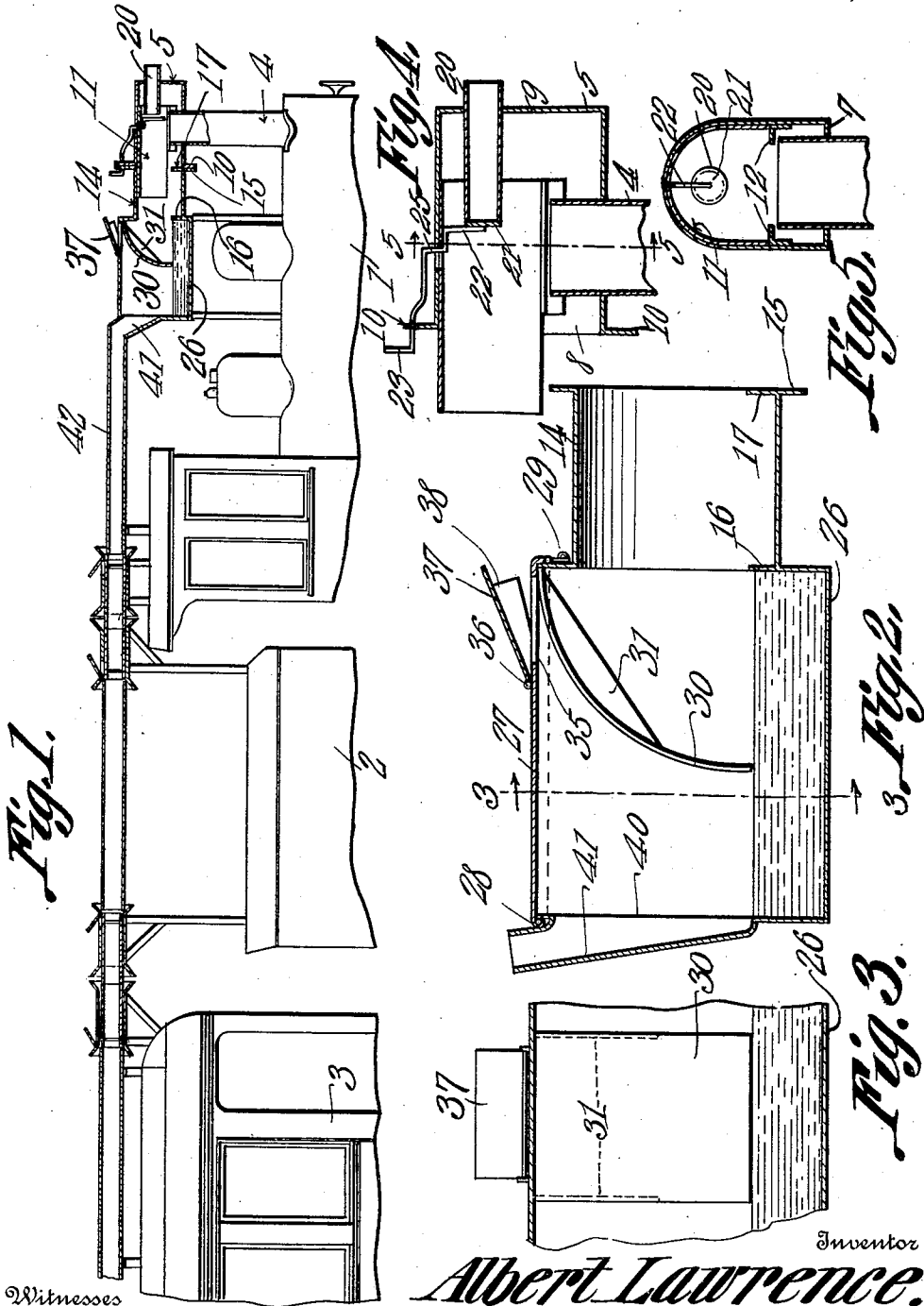


A. LAWRENCE.
 SMOKE AND SPARK DESTROYER.
 APPLICATION FILED MAR. 17, 1910.

1,008,163.

Patented Nov. 7, 1911.



Witnesses
[Signature]
 W. H. Clarke.

Inventor
 Albert Lawrence.
 By *[Signature]*
 Attorney

UNITED STATES PATENT OFFICE.

ALBERT LAWRENCE, OF SOLDIERS HOME, CALIFORNIA.

SMOKE AND SPARK DESTROYER.

1,008,163.

Specification of Letters Patent.

Patented Nov. 7, 1911.

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To all whom it may concern:

Be it known that I, ALBERT LAWRENCE, a citizen of the United States, residing at Soldiers Home, in the county of Los Angeles and State of California, have invented a new and useful Smoke and Spark Destroyer, of which the following is a specification.

This invention relates to spark destroyers and smoke distributors, and while it is particularly adapted for use in connection with locomotives, it can be of course used in other connections if desired.

The object of the invention is not only to destroy the smoke and sparks, but likewise to conduct the other products of combustion to a point where their presence will not be obnoxious.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of the claim without departing from the spirit of the invention.

In the accompanying drawings forming a part of this specification, Figure 1 is a side elevation, partly broken away, and partly in section, showing a train consisting of a locomotive, tender and coach, equipped with the improvement of the present invention. Fig. 2 is a vertical section through the quenching chamber. Fig. 3 is a transverse vertical section through the quenching chamber, taken on the line 3—3 Fig. 2. Fig. 4 is a vertical longitudinal section through the upper end of the smoke stack and the hood which covers the smoke stack. Fig. 5 is a section taken on the line 5—5 Fig. 4.

Like reference numerals indicate corresponding parts in the different figures of the drawing.

Referring to the drawings 1 indicates a locomotive; 2 the tender thereof and 3 a coach. The smoke stack 4 at its upper end enters a hood 5 which is in the form of an elongated chamber having a curved upper end as indicated at 6 in Fig. 5, a flat bottom indicated by 7, and open rear end indicated at 8, a closed front end indicated at 9, and outstanding flanges 10 formed adjacent the rear open end 8. The hood 5 has arranged therein above the smoke stack 4 a guard plate 11, which is inverted U-shaped

in cross section, and projects at its rear end beyond the rear open end. The guard plate 11 is removably supported at its lower end upon angle irons or brackets 12 and serves to receive and take up wear caused by the impact of the smoke and cinder laden draft, and when worn, it is removed and a new plate inserted. The plate 11 at its rear end projects into a pipe or conduit 14 having flanges 15 secured to the flanges 10. The conduit 14 has cross pieces 16—17 extending thereacross to hold water of condensation. At its rear end, the conduit 14 is in communication with a quenching chamber 26 having water or other liquid therein. In order to increase the draft through the hood, there is a short section of pipe 20 secured to its front wall, and this operates as an injector, and incidentally exerts a draft on the smoke stack. To control the draft through the injector, a damper or valve 21 is provided at its inner end, which is secured to one end of an arm 22, the other end of which extends through an opening formed in the flange 10 and terminates in a hand hold 23. The intermediate portion of the arm is bent to provide a vertical offset 25 arranged to work in a slot 24 in the top of the guard plate 11, the arm being designed to be operated by the engineer in any suitable manner. The top or cover 27 of the quenching chamber 26 is preferably hinged at 28 along its rear edge and is provided with any suitable locking device or means indicated generally at 29.

Inside of the quenching chamber 26 in rear of the conduit 14 is a curved deflector 30 which is secured in any suitable manner at its upper end to the front wall of the quenching chamber 26 and is provided with approximately crescent shaped side plates 31. The deflector 30 and side plates 31 serve to catch the blast coming through the pipe 14 from the smoke stack 4 and direct it downward against the surface of the liquid in the quenching chamber, whereby to destroy the sparks and to remove the bulk of the smoke, cinders and the like. The cover 27 of the quenching chamber 26, in rear of the upper edge of the deflector 30 is formed with an inlet opening 35 in rear of which is pivoted at 36 an inclined deflector plate 37 having side flanges 38. The plate 37 is adapted to be swung downward when desired to close the inlet 35, and when said plate is in raised position as indicated in

Figs. 1, 2 and 3 of the drawing, it serves to deflect a blast of air into the quenching chamber 26. The rear wall of the quenching chamber 26 is formed with an opening 5 40 which is inclosed by an outwardly extending pipe or exit 41 through which the products of combustion pass into a conduit 42 which leads along the train to the rear end thereof, where the products of combustion 10 are permitted to escape at a point where they are no longer obnoxious.

What is claimed as new is:

The combination with the smoke stack of a locomotive, of a hood mounted thereon and 15 provided in its upper wall with a longitudinal slot and at its rear end with a flange, an injector secured in the front wall of the hood

at right angles to the stack and projecting outward beyond the hood wall and inward to a point substantially in alinement with the 20 front wall of the stack, a damper arranged at the inner end of the injector, an operating arm secured to the damper and projecting through the slot in the hood and bent to lie approximately parallel therewith, the arm 25 being extended through and guided for movement by the flange of the hood.

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

ALBERT LAWRENCE.

Witnesses:

J. H. DEMAREST,

W. A. WHITING.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
