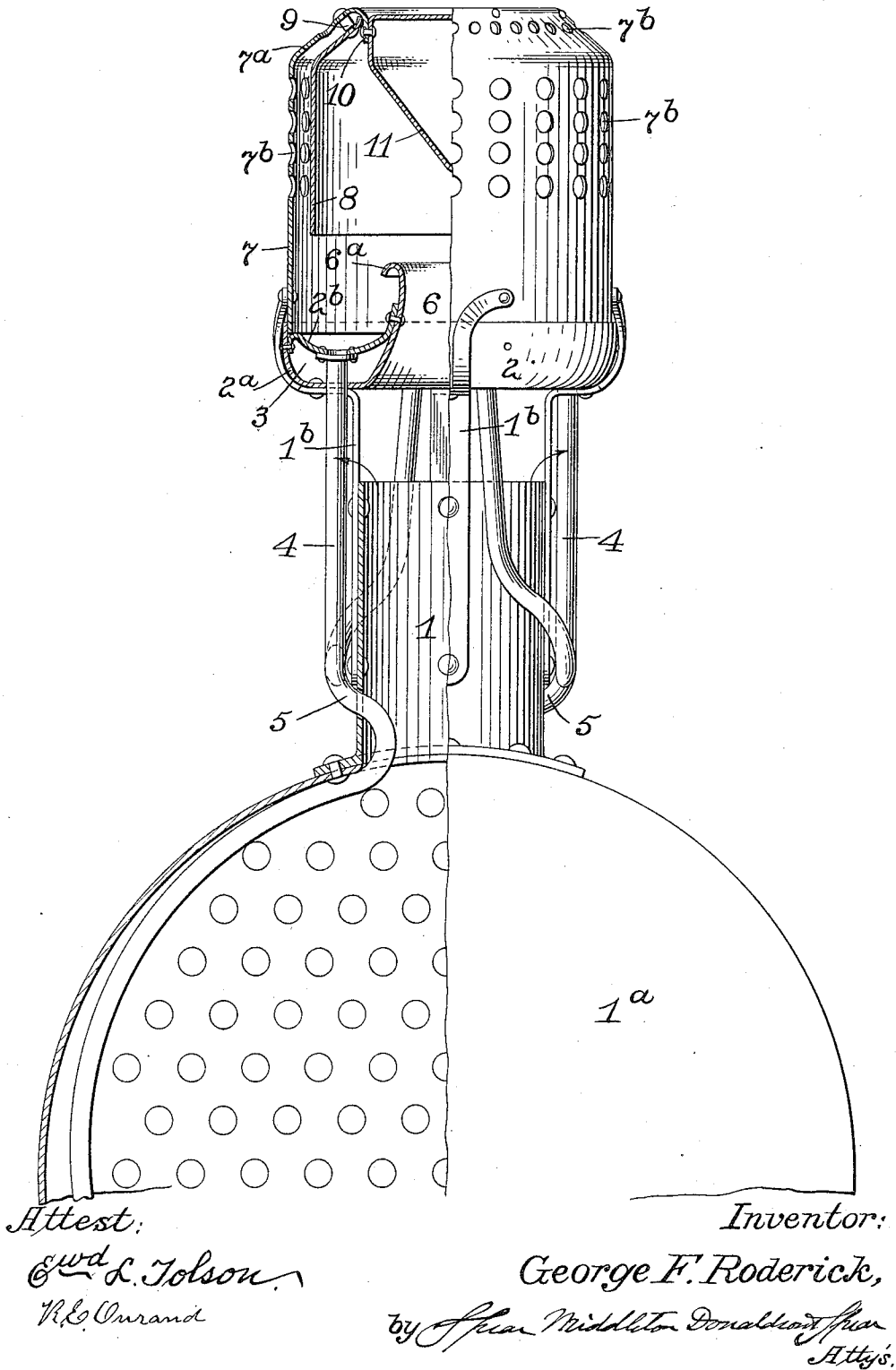


G. F. RODERICK.
SPARK ARRESTER AND CONSUMER.
APPLICATION FILED APR. 1, 1912.

1,045,612.

Patented Nov. 26, 1912.



UNITED STATES PATENT OFFICE.

GEORGE F. RODERICK, OF MEDINA, NORTH DAKOTA.

SPARK ARRESTER AND CONSUMER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE F. RODERICK, a citizen of the United States, residing at Medina, North Dakota, have invented certain new and useful Improvements in Spark Arresters and Consumers, of which the following is a specification.

My present invention relates to improvements in spark catchers and consumers and has among others for its objects to provide a simple, durable, and efficient construction which may be produced at a moderate cost and readily applied to the ordinary boiler stack and which will operate to catch and return to the front end of the boiler all sparks with the minimum amount of interference with the draft.

The invention involves the novel features of construction and arrangement and combination of parts hereinafter described and particularly defined by the appended claims.

The spark consumer constructed in accordance with my invention is illustrated in the accompanying drawing in which the figure represents the consumer applied to the stack of the boiler shown in part in a conventional manner, the figure being partly in section.

Referring to the reference characters of this drawing, the numeral 1 designates the stack and 1^a the boiler, the said boiler being intended to be representative of any ordinary boiler, such as a locomotive, traction engine, portable steam engine or stationary. Above and spaced from the upper end of the stack and in line therewith is mounted what I term a basin 2 which is of annular trough shape and is secured to and supported by the upper end of the stack by uprights or bars 1^b and to catch the sparks which are deflected downwardly by the crown hereinafter described. I prefer to make this basin of a lower trough shaped member 2^a and an upper trough shaped member 2^b of sheet metal with their edges riveted together which provides an intervening space 3. The upper portion 2^b constitutes the spark receiving trough, and in order to return the sparks to the front end of the boiler, I provide a plurality of pipes 4 which connect with the trough at their upper ends at equal distances apart and which pipes unite or connect at a suitable point with two pipes 5 which lead downwardly to the front end of the boiler to points preferably below the front ends of

the boiler tubes or flues. The inner edge of the basin is provided with an upwardly extending curved fender or deflector 6 which is provided with an annular downwardly curved flange 6^a, which aids in catching and retaining the sparks in the trough.

The crown comprises outer and inner members, the outer member comprising a cylindrical wall 7 having an inwardly curved or extended upper portion 7^a and being suitably secured at its lower end to the trough. A convenient form of connection is secured by extending the outer annular wall 2^a of the trough above the point of connection of the portion 2^b of the trough so that the annular wall 7 fits within the upwardly extending edge of the part 2^a and rests upon the part 2^b. The crown is held in place upon the part 2^b by the upper ends of the uprights 1^b, which are riveted to the cylindrical wall 7, as clearly shown in the drawing. I have further found it desirable to form the fender or deflector 6 as a continuation of the inner wall of the part 2^a. The inner member of the crown is likewise formed of a cylindrical member or cylindrical portion 8 of less diameter than the outer portion and of less height, as shown in the drawing, its lower edge preferably terminating slightly above the fender 6. The upper portion of this inner member 8 is deflected inwardly parallel with the annular portion 7^a of the outer part 7 and is secured thereto by suitable spacing rivets 9. The upper edge of the outer member is carried downwardly in the form of an annular flange 10, and to the depending flange thus formed is riveted the upper end of a deflector 11 of inverted cone shape, the apex of the cone being directly in line with the axis of the stack. The outer portion 7 of the crown is provided with a plurality of openings or perforations 7^b, all of these being preferably above the lower end of the inner member 8 of the crown. Thus the products of combustion which pass upward through the stack strike against the cone shaped deflector and inner member and are caused to pass downwardly so that the sparks are caused by gravity and their own momentum to drop into the trough and thence be carried downwardly through the pipe connections 4 and 5 into the front end of the boiler, while the gaseous products of com-

bustion which do not escape between the stack and hood pass upward between the inner and outer members 7 and 8 and out through the openings 7^b.

5 Having thus described my invention what I claim is:—

1. In combination with a smoke stack, an annular trough above the same and in alignment therewith, pipes leading from said
10 trough to the front end of the boiler, and a crown carried by said trough comprising inner and outer cylindrical members, the outer member having openings in its upper portion, and the inner member being spaced
15 from the outer member and depending below the said openings, and a deflector of inverted cone shape depending within the inner member and having its apex in line with the axis of the stack.

20 2. In combination with a smoke stack, an annular trough above the same and in alignment therewith, spark returning pipes connected to said trough, a crown carried by said trough and comprising spaced inner
25 and outer members having cylindrical portions and inwardly inclined connected upper portions, the outer member having perforations and the inner member depending below said perforations, said outer member
30 having at its upper end a downwardly turned annular flange, and a deflector of inverted cone shape having its upper por-

tion secured to said downwardly turned flange and its apex in line with the axis of the stack.

3. In combination with a smoke stack, an annular trough above the same and in alignment therewith and comprising a lower
trough shaped member and an upper trough shaped member having its edges secured
40 to the lower member, the outer wall of the lower member being extended above the point of connection of the upper member to form a retaining flange and the inner wall of said lower member being extended
45 above the point of connection of the inner member and curved outwardly and downwardly to form a spark retainer, and a crown comprising spaced inner and outer
50 members, the outer member being retained by the said retaining flange of the trough, said outer member of the crown being provided with perforations and the inner member of the crown depending below said perforations and a deflector of inverted cone
55 shape carried by said crown, substantially as described.

In testimony whereof, I affix my signature in presence of two witnesses.

GEORGE F. RODERICK.

Witnesses:

PHILIP L. JOHNSON,
ADAM PRESZLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."