

(No Model.)

M. PSCHORR.  
SPARK EXTINGUISHER.

No. 605,131.

Patented June 7, 1898.

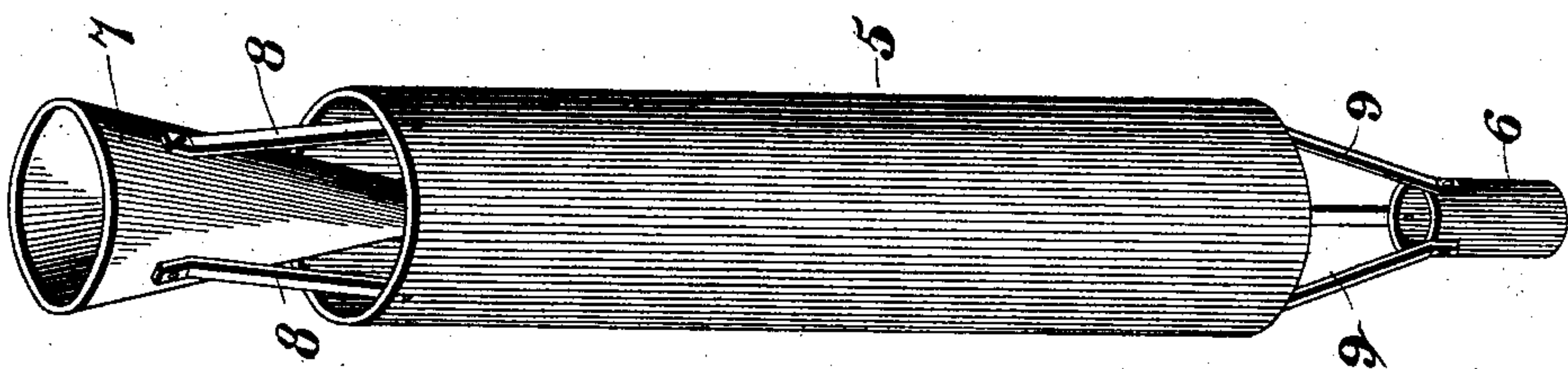


Fig. 2.

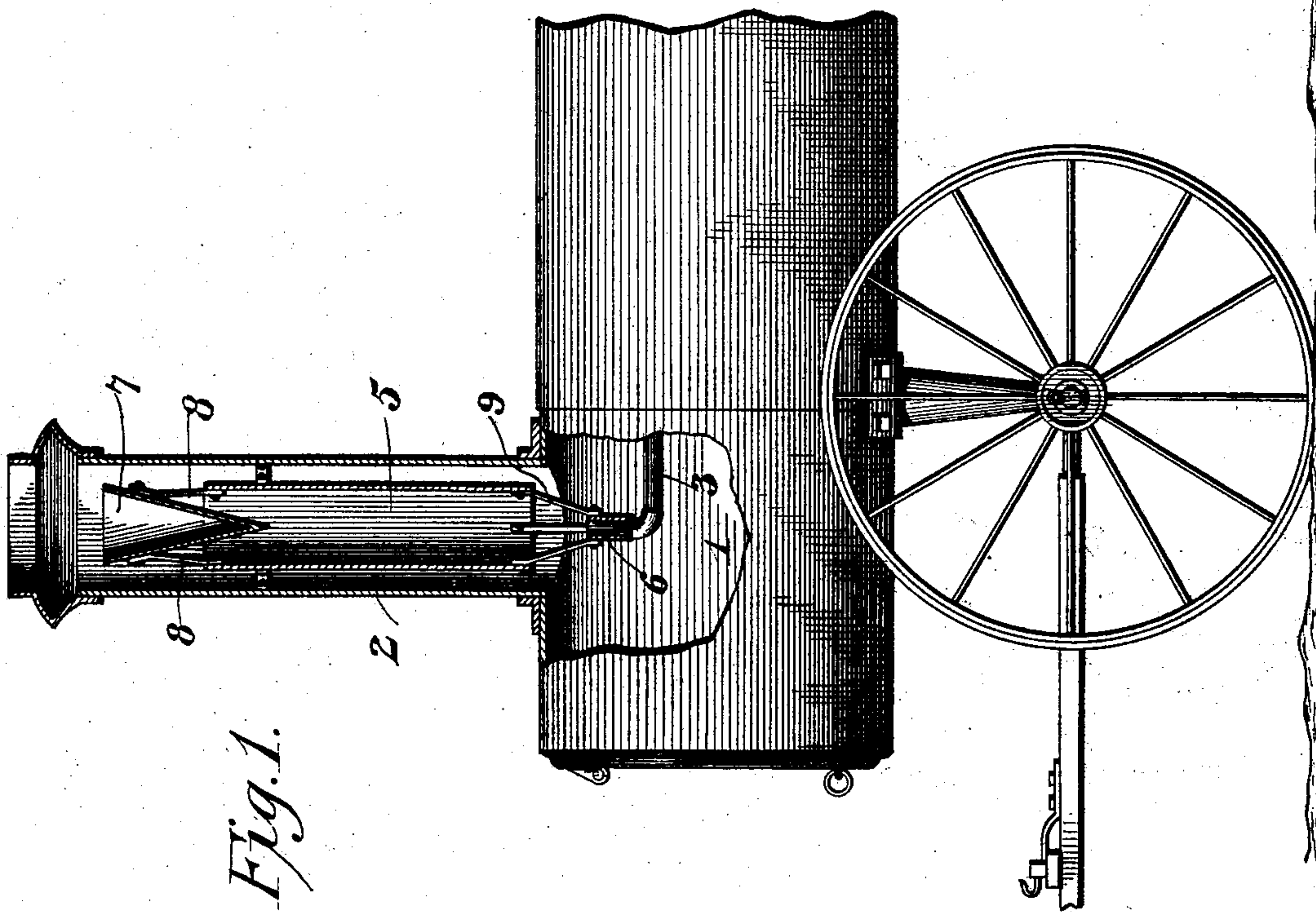


Fig. 1.

Witnesses

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By *his* Attorneys,

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# UNITED STATES PATENT OFFICE.

MAX PSCHORR, OF MARXVILLE, WISCONSIN.

## SPARK-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 605,131, dated June 7, 1898.

Application filed December 6, 1897. Serial No. 660,889. (No model.)

*To all whom it may concern:*

Be it known that I, MAX PSCHORR, a citizen of the United States, residing at Marxville, in the county of Dane and State of Wisconsin, have invented a new and useful Spark-Extinguisher, of which the following is a specification.

My invention relates to a means for extinguishing the sparks in the smoke-stacks of traction and farm engines; and the object that I have in view is to provide a simple and inexpensive construction which may be readily fitted to a smoke-stack for the purpose of preventing sparks passing from the fire-box to the smoke-chamber and at the same time wholly obviate any checking or interruption of the draft, thus obviating the clogging of the working parts of the extinguisher and of the engine.

My invention is capable of application to or adjustment in the smoke-stack of any ordinary traction or farm engine without respect to the diameter of the stack and without requiring remodeling of the stack, the smoke-box, or any part of the boiler.

With these ends in view the invention consists in the novel construction and arrangement of parts, which will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a vertical sectional elevation of so much of the smoke-stack and the smoke-box of an ordinary traction or farm engine as is necessary to an understanding of my invention and showing the improvement applied thereto in operative relation. Fig. 2 is a detail perspective view of the appliance in condition ready for adjustment to the smoke-stack.

Like numerals of reference denote corresponding and like parts in both figures of the drawings.

Referring more particularly to Fig. 1, the numeral 1 designates the smoke-box, 2 the smoke-stack, and 3 the exhaust-nozzle, of an ordinary traction or farm engine. No novelty for these parts is claimed herein, and they may be of the usual or any preferred construction familiar to those skilled in the art.

My attachment for extinguishing sparks and facilitating the draft through the smoke-

stack is adapted to be inserted into the stack and have connection with the exhaust-nozzle.

The invention consists of a cylinder 5, a small cylinder or tube 6, a cone 7, and two sets of arms or braces that serve to unite the lower cylinder 6 and the cone 7 to the respective ends of the cylinder 5 in a manner to have the cone and lower cylinder in vertical axial alinement with each other.

The cylinder 5 consists simply of an open-ended elongated tube of metal, and it is of a diameter less than that of a smoke-stack in which the attachment is to be placed. In practice I prefer to make the cylinder 5 about two and one-half inches in diameter, because I have found that this size of the cylinder is sufficient to enable it to be used in connection with smoke-stacks which may vary in diameter. Any variation in the length of the engine smoke-stack is compensated for by changing the length of the cylinder 5, according as may be desired to secure the best results; but it is not necessary from a practical standpoint to vary the diameter of said cylinder 5.

The lower tube 6 is arranged below the lower open end of the cylinder 5 and at a suitable distance therefrom. This lower tube is of much smaller diameter than the cylinder 5, and it is rigidly fastened to said cylinder by the lower series of arms 9, which maintain the tube in central or axial relation to the cylinder 5. This tube is spaced below the cylinder to permit the introduction of the exhaust-nozzle 3 of the engine, as shown by Fig. 1, so that the exhaust-steam will pass from the nozzle into and through the cylinder 5 of the attachment, and the described means for attaching the tube to the cylinder provides large openings or spaces between said cylinder and the tube for the free passage of the smoke and other products of combustion into the cylinder.

The cone 7 is arranged in such relation to the upper open end of the cylinder that the apex thereof projects well down into and below said open end of the cylinder. In practice I prefer to have the lower part of the cone extend into the cylinder for a distance of about two inches. Said cone is maintained



in fixed axial relation to the cylinder by the upper series of arms 8, which are spaced at suitable intervals around said cone and cylinder and are united at their ends in a suitable way to the cone and cylinder. The cone flares upwardly from the axial line of the cylinder, so as to divide the draft and insure uniformity to the volume of smoke and exhaust-steam which may pass through the cylinder and smoke-stack, and by employing the series of spaced arms or braces large openings or spaces are left between the cone and cylinder to insure free and unobstructed passage of the smoke and exhaust-steam.

My attachment has all of its working parts secured or united together in a durable manner.

To use the attachment in a smoke-stack, it is only necessary to lower the same into the stack for the lower tube or cylinder to fit on the exhaust-nozzle, which is thus made to serve as the means for holding the attachment in place, particularly against lateral displacement. The cone of the upper end of the attachment occupies a position below the open upper end of the smoke-stack. When the attachment is used in stacks of large diameter, it is held against displacement by suitable means—as, for instance, by radial braces or arms attached, respectively, to the smoke-stack and to a part of the attachment—as, for instance, the cylinder 5 thereof.

In the practical service of the engine it will be found that the exhaust-steam passing into the cylinder creates an upward suction or

draft, which is divided and deflected by the cone sustained at the upper extremity of the cylinder.

The described construction of the spark-arrester prevents any cinders or sparks from passing from the fire-box into the stack, as they are kept in the fire-box, and at the same time a free passage is insured for the smoke and gaseous products of combustion.

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

The combination with a smoke-stack, and an exhaust-nozzle below said stack, of an insertible spark-arrester slipped into the stack to rest upon the exhaust-nozzle and comprising an elongated tube, 5, of less diameter than the stack, a short lower tube, 6, situated below the tube, 5, and arranged in the plane of the vertical axis thereof to rest upon the exhaust-nozzle, the inclined arms which join the tubes rigidly together and are spaced to provide large openings for the passage of the products of combustion to the elongated tube, an inverted conical deflector, 7, with its apex extending into the elongated tube, and arms which join the deflector to the tube, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

MAX PSCHORR.

Witnesses:

CHAS. NAFFZ,  
J. J. BURO.