

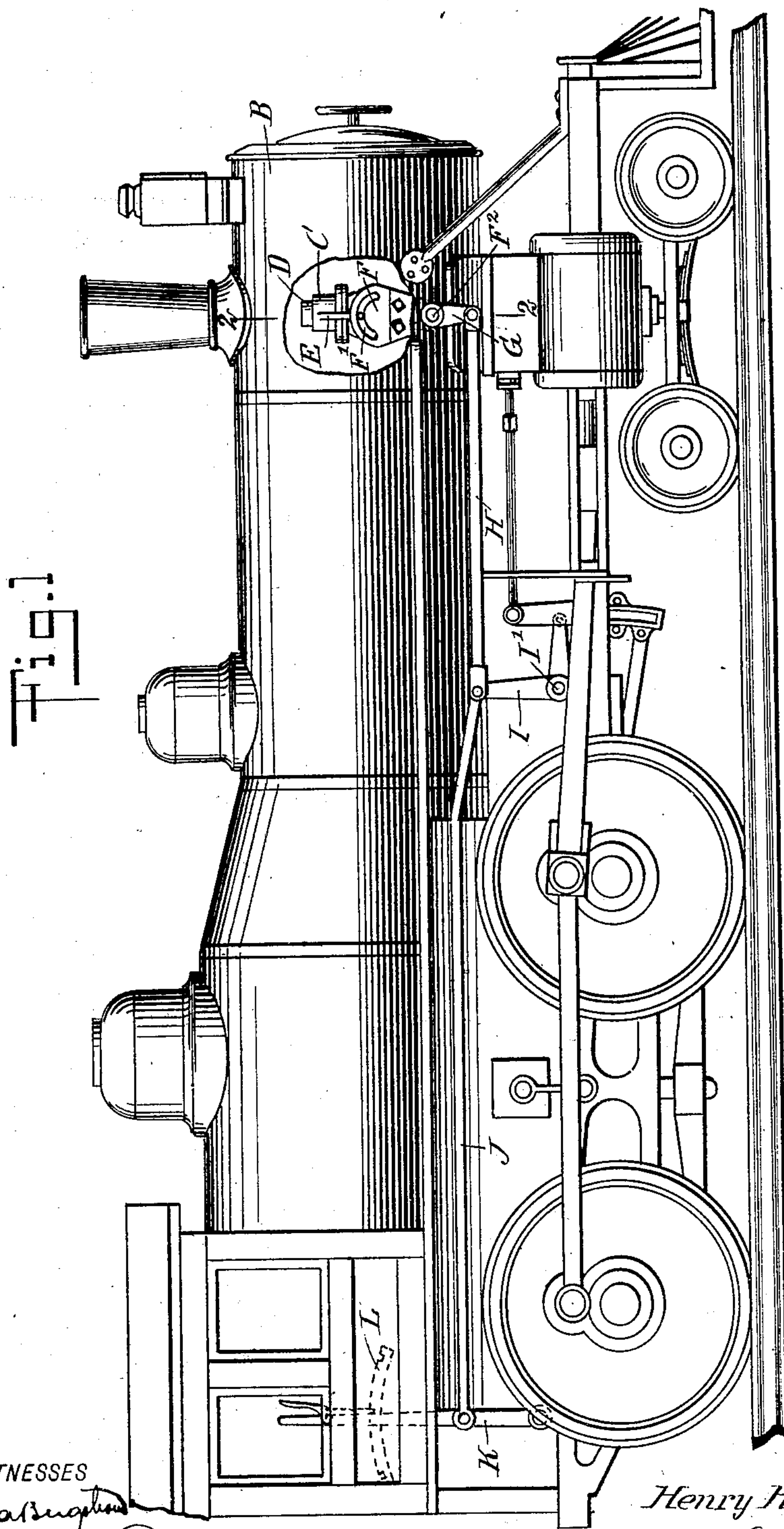
No. 898,242.

PATENTED SEPT. 8, 1908.

H. H. MACKEY.
ADJUSTABLE EXHAUST FOR LOCOMOTIVES.

APPLICATION FILED MAR. 31, 1908.

2 SHEETS—SHEET 1.



WITNESSES

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INVENTOR

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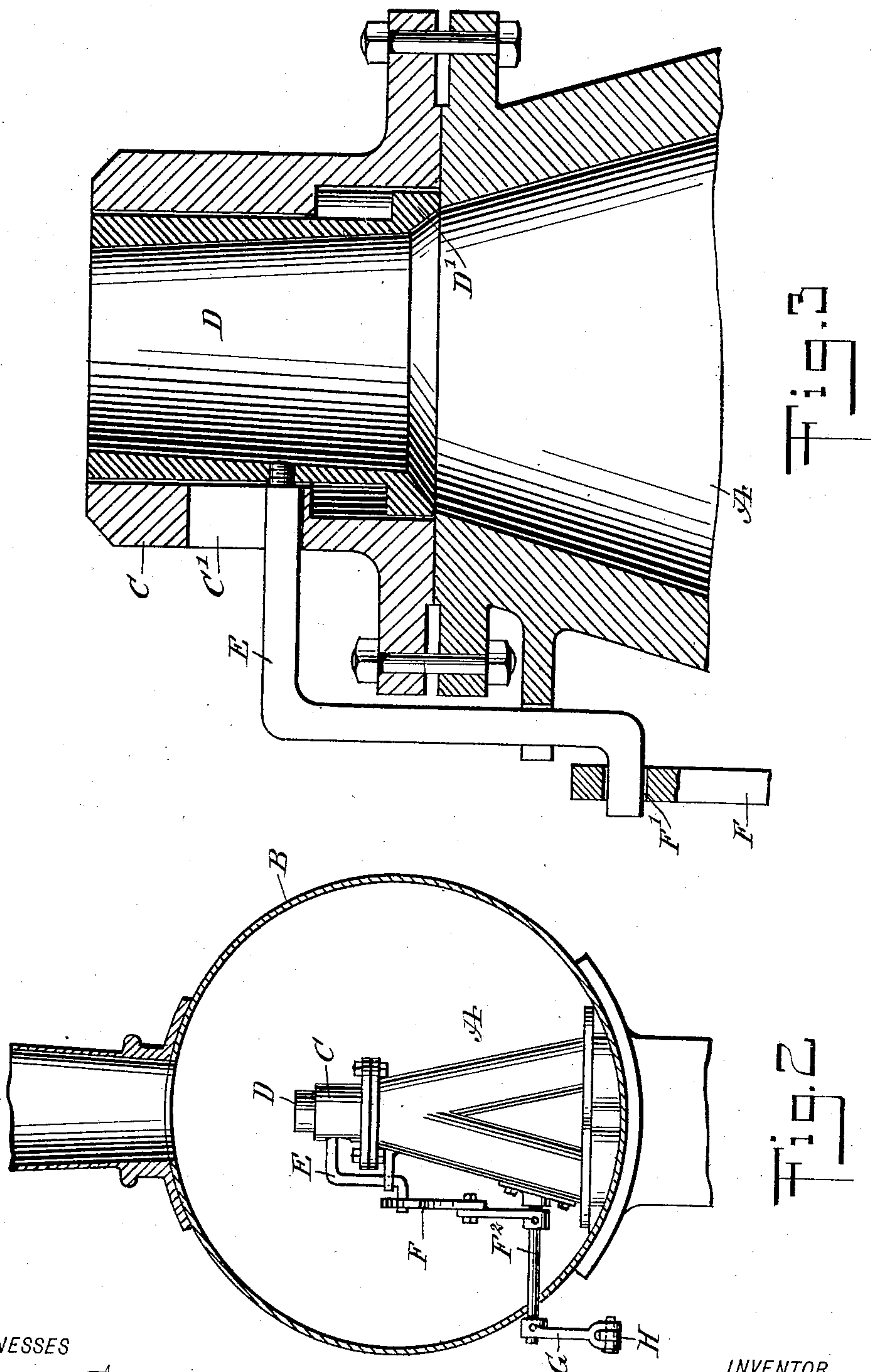
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UNITED STATES PATENT OFFICE.

HENRY HUNSECKER MACKEY, OF DURAND, MICHIGAN.

ADJUSTABLE EXHAUST FOR LOCOMOTIVES.

No. 898,242.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed March 31, 1908. Serial No. 424,430.

To all whom it may concern:

Be it known that I, HENRY HUNSECKER MACKEY, a citizen of the United States, and a resident of Durand, in the county of Shiawassee and State of Michigan, have invented a new and Improved Adjustable Exhaust for Locomotives, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved adjustable exhaust for locomotives, arranged to control the draft of the boiler, according to the work done at the time by the engines, to save fuel.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a locomotive provided with the improvement, part of the smoke box being shown broken out; Fig. 2 is an enlarged transverse section of the same on the line 2—2 of Fig. 1, and Fig. 3 is an enlarged transverse section of the improvement.

The nozzle stand A in the smoke box B of the locomotive, is provided with the nozzle tip C, in which is mounted to slide up and down a bushing D, adapted to form an extension of the nozzle tip C whenever the locomotive engine is hooked up or in a non-running, inactive position. On the bushing D is secured an outwardly-extending arm E, passing through a slot C' formed in the side wall of the nozzle tip C, and the said arm E extends into a slot F' in a cam F, having its shaft F² extending transversely and journaled in suitable bearings arranged on the nozzle stand A and the shell of the smoke box B, as plainly indicated in Fig. 2. On the outer end of the shaft F² is secured an arm G connected by a link H with the tumbling shaft lever I of the tumbling shaft I', as indicated in Fig. 1. The tumbling shaft lever I is pivotally connected by the reach rod J with the usual reinforcing lever K adapted to be locked on the quadrant L in the cab of the locomotive. The extension D is provided at its lower end with an annular flange D', to guide the extension in the nozzle tip C and to limit the sliding movement therein.

The inner surface of the extension is preferably tapering and the lower or entrance end is enlarged for a ready entrance of the steam into the extension.

The cam F is arranged in such a manner that when the reversing lever K is in its central or hooked up position, as indicated in Fig. 1, then the bushing D is raised or in an uppermost position, that is, is projected beyond the top of the nozzle tip C, as plainly indicated in Figs. 1 and 2. When the reversing lever K is moved into either end position, then a swinging motion is given to the cam F by the connections above described, so that the bushing D is moved down into a lowermost position, to bring the top of the bushing flush with the top of the nozzle tip C, as shown in Fig. 3. It is understood that when the reversing gear of the locomotive engine is in the hooked up or cut off position, the bushing D is raised to form an extension for the nozzle tip C, and in doing so, the extension reduces the boiler draft and consequently the escape of the heat and gas is retarded, thus giving the fuel and the gases in the fire box more time to burn, thereby saving a large amount of fuel. It is understood that when the locomotive is started to run in either a forward or backward direction the reversing lever K is at the corresponding end of the quadrant L, and hence the extension D is in a lowermost position to provide the full amount of draft, and when the locomotive is started the reversing lever K is gradually moved to central position, thus raising the extension D to lessen the draft as above described.

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

1. An adjustable exhaust for locomotive engines, comprising in combination with the reversing gear of the locomotive a nozzle stand having a fixed nozzle tip, a bushing slidable in the said nozzle tip to form an extension for the same, an arm on the said bushing and extending through a slot in the said nozzle tip, a cam engaging the said arm, and a link connecting the said cam with the reversing gear of the locomotive.

2. An adjustable exhaust for locomotive engines, comprising in combination with the reversing gear of the locomotive a nozzle stand having a fixed nozzle tip, a bushing slidable in the said nozzle tip to form an ex-

tension for the same, a flange on the bushing
to limit the sliding movement thereof in the
said nozzle tip, an arm on the said bushing
and extending through a slot in the said noz-
5 zle tip, a cam engaging the said arm, and a
link connecting the said cam with the revers-
ing gear of the locomotive.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

HENRY HUNSECKER MACKEY.

Witnesses:

L. D. HIXSON,
S. C. PATCHEL.