

E. CLEARY.
Locomotive Smoke-Stacks.

No. 158,469.

Patented Jan. 5, 1875.

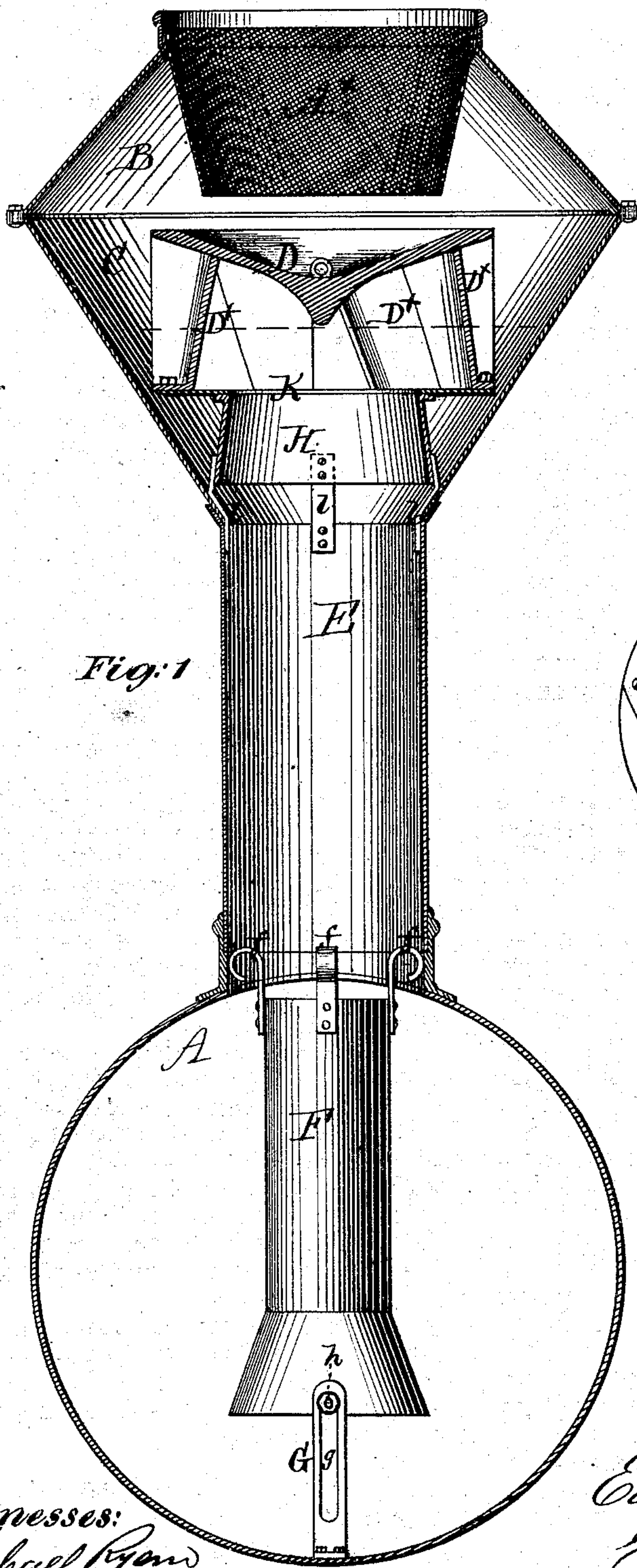


Fig. 1

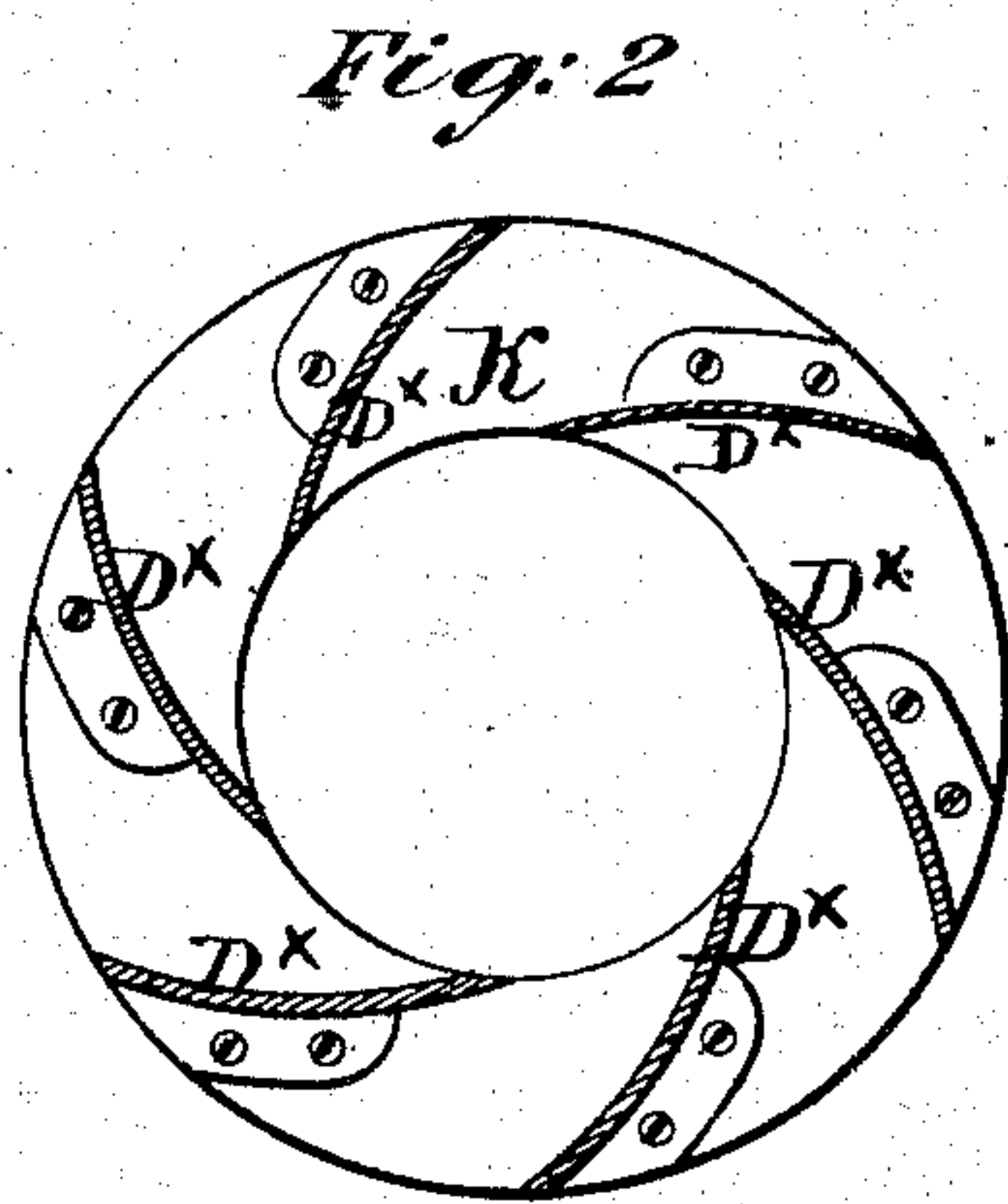


Fig. 2

Witnesses:
Michael Ryan,
Fred. Hayes

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UNITED STATES PATENT OFFICE.

EDWARD CLEARY, OF HOUSTON, TEXAS.

IMPROVEMENT IN LOCOMOTIVE SMOKE-STACKS.

Specification forming part of Letters Patent No. **158,469**, dated January 5, 1875; application filed December 10, 1874.

To all whom it may concern:

Be it known that I, EDWARD CLEARY, of Houston, in the county of Harris and State of Texas, have invented a new and useful Improvement in Locomotive Smoke-Stacks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification.

My invention relates to a smoke-stack, in which the sparks, live cinders, and other heavy particles are arrested near the top of the stack, and caused to descend again to the bottom; and it consists in the combination, with the stack, of a petticoat-pipe, arranged so that it may be raised or lowered at the pleasure of the engineer, for the purpose of regulating the draft.

In the accompanying drawing, Figure 1 is a central vertical section of a smoke-stack constructed according to my invention. Fig. 2 is a horizontal section taken on the line *x x* of Fig. 1.

The cylindrical portion E of the smoke-stack has its lower end bolted to the upper side of the smoke-box A in the usual manner, and its upper end bolted to the lower half of the double conical head B C. At the upper end of the cylindrical portion E, inside of the head, is a short tapering pipe, H, the lower end of which is bolted to the cylindrical portion E by means of braces *l*, and to the upper edge is bolted an annular plate, K, having an opening of a diameter corresponding with that of the upper portion of the tapering pipe H. D is an inverted cone, from the under side of which a number of curved blades, D^{*}, project downward, and have their lower edges flanged and secured to the annular plate K by means of bolts. The blades D^{*} are curved in a tangential direction relatively to the periphery of the cone D and plate K, as shown in Fig. 2. The cone D and its blades D^{*} are preferably cast in one piece of iron. The short pipe H is arranged in such a position as to allow a small space between its lower end and the upper end of the cylindrical portion E. In the upper half, B, of the double conical head, a

wire basket or screen, A^{*}, is arranged, its upper edge being attached to the circular opening in the top of the part B, and its lower edge reaching nearly to the top of the cone D, leaving a slight space between said lower edge and said cone. F represents a petticoat-pipe, considerably smaller in diameter than the cylindrical portion E, and having its lower end flaring or tapering outward. To the upper end of the pipe F a number of springs, *f*, are attached by rivets or bolts, their outer ends being curled or turned outward, so as to bear against the inner side of the lower part of the cylindrical portion E, as shown, so as to center the upper end of said pipe and hold it in place. The lower end of the pipe F is attached to the boiler A by means of a slotted bar, G. The lower end of the bar is bolted to the boiler, and in the upper portion is a slot, *g*, which engages with a screw-bolt, *h*, at the lower end of the pipe F, so that the pipe F may be raised and lowered at pleasure. The exhaust-nozzles from the cylinders of the engine terminate near the lower end of the pipe F, and by raising or lowering said pipe the draft may be regulated by the engineer at pleasure.

As the smoke and steam ascend through the smoke-stack, the sparks, live cinders, and other heavy particles are arrested by the cone D and blades D^{*}, and are deflected and thrown against the head B C, and fall back into the cylindrical portion E, and drop down into the furnace, the smoke passing through the screen A^{*}, and escaping in the usual manner.

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

In combination with a smoke-stack, constructed as described, the petticoat-pipe F, provided with the springs *f* and the slotted bar G, substantially as and for the purpose shown and described.

EDWARD CLEARY.

Witnesses:

E. SIMMLER,
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