

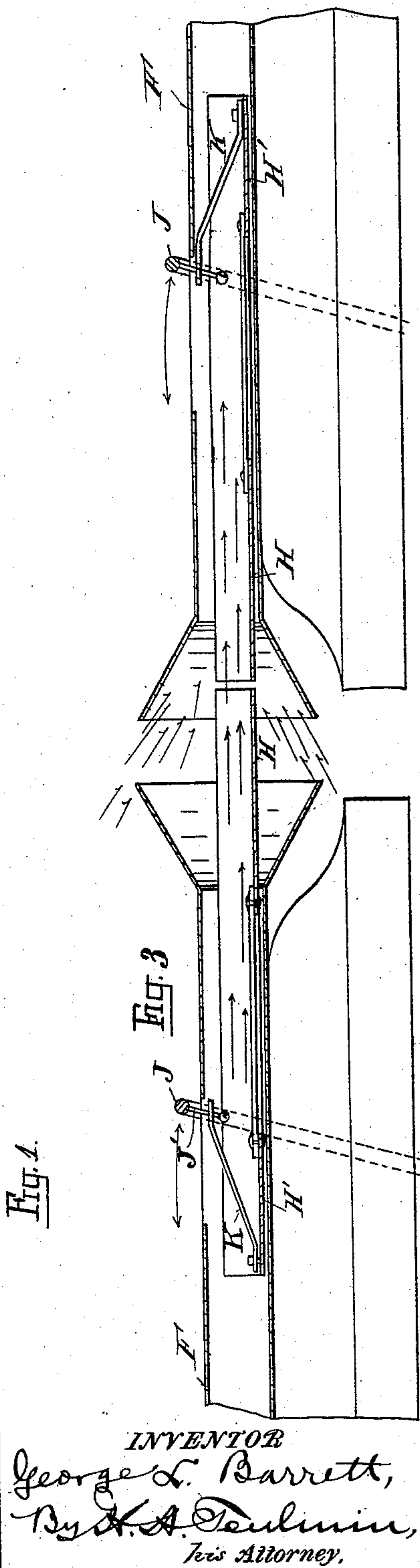
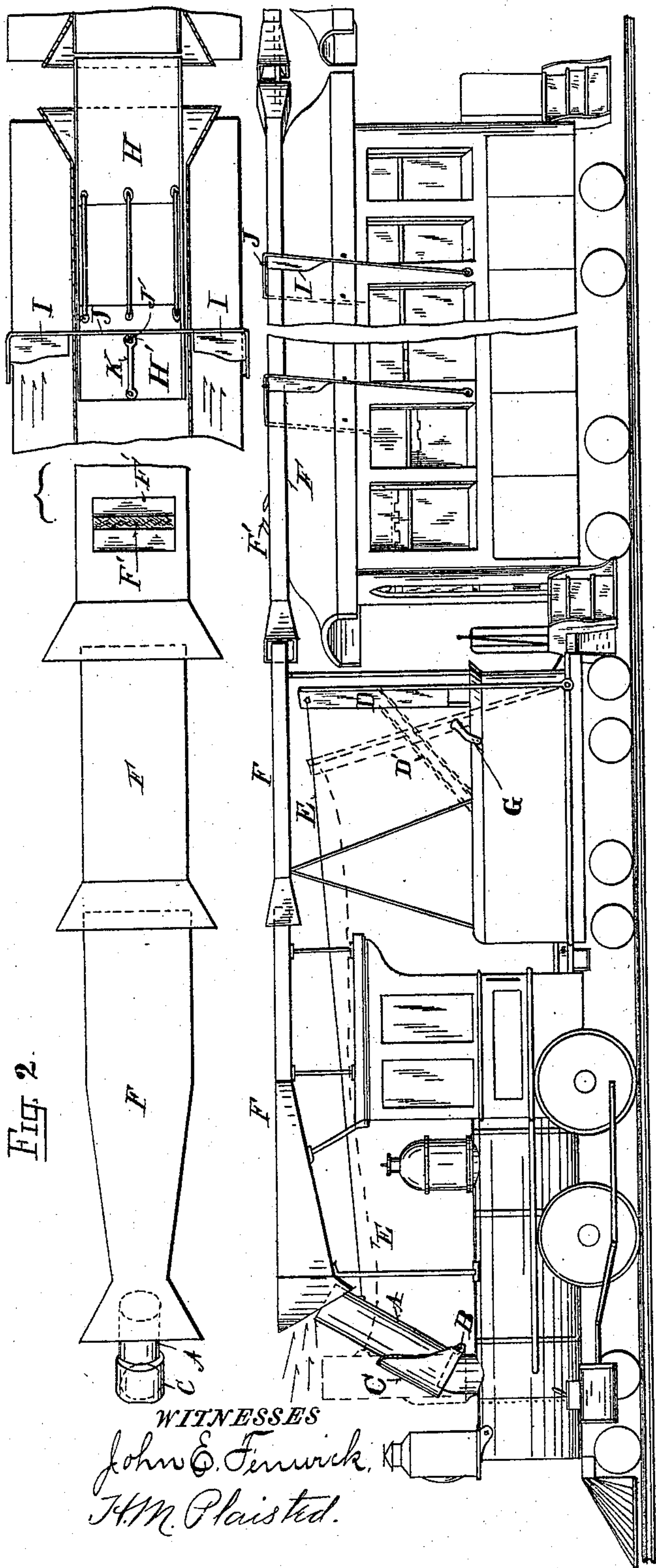
(No Model.)

2 Sheets—Sheet 1.

G. L. BARRETT.  
SMOKE ESCAPE.

No. 485,523.

Patented Nov. 1, 1892.



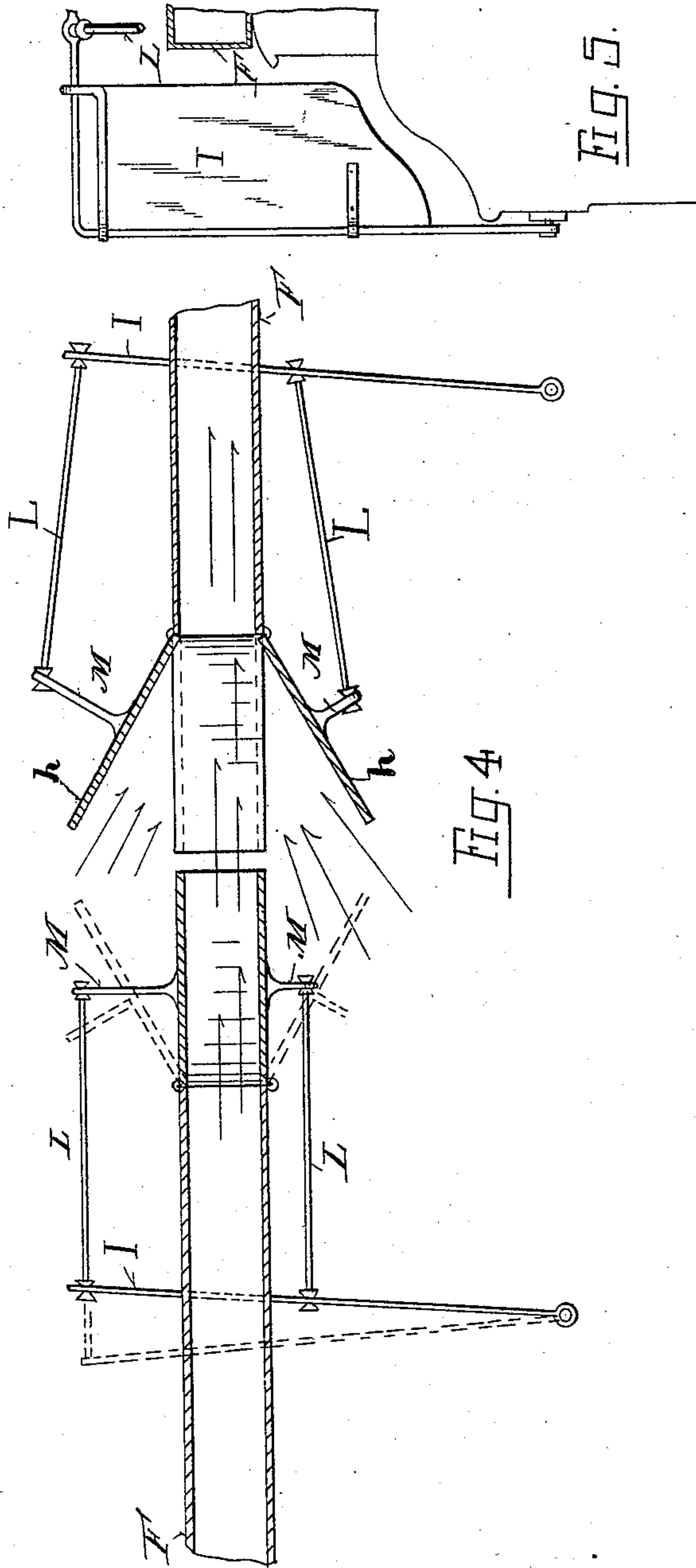
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WITNESSES  
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# UNITED STATES PATENT OFFICE.

GEORGE L. BARRETT, OF SPRINGFIELD, OHIO, ASSIGNOR TO JOHN W. DUNCAN AND THOMAS B. QUINBY, OF ONANCOCK, VIRGINIA.

## SMOKE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 485,523, dated November 1, 1892.

Application filed September 2, 1891. Serial No. 404,509. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE L. BARRETT, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Smoke-Escapes, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain new and useful improvements in smoke-escapes for passenger-trains; and it consists in certain peculiarities of construction and novel combinations of devices whereby the smoke is automatically deflected into the smoke-escape, as hereinafter set forth.

In the accompanying drawings, on which like reference-letters indicate corresponding parts, Figure 1 represents a side view of a portion of a train with my improved smoke-escape attached thereto; Fig. 2, a plan view of the same; Fig. 3, an enlarged sectional view of a portion of the smoke-escape and operating means for the intermediate guide; Fig. 4, another form for conducting the smoke from car to car, the view being in section; Fig. 5, a cross-sectional view of a portion of the car and escape-pipe, with a side view of the wind-board.

The letter A designates the smoke-stack of a locomotive or other moving machine, pivoted at B and provided with a weight C or otherwise adapted to normally maintain an upright position, as indicated by the dotted lines.

The letter D represents a board or other material adapted to expose a sufficient area to the pressure of the wind and pivotally or otherwise mounted upon a suitable support—such as the tender of the locomotive—and connected by a cord E to the smoke-stack A. The pressure of the wind upon the deflecting-surface D when the train is in motion will cause it to be thrown backward, and thus tip the stack A into the mouthpiece of a smoke-escape consisting of sections F of rectangular or other form of conducting-pipes, mounted, respectively, on the locomotive, tender, and cars and suitably connected, as will be presently described. The backward movement of the deflector D is limited by the check-

chains D' or otherwise, and the said deflector will assume the position shown by dotted lines, resting against the stop G when the wind-pressure thereon is relieved and the smoke-stack returns to its vertical position under the influence of the counterbalance-weight C.

The mouthpiece of the smoke-escape is flared, as shown in Figs. 1 and 2, to catch the wind and assist in driving the smoke from section to section of the escape-pipe. Each section is also preferably flared outward at each end of the car, and the space between the adjacent ends is bridged over by a deflecting sliding guide H, preferably consisting of two connected sections, the rear section H' serving to steady the outer section as it is automatically extended by means of wind-boards I, secured to a cross-bar J, having a finger J', connected by a link K to the inner section H', as shown in Figs. 2 and 3, whereby the pressure of the wind on the wind-boards I when the cars are in motion will operate the sliding guides. Referring to Fig. 3, it will be seen that when one guide is operated outward the other guide is operated inward to give place thereto. When the cars are going in the opposite direction, the said sliding guides are reversely operated, whereby the smoke is guided from car to car, whichever the direction of the wind, as shown by the arrows, Fig. 3. The smoke is thus prevented from being drawn down between the cars by the suction of the wind.

Another mode of operatively connecting the sections F is shown in Fig. 4, in which the smoke is guided from section to section by pivoted guide-boards h, instead of sliding guides, and operated automatically by the pressure of the wind on wind-boards I, connected thereto by rods L, whereby one set of guides is operated when going in one direction and the other set when going in the opposite direction, similarly to the sliding guides before described. As seen from Fig. 4, the pivoted guides on one section are open to catch the wind, while the adjacent wind-guides are closed and assist in the delivery of the smoke into the mouth of the adjacent section, the entering air assisting in guiding



the smoke from one section to the other. It will be observed that the rods L, connecting the pivoted wind-guides, operate through longer and shorter arms M M', corresponding to the difference of throw of the pivoted arms to which the wind-boards I are attached. The dotted position of the wind-guides in Fig. 4 indicates the position they assume when the wind acts on the reverse side of the wind-boards I. Thus it will be seen that the sections F are connected together by automatically-operated guides for the smoke and wind, whether the guides be sliding, as in Figs. 1 to 3, or pivoted, as in Fig. 5, the wind-boards or deflecting-surfaces I being adapted in both cases to automatically operate the said guides; also, that the deflecting-surface D acts to automatically deflect the smoke into the mouth of the first section by tipping the smoke-stack when the train is in motion, and allows it to assume its normal position when the train is at rest. This is done without any attention on the part of the trainmen and without any adjustment necessary in reversing the cars' motion, since there are no couplings to be attached and no joints to be connected or unloosed, whatever the direction the train is made up for. As seen from the plan view, Fig. 2, the first section of the pipe F widens laterally toward the rear in order to present approximately the same cross-sectional area for the escape of the smoke as is presented by the deeper but narrower mouthpiece into which the stack discharges.

I am aware that it is not new to conduct the smoke to the rear of the train, whether above or below the cars, and I do not claim, broadly, the means for so doing; but I do claim the above-described connecting devices and au-

tomatic operating mechanism therefor, whereby new results and new combinations, as well as new and useful means, are supplied.

The pivoted wind-guides h by their outwardly-flaring position, as in Fig. 4, catch the wind and guide it into the smoke-escape. In Figs. 1 and 2 another form is shown at F', the outwardly-deflected boards tending to drive the wind into the smoke-escape through the opening whichever the direction of the movement of the train.

I claim—

1. In a smoke-escape, the combination, with a pivoted smoke-stack, of a surface adapted to be deflected by the pressure of the wind thereon, an intermediate connection between said surface and said stack, and a conducting-pipe to receive the smoke delivered from the said stack when deflected by the action of the wind on said surfaces.

2. In a smoke-escape, the combination, with a pivoted smoke-stack and counterbalancing-weight therefor and pivoted deflecting-surfaces adapted to receive the pressure of the wind when the train is in motion, of a connection between said stack and said deflector and a conducting-pipe to receive the smoke from said stack when the latter is in its tipped-back position, whereby the smoke will be delivered into the conducting-pipe when the train is in motion and be discharged outside of the same when the train is at rest.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE L. BARRETT.

Witnesses:

H. M. PLAISTED,  
W. M. MCNAIR.