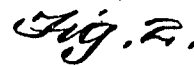
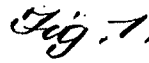


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2 SHEETS--SHEET 1.



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2 SHEETS-SHEET 2.

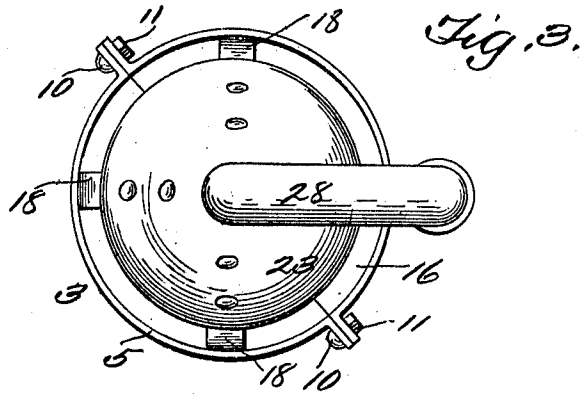


Fig. 4.

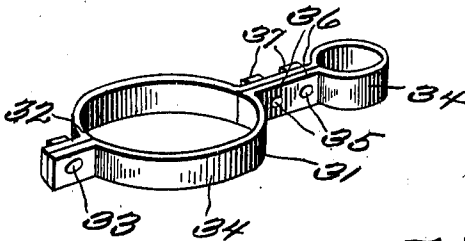


Fig. 5.

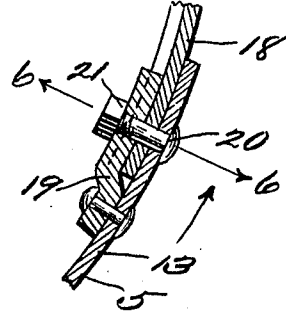


Fig. 7.

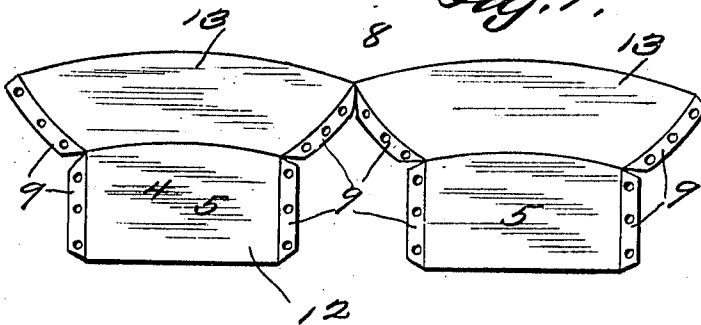
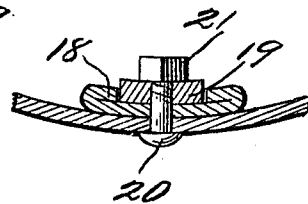


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

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SPARK-ARRESTER.

980,318.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MATT MICKELSON, a citizen of the United States, residing at Wittenberg, in the county of Shawano and State of Wisconsin, have invented a new and useful Spark-Arrester; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention pertains to a new and useful spark arrester, designed for use in connection upon smoke stacks, chimneys, or other similar flues through which products of combustion pass, in order that the sparks may be deposited in a receptacle.

The invention aims as its primary object to provide a device of this design, which is inexpensive in construction, and which may be easily applied to a smoke stack.

A further feature of the invention is the provision of a series of conical sections, held spaced apart, and detachably secured to a base portion or support (which telescopically receives and fits the upper portion of the smoke stack).

Another feature of the invention is that the uppermost conical section is provided with a cylindrical portion, which is telescopically received or fitted within an elbow of a vertical flue, through which the sparks are conveyed. When the sparks are conveyed through the vertical flue, they are deposited in a receptacle, which is received within the lower end of said flue. Another feature of the invention is the production of a band or strap formed from a single piece of metal, and by which the vertical flue is secured to the said base portion of the support, or to the smoke stack.

In this specification and the annexed drawings, a particular design of device is adhered to, but the invention is not to be confined to this specific design.

The device in its actual reduction to practice may necessitate changes and variations, the right thereto belongs to the applicant, provided such changes and variations are comprehended by the appended claims.

In the drawings:—Figure 1 is an elevation of a boiler having the usual smoke stack, to which the spark arrester is applied. Fig. 2 is a longitudinal vertical section of the spark arrester, also showing the same applied to the smoke stack. Fig. 3 is a top plan view of the spark arrester. Fig. 4 is a detail per-

spective view of the band or strap for securing the vertical flue to the base or support of the spark arrester or to the smoke stack. Fig. 5 is a detail view. Fig. 6 is a sectional view on line 6—6 of Fig. 5. Fig. 7 is a detail view of the blank, from which the base portion or support is formed.

Referring to the annexed drawings, 1 designates the boiler, from which the smoke stack 2 upwardly projects. The spark arrester 3 is provided with a base portion or support 4, which is telescopically received or fitted to the upper extremity of the smoke stack 2. This base portion or support is formed from a single piece of metal 5, as shown in Fig. 7, and in two parts, which are joined together, as at 8. These two parts are bolted together through the medium of the flanges 9 and the bolts and nuts 10 and 11. Then the two parts are shaped as shown in Figs. 1, 2 and 3, in order to provide a cylindrical portion 12, and the conical portion 13. Soldered or otherwise secured at 14 of the cylindrical portion 12 and the conical portion 13 is an additional cylindrical portion 15, between which and the conical portion an annular trough or receptacle 16 is formed, in which a portion of the sparks, after passing through the spark arrester, fall. Arising from the conical portion 13, at three or more locations thereon are projections or legs 18. These legs 18 are secured to the conical portion 13 by means of the devices 19, which engage the legs or projections, and also by the bolts and nuts 20 and 21.

23 designates a series of conical shaped members, which are arranged in registration with one another and held spaced apart, by means of the legs or supports 24. These legs or supports are secured to the members 23, by means of the devices 25, and the bolts and nuts 26 and 27. The lowermost member 23 is supported by the legs or supports 18, and held spaced apart from the conical portion 13. The said lowermost member 23 has the legs or support 18 secured to it in the same manner that the said legs or supports are secured to the conical portion 13. The uppermost member 23 is provided with a cylindrical portion 27^a, which is telescopically received or fitted within the elbow 28. This elbow or joint 28 has its other end fitted telescopically over the vertical flue 29, the lower opening of which is closed by a screw threaded cap-receptacle 30.

31 denotes a band or strap, formed from a single piece of strip metal, having its free ends bent at angles thereto, as shown at 32, and through which a bolt 33 penetrates.

5 This bolt receives the ordinary form of nut in order that the angled ends may be clamped together. This band is shaped into two annular rings or loops 34, one being smaller than the other.

10 35 designates a bolt, which penetrates the band or strip, as at 36, and to the threaded portion of the bolt a nut 37 is applied, so that the opposite portions of the band or strip may be drawn together, as shown in 15 the drawings.

As the product of combustion travels through the smoke stack and the spark arrester, the smoke will pass through the spaces between the series of members 23, 20 and the space between the lowermost member 23 and the conical shaped portion 13, while portions of the spark reach and pass through the elbow 28 into the vertical flue 29, while the remainder of the sparks will 25 drop or be deposited within the trough or receptacle 16. In the drawings the arrows 39 indicate the course that smoke and similar products of combustion take when emanating from the spark arrester, while 30 the arrows 40 indicate the course the sparks assume. By removing the cap-receptacle, the spark in the vertical flue may be removed.

35 The invention having been set forth, what is claimed as new and useful is:—

1. In a spark arrester, a base portion or support comprising a cylindrical portion and a conical portion, and provided with an additional cylindrical portion, said base 40 portion having an annular receptacle located between and formed by the additional cylindrical portion and the conical portion, a series of conical shaped members arranged in registration and spaced apart one above 45 the other and spaced apart above the receptacle, legs or supports for holding the members spaced apart, legs or supports for

holding the members spaced apart from the base portion or support, and a vertical flue having an elbow or joint connected to the 50 uppermost conical member.

2. In a spark arrester, a base portion or support comprising a cylindrical portion and a conical portion, and provided with an additional cylindrical portion, said base por- 55 tion having an annular receptacle located between and formed by the additional cylindrical portion and the conical portion, a series of conical shaped members arranged in registration and spaced apart one above 60 the other and spaced apart above the receptacle, legs or supports for holding the members spaced apart, legs or supports for holding the members spaced apart from the base portion or support, and a vertical flue 65 having an elbow or joint connected to the uppermost conical member, a cap-receptacle for closing the lower opening of the vertical flue, and a band for securing the vertical flue adjacent the base portion or support. 70

3. In a spark arrester, a base portion or support composed of a single piece of metal and in two parts, said parts having flanges for joining the parts together, said base por- 75 tion or support when in shape being provided with a conical portion and an additional cylindrical portion, said base portion having an annular trough between the additional cylindrical portion and the conical 80 portion, a series of conical members arranged in registration, means for spacing the members apart and above the base portion, a vertical flue having an elbow or joint connected to the uppermost conical member, and a band or strip securing the vertical flue 85 to the base portion.

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

MATT MICKELSON.

Witnesses:

GEORGE SMITH,
JOHN ENGLUND.