

(No Model.)

H. E. BRADLEY.

SPARK ARRESTER.

No. 317,290.

Patented May 5, 1885.

Fig. 1.

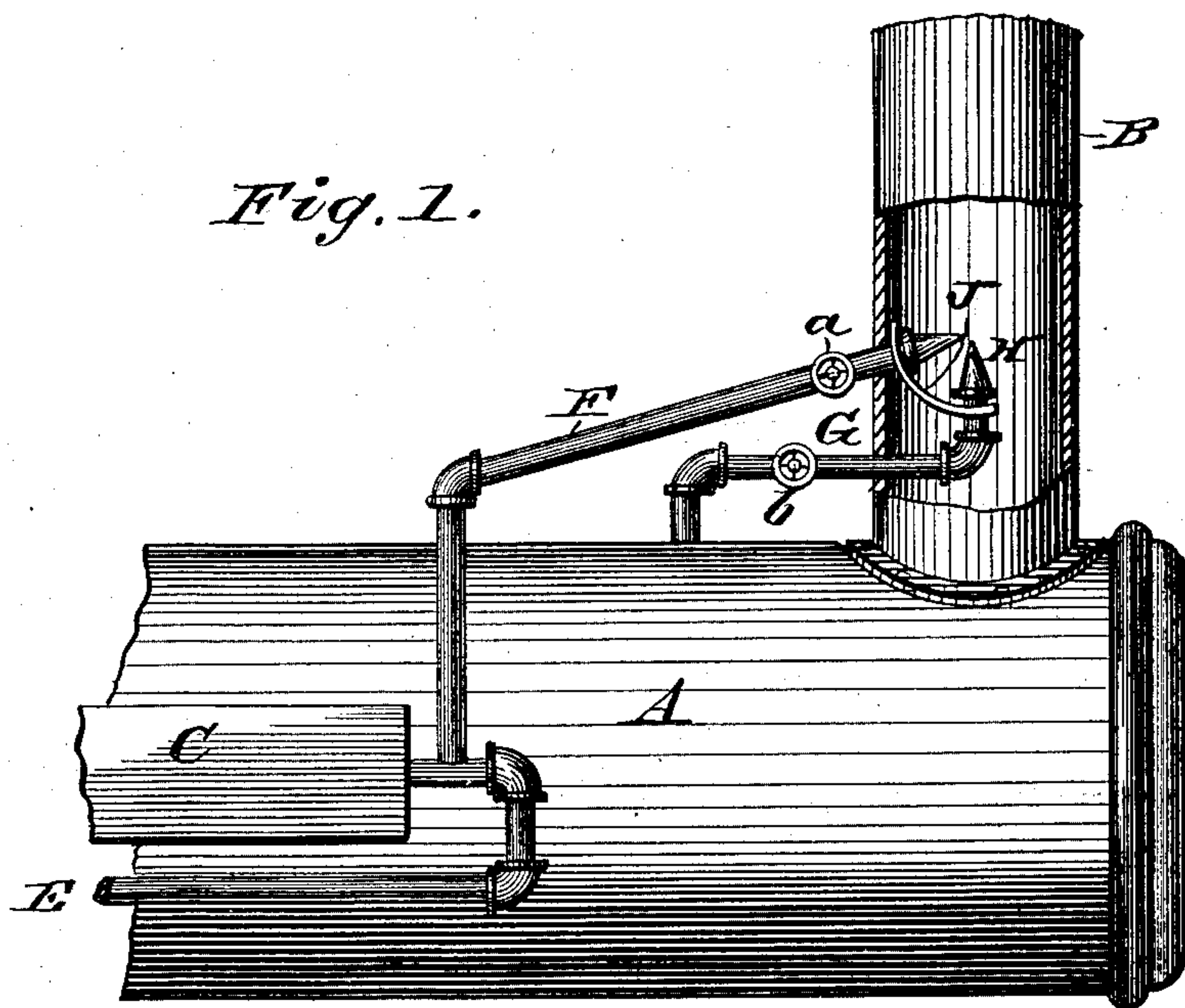
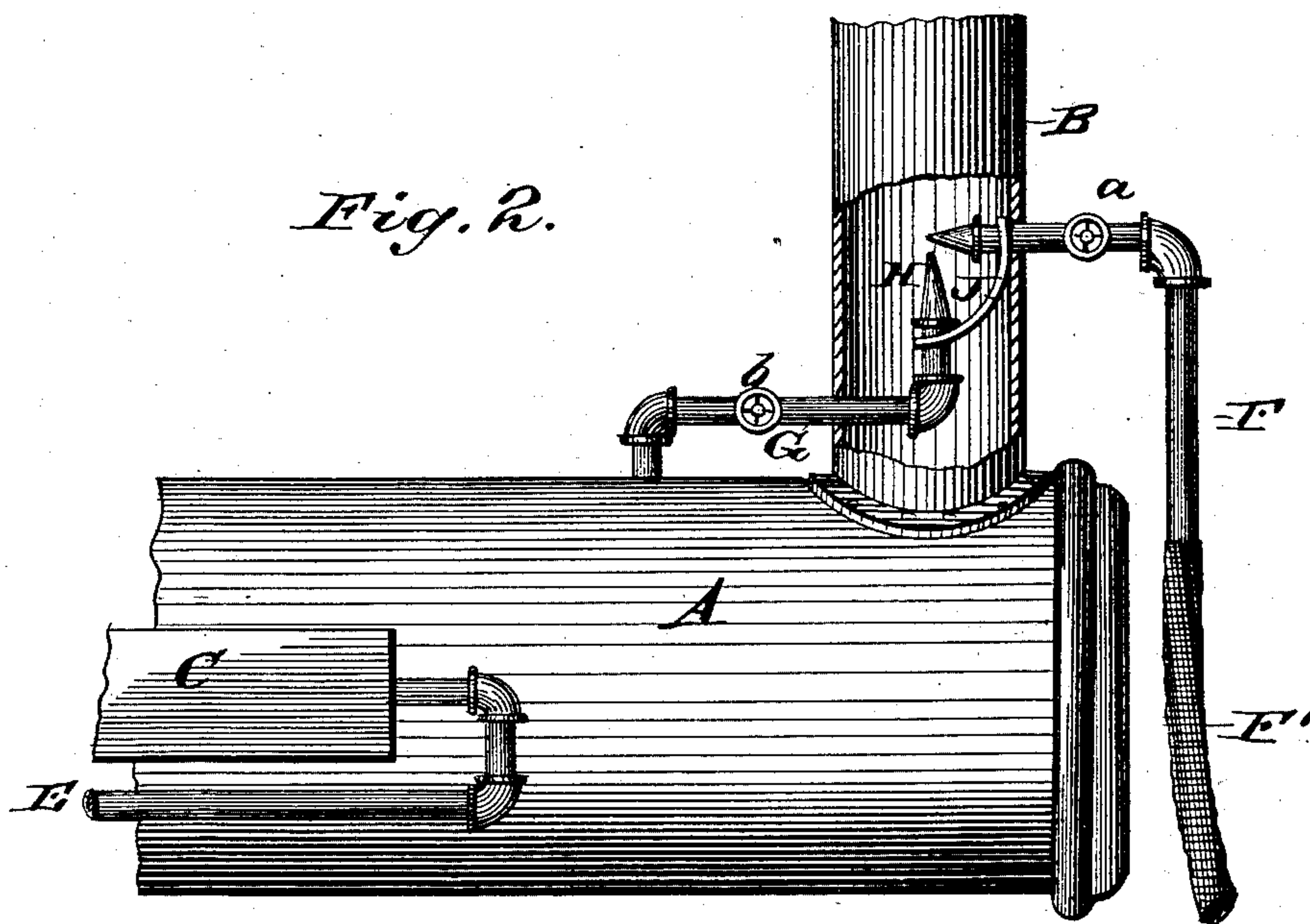


Fig. 2.



WITNESSES:

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HENRY E. BRADLEY, OF BUCHANAN, MICHIGAN.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 317,290, dated May 5, 1885.

Application filed October 29, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. BRADLEY, of Buchanan, in the county of Berrien and State of Michigan, have invented certain new and useful Improvements in Spark-Arresters; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a side elevation of part of a horizontal steam-boiler and smoke-stack, showing my improved spark-arresting injector applied to the same. Fig. 2 is a similar view of the boiler and stack, showing a modification of the injector.

This invention relates to that class of spark-extinguishers for steam-boilers wherein a spray-injector or a water-atomizer is used in the smoke-stack for extinguishing sparks; and it consists in combining with a spray-injector located in the stack or uptake novel means for supplying water from the tank and steam from the boiler, as will be fully understood from the following description, when taken in connection with the annexed drawings.

I am well aware that, broadly considered, it is not new in spark-arresters to employ a device in the stack of the boiler for injecting a spray of water among the live sparks, and thus extinguishing them. I therefore do not claim such contrivances except when employed in the manner herein set forth.

In the annexed drawings, Fig. 1, A designates a steam-boiler of the horizontal kind, and B the smoke-stack or uptake of the boiler.

C designates the water-pump, of well-known construction, from which a pipe, E, leads to the water-supply tank. (Not shown in the drawings.) This pump supplies the boiler with water.

F designates a pipe which communicates with the water-supply pipe of the pump, and which is provided with a regulating-cock, a, outside of the stack, and an injecting-nozzle horizontally arranged in the smoke-stack B.

Instead of connecting the pipe F with the supply-pipe E of the pump, as shown in Fig. 1, I may use a hose, F', as shown in Fig. 2, and connect this hose with the tank from which water is pumped to supply the boiler.

G designates a pipe which communicates with the steam-space of the boiler A, and which is provided with a cock, b, outside of the stack B, and an injecting-nozzle, H, inside of this stack. The injecting-points of the two nozzles are so arranged relatively to each other that the force of the stream issuing from the vertical centrally-arranged nozzle H will constantly tend to produce a partial vacuum in the pipe F, and thus inject a fine spray of water upwardly among the flying sparks, thereby extinguishing them.

The cocks in the two injector-pipes are designed for allowing the water and steam supply to be properly regulated. Both of these pipes F and G pass horizontally through the smoke-stack B, and are provided with a brace, J, for holding the points of the injecting-nozzles rigidly in proper position.

My improvements are especially applicable to steam-boilers which are used for engines designed for driving thrashing-machines, where there is great danger from flying live sparks; but it is also applicable to steam-boilers for other purposes.

Having described my invention, I claim—

1. In combination with a steam-boiler and its smoke-stack, a water-supply pipe provided with a regulating-cock and an injecting spray-nozzle, and a steam-pipe, also provided with a regulating-cock and an injecting-nozzle, both nozzles being rigidly connected by a brace inside of the smoke-stack, substantially as specified.

2. The combination, with a steam-boiler, its smoke-stack, the pump, and its pipe communicating with a water-tank, of the water-supply pipe leading from the pump-supply pipe to a nozzle in the smoke-stack, and a pipe leading from the steam-pipe to a nozzle in said stack, and both pipes being provided with cocks, and supported substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

HENRY E. BRADLEY.

Witnesses:

A. A. WORTHINGTON,
LOU WORTHINGTON.