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A. MATHISON.

SPARKLESS SMOKESTACK FOR TRACTION ENGINES.

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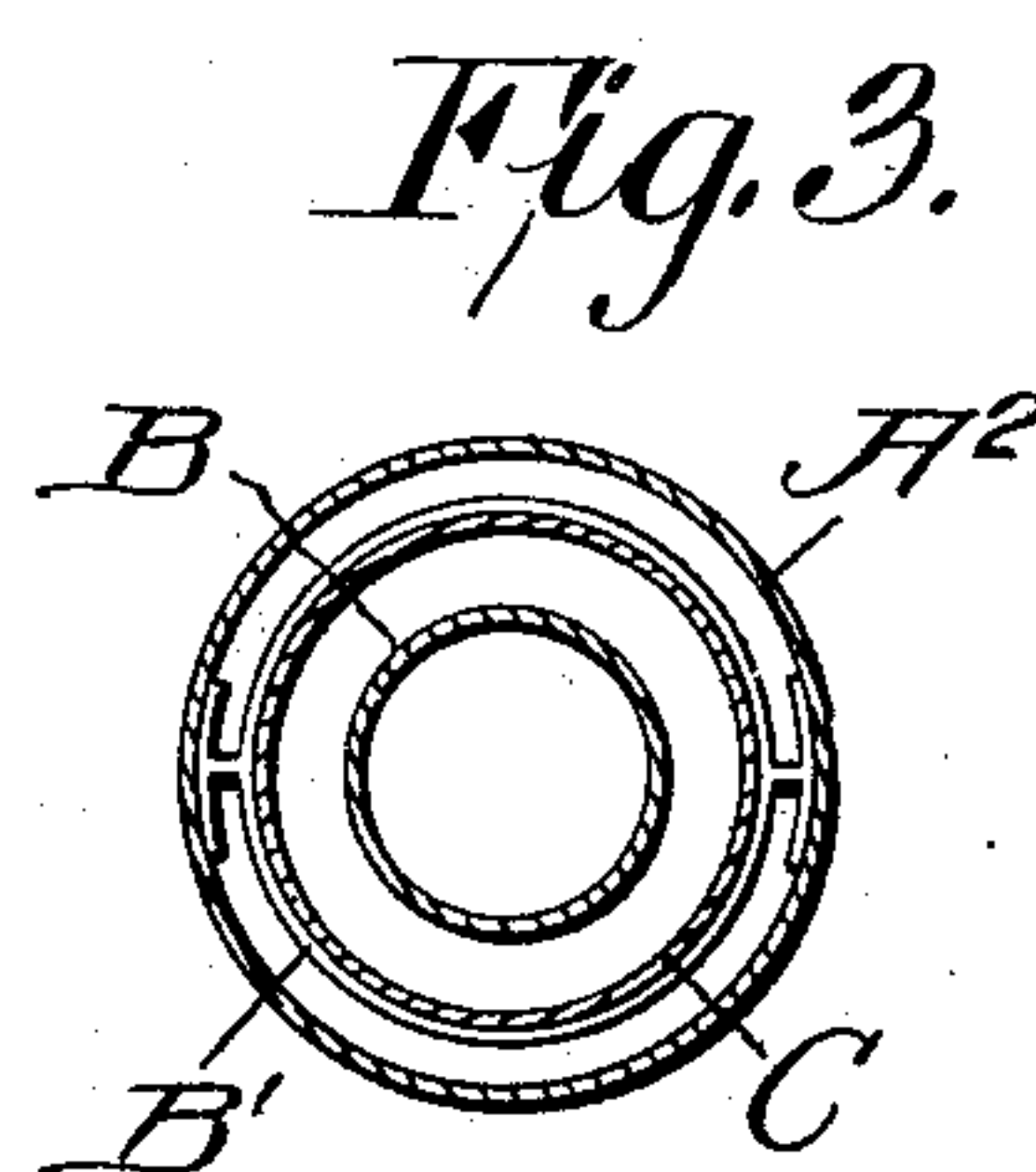
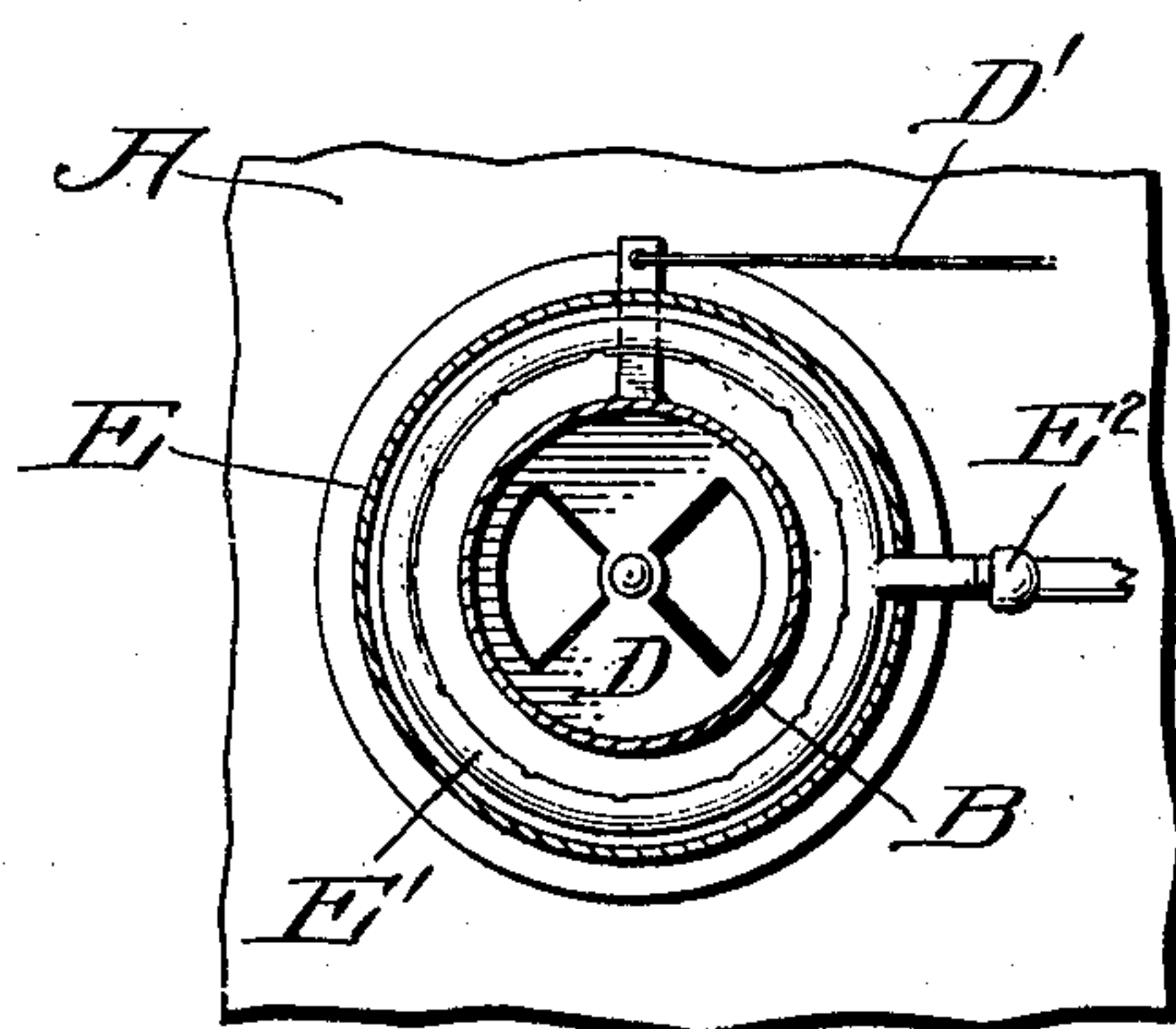
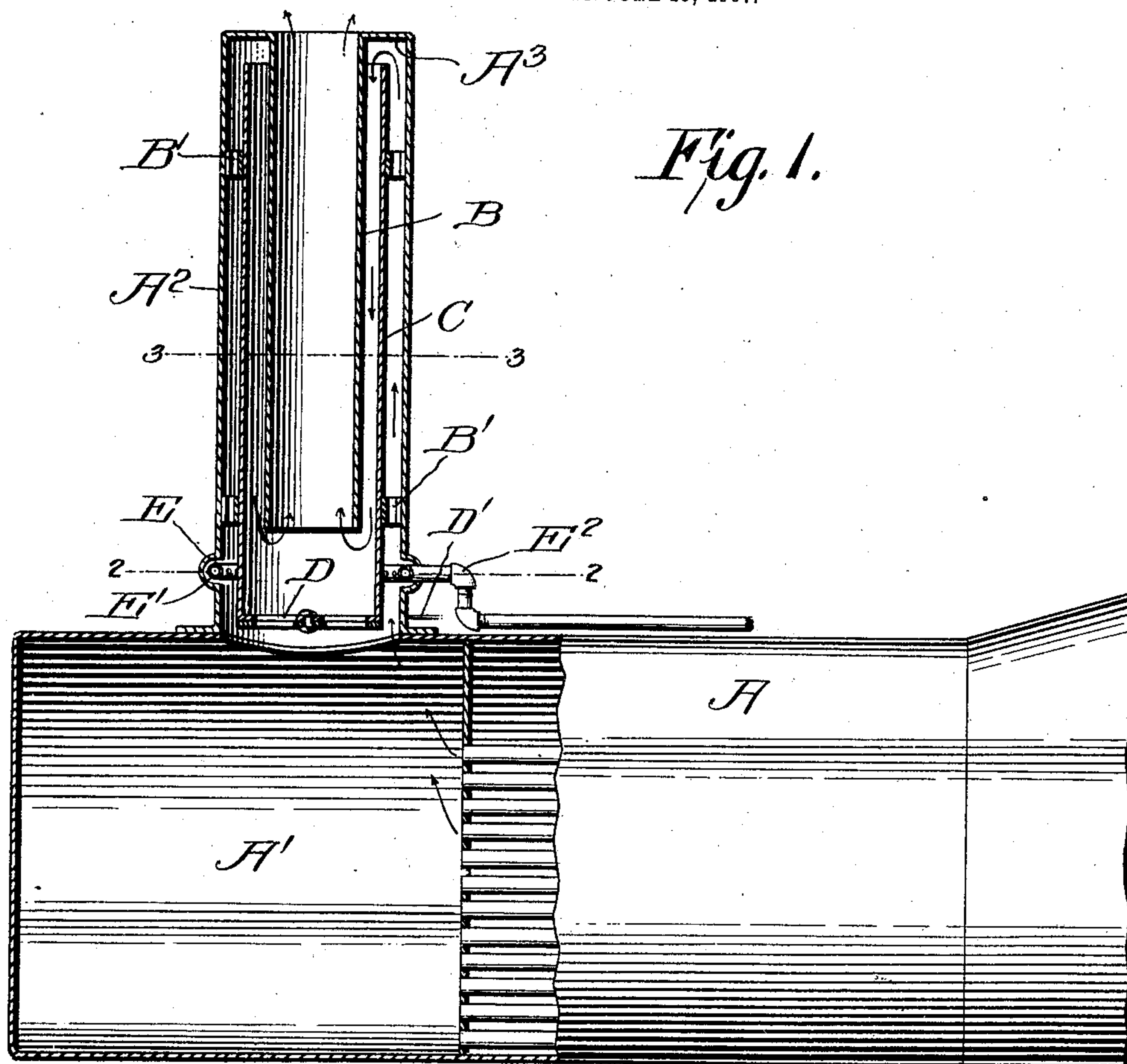


Fig. 2.

Fig. 3.

Inventor

Anton Mathison,

Witnesses

Oliver W. Holmes
E. B. McBath

By *Meira Brock*
Attorney

Attorney?

UNITED STATES PATENT OFFICE.

ANTON MATHISON, OF ROCKFORD, SOUTH DAKOTA.

SPARKLESS SMOKE-STACK FOR TRACTION-ENGINES.

No. 897,385.

Specification of Letters Patent.

Patented Sept. 1, 1908.

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To all whom it may concern:

Be it known that I, ANTON MATHISON, a citizen of the United States, residing at Rockford, in the county of Pennington and State of South Dakota, have invented a new and useful Improvement in Sparkless Smoke-Stacks for Traction-Engines, of which the following is a specification.

This invention relates to a form of smoke stack for use in connection with any engine but especially designed for traction engines and intended to prevent sparks flying from said stack and causing more or less damage to neighboring property. These engines are employed to a great extent in the neighborhood of barns, near stacks of straw and other easily ignited fuels and many fire losses are reported as due to sparks from engines of this type.

The invention consists of the novel features of construction hereinafter fully described and pointed out in the claims.

In the drawings forming a part of this specification:—Figure 1 is a partial section through an engine boiler showing my improved smoke stack in position and in section. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 1.

In these drawings A represents a boiler having a smoke box A' and a stack A². The stack at the top is provided with an inwardly extending flange A³ from the inner edge of which depends a sleeve B opened at its upper and lower ends. The lower end of this sleeve terminates in the lower portion of the stack A². Within the stack is arranged a pipe C supported by brackets B' and the pipe C is arranged concentric with respect to the stack and sleeve B. It is also spaced from both and terminates at its upper end a short distance below the flange A³ and at its lower end a slight distance below the lower end of the sleeve B. In the lower end of the pipe C is arranged a damper D of any desired type and controlled by a damper rod D'.

When the damper is opened direct communication is afforded between the smoke box A' of the sleeve B through the lower portion of the pipe D, thus creating a direct draft. The fire in these engines is often started with straw which creates a heavy volume of

smoke and at this time the damper D can be opened being closed as soon as the fire is well under way and a more substantial fuel in a state of combustion. The lower portion of the stack A² is provided with an annular rib E formed by pressing or stamping out a portion of the material forming the stack thereby leaving an annular groove upon the inside, in which groove fits a circular perforated pipe E' which is connected to a steam pipe E² which conveys exhaust steam to the circular pipe E'.

The operation of the device will be obvious as it will be noted from Fig. 1 that when the damper D is closed the smoke will travel in the direction of the areas ascending the stack upon the outside of the pipe C, entering said pipe at the top and descending to the lower end of the sleeve B and then escaping to the outer air through said sleeve. During its passage up the stack and before entering the pipe C, the products of combustion will encounter and mingle with the exhaust steam from the pipe E'.

Small particles of matter still in a state of combustion will be consumed or extinguished before completing the circuit of the stack and thrown into the outer air, thus avoiding all danger of fire by reason of sparks and also decreasing the amount of smoke by the burning within the stack of some of the elements mingled with the smoke.

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

The combination with a straight stack having at the top an inner annular flange, a depending sleeve carried by said flange, said sleeve opening upwardly and downwardly and terminating short of the lower end of the stack, brackets carried by and within the stack, a pipe carried by said brackets, the pipe terminating at its upper end short of the flange, and its lower end extending below the sleeve, a damper arranged in the lower end of the pipe, and means for admitting steam into the space between said pipe and the stack.

ANTON MATHISON.

Witnesses:

ARTHUR MC. FARLING,
EDWIN B. DEFFENBAUGH.