

(No Model.)

J. F. C. WITT.
SPARK ARRESTER.

No. 598,046.

Patented Jan. 25, 1898.

Fig. 1.

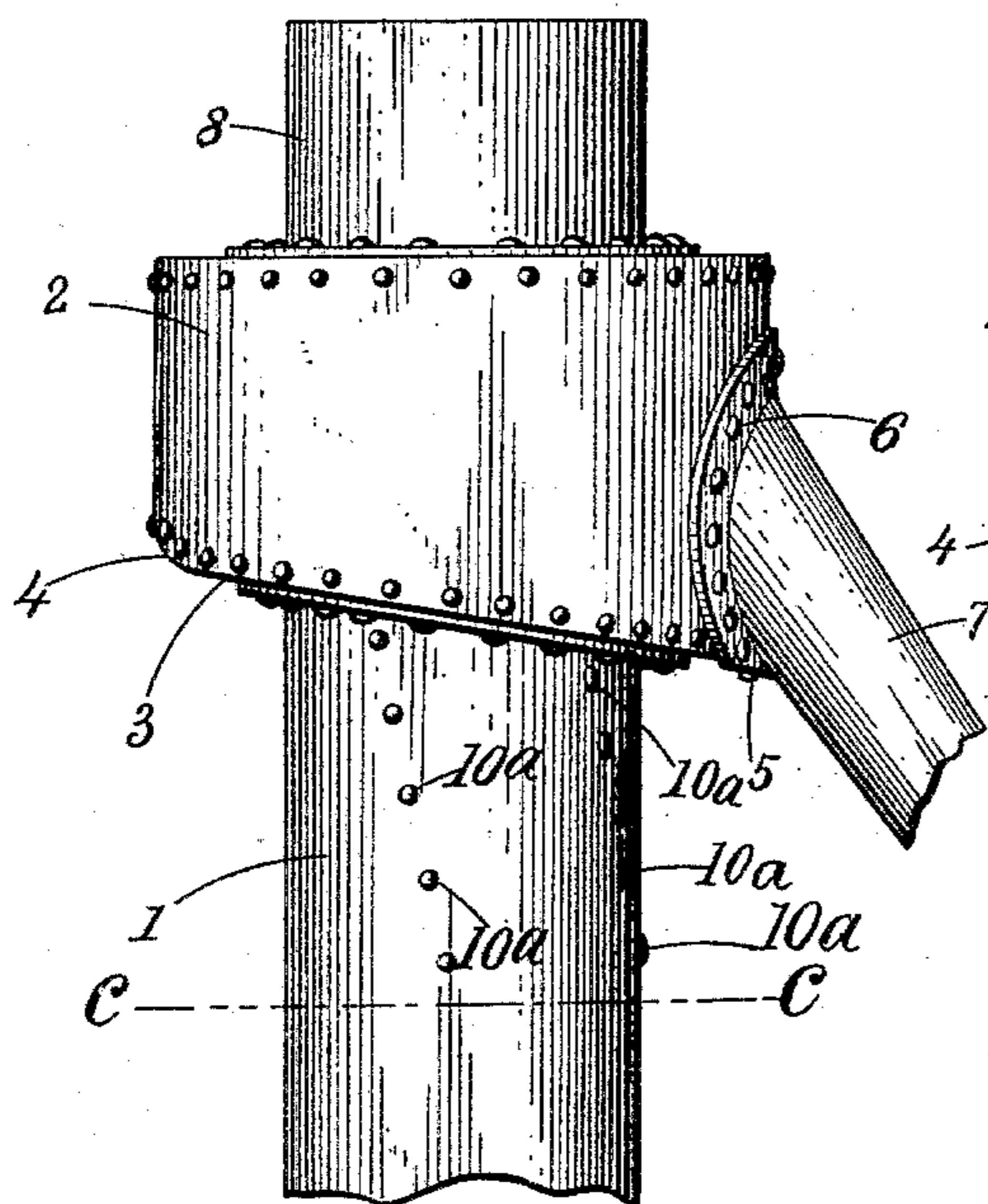


Fig. 2.

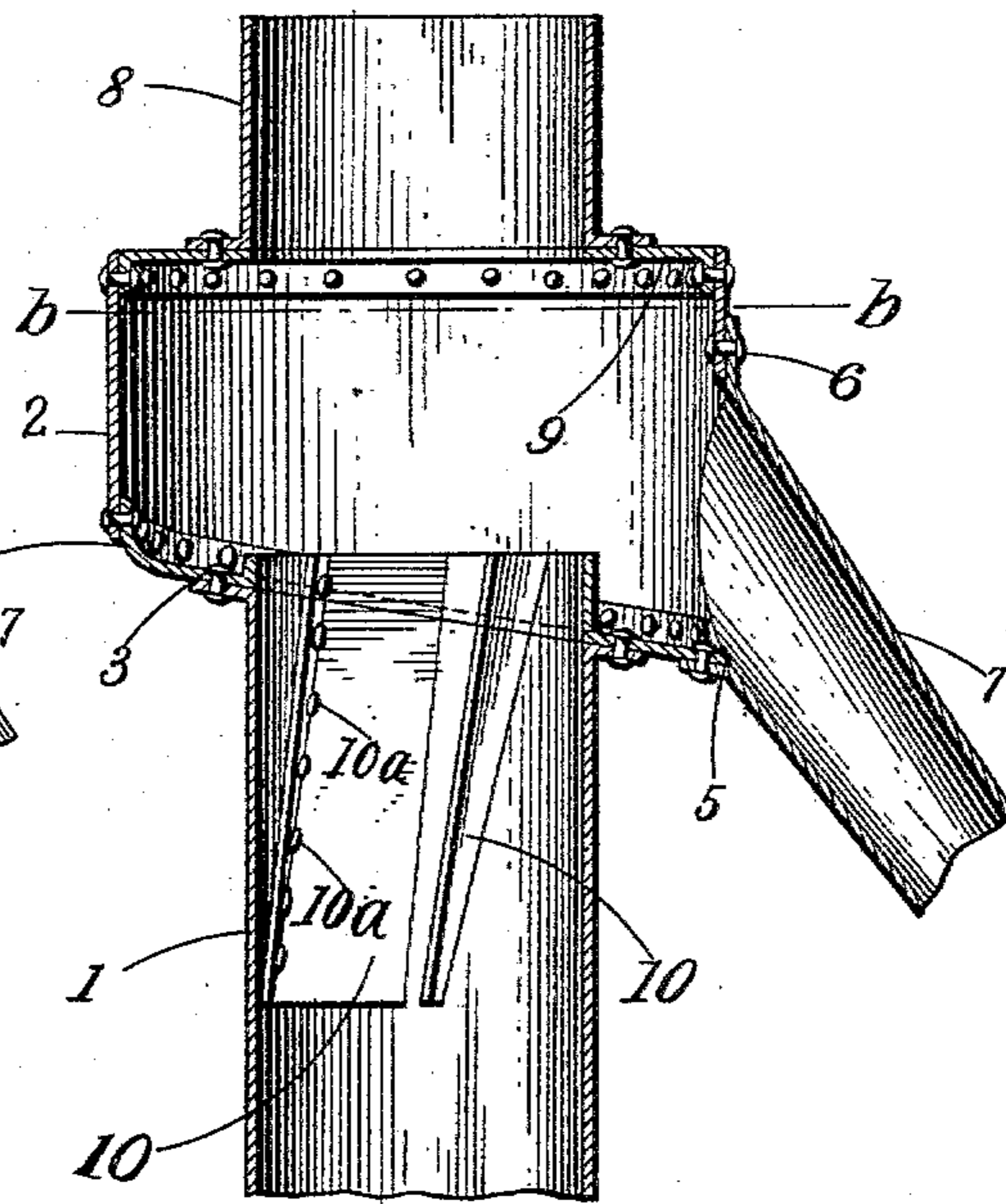


Fig. 3.

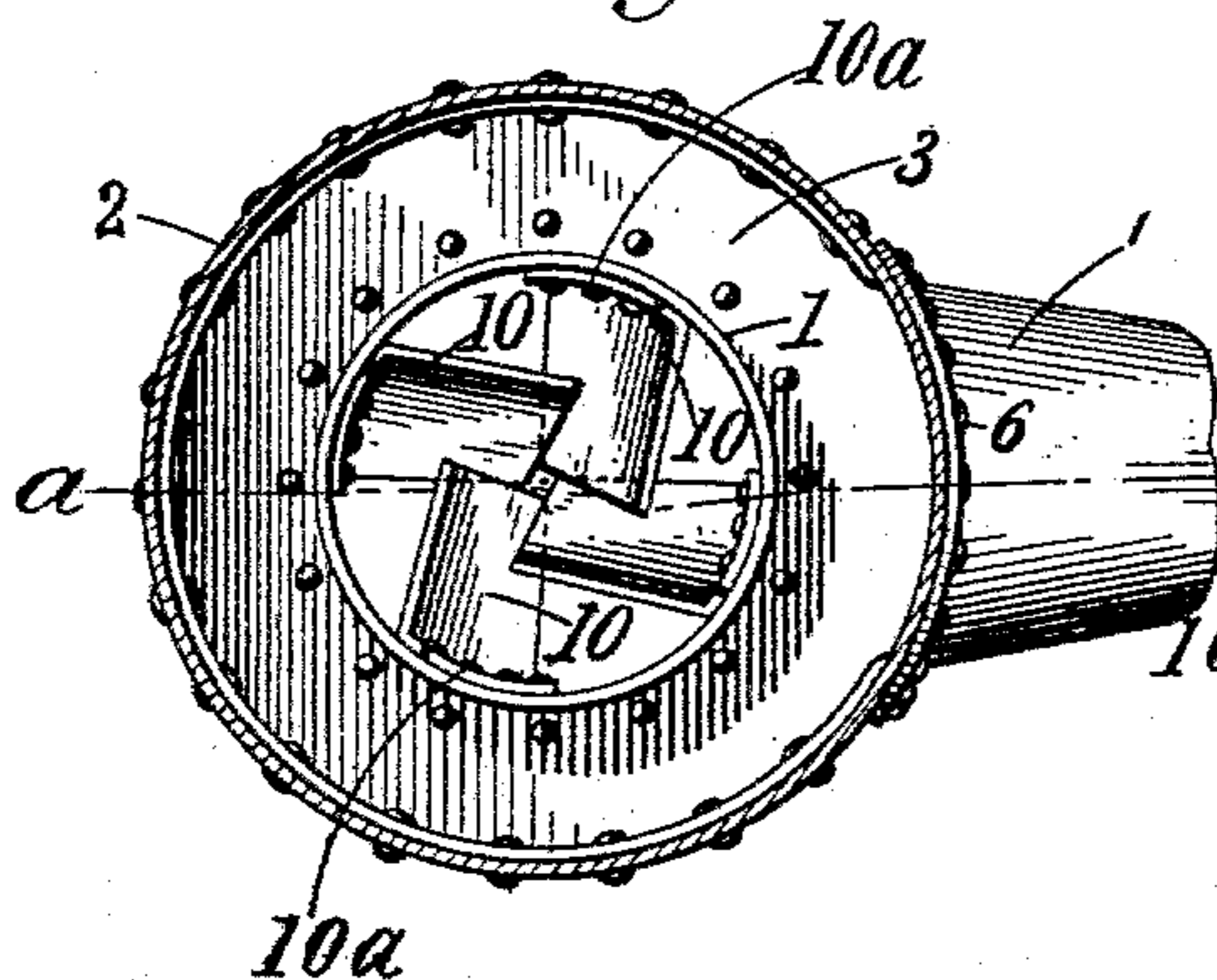
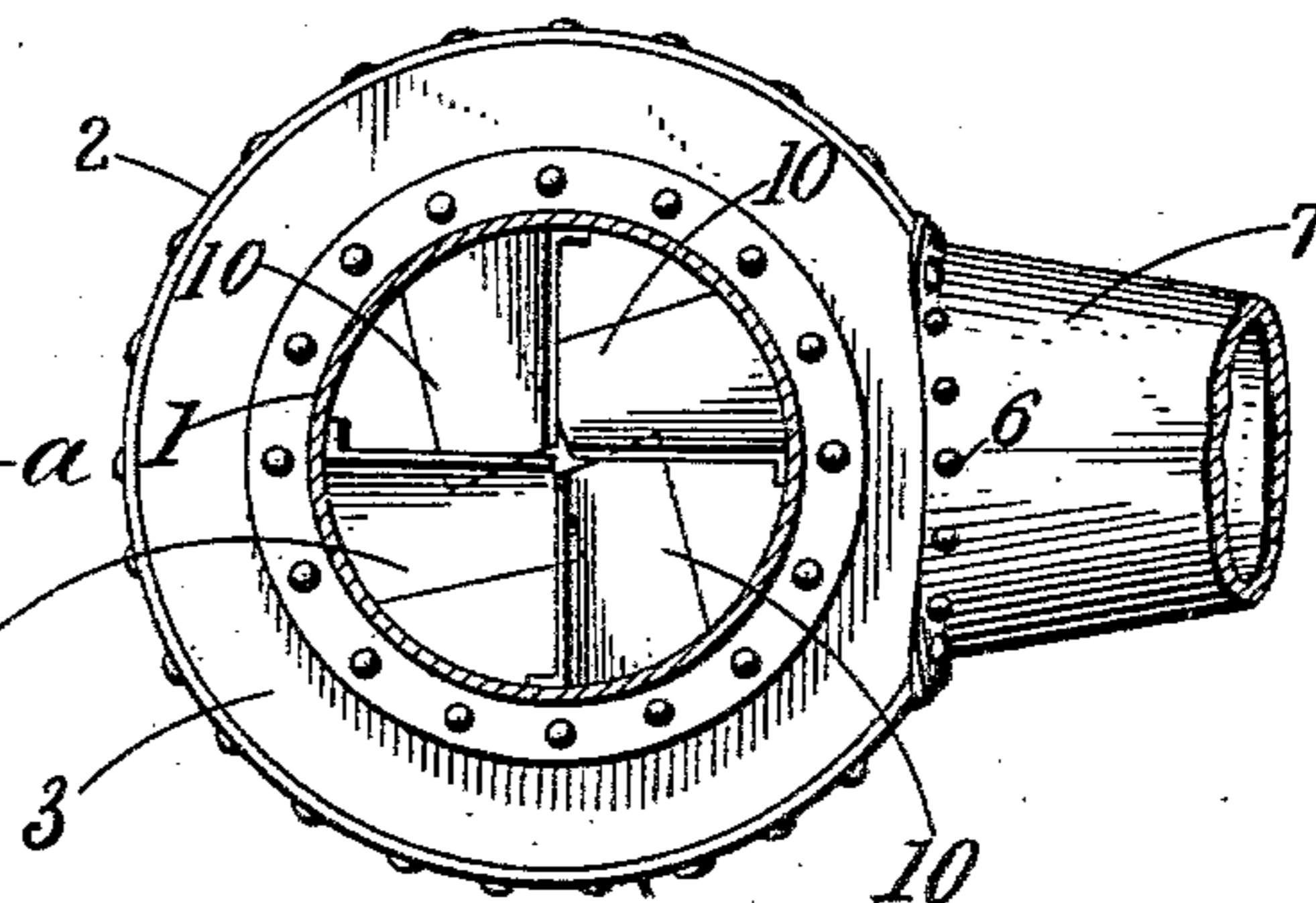


Fig. 4.



Witnesses,
Emil Neuhart.
A. J. Sangster.

John F. Christoph Witt, Inventor.
By James Sangster Attorney.

UNITED STATES PATENT OFFICE.

JOHN F. CHRISSTOPH WITT, OF TONAWANDA, NEW YORK, ASSIGNOR OF
ONE-HALF TO JOHN LOCKMAN, OF SAME PLACE.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 598,046, dated January 25, 1898.

Application filed December 10, 1895. Serial No. 571,646. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. CHRISSTOPH WITT, a citizen of the United States, residing at Tonawanda, in the county of Erie and State of New York, have invented certain new and useful Improvements in Spark-Arresters, of which the following is a specification.

My invention relates to a new and improved device adapted to be connected with a locomotive-stack for catching the sparks and cinders as they rise up within the same and conducting them therefrom to one side of the track, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 represents a side elevation of the device complete. Fig. 2 is a central sectional elevation on or about line *a a*, Fig. 3. Fig. 3 represents a horizontal section on or about line *b b*, Fig. 2. Fig. 4 represents an inverted plan view of the device, a horizontal section being shown through the pipe on or about *c c*, Fig. 1.

Referring to the drawings in detail, 1 represents the lower portion of a locomotive or other smoke-stack. At the top is an enlarged portion 2, into which the pipe 1 is secured by rivets in the ordinary way. The top of the pipe extends up above the bottom 3 of the enlarged portion 2, which, as will be seen, inclines downward from or about the point 4 to the point 5, more or less, thereby leaving an annular space surrounding the top of the pipe 1, which inclines downward, as before stated.

To one side of the enlarged portion 2 is secured by rivets 6 a downwardly-inclined outlet pipe or chute 7. The lower side of the chute 7 is attached to the lower side of the inclined bottom 3 of the enlarged portion 2. At the top of the enlarged portion 2 is pipe 8 of reduced diameter for the purpose of leaving an annular surrounding top 9, the object of which will appear farther on.

In the lower pipe 1 is secured by rivets 10^a a series of diagonally-arranged deflecting-plates 10, (I have shown four,) arranged longitudinally within the pipe, but the number may be more or less. The object of these plates is to

up through the pipe 1 and throw them toward the sides of the enlarged portion 2 and up against the top-surrounding portion 9, from which they drop downward into the annular space around the top of the pipe 1 and onto the inclined bottom 3. From thence they fall into the chute 7 and out into any suitable receptacle or onto the ground or at the side of the track instead of being scattered abroad by the winds, where they are liable to set fire to anything combustible they may come in contact with. The sparks when they strike the top and bottom of the parts 9 and 3 are generally deadened and out before they leave the chute 7. Even if some of them are alive when they leave the chute 7 they are not scattered far enough to reach anything combustible, and consequently will do no damage.

The device is preferably made of sheet-iron as the most suitable material for the purpose.

It will be noticed by referring to the drawings that the deflecting-plates are simply flat rectangular portions having the edge on one side bent at an angle therefrom and that rivets 10 are passed through said bent portions and the tube 1 for the purpose of holding the outer faces of the bent edges in contact with the interior of said tube and thus rigidly securing said plates to said tube 1 and diagonally to the running direction of the interior of said tube. By this means no crevices are formed to stop or hold the cinders. Each plate is independent from and does not touch the others. The cinders are not deflected spirally or in a curved line, but simply in a straight line, the cinders only being deflected into the enlarged portion 2, as the exhaust and the gases of combustion return to their vertical ascending direction on leaving the deflection-plates and pass out through the pipe 8, and the draft is not retarded or interfered with, the deflecting-plates only changing the direction of the products of combustion from one straight line to another, the deflecting-plates forming between themselves and the interior of the tube conducting spaces or flues which are of substantially the same area from bottom to top and which receive the products of combustion and conduct the same into the enlarged portion 2, deflecting

the same sufficiently to cause the sparks or cinders to strike the top rim of the enlarged portion and fall to the inclined bottom thereof without perceptibly diminishing the draft.

5 I am aware that a series of spiral or curved blades attached to each other and to the interior of the tube at several points have heretofore been used in like devices, but that would defeat the nature of my invention, as
10 the points where the blades touch and are secured to each other and the interior of the tube form lodging-places for the cinders, and therefore I do not claim such; but

What I do claim is—

15 In a spark-arrester, the combination with a smoke-stack, of an enlarged portion 2, having a substantially horizontal annular top 9, and an annular bottom 3, inclining downward at one side, a downward-projecting outlet
20 pipe or chute 7, connected to said enlarged portion at its lowest side, an outlet-pipe 8, of reduced diameter centrally located at the top

of the enlarged portion, an inlet-pipe 1, of substantially the same diameter located centrally at the bottom of the enlarged portion, 25 and a series of flat independent deflecting-plates 10, each having its outer side edge bent at an angle and placed in close contact with the interior of the pipe 1, and rivets passed through said bent edges and the inlet-pipe for 30 rigidly securing said deflecting-plates to the interior of said inlet-pipe and diagonally to the longitudinal direction of said pipe, the said plates forming between themselves and the interior of the pipe 1, conducting spaces 35 or flues of substantially the same area throughout which extend at an angle to the longitudinal direction of the inlet-pipe, as set forth.

J. F. CHRISSTOPH WITT.

Witnesses:

JAMES SANGSTER,
L. M. SPONG.