

A. WINTON.

SPARK-ARRESTER AND DAMPER.

No. 171,901.

Patented Jan. 4, 1876.

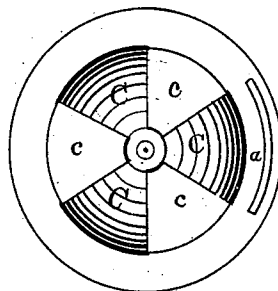
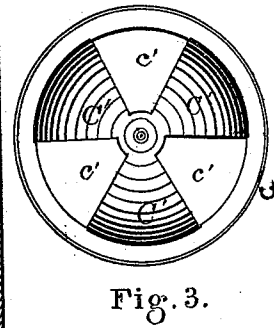
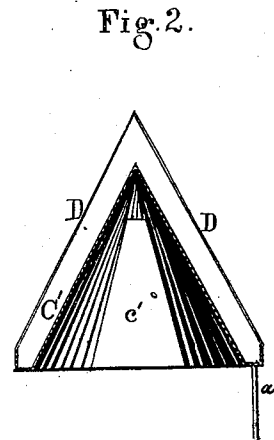
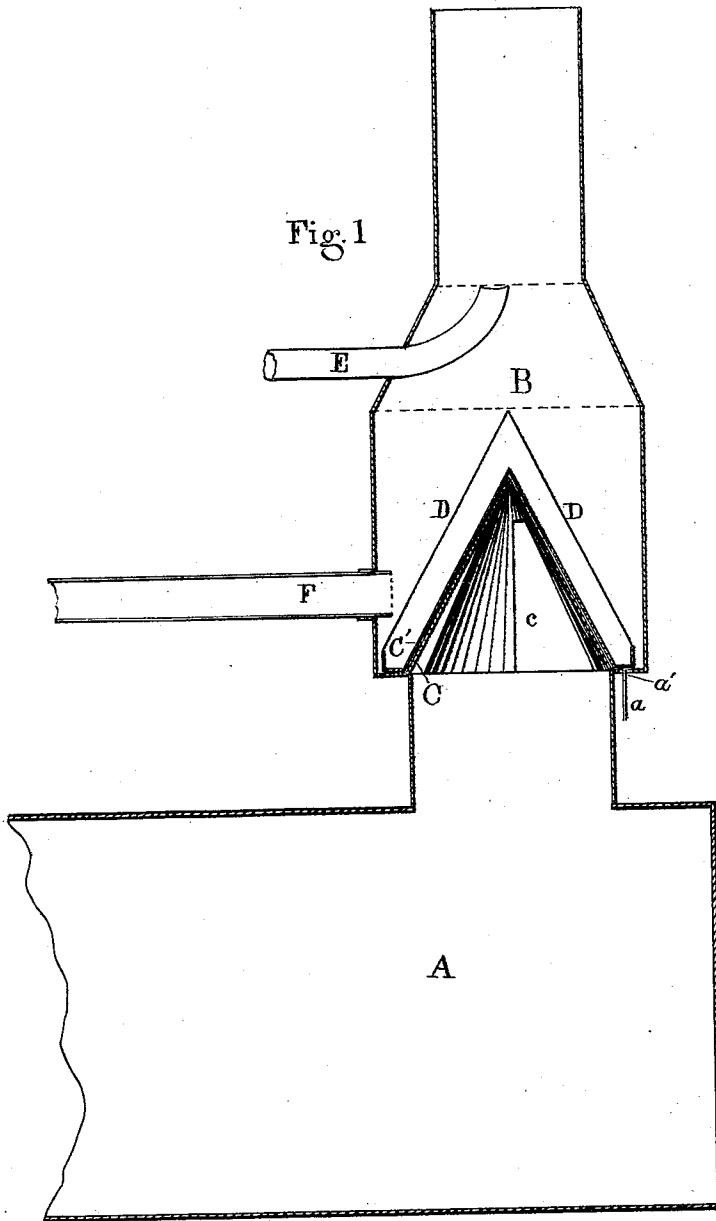


Fig. 4

Attest  
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# UNITED STATES PATENT OFFICE.

ALBERT WINTON, OF READING, PENNSYLVANIA.

## IMPROVEMENT IN SPARK-ARRESTERS AND DAMPERS.

Specification forming part of Letters Patent No. **171,901**, dated January 4, 1876; application filed October 29, 1875.

*To all whom it may concern:*

Be it known that I, ALBERT WINTON, of Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Spark-Arresters and Dampers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a vertical longitudinal section of the smoke-stack attached to the top of a boiler. Fig. 2 is a vertical section of the damper and screen. Fig. 3 is a top view of Fig. 2. Fig. 4 is a top view of the lower damper, as seen in Fig. 1.

This invention relates to an improved spark-arrester, for arresting sparks in the smoke-pipe of steam-generators and other furnaces, and to its combination with a graduating-damper for regulating the draft, as will be more fully described hereinafter.

A is a part of a boiler-shell, attached to which is the smoke-stack B. In the enlarged portion of this smoke-stack is a conical sheet-metal register-damper, consisting of an inner case, C, with three or more lengthwise openings, *c c c*, as seen in Figs. 1 and 4. Between the base of this case C and the shell of the smoke-stack B the stack is widened out to give room for the arrester and the damper. Over this inner case is the case C', which is made with openings *c' c' c'*, to correspond with those in the lower case *c c c*, and depending from the lower flange of C' is a handle, *a*, which passes through a slot in the base of the stack at *a'*. The case C' is surrounded by a conical sheet of fine wire-cloth, D, parallel with the sloping sides, and a short distance from it. These together are made separate from the lower case C, and can be detached for cleansing.

This wire-cloth D constitutes the spark-arrester, which, owing to its conical form, and to its position with reference to the damper, serves to arrest any sparks which may pass said damper, and cause them to fall back into

the current of flame or heated gases which have passed through the flues of the generator, and thus be consumed, or again carried up against the arrester, and thus broken into minute pieces before escaping into the atmosphere.

E is the steam-pipe, which leads from the cylinders of the engine for the escaping steam, which is arranged to throw the steam above the spark-arrester D, so that should any fine particles escape therefrom the steam will deaden them.

At F is another pipe, through which steam may be injected into the stack, for the purpose of cleansing the wire screen should it become choked by sparks.

The damper C C' is regulated to any degree of draft by the handle *a*, which is outside of the stack, and can be controlled by the engineer.

The advantage of this damper is, that should it be required to check the draft, which is strongest when the registers *c c c* are all wide open, then, by turning the handle *a*, they may be closed to any desired extent, and thus check back the rise of the gases, and retain them within the furnace, thus causing a slower combustion.

This is a superior method to that in which the dampers are used at the furnace-door, or entrance to the furnace, as in the latter case there is nothing to retain the heated gases in contact with the surfaces to which their heat is to be imparted, and hence they are allowed to pass off at a much higher temperature than when the draft is controlled in the smoke-pipe, as in the present case.

I am aware that dampers and spark-arresters have heretofore been separately placed in the smoke-pipes of furnaces, and hence I do not claim, broadly, placing dampers and arresters in that position; but,

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the rotating register-valve, moving upon a stationary seat, a conical wire screen arranged to surround said valve, and the enlarged portion of a smoke-pipe, the parts being constructed and arranged

to operate substantially as and for the purpose set forth.

2. The combination of the conical case C with the removable case C' and its wire cover D, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as

my own invention, I affix my signature in presence of two witnesses.

ALBERT WINTON.

Witnesses:

JOSEPH OLD,

GEO. W. YOUNG.