(No Model.) 2 Sheets—Sheet 1.

S. H. DUNNING.

EXHAUST MECHANISM FOR LOCOMOTIVES.

No. 318,708. Patented May 26, 1885.

Fig 1

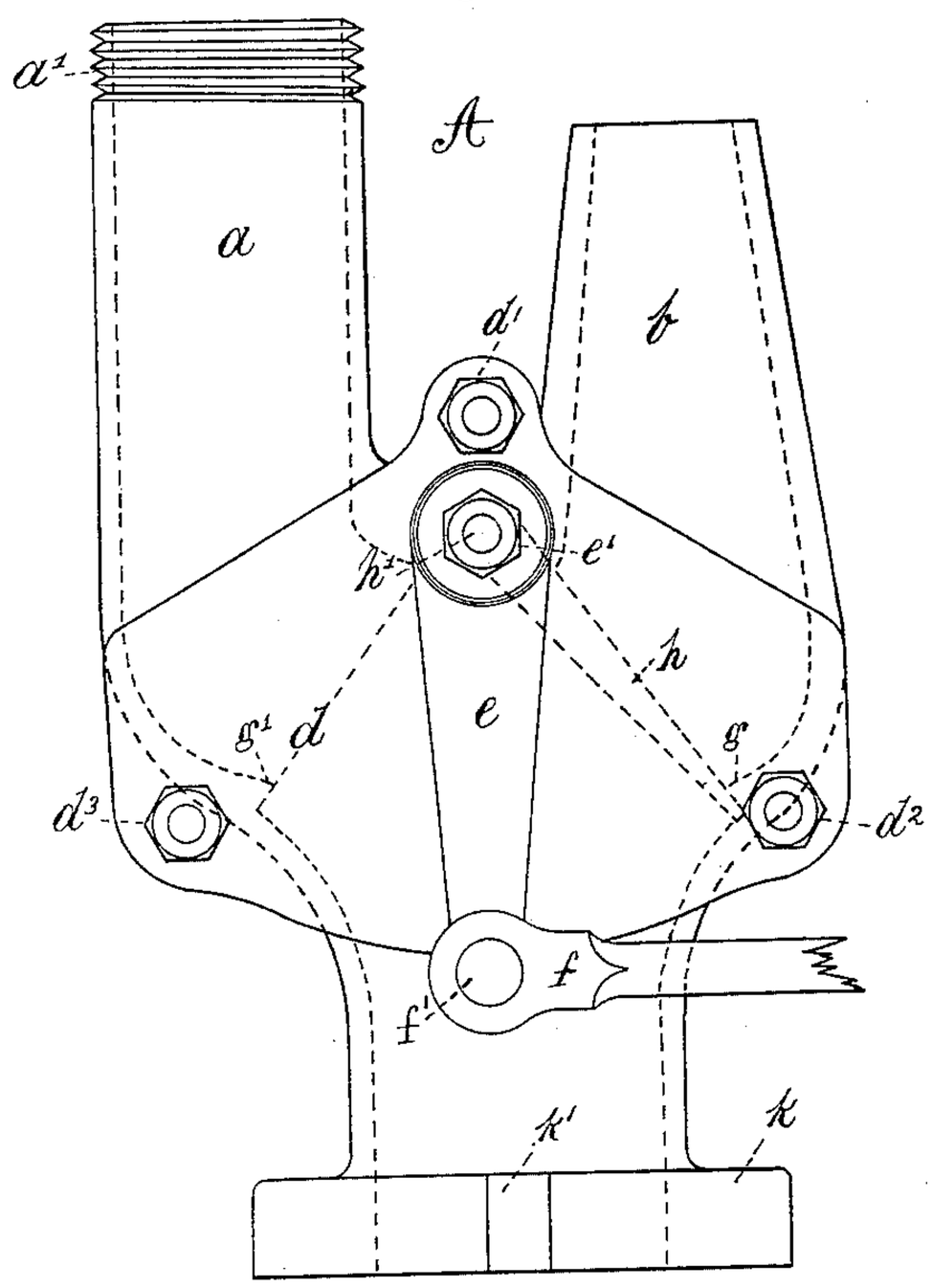
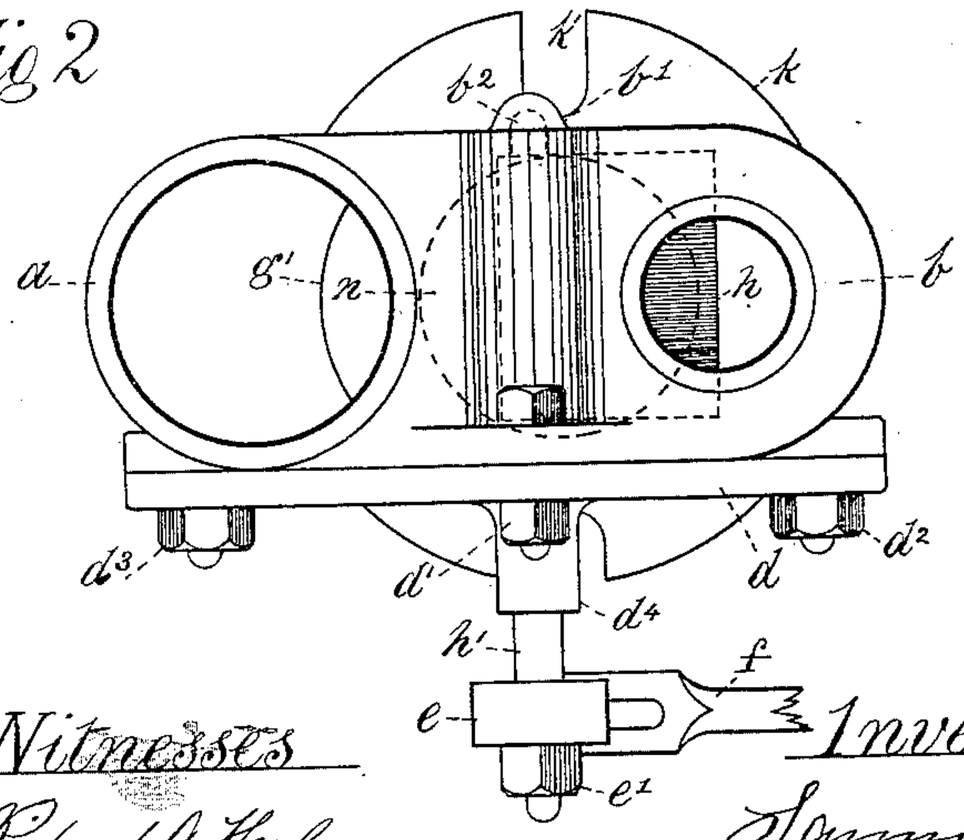


Fig 2



Witnesses
Richard A. Healy
Kittie Inglis.

Inventor
Samuel H. Dunning
by Johnson Inglis & Atty

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

S. H. DUNNING.

EXHAUST MECHANISM FOR LOCOMOTIVES.

No. 318,708. Patented May 26, 1885.

Fig 3

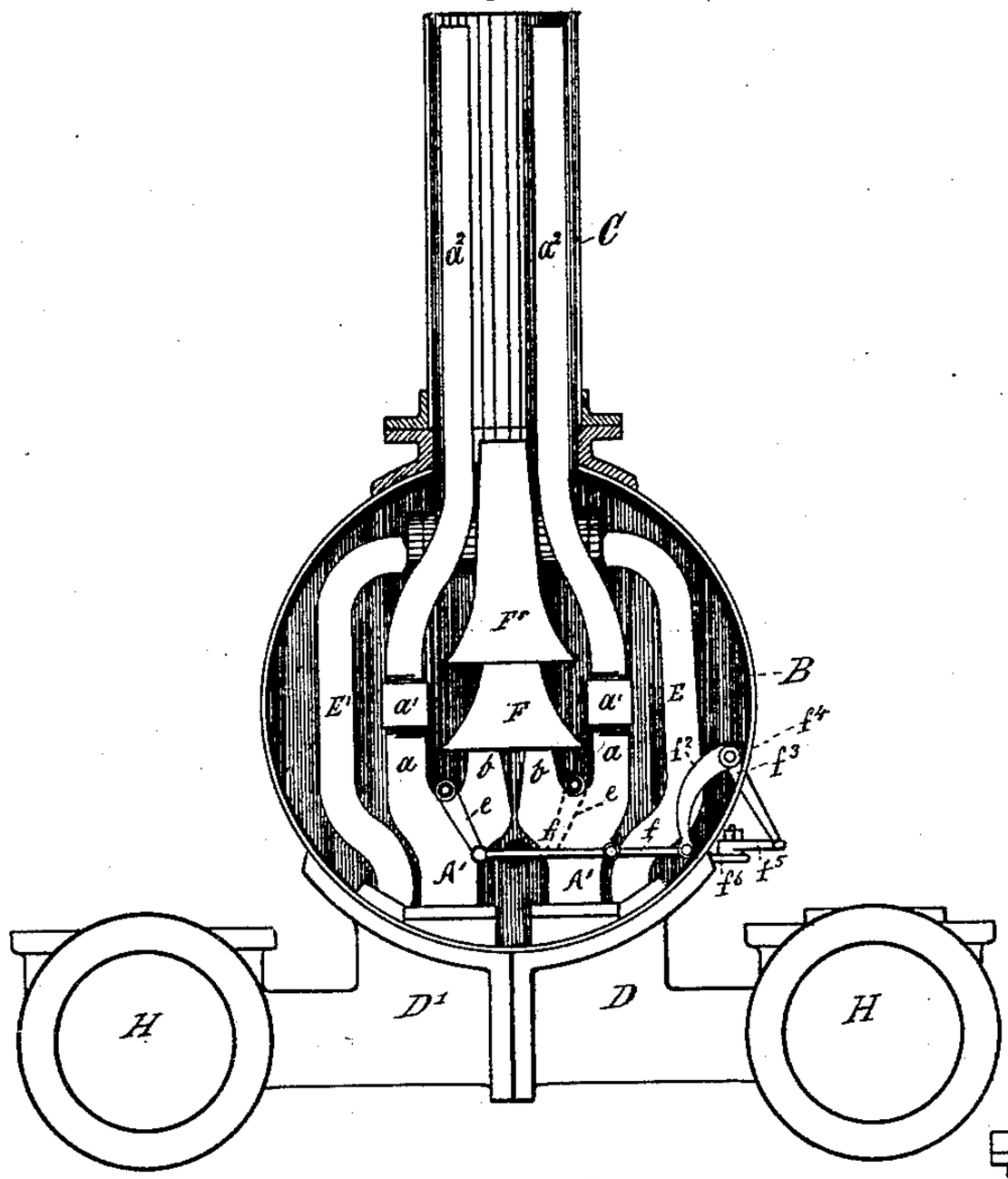
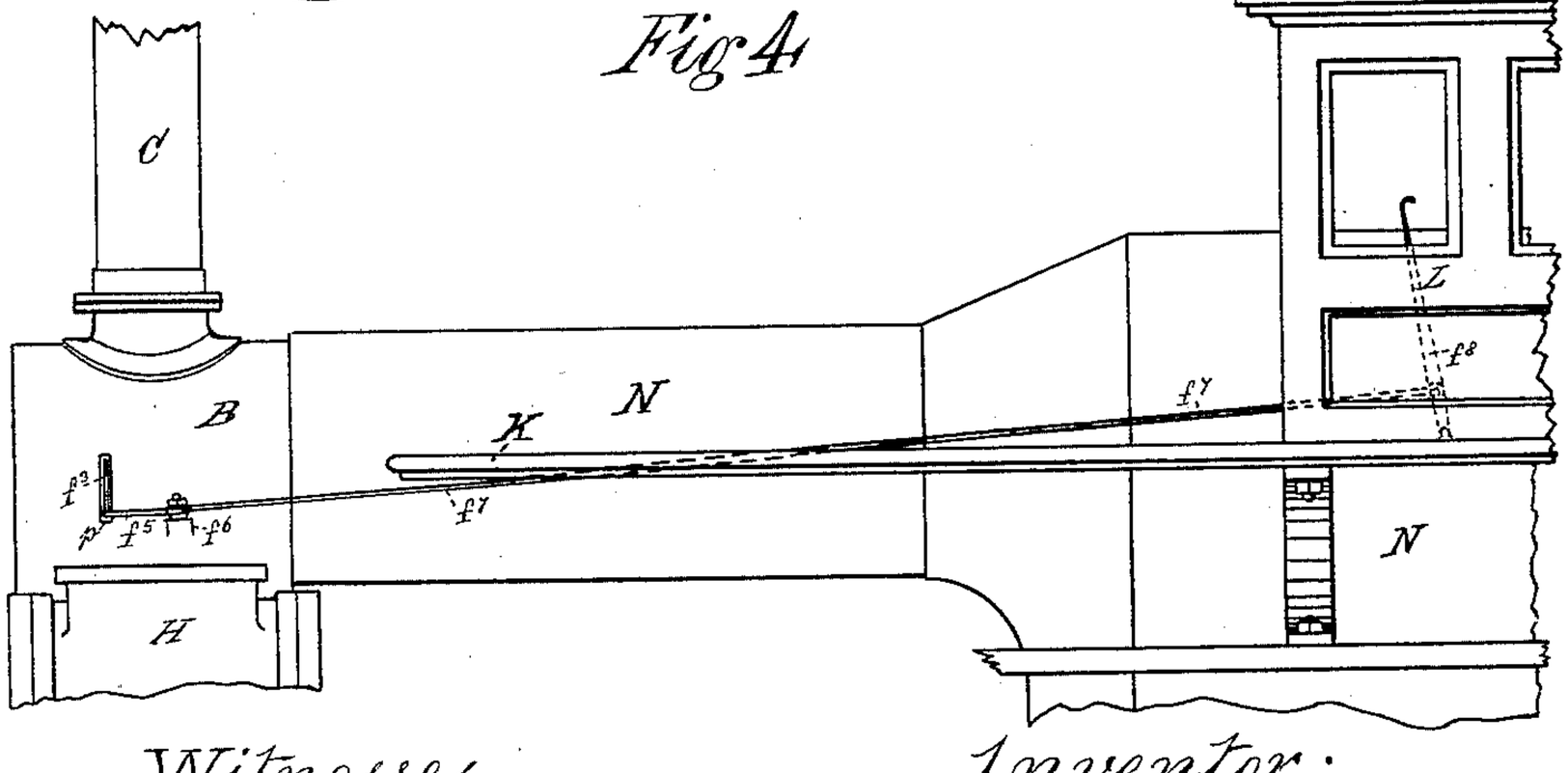


Fig 4



Witnesses
Richard A. Healy
Kittie Inglis.

Inventor:
Samuel H. Dunning
by John Inglis atty

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

SAMUEL H. DUNNING, OF PATERSON, NEW JERSEY.

EXHAUST MECHANISM FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 318,703, dated May 26, 1885.

Application filed August 23, 1884. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL H. DUNNING, a citizen of the United States, and a resident of Paterson, Passaic county, State of New Jersey, have invented a new and useful Improvement in Exhaust Mechanism for Locomotives, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

This invention relates to devices whereby the exhaust-steam is diverted at will into or away from the draft-outlet of the smoke-stack in order to control the draft.

The said invention consists in certain improvements in such devices, which will be hereinafter described, and pointed out in the claim.

Figure 1 shows my invention in elevation. Fig. 2 is a plan of the same. Fig. 3 shows the interior of the smoke-box and arrangement of devices, the smoke-pipe being shown in section, and Fig. 4 is a part view of a locomotive in elevation having a part of my invention attached.

A represents a blast or exhaust device for a locomotive, having pipes *a* and *b*. The pipe *a* is provided with a screw-thread at the top of the same, and connects by means of a coupling, *a'*, with a pipe, a^2, arranged in the smoke-stack C, and one on each side of the interior of the smoke-stack, as shown in Fig. 3. The nozzles *b*, which are inverted in position, are arranged in the bell-shaped mouth of the pipe F, above which pipe is suitably arranged and secured a like pipe, F', said pipe being centrally located in the smoke-pipe, as shown in Fig. 3. The valve-stem *h'*, which is arranged in a case, *b'*, is provided with a pivot, b^2, and passes through a covering-plate, *d*, which plate is secured by bolts d' d^2 d^3 on the stem *h'*. Behind the covering-plate *d* there is arranged a valve or diaphragm, *h*, which valve is provided with valve-seats *g* *g'* on the outer end of the stem *h'*, and secured thereon by a screw-nut, *e'*, is a tapering arm, *e*. The opposite end of the arm is linked to a crank-arm, f^2, by means of a link, *f*, and pins *f'*. The crank, of which the arm f^2 is a part, is pivoted within the smoke-box B on a pivot-stud, f^4. The arm f^3 of the crank passes through a slot, *p*, arranged in the smoke-box therefor, and connects with a bracket-lever, f^5, pivoted on a stud, f^6, arranged on the smoke-box B. The bracket-lever also connects adjustably with an operating-lever, f^8, by means of a link, f^7. The lever f^8, which is provided with a handle, L, is adjustably secured to the floor *k* in the interior of the cab, as shown by dotted lines, Fig. 4. The flange *k* is provided with bolt-holes *k'*, and may be secured in position in the smoke-box by bolts. The steam-pipes E E' are arranged as shown. The cylinders H, boiler N, and cab are arranged in the usual way. In practice the engineer or fireman from this position in the cab can, by means of the operating-lever f^8 and the connections herein described and shown, have perfect control of the exhaust, blast, &c., and can regulate the same without resorting to the fire-box door in the usual way, securing more perfect combustion and saving of fuel by this my invention, as the currents may be discharged through the pipes a^2, and sparks may be prevented from passing through the nozzles *b*. The valve *h* may be held in any position desired by pins arranged for the lever f^8.

I am aware that it is not broadly new to provide the smoke-stack of an engine with a bifurcated exhaust-pipe, one branch of which discharges into the stack to create a draft, the other branch discharging outside of the stack, the steam being directed through one or the other branch, as desired. This, therefore, I do not broadly claim.

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

The bifurcated exhaust-pipe *a b*, in combination with a pipe, a^2, extending from one of its branches, *a*, to the open air, a bell-shaped nozzle, F, into which the other branch, *b*, discharges, a valve, *f*, which directs the steam to one or the other of said branches at will, rock-shaft f^4, arms f^2 f^3 f^5, connecting rod or link f^7, and lever or handle f^8, pivoted in the cab, in order that the engineer may control the draft of the engine through the devices aforesaid, substantially as set forth.

SAMUEL H. DUNNING.

Witnesses:

JOHN INGLIS,

KITTIE INGLIS.