No. 750,088. PATENTED JAN. 19, 1904.

D. S. CHILD.

SPARK ARRESTER.

APPLICATION FILED NOV. 3, 1902.

NO MODEL.

Fig. 1.

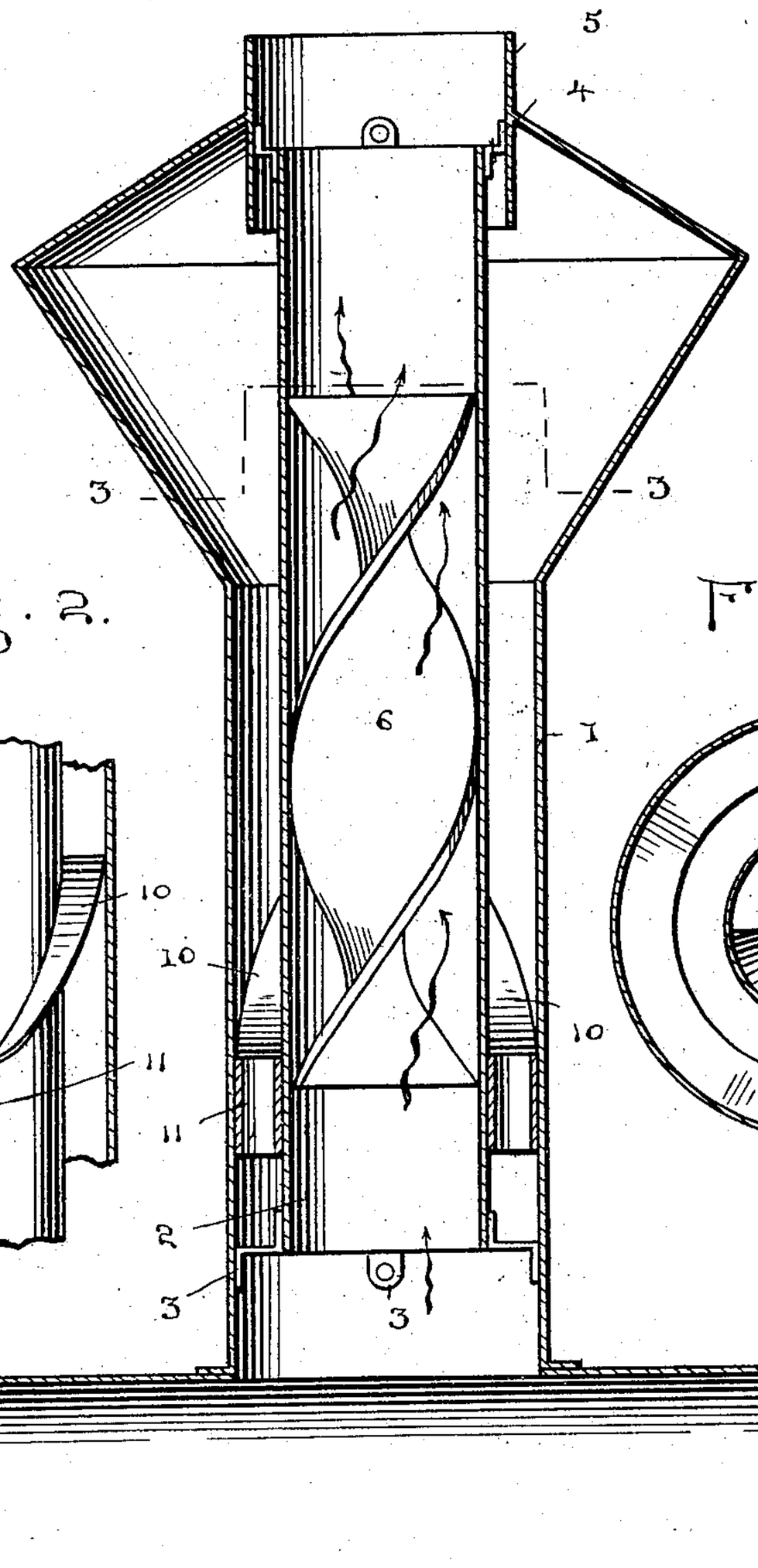


Fig. 2.

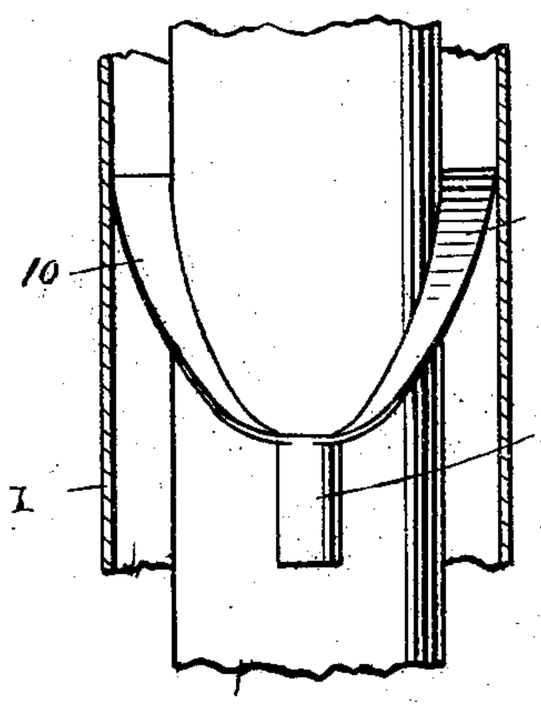
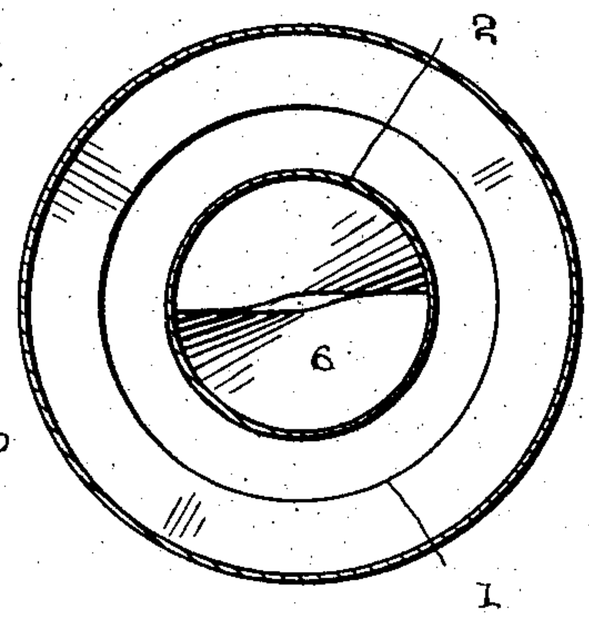


Fig. 3.



Witnesses

Jno. V. Peters.

Chas. S. Hoyer.

Inventor

Dwight S. Child.

By Victor J. Evans.

Attorney

No. 750,088. Patented January 19, 1904.

UNITED STATES PATENT OFFICE.

DWIGHT S. CHILD, OF HOLDEN, MISSOURI.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 750,088, dated January 19, 1904.

Application filed November 3, 1902. Serial No. 129,963. (No model.)

To all whom it may concern:

Be it known that I, DWIGHT S. CHILD, a citizen of the United States, residing at Holden, in the county of Johnson and State of Missouri, have invented new and useful Improvements in Spark-Arresters, of which the following is a specification.

This invention relates to a spark-arrester; and the object of the same is to provide simple and effective means for preventing the escape of sparks or heavy products of combustion from a smoke-stack by causing the same to fall back into a part of the stack surrounding the main smoke-flue and be carried off by means of suitable conveying devices.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a transverse vertical section of a smoke-stack embodying the features of the invention. Fig. 2 is a similar view of a portion of a smoke-stack, taken therethrough in a different vertical plane. Fig. 3 is a horizontal section on the line 3 3, Fig. 1.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a smoke-stack of ordinary form and of that shape usually applied to traction-engines. The lower terminal of the said stack is secured to the forward extremity of the boiler in the usual manner, and therein is a concentrically-arranged flue-tube 2, secured at its lower end by means of angle-plates or analogous devices 3 to the interior of the stack and at its upper end attached by angle-plates or other similar devices 4 to the outlet-cylinder 5 of the stack, the said cylinder being open at top and bottom and of greater diameter than the tube 2. A spiral baffle 6 is mounted in the tube 2 and is of such diameter that the edges of the blade thereof snugly bear against the inner surface of the tube 2, so as to cause the smoke or products of combustion passing upwardly through the tube to circulate around and upwardly through the said blades. It will be seen that the spiral baffle 6 provides a tortuous passage through which the smoke is caused to pass, and the sparks or heated cinders will be materially cooled before arriving at the upper end of the said baffle. At the lower portion of the tube 2 and between the latter and the lower cylindrical member of the stack 1 are diametrically-disposed chutes 10, consisting of strips of metal bent into substantial U-shaped form and secured between the tube 2 and the lower portion of the stack to form an obstruction in the space between said tube and the lower part of the stack. Depending centrally from the chute and communicating with openings therethrough are short pipes 11, which terminate above the lower end of the tube 2, but are adapted to be connected with conveying-pipes leading away from the stack, or said pipes 11 may be attached to a chamber or repository below.

In the operation of the device smoke carrying products of combustion will naturally seek an upper passage through the tube 2 and pass around the baffle 6, and on arriving at the upper end of the tube the heavier particles carried thereby will fall over the edge of said tube and pass downward through the lower portion of the stack and fall upon the chutes, and thence out through the pipe 11. By this means the smoke is caused to issue from the outlet-cylinder 5 in a condition comparatively free from heavy particles of combustion and sparks, and when the improved device is used on a traction-engine for driving threshing-machines and the like firing of adjacent buildings or hay-stacks will be prevented.

The improved spark-arrester is very simple in its construction, and to accommodate different applications thereof changes in the proportions, dimensions, and minor details may be resorted to without departing from the principle of the invention.

Having thus fully described the invention, what is claimed as new is—

The combination with a stack having an outlet-cylinder secured in the upper end thereof, of a flue disposed concentrically within the stack and of less diameter than the said outlet-cylinder, the upper end of the flue projecting into the cylinder and secured to the latter to provide an annular outlet between the cylinder and flue, a spiral baffle secured in the

flue, and depressed substantially U-shaped obstructing-flanges interposed between diametrically opposite portions of the lower extremity of the flue and the body of the stack and forming closing partitions, the lower central portions of the flanges having openings therein communicating with depending tubes which are snugly held between the flue and the body of the stack to provide directing-outlets for the products of combustion falling back into the stack, the tubes depending from the flanges terminating above the lower end of the flue.

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

DWIGHT S. CHILD.

Witnesses:

JAS. H. ROGERS,

W. A. CAMPBELL.