

No. 741,859.

PATENTED OCT. 20, 1903.

F. O. WHEALON.
LOCOMOTIVE EXHAUST MECHANISM.

APPLICATION FILED JUNE 16, 1902.

NO MODEL.

Fig. 1.

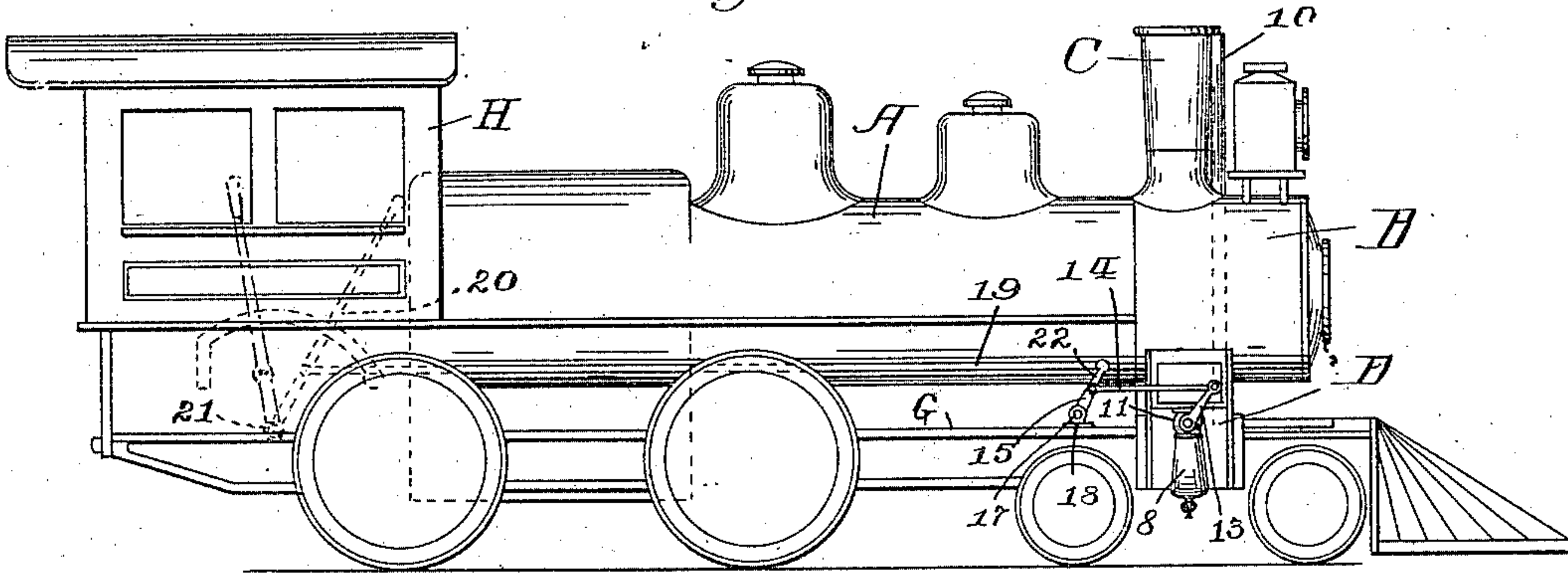


Fig. 2.

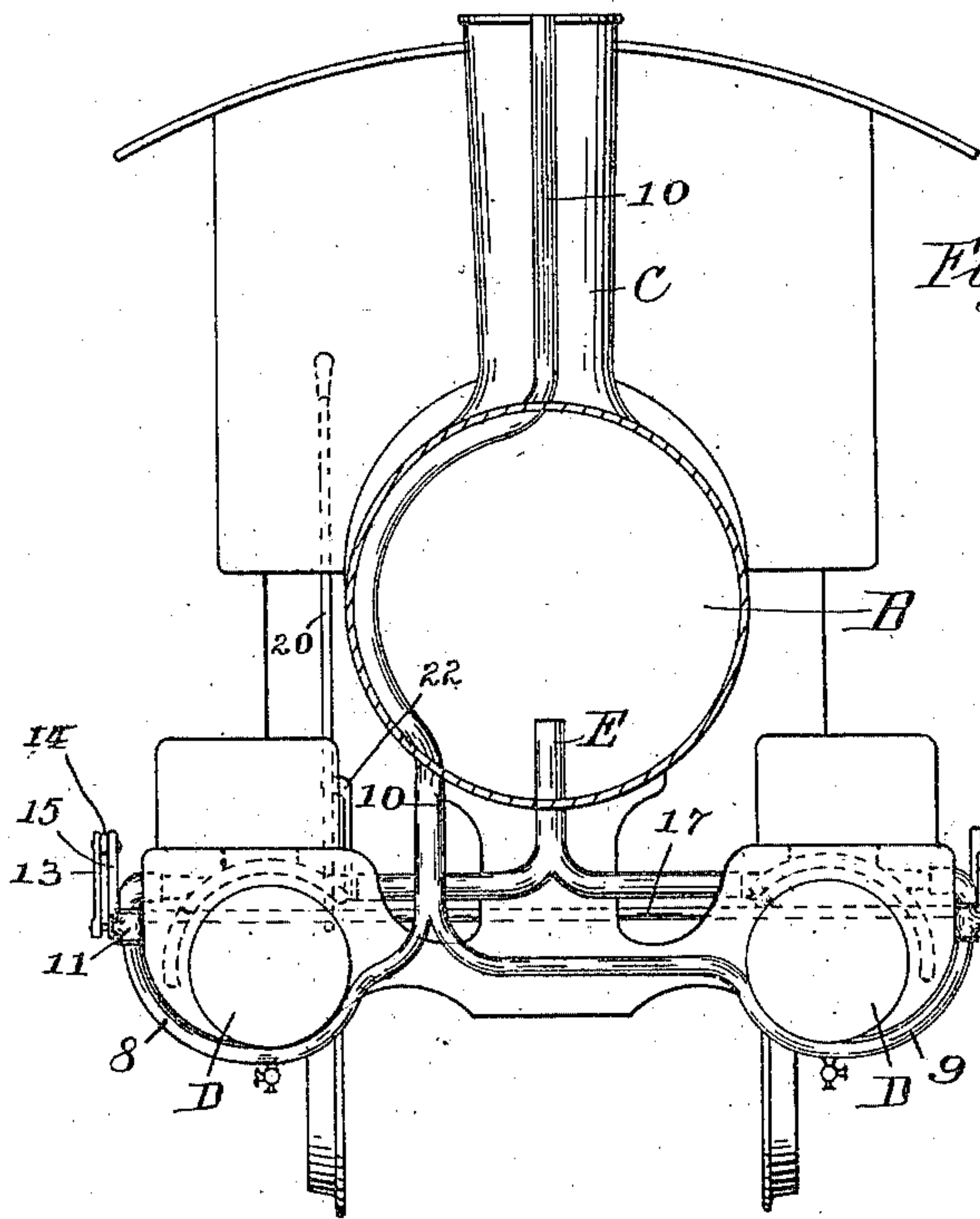


Fig. 4

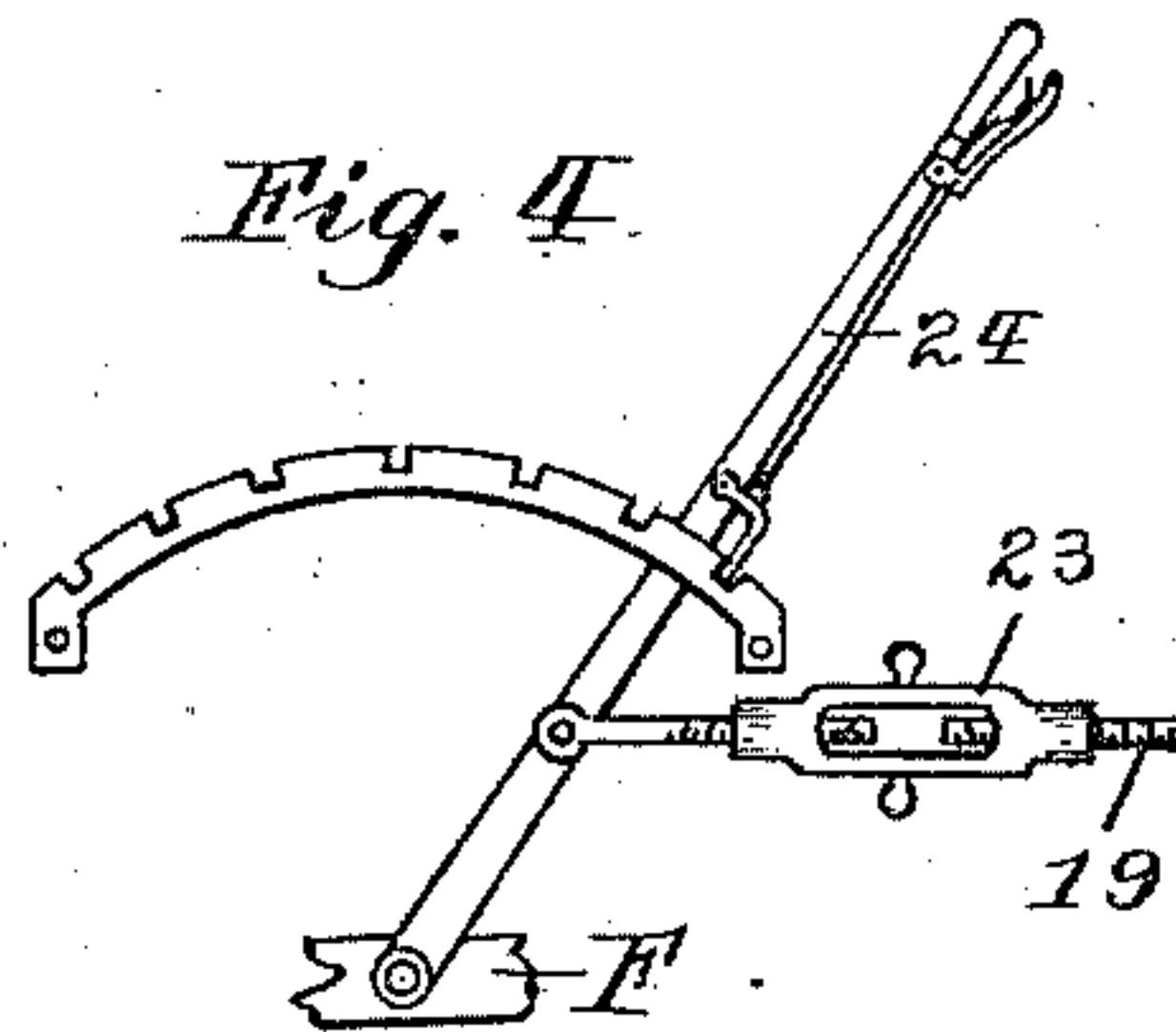
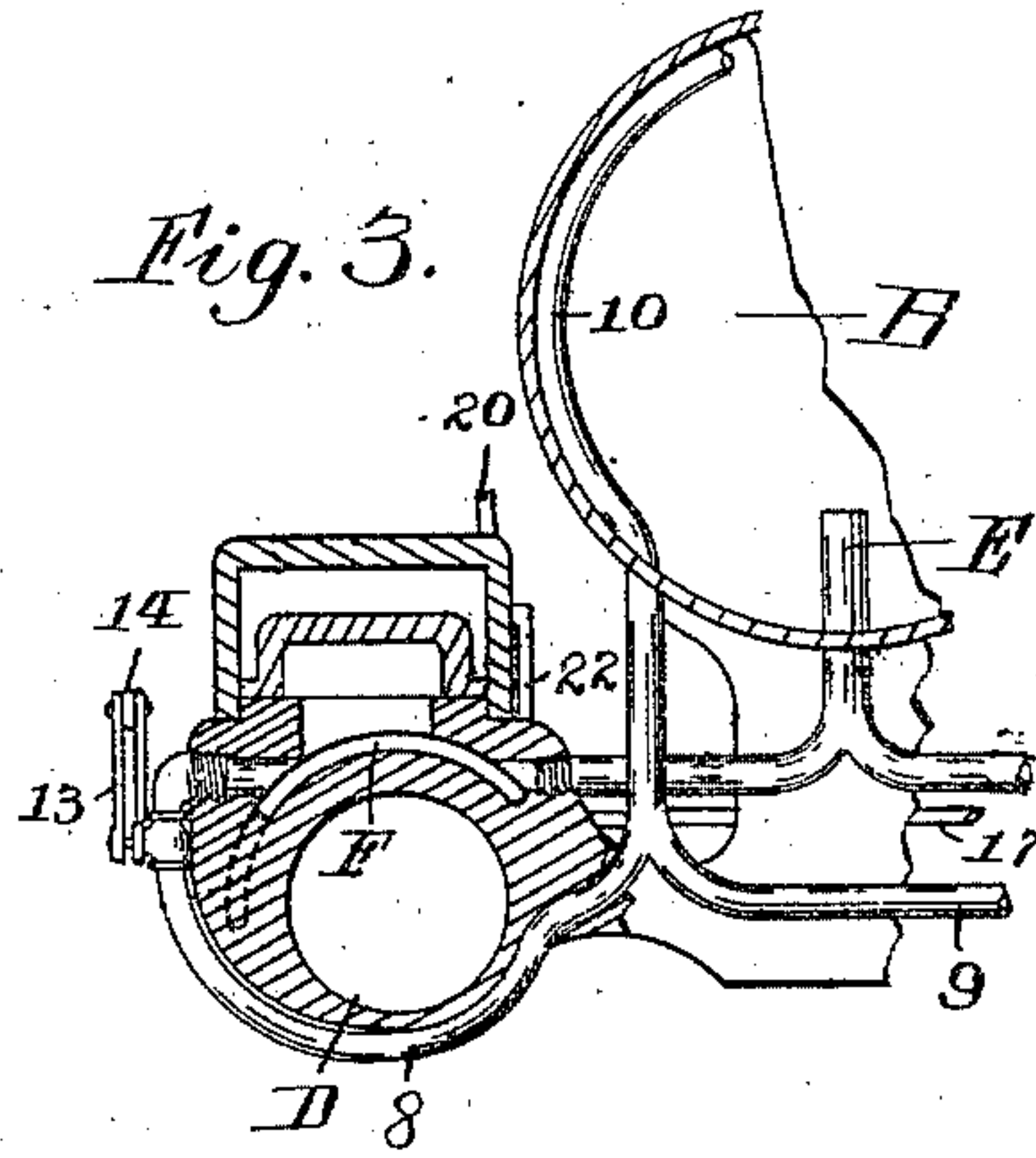


Fig. 3.



Witnesses:
A. A. Hansen.
E. M. Boesch.

Inventor:
Francis O. McKealon.
by: Shepley & Hadley
Attorneys

UNITED STATES PATENT OFFICE.

FRANCIS O. WHEALON, OF ST. PAUL, MINNESOTA.

LOCOMOTIVE-EXHAUST MECHANISM.

SPECIFICATION forming part of Letters Patent No. 741,859, dated October 20, 1903.

Application filed June 16, 1902. Serial No. 111,824. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS O. WHEALON, a citizen of the United States of America, and a resident of St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Locomotive-Exhaust Mechanism, of which the following is a specification.

My invention relates to improvements in locomotives.

My object is to provide means for regulating the draft in the furnace. Usually the draft in locomotives has been increased by exhausting the steam from the cylinders into the smoke chamber and chimney. My invention consists in providing means for regulating this supply of exhaust-steam.

In the accompanying drawings, forming part of this specification, Figure 1 is a diagrammatic side elevation of a locomotive, showing my improved apparatus attached thereto. Fig. 2 is an end elevation of Fig. 1, showing the smoke-drum in section. Fig. 3 is a detail sectional view of Fig. 2, and Fig. 4 is a detail view of an alternate construction of operating-lever.

In the drawings, let A represent a locomotive of ordinary construction; B, the smoke-chamber; C, the smoke stack or chimney; D, the cylinders, and E the exhaust passage-way between the cylinders and the smoke-chamber.

My invention consists, specifically, of the auxiliary exhaust-pipes 8 and 9, which are flat and curve around the surface of each cylinder for the purpose of assisting in heating the cylinders. These pipes lead from the exhaust-ports F of the steam-cylinders to a point outside the smoke-chamber through the trunk-pipe 10. This trunk-pipe, as shown in the drawings, I have placed beside the smoke-stack and opening into the outer air. The auxiliary pipes serve to reduce the draft in the chimney by forming an outlet for part of the exhaust-steam from the cylinders. The pipes 8 and 9 are provided with the valves 11 and 12, by which the size of the passage-ways may be modified or closed. These valves are operated by means of the levers 13, which are attached to the connecting-rods 14. The connecting-rods are pivotally attached to the rock-arms 15 and 16, which

are mounted upon the rock-shaft 17. This shaft is journaled at 18 on the frame G of the locomotive. A crank-arm 22 is mounted on the rock-shaft and pivotally connected by means of the rod 19 to the lever 20 in the locomotive-cab H, as indicated in Fig. 1. The lever 20 is journaled at 21 on the locomotive-frame. By swinging the lever forward to the position indicated by dotted lines in Fig. 1 the shaft 18 is turned and the valves opened, thus allowing part of the exhaust-steam from the cylinders to pass freely through the auxiliary pipes. A reduced amount of this exhaust-steam remains to pass through the ordinary exhaust-pipe E into the smoke-stack and creates a more economical draft than if all of it were allowed to accelerate the draft.

In operation when it is desired to increase the draft in the furnace the valves 11 and 12 are partially or wholly closed by swinging the lever 20 to the dot-and-dash line position shown in Fig. 1, and when it is desired to check the draft the lever is moved forward, so as to open the valves and decrease the amount of exhaust-steam passing through the pipe E by allowing part of it to escape through the auxiliary pipes to the exterior of the smoke-chamber.

It is obvious that the connecting-rod 19 can be connected to an operative part of the locomotive, such as the reversing-lever 24, (shown in Fig. 4,) instead of the lever 20 and the valves 11 and 12 made to act automatically in connection with the operating mechanism. A turnbuckle 23, as shown in Fig. 4, may be inserted in the connecting-rod 19 for use in adjusting the valves when the reversing-lever 24 is used.

Having described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. A device of the class set forth, comprising a passage-way between the cylinders and smoke-chamber of a locomotive for the exhaust-steam, auxiliary exhaust-pipes leading from the exhaust-ports of the steam-cylinders and merging into a trunk-pipe which opens into the outer air, said auxiliary pipes passing above the smoke-chamber and placed beside the smoke-stack, a valve in each of said auxiliary pipes, by which the size of the passage-ways within may be modified or closed,

a lever - arm connected with each of said valves, a connection between said lever-arms, and a rod attached to said connections and extending in the cab of the locomotive.

5 2. In combination with a locomotive and its exhaust passage-way from the cylinders to the smoke-chamber, an auxiliary passage-way in the form of elongated openings around the cylinders for the exhaust-steam, a valve in
10 said auxiliary passage-way, a reverse-lever pivoted in the cab of the locomotive, a rod attached to said lever, and a connection between one end of said rod and said valve, for the purposes specified.

15 3. A device of the class set forth, comprising a passage-way between the cylinders and smoke-chamber of a locomotive for the exhaust-steam, a flat pipe around each cylinder and leading from the exhaust-ports of each
20 cylinder to a point outside the smoke-chamber, a valve in each of said pipes, by which the size of the passage-ways in said pipes may be modified or closed, a lever pivoted in the cab of the locomotive, a rod attached to said
25 lever, a connection between said rod and each valve, and means for regulating the length of said rod, for the purposes specified.

4. In combination with the exhaust-pipe E of a locomotive, flat pipes 8 and 9 leading
30 from the steam-chest and curved around each cylinder of the locomotive for the purpose of heating the outside of the cylinders, a trunk-pipe 10, with which said auxiliary pipes con-

nect, said auxiliary pipes passing above the smoke-chamber and placed beside the smoke- 35 stack, valves 11 and 12 in each of said auxiliary pipes, by which the size of their passage-ways is modified or closed, levers 13 on said valves, rock-arms, connecting-pieces between said levers and said rock-arms, a shaft, 40 journaled in the frame of the locomotive and upon which each of said rock-arms is mounted, a crank 22 mounted on said rock-shaft, a rod 19 connected with said crank, and a bar 20 pivoted in the locomotive-cab, and at- 45 tached to said rod.

5. In combination with a locomotive having an exhaust passage-way connecting the cylinders with the chimney, a flat pipe around each cylinder forming an auxiliary passage- 50 way which is connected with said first passage-way and adapted to form an outlet exterior to said chimney for part of the exhaust-steam from the cylinders, a reverse or cut-off lever in connection with the cylinder-valve 55 mechanism of the locomotive, a valve in said auxiliary passage-way, and a connection with said valve and reverse or cut-off lever.

In testimony whereof I have signed my name to this specification in the presence of 60 two subscribing witnesses.

FRANCIS O. WHEALON.

Witnesses:

E. M. BOESEL,

F. G. BRADBURY.