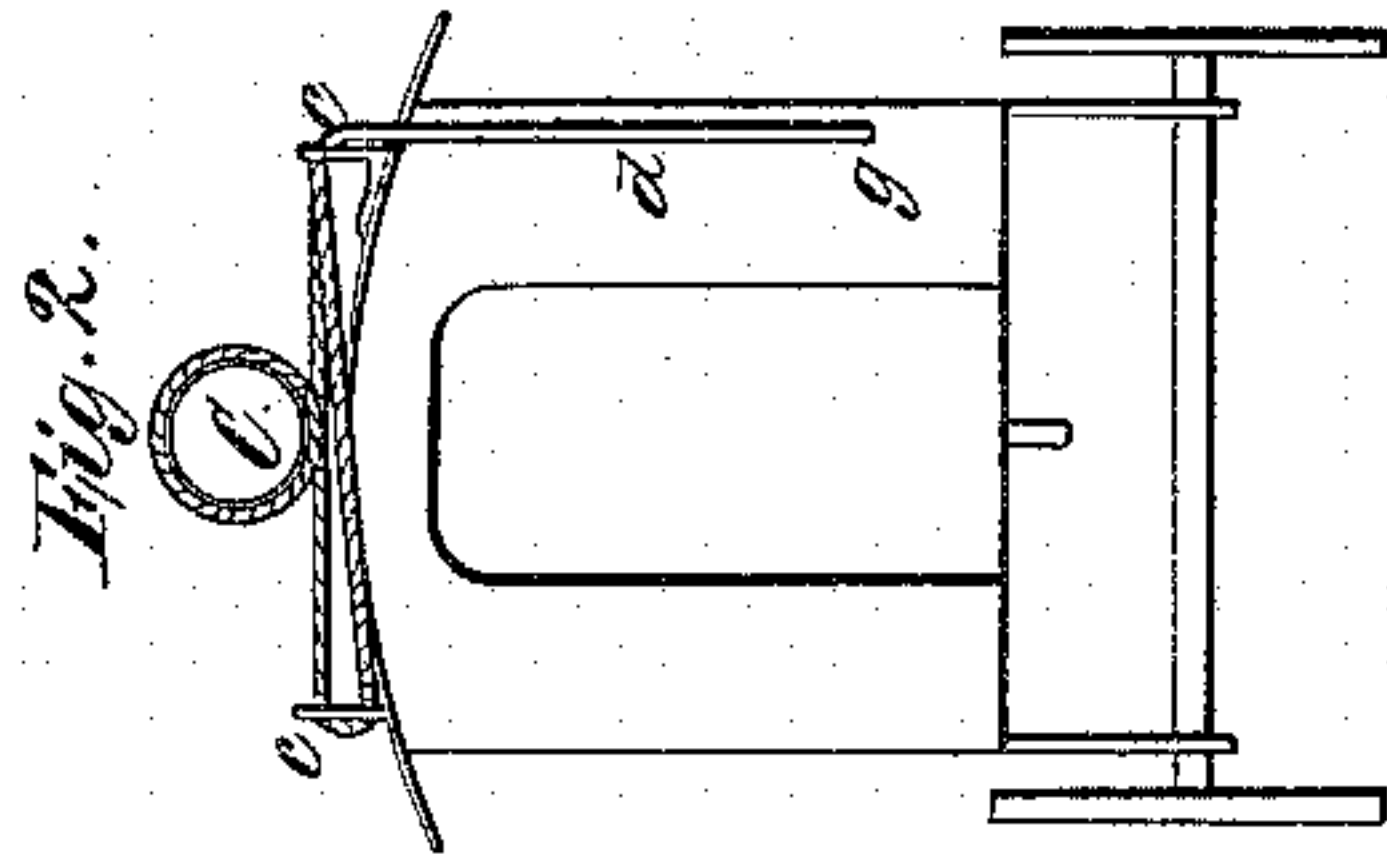
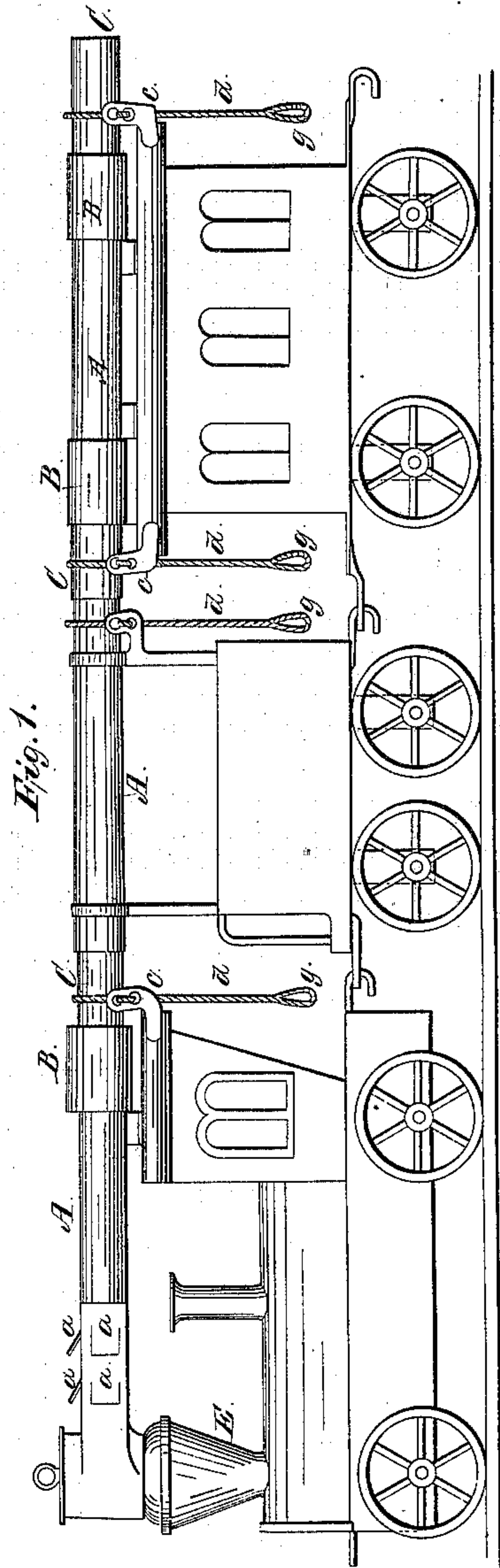


I. Choate;
Spark Arrester.

N^o 81,602.

Patented Sep. 1, 1868.



Witnesses:
Jabez A. Sawyer
Thomas Lecky

Inventor:
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United States Patent Office.

IRA CHOATE, OF EXETER, NEW HAMPSHIRE, ASSIGNOR TO HIMSELF AND DANIEL LEE, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 81,602, dated September 1, 1868.

IMPROVEMENT IN LOCOMOTIVE-SPARK ARRESTERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, IRA CHOATE, of Exeter, in the county of Rockingham, and State of New Hampshire, have invented a new and useful Improvement and Attachment for Locomotive-Engines and Railroad-Trains; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and letters of reference marked thereon.

Figure 1 is a side elevation of a locomotive-engine, tender, and car, showing the improvement.

Figure 2 is an end elevation of a car, showing the means employed to operate the coupling, C B.

Figure 3 is an enlarged view of the coupling C B, showing the mode of constructing the same.

Figure 4 is an end view of the coupling C.

Figure 5 is a plan of that part of the improvement which is attached to the smoke-stack E, showing the movable cover D and the air-apertures, *a a a a a*.

Figure 6 is a sectional view of the same, showing the mode of attaching the movable cover D.

The nature of my invention consists in devices hereinafter mentioned for conveying the smoke, steam, and sparks from the smoke-stacks of locomotive-engines to the rear of the trains through the tube A, as shown in fig. 1.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The tube A is constructed of thin sheet metal, or any other suitable material, in sections or lengths suited to the length of the locomotive, tender, or car to which it is to be attached, and it is joined together by means of the coupling C B, that part of which, marked C, is composed of some elastic sheet metal, and is constructed in staves, riveted together at one end, as shown at *f*, fig. 3. That part of the coupling marked B, is composed of India rubber, or any other elastic and flexible material. Both are united, and are attached to and become a part of the tube A, and form a flexible coupling or connection between the engine and tender, or between the cars, such as will admit of the extension and contraction, and of the various oscillating movements to which the train is liable while in motion.

In order to facilitate making up the train, or coupling the engine, tender, and cars together, I construct the coupling in staves, as shown in the enlarged view, fig. 3. The end of said coupling can be contracted in size, so as to readily enter the tube of the approaching car, by pressing down on the cord or band *d*, which encircles the end of the coupling C, and passes through the holes in the guides *c c*, and terminates in a loop or stirrup, at *g*. By releasing the pressure on the loop or stirrup *g*, the coupling at once expands to its original size.

That part of the tube A which is attached to the smoke-stack E, is provided with a cover, D, which may be removed, so that the draught may be maintained in the ordinary manner while the engine is at rest. It is also provided with air-apertures, as shown at *a a a a a*, figs. 1, 5, and 6, for the purpose of facilitating the draught while the engine is in motion.

When the train is in motion, all the smoke, steam, and sparks are conveyed from the smoke-stack E, through the tube A, to the rear of the train, thereby securing the passengers, as well as the operatives, from the annoyance always experienced while travelling on railway-trains.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The construction and arrangement of the tube A, smoke-stack E, cover D, and air-apertures *a a a a a*, substantially as shown and described.
2. The coupling C B, cord or band *d*, and guides *c c*, substantially as shown and described.
3. The coupling C B, constructed as described.
4. The arrangement of the cord *d* and guides *c c*, substantially as described.

IRA CHOATE.

Witnesses:

JABEZ A. SAWYER,
THOMAS LECKY.