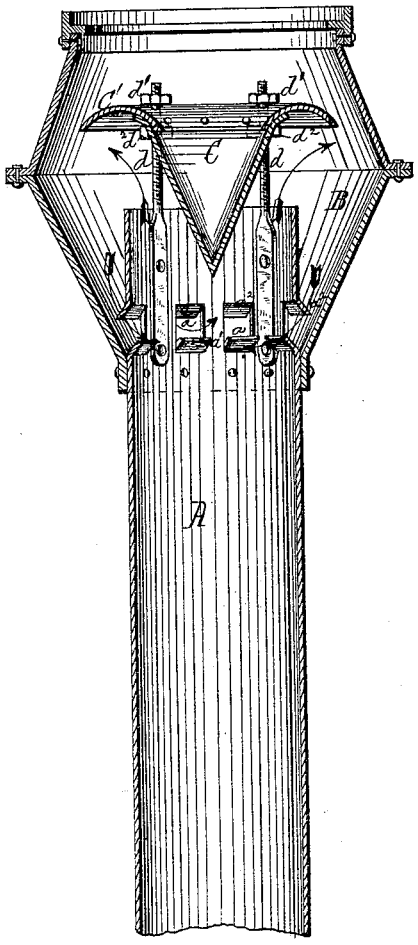
J. ALLONAS.

Spark-Arrester.

No. 205,716. Patented July 9, 1878.



WITNESSES

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JOSEPH ALLONAS, OF MANSFIELD, OHIO, ASSIGNOR TO THE AULTMAN & TAYLOR COMPANY, OF SAME PLACE.

IMPROVEMENT IN SPARK-ARRESTERS.

Specification forming part of Letters Patent No. **205,716**, dated July 9, 1878; application filed June 15, 1878.

To all whom it may concern:

Be it known that I, JOSEPH ALLONAS, of Mansfield, county of Richland, State of Ohio, have invented certain new and useful Improvements in Spark-Arresters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which represents a vertical section through the spark-arrester and a portion of the smoke-pipe, showing my improvement applied.

My invention relates to that class of smoke-stacks or spark-arresters employing an inverted cone, arranged within the head or bonnet above the open end of the barrel or cylindrical portion of the smoke-pipe, and between said end and the screen covering the bonnet; and consists in providing the lateral openings in the barrel, at the lower end of the head or bonnet, with projecting lips, which act upon the exhaust currents and tend to produce a vacuum around the barrel or cylinder in the lower part of the bonnet, and thereby, in connection with the cone, to cause the return of the larger and heavier portions of the escaping cinder to the action of the exhaust in the barrel or cylinder, as hereinafter explained.

In the accompanying drawing, A represents the barrel or cylinder forming the smoke-pipe, and B the head or bonnet, riveted or otherwise rigidly secured to the pipe B near its upper end, as shown. This bonnet is made in the form of two frusta of cones, united at their bases, and provided at the upper end with a screen of any usual or preferred construction, for preventing the escape of the larger pieces or portions of cinder. Within this bonnet, and above the open end of the barrel or cylinder A, is secured an inverted cone, C, upheld by upright rods *d* fastened to the upper end of cylinder A. These rods are provided with screw-threads and with nuts d^1 d^2 for effecting the adjustment of the cone and setting it nearer to or farther from the open upper end of the cylinder, as may be necessary.

The base of the cone is made flaring, or has an inverted dished annulus, C′, attached to and projecting from its base or upper end overhanging the end of the cylinder, as shown.

The cylinder A is provided, below its open upper end and near the point or line of attachment of the bonnet thereto, with a series of lateral openings, *a*, communicating with the lower end of the bonnet, and provided at their lower sides or ends with inclined lips a^1 projecting inwardly, as shown. Similar lips a^2 may project outwardly from the upper wall of the slots for giving additional efficiency in the action or operation hereinafter described.

These lips may either be formed by bending the metal cut to form the slots, as shown, or they may be made separate and riveted to the cylinder in the described relation to the slots or openings, and may be set at any required angle to the vertical wall of the cylinder.

In operation, the lips to the lateral openings *a* act upon the outer portion of the steam-exhaust employed for creating draft, &c., and not only prevent its escape through said openings, but, by deflecting it inward and away from the openings, tend to produce a vacuum in the lower end of the bonnet, and to draw inward, through the openings, such cinder and other substances as may be found therein.

The exhaust-steam charged with escaping cinder is thus deflected inward, bringing it sharply against the inverted cone, and thence outward through the open end of pipe A, and the steam passes thence outside of and up around the annulus or base of the cone, and escapes with the smoke and finer particles of cinder through the screen at the upper end of the bonnet, while the larger pieces of cinder, being too heavy to follow the rapidly-changing current of the exhaust, are thrown against the cone and inverted annular disk C′, and are thereby thrown outward and downward out of the current of the exhaust, and are thus caused to drop into the lower portion of the bonnet around the cylinder A, whence they are again drawn into the cylinder through the openings *a* by the action of the exhaust, as described. This action is repeated until, by being thrust forcibly over and over again against the cone and ring C′, &c., the cinder is broken or ground into particles sufficiently fine and light to adapt them to follow the current of and to escape with the exhaust-steam and smoke.

I am aware that smoke pipes or stacks have

been provided with bonnets and with cones having the general arrangement herein described; also, that the barrel or cylinder has been provided with lateral openings communicating with the lower part of the head or bonnet; and I therefore do not claim said features; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. The lateral openings *a* through the barrel or cylinder of the smoke-pipe, provided with the flaring lips or flanges extending inwardly, substantially as and for the purpose described.

2. The flaring lips to the lateral openings *a* in the barrel or cylinder, those at the bottom extending inwardly and those at the top outwardly, in combination with the cone C and head or bonnet B, constructed and arranged substantially as and for the purpose described.

JOSEPH ALLONAS.

Witnesses:
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