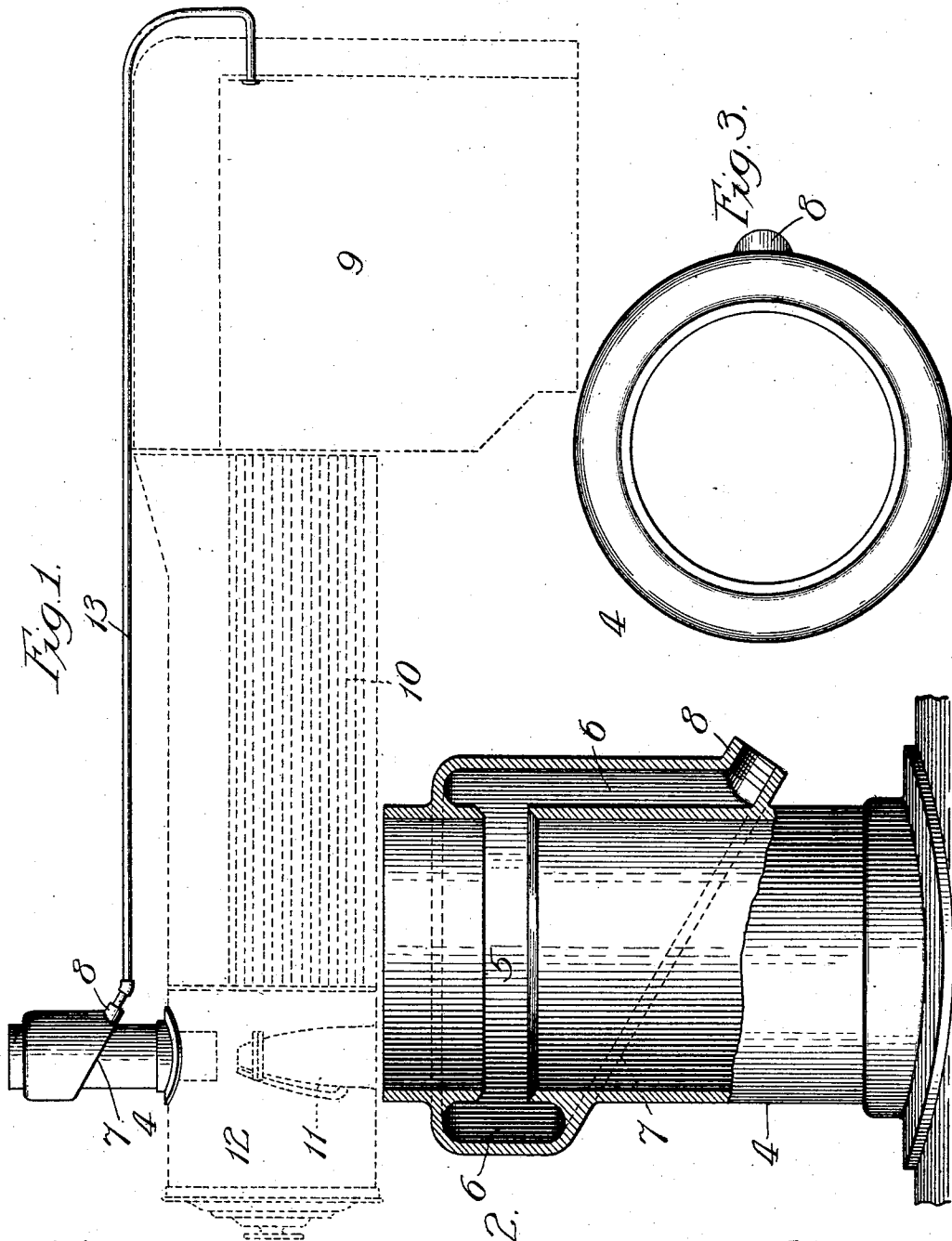


A. F. PRIEST.
LOCOMOTIVE SMOKE STACK.
APPLICATION FILED DEC. 11, 1909.

968,882.

Patented Aug. 30, 1910.



Witnesses:

John Enders
Chas. A. Bull.

Fig. 2.

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UNITED STATES PATENT OFFICE.

AUGUSTUS F. PRIEST, OF CHICAGO, ILLINOIS.

LOCOMOTIVE SMOKE-STACK.

968,882.

Specification of Letters Patent.

Patented Aug. 30, 1910.

Application filed December 11, 1909. Serial No. 532,537.

To all whom it may concern:

Be it known that I, AUGUSTUS F. PRIEST, a citizen of the United States, residing at 800 Calumet Building, Chicago, in the county of Cook and State of Illinois, have invented a new and useful Locomotive Smoke-Stack, of which the following is a specification.

My invention relates to an improvement in locomotive smoke-stacks which are equipped with surrounding chambers communicating with the interior of the stacks to receive therefrom, and thus intercept against emission, the cinders; and it is my object to provide a novel construction of the stack embodying such an equipment, which shall render it simple and effective in its purpose, and comparatively inexpensive to manufacture.

In the accompanying drawing, Figure 1 is a view in side elevation of the boiler, fire-box and stack of a locomotive-engine, shown by dotted representation, equipped with my improvement, shown by full-line representation; Fig. 2 shows the stack by an enlarged and partly sectional view in elevation, and Fig. 3 is a top plan view of the stack.

The stack 4 is a hollow cylinder containing a circumferential slot 5, and it has formed integral with it a chamber 6 enveloping the slot and provided with an inclined bottom 7 at the lowest point of which an outlet-opening 8, shown as a threaded nipple, leads from the chamber. By thus forming the chamber 6 as a part of the stack the cost of manufacturing the latter is not materially, if at all, greater than that of a stack unequipped therewith. As will be seen the two portions of the stack 4 are of the same circumference and register in vertical line one with the other and are not provided on their interior with deflecting plates, cones or other devices commonly employed to divert the cinders carried upward by the draft, whereby a free, open and unobstructed passage for the cinders and the smoke and gases throughout the entire length of the stack is afforded.

The products of combustion pass from the fire-box 9 of a locomotive-boiler 10 to the smoke-stack by its draft, which is usually supplemented, for enhancing the combustion of the fuel in the furnace, by a jet of exhaust-steam, indicated at 11 in Fig. 1, discharging centrally into the base of the stack in the box 12 at the forward end of the boiler. A further effect of the steam-jet is to tend to spread the heavier solid particles, or cinders,

carried by the smoke, and thereby cause them to course along the inner wall-surface of the stack. The cinders, however, tend by their gravity to lodgment in any outlet from the stack in their course therein, so that when they attain to the slot 5 they pass through it into the chamber and run down its inclined bottom 7 to the outlet 8, whence they discharge. It is to be further noted that the portion of the stack above the cinder-intercepting chamber is of sufficient length to produce a gas pressure which will tend to pass into the chamber formed between the two cylindrical sections. The outlet 8 whether it extends to the fire box, as herein-after described, or opens directly to the atmosphere, produces a less pressure in the cinder-intercepting chamber than in the stack, and this difference in pressure assists in causing the cinders to enter the chamber. It is desirable to feed the cinders thus intercepted into the fire-box 9, partly to use them as fuel, with resultant economy, and partly to prevent their escape into the atmosphere. For this purpose a conduit, shown as a pipe 13, is extended from the chamber-outlet 8 into the fire-box; and this provision affords the incidental advantage of causing the stack-draft to be exerted on the discharge-end of the pipe to supplement the gravity-evacuation of the chamber 6 of cinders and feeding them into the fire-box, though, of course, it is feasible, and may be desirable, to otherwise or additionally force the draft through the pipe 13.

What I claim as new and desire to secure by Letters Patent is:—

1. A locomotive smoke-stack, comprising a lower cylinder, an upper cylinder, said cylinders being spaced apart in end relation with each other and each having an open unobstructed passage therethrough, a surrounding cinder-intercepting chamber rigidly secured to said cylinders and inclosing the space between the two cylinders, said chamber being also provided with a passage discharging to a zone of less pressure than is in the smoke-stack.

2. A locomotive smoke-stack, comprising a lower cylinder, an upper cylinder, said cylinders being spaced apart in end relation with each other and each having an open unobstructed passage therethrough, a surrounding cinder-intercepting chamber rigidly secured to said cylinders and inclosing the space between the two cylinders, the

lower edge of the upper cylinder extending below the upper wall of the chamber, and said chamber being also provided with a passage discharging to a zone of less pressure than is in the stack.

3. A locomotive smoke-stack, comprising a lower cylinder, an upper cylinder, said cylinders being spaced apart in end relation with each other, and each having an open
10 unobstructed passage therethrough, and a surrounding cinder-intercepting chamber in-

closing the space between the two cylinders, said chamber being rigidly secured to the said cylinders and provided with an inclined bottom and with a discharge passage
15 at its lower end discharging to a zone of less pressure than is in the stack.

AUGUSTUS F. PRIEST.

In presence of—

L. HEISLAR,

R. SCHAEFER.