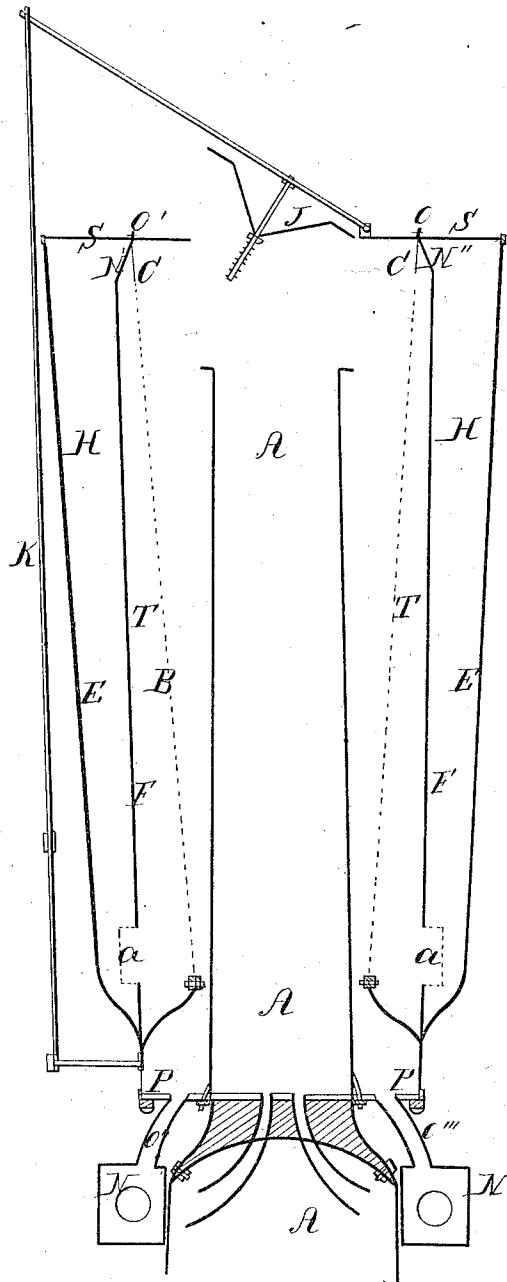


J. C. Johnson,
Spark Arrester,

No. 2,175.

Patented Feb. 28, 1842.



UNITED STATES PATENT OFFICE.

JOHN C. JOHNSTON, OF CATSKILL, NEW YORK.

MANNER OF CONSTRUCTING APPARATUS FOR ARRESTING SPARKS, &c.

Specification of Letters Patent No. 2,475, dated February 28, 1842.

To all whom it may concern:

Be it known that I, JOHN C. JOHNSTON, of Catskill, in the county of Greene and State of New York, have made an improvement in the manner of constructing an apparatus for arresting sparks and preventing them from issuing from the chimneys of locomotives and other steam-engines; and I do hereby declare that the following is a full and exact description thereof.

The spark arrester as I construct it is similar in its general form and mode of operation to that for which Leonard Phleger obtained Letters Patent of the United States under date of the tenth of September 1840; and for an improvement upon which Letters Patent of the United States were also obtained by the said Phleger under date of the twenty-eighth of December in the same year; and I do hereby declare that the following is a full and exact description of my said improvement thereof.

In order to explain my improvement on the above named patented spark arresters it will be necessary to repeat in part the description thereof given by said Phleger and after doing this to point out the particular improvement which I have made thereon.

In the accompanying drawing A, A, is the ordinary chimney, or flue, situated upon the fire box A'. The chimney A, A, is surrounded by a perforated conical body B, B, formed of sheet metal or wire gauze similar to that described by Phleger in his patent of September 10, 1840, a portion of the upper end, say for one foot not being perforated, I prefer as being more simple. I make the body B, B, cylindrical throughout its whole length.

F, F, is a conical case of sheet iron surrounding the perforated case B, B, in the same manner as that marked F, F, in the drawing of the last named patent; and this is surrounded by a continuous case or jacket E E, as described in the improved instrument patented by the above named Phleger, on the twenty eighth of December 1840, and substituted by him for the elbow pipes marked H, H, in the drawing of the first named patent.

In this said improvement, the final escape of the draft, at the upper end of the spark arrester was made both through an opening at G, G, between, and at the upper end of the spaces T, T, and at S, S, and from the

space marked H, H, formed by the jacket E, E, which was substituted for the pipes marked H, H, in the first patent. In my present improvement in this spark arrester the final escape of the draft is made exclusively and entirely through the space or opening S, S, at the upper end of the space H, H. To effect this the cases F, and B, are united together at their upper ends by the band or short conical piece N', N'', as shown at O', O; and when the cover J, is fastened down by means of the rod K, the whole top of the arrester will be closed with the exception of the annular opening S, S. This last described arrangement for the final escape of the draft through the opening S, S, constitutes my first improvement. In the arrester as improved by Phleger and patented on the twenty eighth day of December 1840 there was two series of openings from the space T, into the space H, H; which are marked a, a, in the drawing accompanying it; one of said series of openings being toward the upper, and the other toward the lower ends of said spaces; my second improvement consists in the omission of the upper series of said openings, and in retaining the lower series only, as shown at a, a, in the drawing accompanying this specification.

It has been found that by the adoption of the two above named improvements the draft is very considerably increased, and the perforations in the metal case B, B, or the meshes of the wire gauze used instead of perforated metal, may be considerably finer than under the former arrangement and the larger portion of the more minute sparks which were liable to pass through said perforations are arrested; the sparks by having to descend also with a portion of the steam down these lower openings a, a, are more generally extinguished in consequence of their longer exposure to the action of the steam and by its partial condensation. I have found it best to increase the diameter of this spark arrester, above that described by said Phleger, at the lower end where it is united to the flanch P, P. I now make it thirty inches in diameter and at its upper end I make its extreme diameter four feet. Instead of using the elbow pipe N, and the receptacle O, in the manner described by Phleger, and represented in the drawing in his first named patent, I find it more convenient and effective to use two receptacles

N, N, one on each side of the fire box and to conduct the cinders and ashes into them through tubes O, O, leading from the lower side of the flanch P, P, as represented in the drawing instead of laterally by the elbow pipe.

Having thus fully described the nature of my improvements on the above named spark arrester patented by Leonard Phleger, what I claim as new therein and as invented by me, is—

The connecting of the case F, and the case B, at their upper ends, and also the cutting off all communication between the spaces T, and H, excepting through the opening *a, a* near the lower end of the case

F, the upper opening made by the said Phleger being omitted and the whole being arranged and combined substantially in the manner, and for the purpose, above described, and made known.

And I will here remark, that for the purpose of more ready reference, I have designated the respective parts of my spark arrester by the same letters which were used in describing Phleger's, whenever the same could be done.

JOHN C. JOHNSTON.

Witnesses:

THOS. P. JONES,
A. D. FISK.