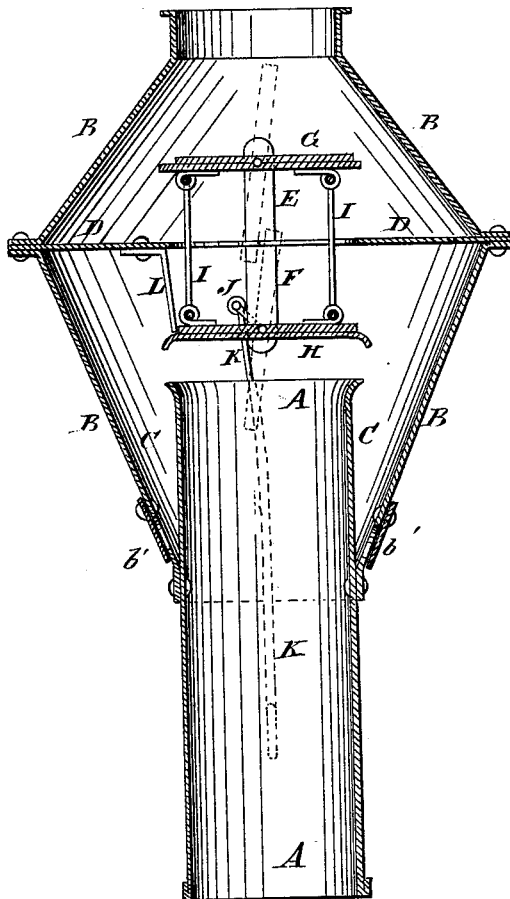


E. N. BERRY.  
Spark-Arrester.

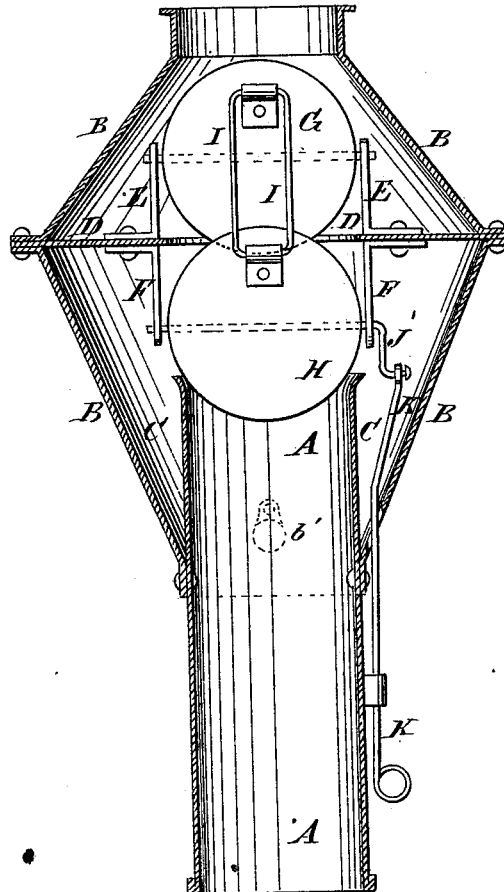
No. 220,118.

Patented Sept. 30, 1879.

*Fig: 1.*



*Fig: 2.*



WITNESSES:

*Chas. Nida*  
*G. Sedgwick*

INVENTOR:

*E. N. Berry*  
BY *Mundt & Co.*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

ELIPHALET N. BERRY, OF MONEY CREEK, MINNESOTA.

## IMPROVEMENT IN SPARK-ARRESTERS.

Specification forming part of Letters Patent No. **220,118**, dated September 30, 1879; application filed June 19, 1879.

### *To all whom it may concern:*

Be it known that I, ELIPHALET NATHAN BERRY, of Money Creek, in the county of Houston and State of Minnesota, have invented a new and useful Improvement in Spark-Arresters, of which the following is a specification.

Figure 1 is a vertical section of a smoke-stack to which my improvement has been applied, the disks being shown in a horizontal position. Fig. 2 is a vertical section of the same, the disks being shown in a vertical position.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved spark-arrester for locomotives, farm-engines, and other engines, which shall be so constructed as to prevent any sparks from escaping, and which shall be simple in construction, inexpensive in manufacture, and not liable to get out of order or become clogged.

The invention consists in the combination of the horizontal partition having a hole through its center, the two pairs of arms, the two pivoted disks connected and held parallel by the two pivoted links or bars, and the rod with each other and with the lower tubular part and the upper double-cone part of a smoke-stack, as hereinafter fully described.

A represents the lower or tubular part of a smoke-stack, and B represents the upper or double-cone part, which is secured to the upper part of the tube A in such a way that the said tube may project into the said part B, forming a ring-chamber, C.

Between the two parts of the double cone B is secured the edge of a horizontal partition, D, which has a hole through its center of about the size of the tube A.

To the partition D, upon the opposite sides of the hole through it, are secured the lower ends of two upwardly-projecting bars, E, and the upper ends of two downwardly-projecting bars, F, the bars upon each side of the said hole being in line with each other, as shown in Fig. 2.

To the ends of the arms E F are pivoted two disks, G H, which are connected by two pivoted links or bars, I, so that they may move together upon their pivots, and may always be parallel with each other.

To one of the pivots of the lower disk, H, is attached, or upon it is formed, a crank, J, to which is pivoted the upper end of a rod, K, which passes down through a hole in the lower part of the double cone B and through a keeper attached to the side of the tube A, and projects into such a position that it may be conveniently operated to adjust the disks G H into a horizontal or vertical position, as may be required.

To the partition D is attached an arm, L, for one of the disks G H to strike against, to stop the said disks in a horizontal position.

The edge of the lower disk H is curved downward, as shown in Fig. 1.

With this construction the disks G H may be turned into a vertical position when firing up, to give a direct draft.

When the disks G H are in a horizontal position the sparks that ascend through the tube A strike against the lower disk, H, and are projected into the ring-space C. Any sparks that may rise above the lower disk, H, strike against the partition D and fall down into the space C. Any sparks that may pass the lower disk, H, and the partition D strike against the upper disk, G, and fall down upon the lower disk, H, or upon the outer parts of the partition D, where they are out of the draft, so that it will be impossible for sparks to escape from the smoke-stack.

The dead sparks may be removed from the space C through hand-holes *b'*, formed in the lower part of the double cone B, as shown in full lines in Fig. 1 and in dotted lines in Fig. 2.

If desired, the rod K may be pivoted directly to the lower disk, H, the crank J being omitted. In this case the rod K should pass down through the interior of the lower tubular part, A, of the smoke-stack and out through a hole or slot in its side.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

The combination of the horizontal partition D, having a hole through its center, the two pairs of arms E F, the two pivoted disks G H, connected and held parallel by the two pivoted links or bars I I, and the rod K with each other and with the lower tubular part,

A, and the upper double-cone part, B, of a smoke-stack, substantially as herein shown and described.

ELIPHALET NATHAN BERRY.

Witnesses:

S. J. BOSWORTH,

WM. J. WHIPPLE.