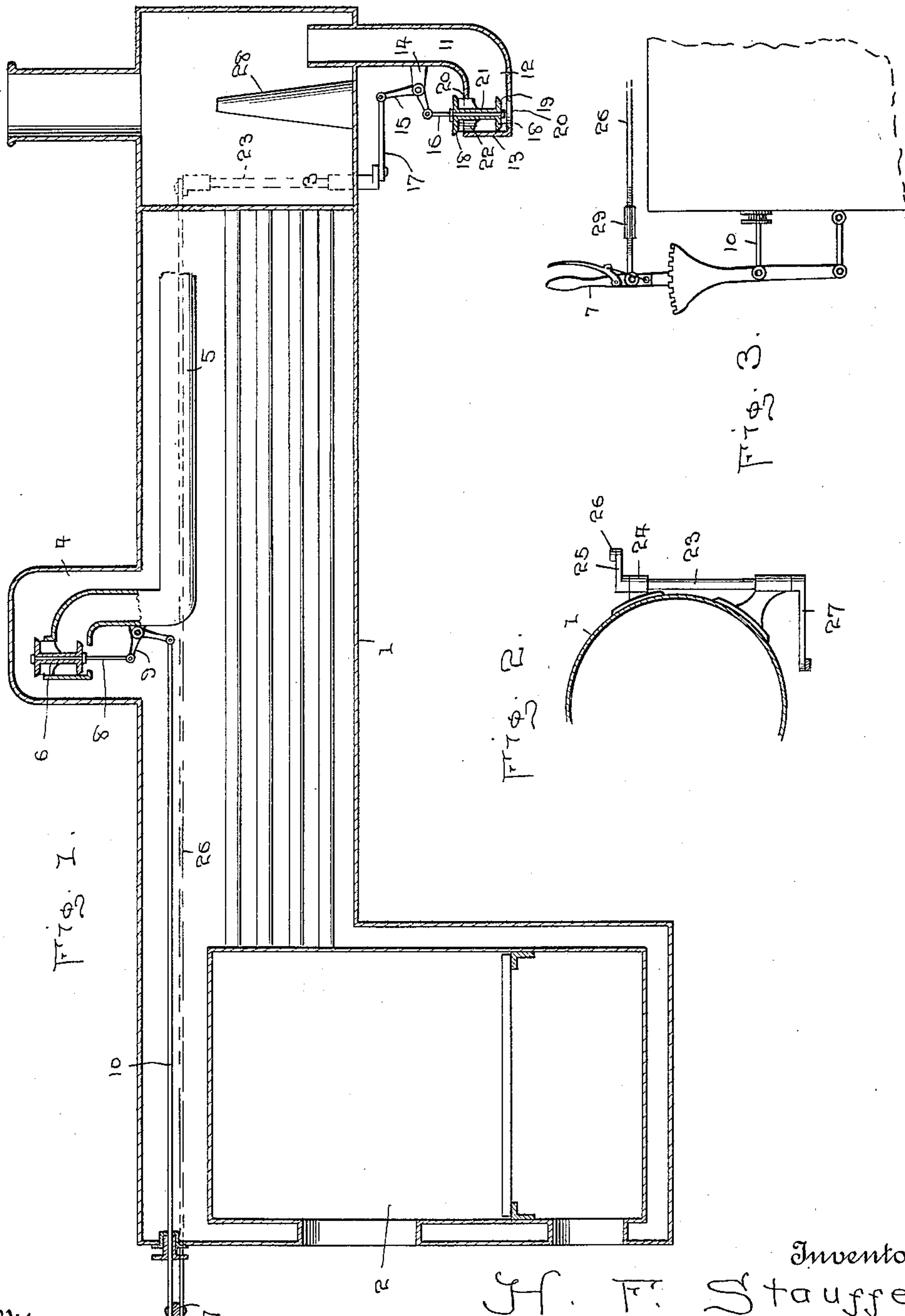


H. F. STAUFFER.
DRAFT REGULATOR FOR LOCOMOTIVES.
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UNITED STATES PATENT OFFICE.

HARRY F. STAUFFER, OF DUBOIS, PENNSYLVANIA.

DRAFT-REGULATOR FOR LOCOMOTIVES.

1,154,669.

Specification of Letters Patent. Patented Sept. 28, 1915.

Application filed June 27, 1913. Serial No. 776,044.

To all whom it may concern:

Be it known that I, HARRY F. STAUFFER, a citizen of the United States, residing at Dubois, in the county of Clearfield and State of Pennsylvania, have invented certain new and useful Improvements in Draft-Regulators for Locomotives; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to draft regulators for locomotives, and one of the principal objects thereof is to provide regulated means for admitting air into the smoke box of a locomotive.

It is a well known fact that the rush of steam coming from the exhaust nozzle commonly placed in the smoke box of a locomotive, causes a great draft and rush of air through the boiler tubes as more and more steam is admitted to the cylinders, and this rush of air carries with it a great deal of the heat directly up through the smoke stack of the locomotive, making it necessary to continually coal the fire, and resulting in an unnecessary waste of coal.

One of the primary objects of my invention is to provide means for admitting air into the smoke box from the outside, so as to provide an even draft through the fire box and thus eliminating the necessity of continually coaling the fire and hence doing away with the unnecessary smoke and waste of fuel.

Another object of my invention is to provide a draft regulator which will control admission of air into the smoke box in accordance with the amount of steam admitted to the steam chest.

A further object is to provide means for controlling the admission of air to the smoke box, actuated by the throttle lever of the locomotive.

A still further object is to provide a draft regulator for locomotives that will be simple, efficient in operation, durable, and inexpensive to manufacture.

These and other objects may be attained by means of the construction, combination and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawing in which like characters of reference indicate like parts throughout the several views, and in which,

Figure 1, is a vertical longitudinal sec-

tional view taken through the boiler of a locomotive, showing my invention adapted thereto, Fig. 2, is a vertical transverse sectional view through a part of the engine casing, showing the rock shaft secured thereto, Fig. 3, is a top plan view of the rear end of the boiler, showing the throttle lever, and the throttle valve rod, and the air valve rod attached thereto.

Referring more particularly to the drawing, Fig. 1, shows a conventional type of boiler providing a casing 1, a fire box 2, a smoke box 3, and a steam dome 4.

A steam pipe 5, extends from the dome to the steam chests of the locomotive in the usual manner, not shown. Provided in the rear end of the pipe 5, is a throttle valve 6, which is here shown as embodying a conventional type and which is controlled by the throttle lever 7, through the medium of a valve stem 8, a bell crank lever 9, secured to the pipe 5, and a throttle valve rod 10, pivoted at one end to the central portion of the throttle lever 7, and at its opposite end to one of the arms of the lever 9, the opposite arm of said lever being pivoted to the lower end of the valve stem 8.

In the forward part of the smoke box 3, and secured in the bottom thereof, is a draft pipe 11, extending downwardly from the smoke box and then at right angles as at 12, and has its outer end 13, closed. A lug 14, is provided on the rear face of the draft pipe, and pivoted thereto is a bell crank lever 15, the lower arm of which is pivoted to an air valve stem 16, and the upper arm of which is pivoted to a lower link 17. The air valve shown may be of any preferred construction, but is here illustrated as having upper and lower flanges 18, said flanges being beveled as at 19, on the under edges to fit the valve seats formed by the two alining openings 20, in the rear end of the draft pipe 11, and adjacent the rear wall 13 thereof. A hub 21, which surrounds the valve stem 16, connects these flanges and is connected with the upper flange through a web 22. A rock shaft 23, is shown in Fig. 2, as pivoted in bearings 24, which are secured to one side of the engine casing 1, beside the smoke box 3, but the shaft may be secured either to the casing or to the frame of a locomotive, or to both as the size and construction of the engine would require. An upper arm 25, connects the rock shaft 23, with one end of an air valve rod 26, the opposite end

being connected to the throttle lever 7, near the outer end thereof, and as is seen the rod 26 is parallel with the sides of the locomotive boiler and spaced therefrom. The rock shaft is connected with the link 17, by means of the lower arm 27, secured to the shaft and pivoted to the rear end of the link. As seen in Fig. 3, the throttle valve rod 10, and the air valve rod 26, are pivoted to the throttle lever 7, on the same side of its pivot-point, so that as the lever is thrown forward, both the throttle valve and the air valve will close, and as it is thrown rearwardly, they will be simultaneously opened, whereby as the throttle valve is opened more and more to admit more steam to the cylinders, the air valve will be correspondingly opened, thereby causing a draft of increasing strength through the smoke box and thus lessening the intensity of the draft through the fire box caused by the rush of steam up through the smoke pipe, from the exhaust nozzle 28, which is here shown in a conventional form. To regulate the throw of the air valve, the length of the rod 26 is adjustable by means of the pipe union 29, which is provided internally with right hand and left hand threads to engage the adjacent threaded ends of the rod 26, which as seen is sectioned.

Although I have described the preferred embodiment of my invention, I reserve and may exercise the right to make such changes in the construction, combination and arrangement of parts as do not depart from the spirit of the invention and the scope of the appended claim.

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

A draft regulator for locomotives, comprising a pipe secured in the smoke box of a locomotive, and communicating with the outside atmosphere, a valve in said pipe to regulate the admission of air therethrough, and means connecting said valve with the throttle lever of a locomotive, whereby when the throttle valve is opened, said air valve will be simultaneously opened to admit a volume of air proportional to the steam consumed.

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

HARRY F. STAUFFER.

Witnesses:

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