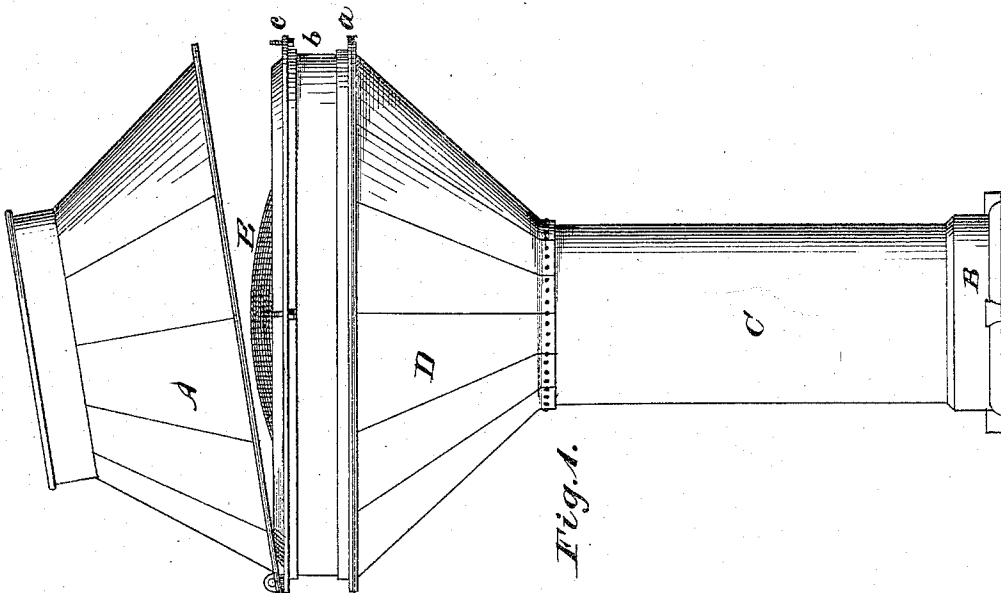
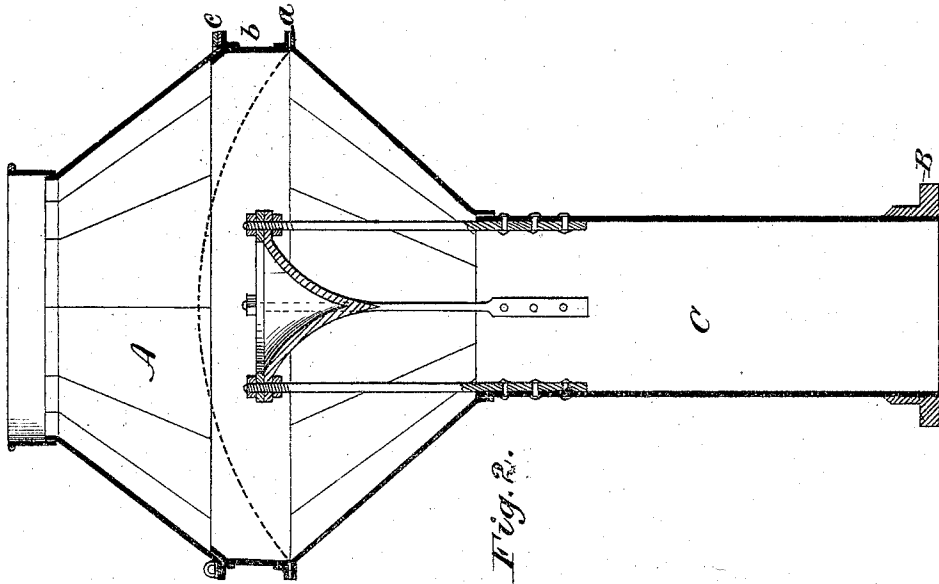


R. FRAZER.

Smoke-Stacks for Locomotive Engines.

No. 143,339.

Patented September 30, 1873.



Witnesses:

O. E. Duffy
W. J. Tolson

Inventor.
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UNITED STATES PATENT OFFICE.

ROBERT FRAZER, OF CAMDEN COUNTY, NEW JERSEY.

IMPROVEMENT IN SMOKE-STACKS FOR LOCOMOTIVE-ENGINES.

Specification forming part of Letters Patent No. **143,339**, dated September 30, 1873; application filed August 28, 1873.

To all whom it may concern:

Be it known that I, ROBERT FRAZER, of the county of Camden, in the State of New Jersey, have invented a new and useful Improvement on Smoke-Stacks of Locomotive-Engines, for examining and repairing the spark-arresters placed therein; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the figures and letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in making the upper portion of the smoke-stack movable by hinging, so that the spark-arrester may be examined and repaired with facility and dispatch.

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

The waist or lower portion of the stack, marked Figure 1 on the accompanying drawing, is a cylindrical pipe of iron or other metal, inserted in an improved base, B, of cast-iron, turned to suit the saddle attachment to smoke-arch, and of such length and diameter as may be required, surmounted by a conical-shaped attachment, D, for giving space for the insertion of the spark-arrester. The upper portion is flanged outward, and on it is placed the wire netting E to arrest the sparks. To the flange of Fig. 1 is bolted a ring of angle-iron, *a*, to which is riveted a belt of sheet-iron, *b*, of any width desired, and to which is fastened a ring, also of angle-iron, *c*, similar in form and size to that already named. The sheet-iron belt extends above the upper ring, and is flanged or worked inward to fit the part described, as A, Fig. 1. On the last-described portion of

the stack rests that marked A in the drawing. It is constructed in a conical form, and at such an angle as not to impede the escape of the steam. The attachment of this portion to that marked *c* is made on one side by a hinge or other convenient method, and at the opposite and intermediate points by bolts or automatic process. The upper portion of A consists of a cylindrical tube, securely riveted to the conical portion, of such diameter as may be considered expedient to give a free passage to the steam, and of a height or length sufficient to conduct steam and sparks in a vertical direction.

The advantages I claim for my improved smoke-stack are, first, the facility it affords for examining the interior of the stack, and for repairing the netting should the latter be found defective, thereby saving much time and expense, and securing the continuous use of the engine, and immunity from loss occasioned by fires originating from defective smoke-stacks and fractured netting; second, the greater space above the netting gives more freedom to the exhaust, preventing the clogging of the wire-cloth by wet sparks, and securing to the engine a good draft and proper combustion.

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

In smoke-stacks for locomotives, the combination of the wire-gauze E, the band *b*, and the top A, the latter hinged to facilitate the examination of the interior, substantially as described.

ROBT. FRAZER.

Witnesses:

JAS. G. WHITEMAN,
J. LEW ROWAND.