

C. BRUCE.
SPARK ARRESTER FOR STEAM ENGINES.
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1,384,822.

Patented July 19, 1921.

Fig. 1

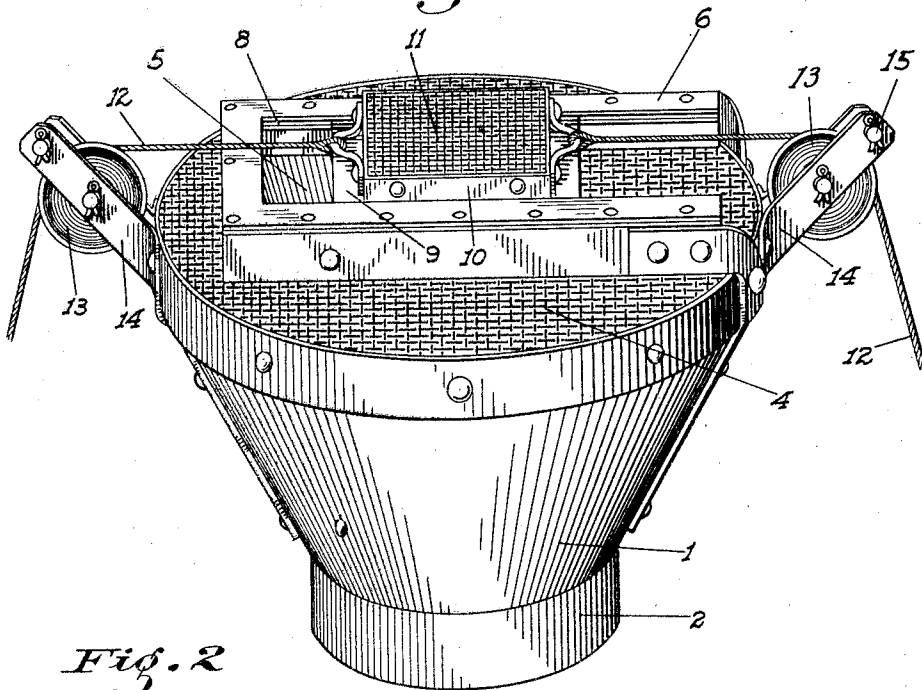
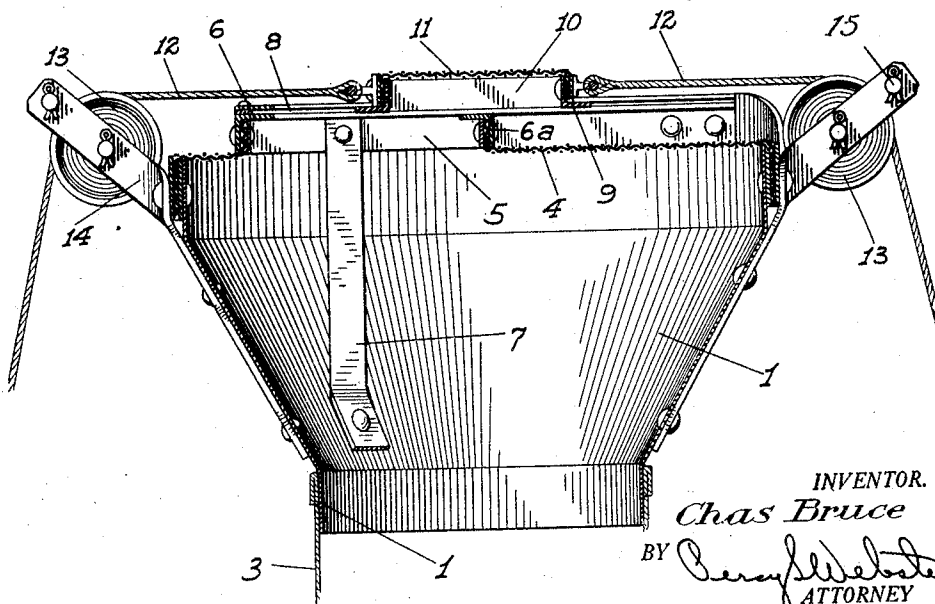


Fig. 2



INVENTOR.
Chas Bruce
BY *Berry S. Webster*
ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES BRUCE, OF TUOLUMNE, OF CALIFORNIA.

SPARK-ARRESTER FOR STEAM-ENGINES.

1,384,822.

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To all to whom it may concern:

Be it known that I, CHARLES BRUCE, a citizen of the United States, residing at Tuolumne, in the county of Tuolumne, State of California, have invented certain new and useful Improvements in Spark-Arresters for Steam-Engines; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this application.

This invention relates to improvements in spark arresters to be fitted onto the smoke stacks of steam engines, being particularly adapted and intended to be used on that type of engine known as donkey engines, which are extensively used in the woods to aid in the cutting and handling of timber.

With this type of engine, the exhaust is usually carried through the stack of the boiler to increase the draft. This naturally brightens the fire, which being perforce of wood, throws out an abundance of sparks which if permitted to escape from the stack may set fire to the woods and do incalculable damage.

A plain screen covering, such as is frequently used, would seem to solve the problem, but I have found that when starting the fire for the day a permanently fixed screen covering quickly becomes sooted over when firing up and hampers the necessary initial draft to such an extent that it is almost impossible to get up a head of steam, as until there is steam pressure, there is no way of creating a forced draft.

The principal object of my invention therefore is to provide a spark arrester which when the engine is in operation, will present an unbroken screen-surface to catch the sparks, but which is so constructed that a certain portion of the screen may be moved away to leave a free and unobstructed passageway to the atmosphere when firing up, this movable member being controlled at will by the engineer from his station on the ground.

A further object of the invention is to produce a simple and inexpensive device, and yet one which will be exceedingly effective for the purposes for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views.

Figure 1 is a perspective view of the spark arrester.

Fig. 2 is a sectional elevation thereof.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 represents the base of the arrester, preferably an inverted frusto-conical member having a vertical portion 2 on its lower end to adapt it to be fitted to an ordinary straight stack 3.

The top of the member 1 is covered with suitable screening 4 except for a certain area 5 preferably rectangular in outline and in the center of the member 1.

Superimposed over the screen 4 and surrounding the area 5 is a rectangular guide structure 6 extending from the end of said area to the opposite edge of the member 1, and being fixed to said member at that point and having at the opposite end supports 7 extending to the member 1, so that the weight of the guide is not carried on the relatively weak screen.

The side walls of the guide structure connect closely with the screen throughout their extent, so that no sparks may pass therebetween.

Horizontal grooves 8 are formed on the inner surfaces of the guide walls, such grooves receiving therein the flanges 9 of a slidable frame 10, which is covered with screen 11, the size of said frame being approximately that of the screen opening 5, while the guide structure 6 is of such a length as to permit the frame 10 to be moved entirely clear of the opening 5.

The member 10 when in position over said opening makes a spark-tight connection with the frame 6, there being a transverse bar 6^a fixed to the latter extending closely under the corresponding edge of the member 10 when in the position stated. This bar 6^a of course has also a spark-tight connection with the frame 6 and with the screen 4.

The frame 10 is moved back and forth at will by means of cables 12 fixed to each end thereof and extending over pulleys 13 mounted on opposite sides of the member 1 in alinement with the frame 6 in ears 14 fixed to the member 1, the cables then extending downwardly to within reach of the engineer.

In operation, when firing up, the member

10 is pulled by the proper cable to clear the opening 5, and said member is then moved back to cover said opening by means of the corresponding cable when steam is up and operations about to commence.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfils the object of the invention as set forth herein.

10 While this specification sets forth in detail the present and preferred construction of the device still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

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

20 1. A spark arrester comprising a screened base adapted to sit on a smoke stack, a certain area of such screen being cut away to leave an unobstructed opening, a guide struc-

ture fixed to the base and surrounding the opening and extending therebeyond, and an auxiliary screened frame slidable in the guide structure, and adapted to be positioned over the opening to make a spark-tight connection with the guide structure and the screen of the base, and to be moved to uncover the same at will.

2. A spark arrester comprising a screened base adapted to sit on a smoke stack, a certain area of such screen being cut away to leave an unobstructed opening, a horizontal guide structure fixed to the base and surrounding the opening and extending therebeyond, an auxiliary screened frame slidable in the guide structure, guide pulleys fixed to the base beyond opposite ends of the guide structure, and cables passing over the pulleys and attached to the opposite ends of the auxiliary frame.

In testimony whereof I affix my signature.
CHARLES BRUCE.