(Model.)

J. L. KANTNER.

SPARK ARRESTER.

No. 254.659 Patented Mar. 7, 1882.

Fig: 3.

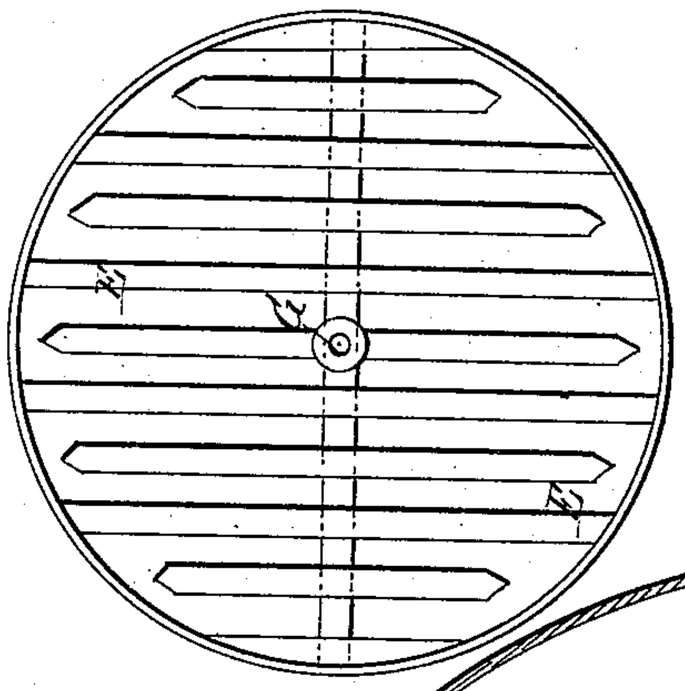


Fig: 1.

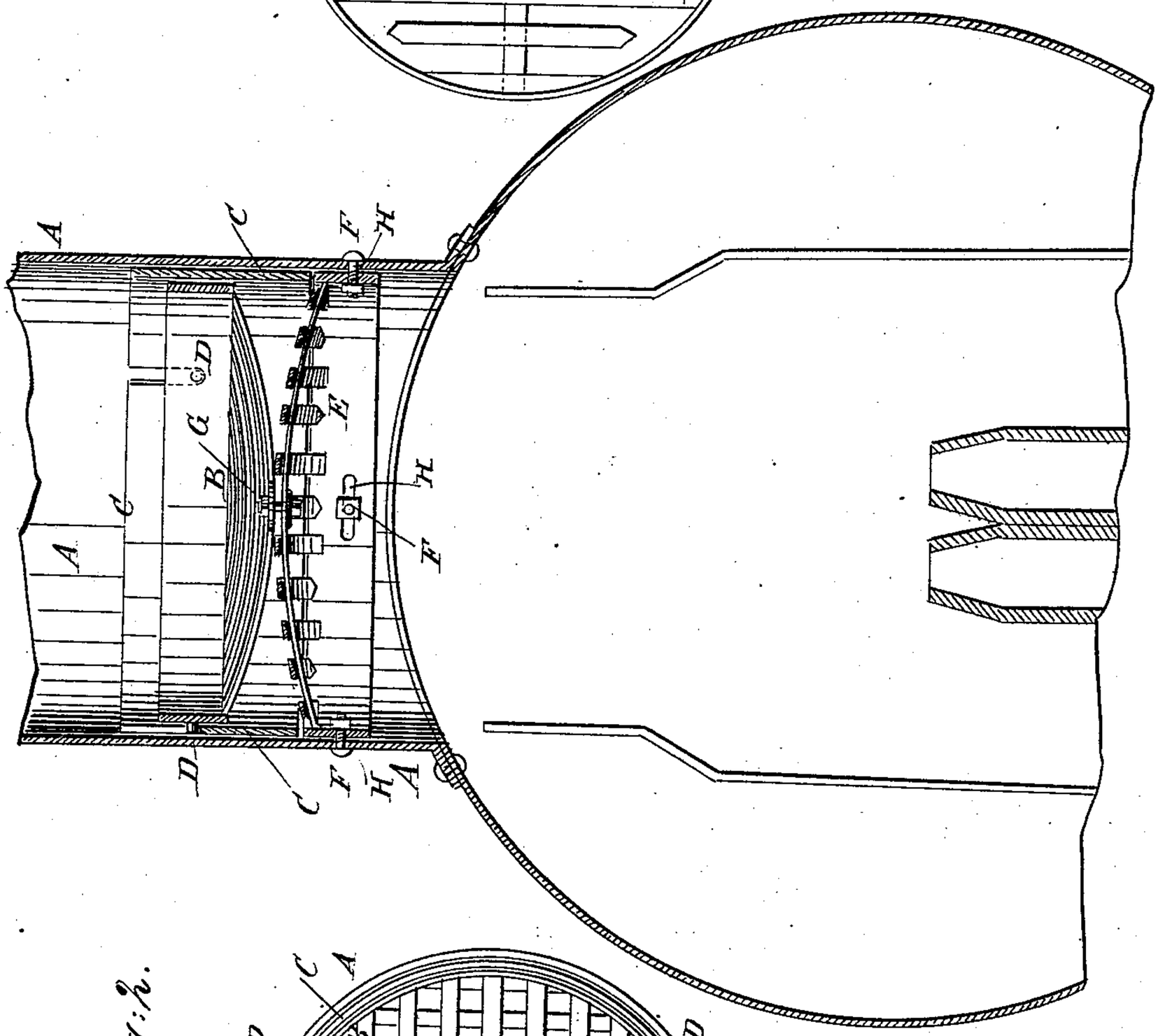
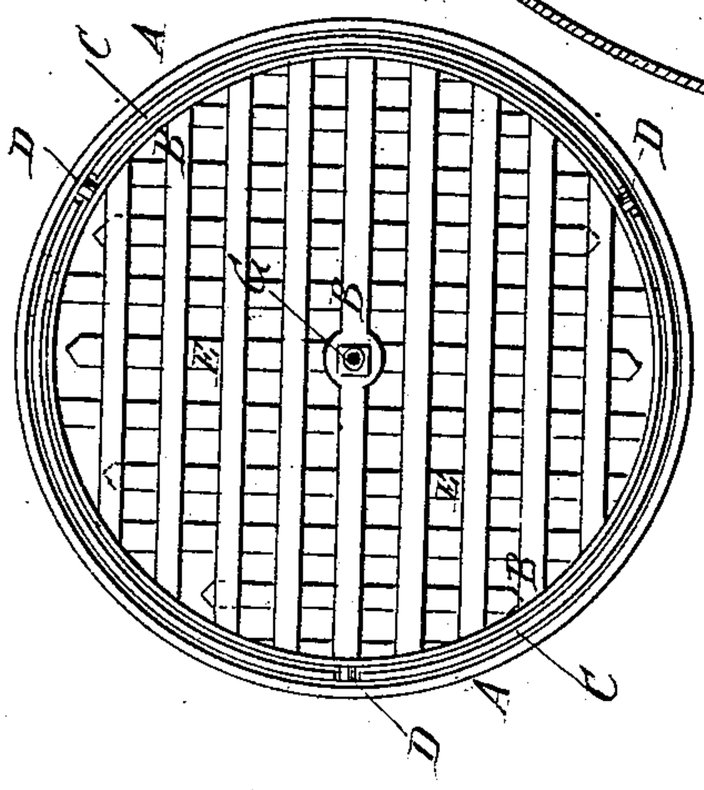


Fig: 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN L. KANTNER, OF SOUTH EASTON, PENNSYLVANIA.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 254,659, dated March 7, 1882.

Application filed September 24, 1881. (Model.)

To all whom it may concern:

Be it known that I, JOHN L. KANTNER, of South Easton, in the county of Northampton and State of Pennsylvania, have invented a new and useful Improvement in Spark-Arresters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional elevation of my improvement, shown as applied to a locomotive smoke-stack. Fig. 2 is a plan view of the same. Fig. 3 is a plan view of the lower grate.

The object of this invention is to produce efficient and durable spark-arresters and promote convenience in replacing them when worn.

The invention consists in a spark-arrester constructed with two concavo-convex grates made with parallel bars and connected at their centers by a bolt, and at their rims by an interposed rim, and also in the lower concavo-convex grate made of parallel curved bars attached at their centers to a curved cross-bar, and having the ends of the alternate parallel bars attached to a rim, the ends of the other bars being at a little distance from the said rim, whereby large sparks that pass through the said grate can fall back into the smoke-chamber, as will be hereinafter fully described.

A represents the smoke-stack of a locomotive-boiler. B is a concavo-convex grate formed of parallel bars attached at their ends to a rim. The grate B fits into a rim, C, and has guide pins or bolts D attached to it, which enter vertical slots in the said rim C. The rim C is fitted into the smoke-stack A, and its lower edge rests upon the upper edge of the rim of the lower grate, E. The grate E is made of concavo-convex shape, and is formed of parallel bars attached at their centers to a curved cross-bar, and with the ends of the cross-bar and of every other one of the parallel bars attached to a rim which fits into the interior of the smoke-stack A, and which has short horizontal slots H formed in it to receive the bolts F, that secure the said grate to the smoke-stack A. The alternate bars of the grate E that do not extend to the rim of the said grate terminate at a distance of about half an inch from the said rim to form spaces through which the sparks that may not be broken up and may lodge between the two grates can fall back into the smoke-chamber of the locomotive, to be again thrown out by the blast of exhaust-steam. The two grates B E are preferably placed with their convex sides toward each other, as shown in Fig. 1, and are secured to each other at their centers by a bolt, G.

With this construction the sparks that are carried through the boiler-flues and rise through the smoke-stack will be broken up by striking against the grate-bars into such small pieces as to be extinguished or rendered incapable of doing damage. The sparks that are not broken up will be stopped by one or the other of the two grates and will fall back into the smoke-chamber, to be again thrown out by the blast of exhaust-steam, and so on until they are broken up and driven out of the smoke-stack.

With this construction the grates will be less liable to be corroded by the gases and cut or worn by the sparks than grates made of wire-netting or wrought-iron bars.

By taking out the bolts F the grates B E, when worn, can be readily removed and replaced by new ones.

The slots H in the rim of the lower grate, E, allow the grates B E to be adjusted to bring the bars of the two grates into such relative positions as the draft of the furnace may require.

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

1. A spark-arrester constructed substantially as herein shown and described, and consisting of two concavo-convex grates made with parallel bars and connected at their centers by a bolt and at their rims by an interposed rim, C, as set forth.

2. In a spark-arrester, the combination, with the smoke-stack A, of the two concavo-convex grates B E, the central bolt, G, and the interposed rim C, substantially as herein shown and described, whereby sparks will be broken up before escaping from the smoke-stack, as set forth.

3. In a spark-arrester, the concavo-convex

grate E, made of parallel curved bars attached at their centers to a curved cross-bar, and having the ends of the alternate parallel bars attached to a rim, the ends of the other bars being at a little distance from the said rim, substantially as herein shown and described, whereby large sparks that pass through the said grate can fall back into the smoke-chamber, as set forth.

4. The combination, with the grate B, of the grate E, provided with horizontal slots H in its rim, substantially as herein shown and described, whereby the relative position of the two grates can be readily adjusted, as set forth.

JOHN LEWIS KANTNER.

Witnesses:

GEO. A. RAKE,

GOTLIEB HEINZELMAN.