(No Model.)

C. T. LUTHY.

SMOKE AND CINDER DEFLECTOR FOR CARS.

No. 350,888. Patented Oct. 12, 1886.

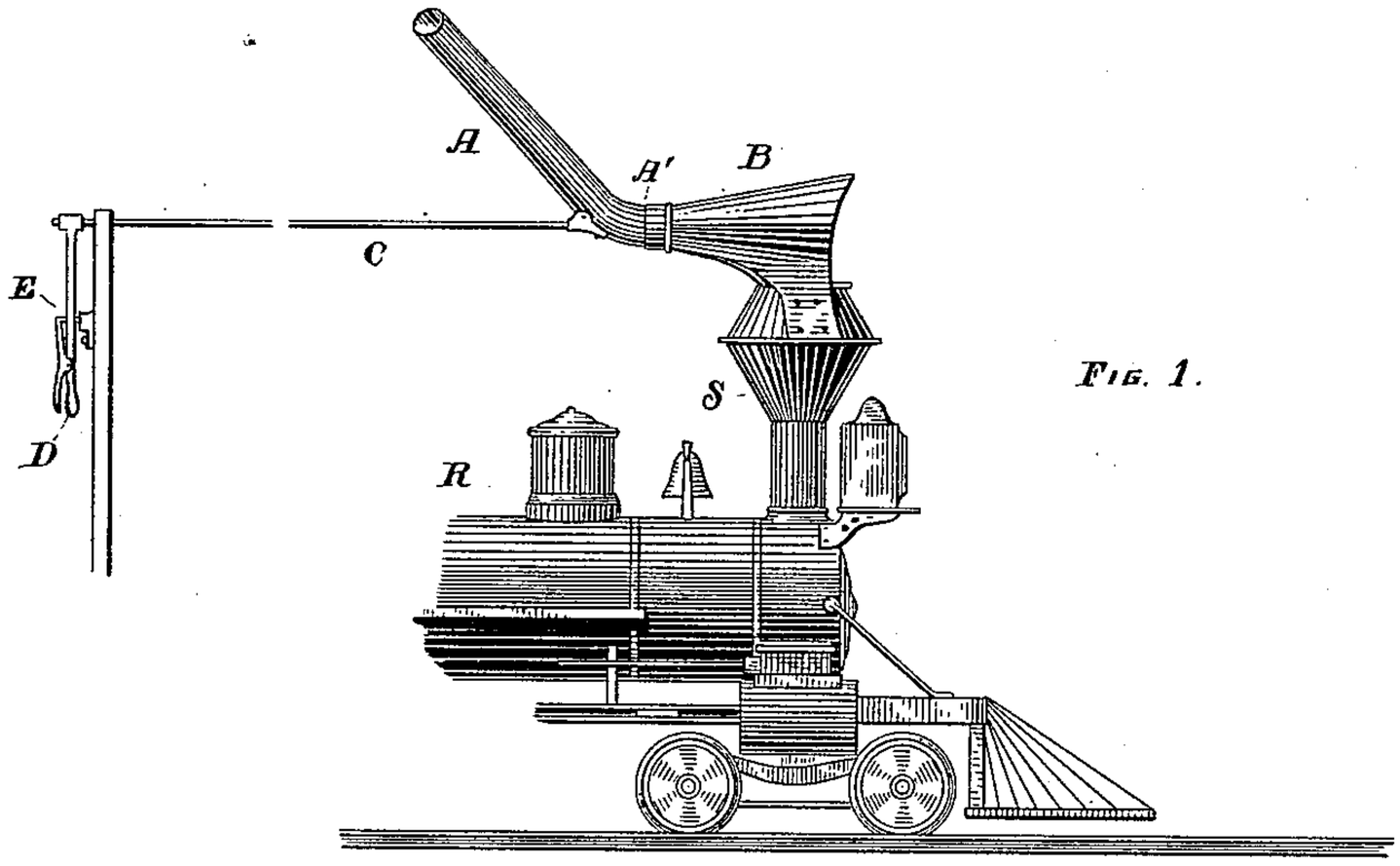
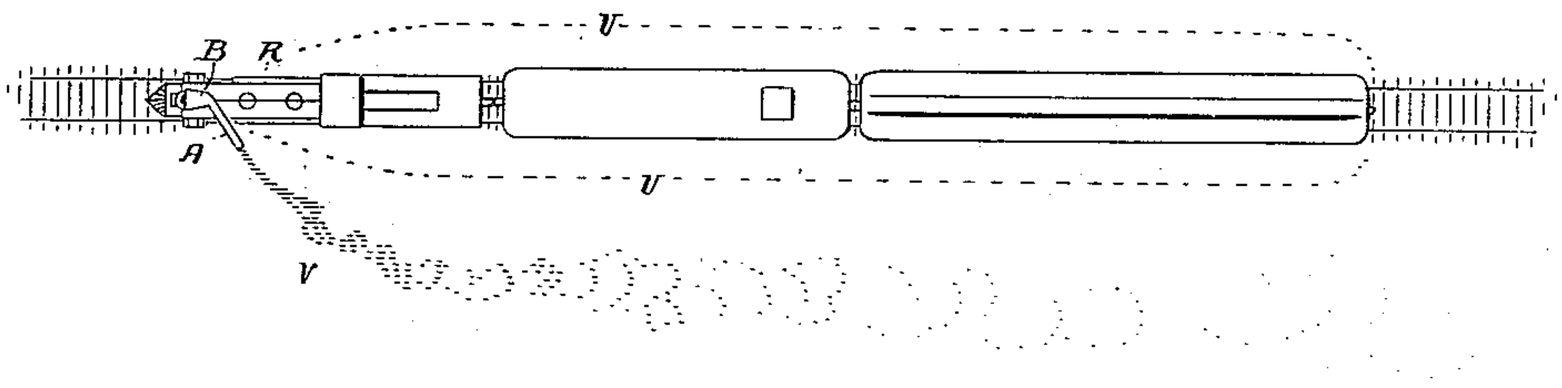


FIG. 1.

FIG. 2.



Witnesses;

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Inventor

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UNITED STATES PATENT OFFICE.

CHARLES T. LUTHY, OF PEORIA, ILLINOIS.

SMOKE AND CINDER DEFLECTOR FOR CARS.

SPECIFICATION forming part of Letters Patent No. 350,888, dated October 12, 1886.

Application filed April 15, 1886. Serial No. 198,906. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. LUTHY, of Peoria, in the county of Peoria, State of Illinois, have invented an Improved Smoke and Cinder Deflector for Cars; and I do hereby declare that the following is a full, clear, and exact description thereof.

The object of this invention is the construction of a simpler and more effective means for keeping away from the passenger-cars of a railway-train the smoke and cinders issuing from the smoke-stack of the engine thereof.

I have discovered by observation and experiment that a moving train carries with it an enveloping air shaft of some few feet in thickness. In addition to this motion of the air there are many transverse currents and eddies, which tend to suck in against the sides of the cars whatever smoke, soot, or cinders come into the outer portions of the air shaft. Although this air envelope may not move with the same velocity as the train, it still keeps with the same sufficiently to permit the smoke and cinders carried thereby to enter every aperture which there may be in the sides or ends of the cars; hence it becomes extremely difficult to ventilate the cars without permitting the entrance of the disagreeable products of combustion. In case there is a very strong lateral wind the smoke and cinders may be carried quickly enough to one side to keep them from being influenced by the moving air envelope, and thereby dashed against and into the cars; but with simply a light wind or a parallel breeze there is no relief.

To keep the smoke and other products of combustion issuing from the engine's smoke-stack from coming under the influence of the before-described moving air envelope, I have invented the smoke-deflecting conduit, attached to the smoke-stack and adapted to convey the combustion products therefrom to the leeward of the engine and outside of all possibility of contact with the said air envelope.

In the drawings which form a part of this specification, and in which like letters of reference refer to like parts, Figure 1 represents a perspective view of an engine smoke-stack having my deflector connected thereto. Fig. 2 is a diagram representing a train, the deflector, and air envelope.

Referring to the drawings, R is the locomotive; S, the smoke-stack. The dotted lines U are the borders of the air envelope. V is the smoke, A the deflector, and B is the hood connecting said deflector to the smoke-stack. The hood B, I usually secure to the smoke-stack above and to the rear of the same, and have it somewhat funnel-shaped or conical, with the larger mouth forward. To the rear and smaller end of the hood B is hinged, pivoted, or otherwise loosely secured the deflector-conduit A, which may be of uniform diameter or slightly tapering toward its free end. This deflector-conduit may be adapted to swing about its loose attaching-point in either a horizontal plane or one more or less vertical. All that is necessary is to have the free end of the deflector capable of directing a current passing through it obliquely upward or to either side of the engine, and to a sufficient distance therefrom to send it free of the air envelope aforesaid.

The means which I have adopted, and show in the drawings, for shifting the deflector-conduit to enable it to discharge to leeward consists in forming the inner end of the deflector A with an elbow, swiveling this elbow A′ to the rear of the hood, and rigidly connecting said deflector with the rock-shaft C, which, running back into the cab of the engine, and being provided with the operating-lever D and a lock, E, enables the engineer to shift the deflector and secure it in the desired position.

In use, the train traveling at a good speed, the engineer notices if there is any transverse motion of the wind, or if the same blows in a direction parallel to the track, and accordingly shifts the deflector to point obliquely to one side away from the wind or upward. As the train rushes forward, the air enters the hood B with a corresponding velocity, is given an increased relative motion by the tapering form of the hood, and passes on through the conduit A, bearing the smoke, soot, and cinders with it. When this air and its contents reach the end of the deflector-conduit, there is given thereto a sufficient oblique throw to send the same entirely outside of the influence of the following air envelope, and hence the windows of the train can be left wide open without danger of the entrance of the smoke and cinders. If the train passes about a decided curve, or the wind changes, the deflector can be changed

to suit the new conditions. The conduit may not be entirely tubular, but may be open laterally more or less. The tubular form, however, I deem preferable.

What I claim as my invention, and for which I desire Letters Patent, is as follows, to wit:

1. The combination, with the smoke-stack, of the loosely-held deflector and means for shifting the same, whereby the smoke and other products of combustion issuing from said smoke-stack are forced by the counter-current of air to either side of the engine and outside of the influence of the accompanying air envelope.

2. The combination, with the locomotive-engine and its smoke-stack, of the hood fixed to said stack, the deflector-conduit loosely connected to said hood, and means for shifting said deflector-conduit, for the purpose set forth.

3. The combination, with the locomotive-engine and its smoke-stack, of the hood fixed to the smoke-stack, the deflector-conduit swiveled to the rear end of said hood, the rocker-shaft rigidly connected to said deflector-conduit, and the lever for operating said shaft and conduit.

4. The combination, with the locomotive-engine and its smoke-stack, of the tapering hood B, fixed to said stack, partly over and to the rear thereof, the deflector-conduit loosely attached to said hood and projecting obliquely therefrom, and means for shifting said deflector-conduit, for the purpose specified.

5. The combination, with a locomotive-engine and its smoke-stack, of the hood B, fixed to the smoke-stack, the deflector-conduit A, swiveled to said hood, the rock-shaft C, rigidly connected to said conduit and extending rearwardly therefrom, the operating-lever D on said shaft, and the lock E, for holding the lever, shaft, and conduit in a desired position, substantially as set forth.

In testimony that I claim the foregoing invention I have hereunto set my hand this 12th day of April, in the year 1886.

CHARLES T. LUTHY.

Witnesses:
A. KEITHLEY,
H. W. WELLS.