C. A. RUSH.

SPARK ARRESTER.

APPLICATION FILED DEC. 1, 1909.

970,397.

Patented Sept. 13, 1910.

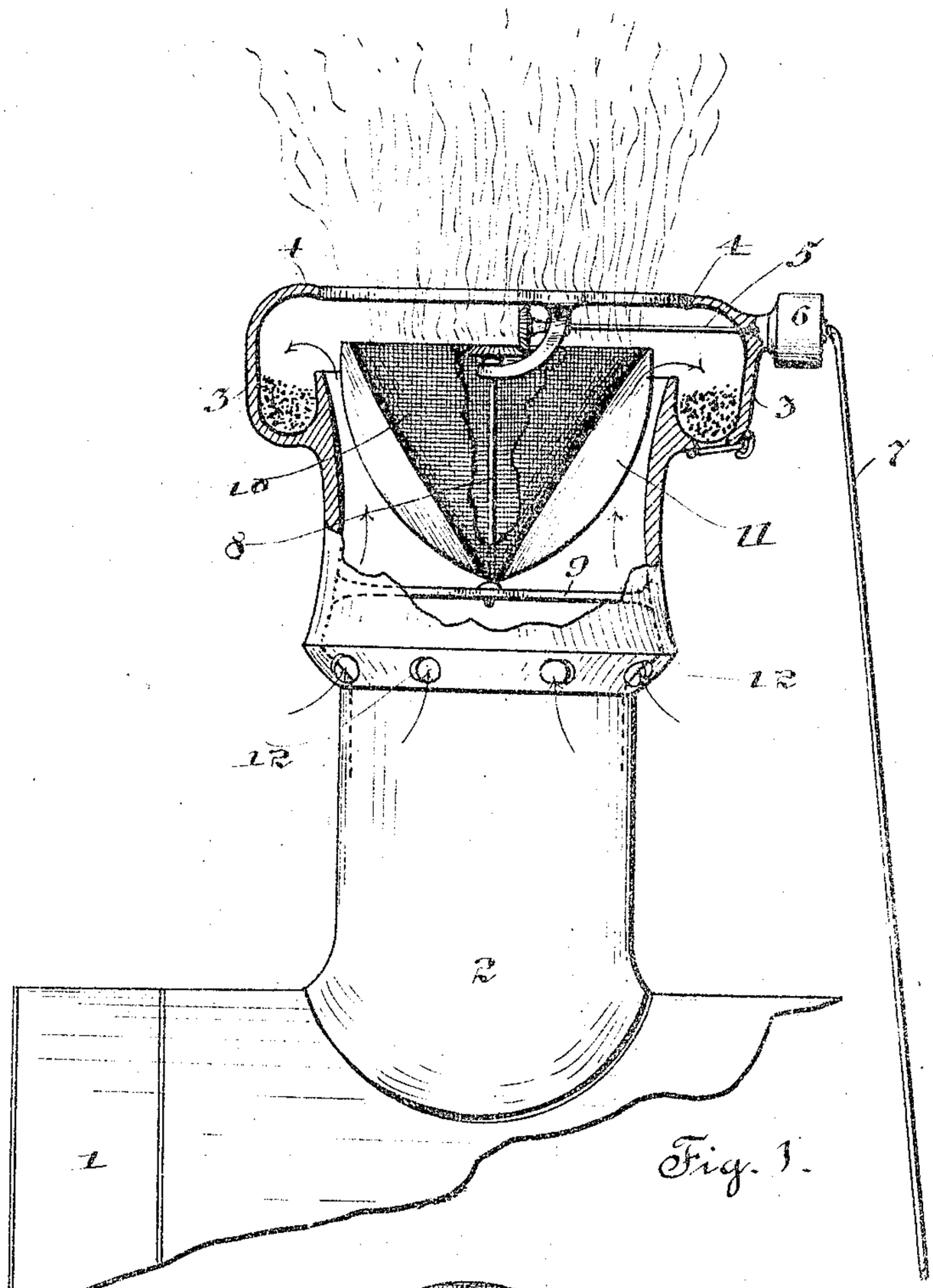

Fig. 1.

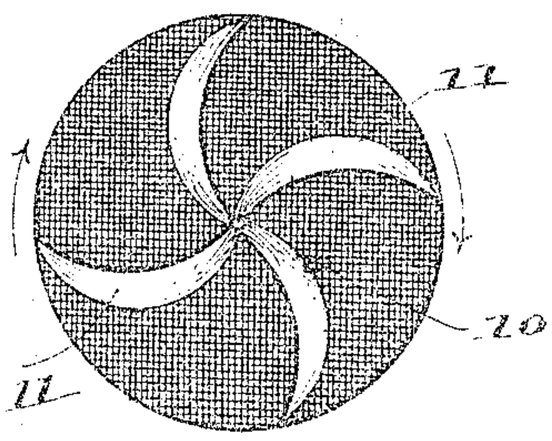

Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

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SPARK-ARRESTER.

970,397. Specification of Letters Patent. Patented Sept. 13, 1910

Application filed December 1, 1909. Serial No. 530,822.

To all whom it may concern:

Be it known that I, CHARLES A. RUSH, a citizen of the United States, residing at La Grange, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Spark-Arresters, of which the following is a specification.

My invention relates to improvements in spark arresters and has for its object the provision of a device of this character which shall be inexpensive of construction and efficient in operation.

A further object of my invention is to provide a spark arrester especially adapted for use on a locomotive stack having means incorporated therein for intercepting and collecting soot and cinders.

Other objects will appear hereinafter.

With these objects in view my invention consists in the novel construction and arrangement of parts which will be hereinafter fully described and more particularly pointed out in the appended claims.

My invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a partial side elevation of the locomotive stack embodying my invention the upper portion being shown in section, and Fig. 2 is a bottom plan view of a rotatable member provided in the device.

Referring now to the drawings 1 indicates a portion of the front of a locomotive and 2 a locomotive stack, the lower portion of the latter being of the usual cylindrical form. Around the top of the stack 2 an annular pocket 3 is formed, and extending inwardly from the exterior wall thereof is a flange 4 adapted to deflect matter downwardly into said pocket. Mounted in the top of the stack and extending radially therein is a power shaft 5 and connected therewith is a rotary steam motor 6 having pipe connection to the boiler of the locomotive. A steam motor is preferred as steam is available but any other well known suitable motor may be provided, the pipe 7 being connected in any suitable manner to the boiler of the locomotive. Axially mounted in stack 2 is a shaft 8 having beveled gear connection with the shaft 5, the lower portion of the shaft 8 being pivoted in a diametrically disposed member 9. Secured to the lower end of the shaft 8 is an inverted cone shaped wire gauze member 10, said shaft projecting through the apex of this member. Secured to the exterior wall of the wire gauze member 10 are a series of propeller blades 11 which cause an upward flow of gas through said member and a radial flow of solid matter such as soot and cinders which are collected in the annular pocket 3, the gas of said member tending also to deflect said solid matter radially. Cold air openings 12 are formed in the wall of the stack, and due to the inward and upward flow of the same an induced draft is effected which augments the effect of the forced steam draft in ordinary use.

While I have shown what I deem to be the preferable form of my invention I do not wish to be limited thereto as there might be various changes made in the details of construction and arrangement of parts described without departing from the spirit of my invention, and hence I desire to avail myself of such changes and modifications as fairly fall within the spirit and scope of the appended claims.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a spark arrester, a stack, a receptacle surrounding said stack, forced draft mechanism in the upper end of said stack and adapted to deflect the cinders outwardly toward said receptacle, means for driving said mechanism and said stack being provided with cold air openings beneath said mechanism, substantially as described.

2. In a spark arrester, a stack and an annular pocket formed around the top thereof, a flange extending inwardly from the exterior wall of said pocket, an inverted cone-shaped wire gauze member adapted to rotate on an axis coincident with the axis of said stack, and a series of propeller blades arranged on the exterior surface of said rotatable member and adapted to induce an upward flow of gas through said stack, the top edge of the periphery of said member being adjacent and above the plane of the interior wall of said pocket so that soot and cinders will be deflected and deposited in the latter by centrifugal force and the deflecting action of said gas member, substantially as described.

3. In a spark arrester, a stack, a radially

disposed power shaft mounted in the top thereof, an axially arranged driven shaft having beveled gear connection with said power shaft, an inverted cone-shaped wire gauze member the apex of which is secured to said driven shaft and adapted to rotate therewith, propeller blades secured to the exterior of said member, an annular pocket formed around the top of said stack, and cold air openings in the walls of said stack, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES A. RUSH.

Witnesses:
W. C. SMITH,
ARTHUR A. OLSON.