

No. 606,637.

Patented July 5, 1898.

J. R. ALLEN.

SPARK ARRESTER.

(Application filed Feb. 3, 1898.)

(No Model.)

Fig. 1.

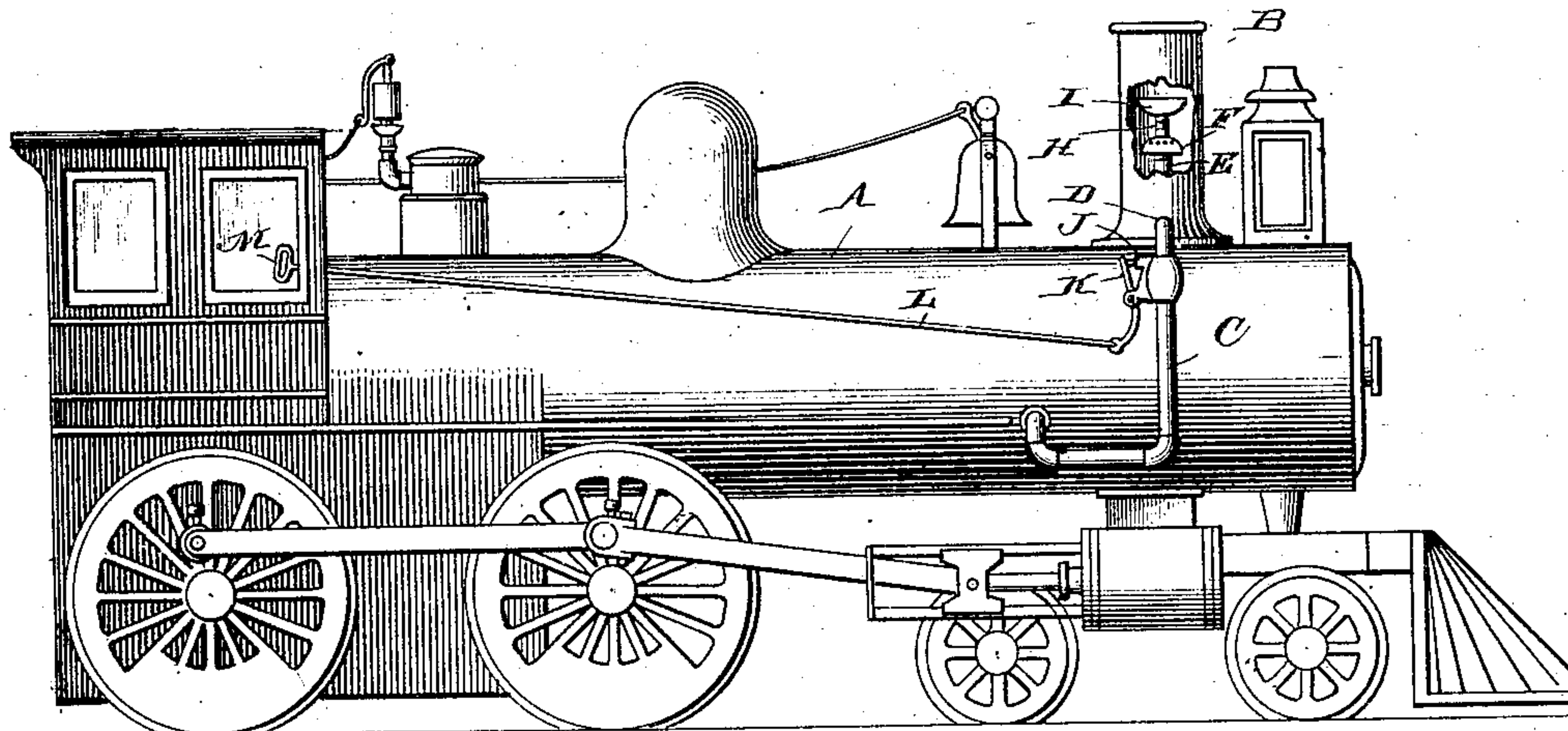


Fig. 2.

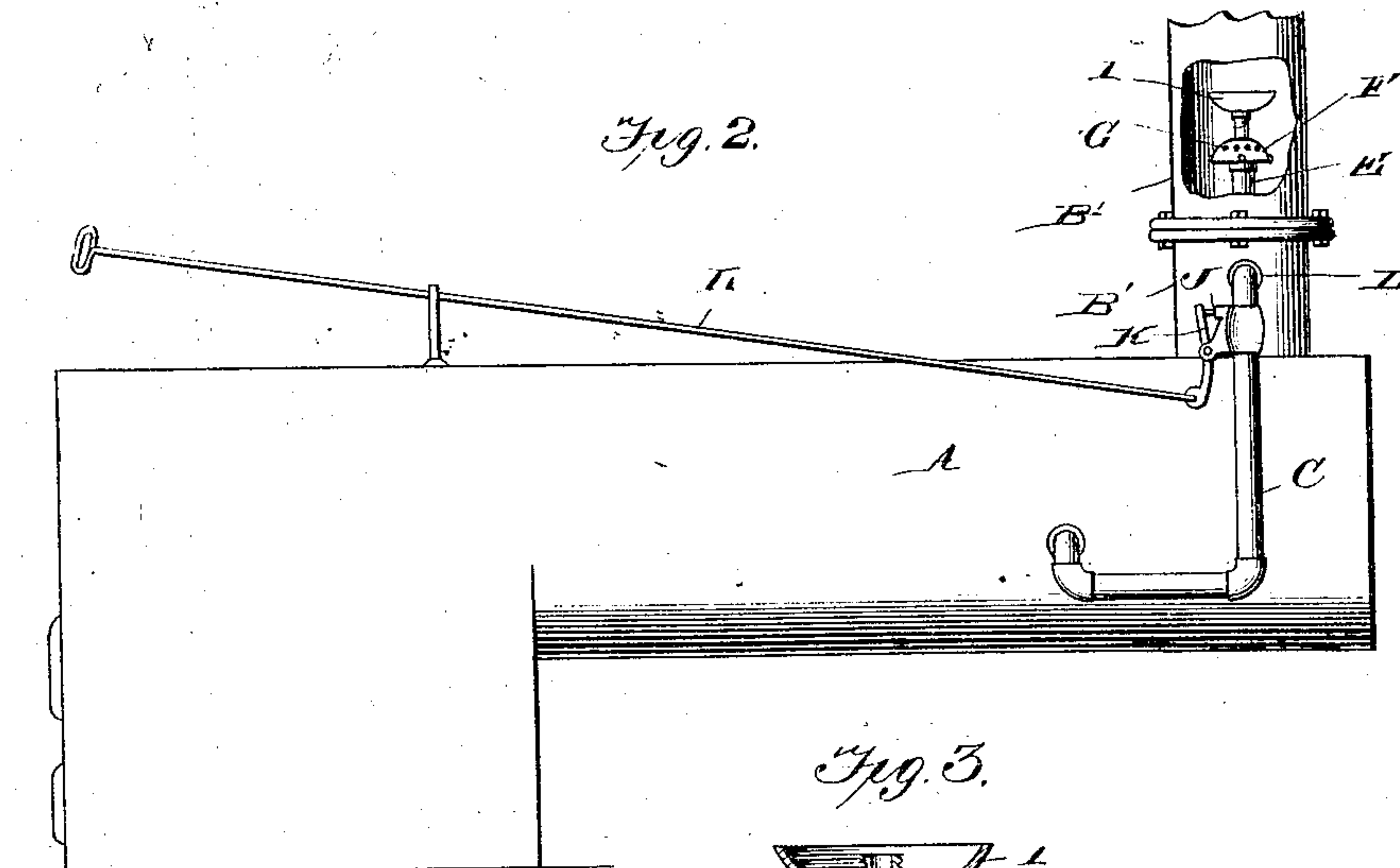
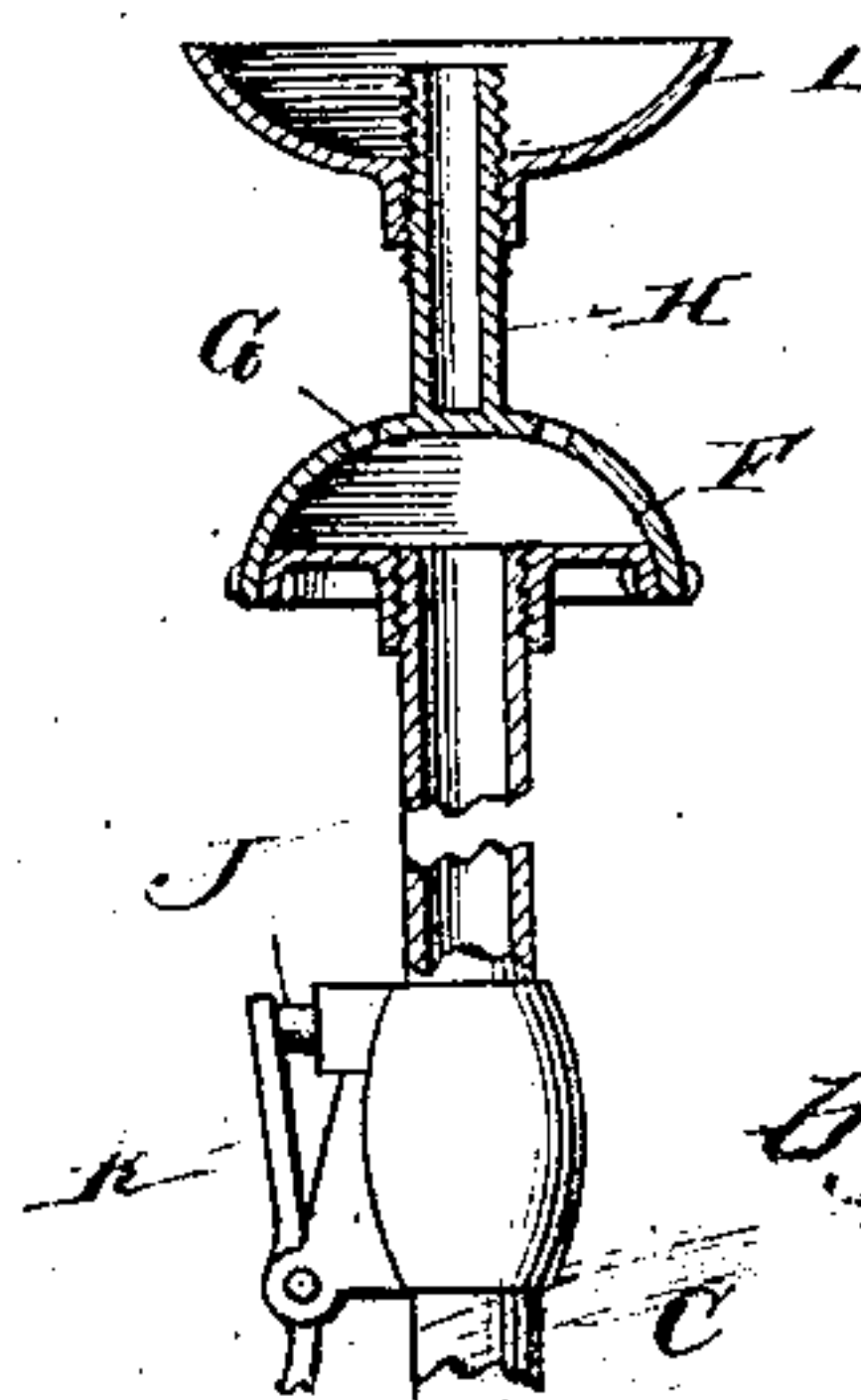


Fig. 3.



Witnesses

J. C. Shaw
Chas. E. Brock

Inventor

J. Robt. Allen,

by J. H. Allen
Attorney

UNITED STATES PATENT OFFICE.

JOHN ROBT. ALLEN, OF IDLEWOOD, ILLINOIS.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 606,637, dated July 5, 1898.

Application filed February 3, 1898. Serial No. 669,029. (No model.)

To all whom it may concern:

Be it known that I, JOHN ROBERT ALLEN, a citizen of the United States, residing at Idlewood, in the county of Jefferson and State of Illinois, have invented a new and useful Spark-Arrester, of which the following is a specification.

My invention is in the nature of an apparatus for arresting and extinguishing sparks from the smoke-stack of a locomotive or other boiler, the object being to furnish means whereby the passage of the sparks out of the smoke-stack is prevented and the consequent danger of setting fire to surrounding property and the annoyance to persons in the vicinity is entirely obviated.

With this object in view my invention consists in providing in the smoke-stack a pipe in communication with the boiler of the engine, said pipe being surmounted by a perforated head, above which is adjustably mounted a deflector or spreader, whereby when the device is in operation water under pressure from the boiler is forced through the perforated head against the surface of the deflector or spreader and caused to be deflected in all directions, thereby forming substantially a thin sheet or spray of water through which the sparks must pass before emerging from the smoke-stack.

My invention further consists in the improved construction, arrangement, and combination of parts hereinafter fully described and afterward specifically pointed out in the appended claims.

In order to enable others skilled in the art to which my invention most nearly appertains to make and use the same, I will now proceed to describe its construction and operation, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view in side elevation of a locomotive-engine having my improvement attached thereto. Fig. 2 is a view in side elevation of the boiler and smoke-stack of a locomotive having my invention applied thereto, showing a slightly differently constructed smoke-stack from that shown in Fig. 1. Fig. 3 is a vertical section through the principal working parts of my invention.

Like letters of reference mark the same parts wherever they occur in the various figures of the drawings.

Referring to the drawings by letters, A indicates the boiler, and B the smoke-stack, of a locomotive to which my invention is applied, although it may, as before stated, be applied equally well to the boilers and smoke-stacks of stationary or other engines.

C indicates a pipe leading from the boiler below the water-line into the smoke-stack at D and turned upward within the smoke-stack, the upright portion inside of the smoke-stack being marked E.

F indicates an inverted cup which is mounted upon the upper end of the pipe E and is provided in its upper curved surface with any desired number of perforations G.

H indicates a stem mounted centrally and vertically upon the cup F, upon which is threaded a similar cup I with its curved side downward, whereby said cup may be adjusted vertically.

The pipe C is provided with a spring-closing valve J, upon which bears the upper end of a lever K, which at its lower end is connected to a rod L, which extends to any desirable point for convenience of operation, in this instance being illustrated in Fig. 1 as extending into the cab of the engine and provided with a ring-handle M.

The smoke-stack B may be in a single section, as shown in Fig. 1, or in two sections, as shown in Fig. 2, said sections being marked B' and illustrated as provided with flanges clamped together by bolts. This construction is preferable to that shown in Fig. 1 for the reason that it admits of the removal of the upper section in order to get at the interior of the stack and expose my spark-arrester for cleaning or repair.

The construction of my invention will be readily understood from the foregoing description, and its operation may be described as follows: When it is desired to operate the extinguisher, the rod L is pulled by means of the handle M, which will open the valve J and permit the passage of the water from the boiler through the pipes C and E into the cup F, from which it will be ejected through the perforations G, striking the under surface of

the cup I and being deflected in every direction, forming a thin sheet or spray of water through which the sparks must pass in emerging from the smoke-stack and through which
5 they cannot pass unextinguished.

By means of this apparatus I am enabled to prevent any live sparks or hot cinders from passing out of the smoke-stack of any locomotive or other engine to which the apparatus is attached, thereby insuring the adjoining property against injury by fire from such sparks or cinders and the residents of the neighborhood of the engine from the many annoyances caused by the falling of said
15 sparks or cinders upon their premises.

While I have illustrated and described the best means now known to me for carrying out my invention, I do not wish to be understood as restricting myself to the exact construction
20 shown, but hold that any slight changes, such as might suggest themselves to the ordinary mechanic, would properly fall within the limit and scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with a boiler and smoke-stack, of a pipe leading from the boiler below the water-line into the smoke-stack and
30 extended vertically therein, an inverted cup upon the top of said pipe, having perforations in its upper surface, and a deflector adjustably mounted above these perforations,

whereby the ejected water is deflected in all directions, substantially as described. 35

2. The combination with a boiler and smoke-stack, of a pipe leading from the boiler below the water-line into the smoke-stack and extended vertically therein, an inverted cup upon the upper end of said pipe, provided
40 with perforations in its upper surface, a threaded stem projecting centrally and vertically from said cup, and a second cup threaded upon said stem with its curved side downward, whereby it performs the functions of a
45 spreader or deflector for the water ejected through the perforations of the lower inverted cup, substantially as described.

3. The combination with a boiler and smoke-stack, of a pipe leading from the boiler
50 below the water-line into the smoke-stack and extended vertically therein, an inverted cup forming the top of said pipe, a central, vertical, threaded stem leading from said inverted cup, a curved or cup-shaped deflector threaded upon said stem, a spring-closing valve in
55 the pipe, a pivoted lever bearing at one end upon the stem of said valve, and a rod reaching from the opposite end of said lever into the cab of the engine, substantially as described. 60

J. ROBT. ALLEN.

Witnesses:

NORMAN A. PIERCY,

NORMAN H. MOSS.