J. B. SUITT.

Spark-Arrester.

No. 224,803. Patented Feb. 24, 1880.

Fig. 1.

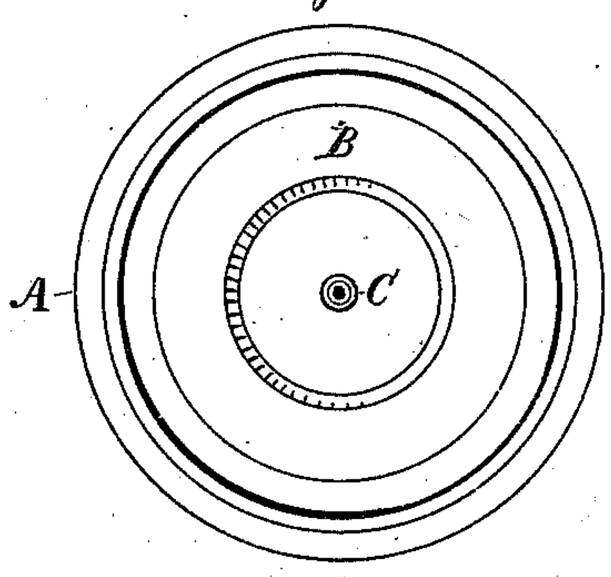
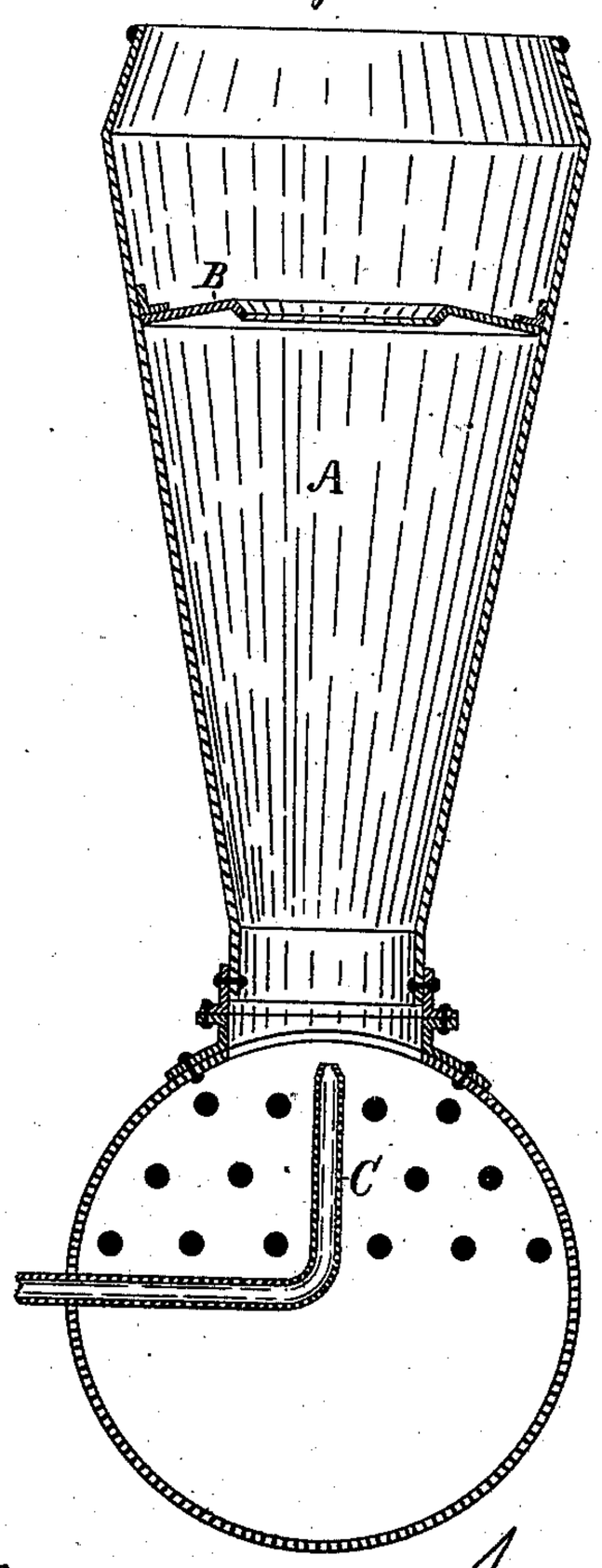


Fig. 2.



WITNESSES.

James B. Liggins.

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JAMES B. SUITT, OF INDIANAPOLIS, INDIANA.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 224,803, dated February 24, 1880.

Application filed October 21, 1879.

To all whom it may concern:

Be it known that I, JAMES B. SUITT, of the city of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Spark-Arresters, of which the following is a specification, reference being had to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts.

Figure 1 is a top or plan view of a smoke-stack embodying my invention. Fig. 2 is a transverse vertical section thereof on the dotted line *x x*.

The object of my invention is to construct a smoke-stack for engines which use an artificial draft, which will arrest and throw back the sparks which ordinarily pass out with the smoke, at the same time avoiding the use of the screen ordinarily placed over the top of such stacks, and all other devices which interrupt the direct line of draft; and it consists in the construction and arrangement of parts, as will hereinafter be more fully described.

To accomplish this object I make the stack A of a flaring form, and at the proper distance from the top I insert an inwardly-projecting ring or circular disk, B, having a central orifice. When the engine is in operation the sparks are forced outwardly from the center by the force of the steam from the exhaust or other steam pipe C, (the mouth of which is preferably centrally located at or near the bottom of the smoke-stack,) and, striking the under side of the disk B, are checked in their ascent and slide down the inner surface of the smoke-stack and fall into the open space at the end of the boiler, whence they can be readily removed. The smoke and exhaust-steam pass out through the opening in the center of the disk. This opening I usually make of a little larger diameter than the bottom of the smoke-stack, so as to insure that the draft shall not be checked in any degree by the disk; but as this is a matter that relates only to the degree of effectiveness, and is not essential to the successful operation of the device, I do not desire to confine myself in such matters, but only to the general construction.

The disk may be inserted at various points from near the top to well down the flaring portion of the stack; but I recommend that the location shown in the drawings be observed, as also the various proportions, as I have demonstrated by practical test that a stack so constructed is thoroughly effective.

I give herewith the dimensions of a stack constructed on my plan, which I consider of appropriate size for ordinary application, but which, of course, may be varied to suit the requirements of the fuel used, or the different uses to which the engine may be subjected—as, for instance, farm-engines and locomotives. In a stack four and one-half feet in height the first few inches may be of straight pipe, so as to be more conveniently attached to the boiler. Its lower diameter should ordinarily be about ten inches, and its greatest diameter at or near the top about twenty-four or twenty-six inches. I prefer to have it taper inwardly, as shown, for the last five or six inches, reducing the top diameter to about twenty inches. The disk is inserted about sixteen inches from the top, and the orifice therein should ordinarily be from ten to twelve inches.

I am aware that a smoke-stack has been constructed which embraced as one of its spark-arresting devices a ring which projected inwardly from the extreme top edge of the stack, and in which the orifice was of considerably less size than that through which the smoke and sparks were delivered into the space immediately beneath said ring. I do not regard such a ring as operative to produce the results attained by my invention without being placed in combination with other devices, if at all, and therefore disclaim it.

The disk B may be pivoted on a rod running through the smoke-stack, so as to be turned whenever from any reason it is desirable to do so—as, for instance, to discharge any accumulations of sparks or soot that may have become lodged thereon.

My invention is both more effectual and of greater durability than the ordinary screen, which it is intended to replace.

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

1. The combination, with a flaring smoke-stack having an artificial draft, of a ring or

disk attached to the inside of said stack in which the orifice is of nearly or quite the same size as or larger than the opening through which the smoke and sparks enter the open space in said ring beneath it, substantially as and for the purposes set forth.

2. The combination, with a flaring smoke-stack having artificial draft, of a single ring or disk having a central orifice, and attached to the inside of said stack at a point materially below the top thereof, all substantially as and for the purposes set forth.

In witness whereof I have hereunto set my hand and seal at Indianapolis, Indiana, this 17th day of October, A. D. 1879.

JAMES B. SUITT. [L. S.]

In presence of—
C. BRADFORD,
CHAS. F. WOLFE.