P. REILLY.

Locomotive Smoke-Stack.

No. 169,039. Patented Oct. 19, 1875.

Fig. 2.

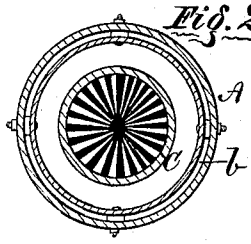
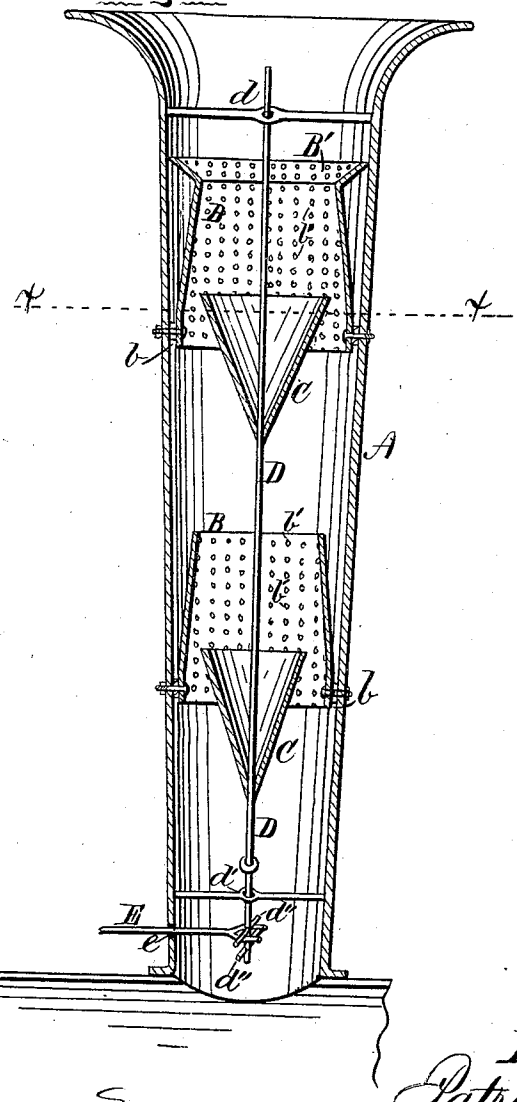


Fig. 1.



Witnesses:
P. R. Richards,
James Kennedy

Inventor:
Patrick Reilly,
By W. B. Richards,
Atty.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE

PATRICK REILLY, OF BURLINGTON, IOWA.

IMPROVEMENT IN LOCOMOTIVE SMOKE-STACKS.

Specification forming part of Letters Patent No. **169,039**, dated October 19, 1875; application filed August 31, 1875.

To all whom it may concern:

Be it known that I, PATRICK REILLY, of Burlington, county of Des Moines and State of Iowa, have invented certain Improvements in Locomotive Smoke-Stacks, of which the following is a specification:

The nature of my invention relates to spark-arresters and draft-regulators for locomotive-stacks; and the invention consists in certain new and improved combination of devices, whereby the sparks are more effectually prevented from passing out of the smoke-stack, are extinguished, and finally consumed, said devices being also adjustable relatively, so as to regulate the draft, all as hereinafter more fully set forth.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the accompanying drawings, in which—

Figure 1 is a vertical axial sectional view of a stack embodying my invention, and Fig. 2 is a transverse sectional view of a similar stack on the line *x x* in Fig. 1.

Similar letters of reference indicate like parts in all of the figures.

Referring to the parts by letter, letter A represents an ordinary smoke-stack, connected in the ordinary manner at its base with the smoke-flue and exhaust of a locomotive. Letters B represent conico-cylindrical frustums, formed of sheet metal perforated, or other suitable material, and placed within the stack, as shown in the drawings—that is, with their contracted ends upward, and their bases attached by blocks to the stack, in such manner that an annular space, *b*, may be left between the lower ends of the frustums B and the stack. Letters *b'* indicate the perforations in the frustums B. The uppermost frustum should have an annular outwardly-inclined and perforated sheet, B', between its upper end and the shell of the stack. C C are inverted cones, formed of imperforate sheets of metal or other suitable material, and are arranged one to each of the frustums B. The bases of the cones C are somewhat smaller than the contracted ends of the frustums B. D is a rod, extending through and connecting the cones C C to each other, its upper end passing through an eye or guide, *d*, and its lower end through a guide-eye, *d'*. E is a lever, fulcrumed at *e*, and its inner end forked and striding the rod D between two stops, *d''*, while its outer end extends to within reach of the engineer or other attendant upon the locomotive.

The operation is as follows: The steam and unconsumed products of combustion in their ascent are deflected outward by the cones C, and the sparks thereby driven through the perforations in the frustums B to the annular spaces between said frustums and the stack, where they are retarded and brought in contact with the steam sufficient to extinguish them, when, falling through the open spaces *b*, they may reach the mouth of the flue and be consumed.

By means of the lever E and rod D the cones C may be raised within the frustums B, and adjusted at different heights therein, for the purpose of contracting or enlarging the spaces between them and the frustums, and thereby regulating the draft through the stack when desired.

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

The perforated plates B B, secured within the smoke-stack so as to leave annular openings or passages *b b*, and operating in combination with the cones C C, the latter being secured to the rod D and adjustable vertically, substantially as and for the purpose specified.

PATRICK REILLY.

Witnesses:
T. J. TRULOCK,
J. O. SMYTH.