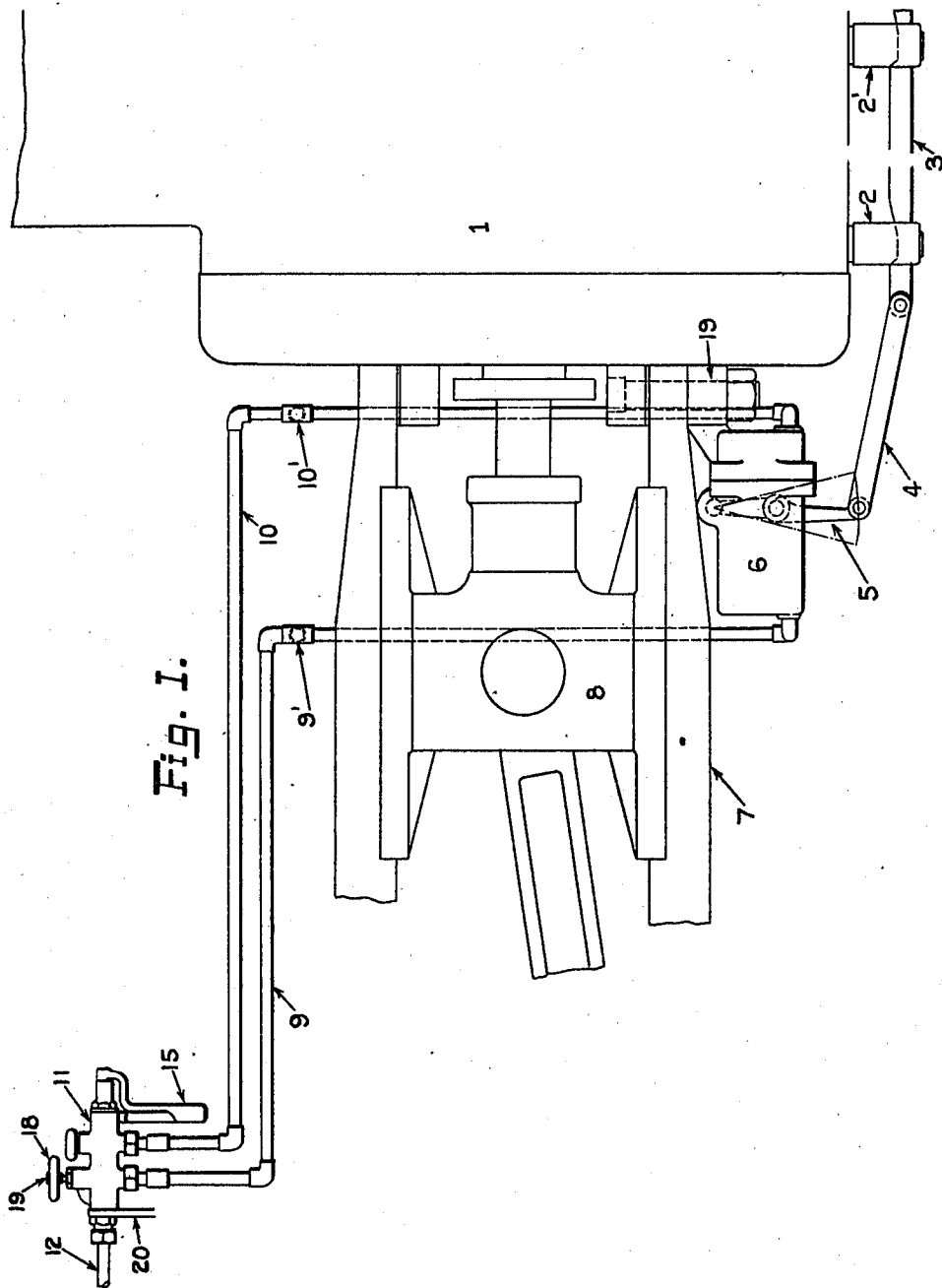


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APPLICATION FILED NOV. 25, 1910.

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Patented Apr. 11, 1911.

2 SHEETS-SHEET 1.



WITNESSES:

Anders Wennerberg.
Friedrich Böckel.

INVENTOR

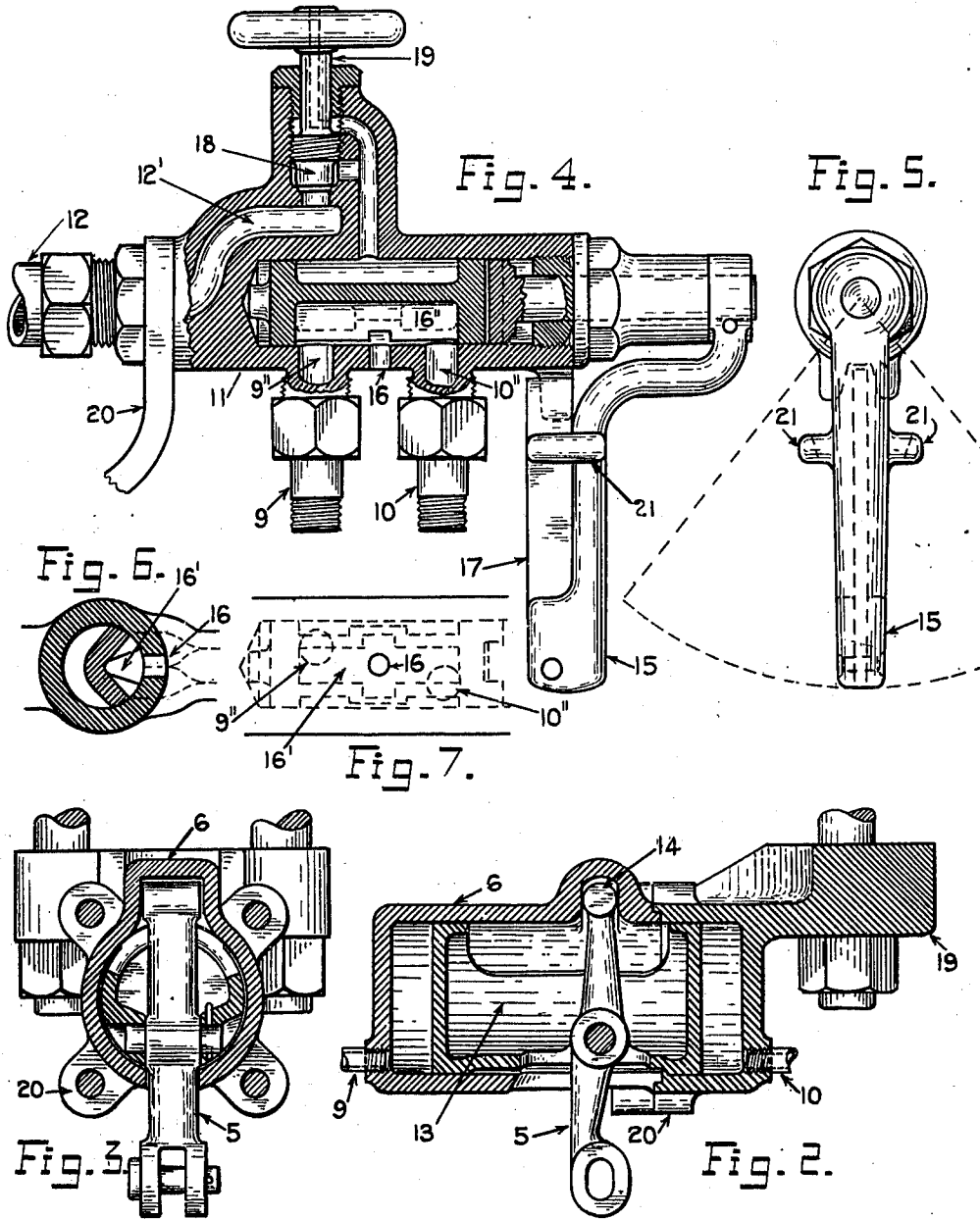
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UNITED STATES PATENT OFFICE.

CHARLES L. HEISLER, OF SCHENECTADY, NEW YORK.

CYLINDER-DRAIN-COCK-OPERATING MECHANISM.

989,009.

Specification of Letters Patent. Patented Apr. 11, 1911.

Application filed November 25, 1910. Serial No. 594,039.

To all whom it may concern:

Be it known that I, CHARLES L. HEISLER, a citizen of the United States, and a resident of Schenectady, in the county of Schenectady and State of New York, have invented a new and Improved Cylinder-Drain-Cock-Operating Mechanism, of which the following is a specification.

My invention relates more particularly to a type of drain cock operating mechanism suitable for locomotives, and for engines in which the cylinders are not conveniently accessible.

The object of the invention is to obviate the use of a system of levers which is difficult to install on the compound types of articulated locomotives, and to permit the use of the standard forms of cylinder drain cocks. Furthermore, to locate the operating air cylinders so they will be protected by the cylinders and not be dismantled by obstructions near the rail or at crossings.

Drawing, Figure 1, shows the application of the device to a standard form of locomotive cylinder. Figs. 2 and 3 are sectional views of the operating cylinder. Figs. 4; 5; 6; and 7 illustrate a detailed construction of the engineer's air valve for controlling the movement of the operating cylinder.

In Fig. 1 is shown one of the usual forms of locomotive cylinders fitted with common form of cylinder drain cock 2 and 2' actuated by a notched slide bar 3, which is usually connected to a lever system extending into the cab. In my improved device the slide bar 3 is connected by a link 4 with the floating lever 5 projecting from the operating cylinder 6 that is arranged immediately back of the steam cylinder 1 and under the guide bar 7 which supports the crosshead 8 as shown. Pipe conduits 9 and 10, for conducting any suitable fluid pressure, connect the opposite ends of the cylinder 6 with the controlling valve 11. This valve is located in the cab and is supplied from an air reservoir or other source of fluid pressure through the pipe 12. The pipe tees 9' and 10' connect the controlling valve 11 with another operating cylinder on the opposite side of the locomotive, and which is of like construction and arrangement as that of the cylinder 6 shown in the drawings. Figs. 2 and 3 show this cylinder fitted with an elongated, double-ended piston 13 that reciprocates in the opposite ends of the cylinder. Between the ends of this piston and within the cylin-

der is a pivotally mounted floating lever 5, the upper end of which is slidably pivoted in the recess 14 formed in the cylinder wall as shown. Evidently by turning the handle 15, (Fig. 1) fluid pressure is admitted into either end of the cylinder 6, the relief cocks 2 and 2' may be opened or closed at will through the action of the piston 13, which exhausts through the port 16 of the valve 11 shown in Fig. 4. The fluid pressure being admitted to the opposite end of the cylinder 6 by the corresponding port 9' or 10'. From the diagrammatic arrangement of the ports and valve as shown in Fig. 7, it will be seen that when the handle 15 is in mid, or normally non-operating position, into which it is automatically thrown by the handle spring 17, or gravity of the handle, then the ports 9' and 10' are both open through the exhaust cavity 16' to the exhaust port 16; that is, both ends of the cylinder 6 are always freely open to the atmosphere and to each other, for the purpose of preventing any possible fluid leakage of the controlling valve 11 from moving the piston from the position in which it was last placed by the manipulation of the controlling valve 11. Furthermore, it permits the piston 13 to move freely and instantly after fluid pressure is admitted by a movement of the handle 15. The stop valve 18 has a double function in that it closes the passage 12' against the fluid pressure, to permit oiling of the system through the oil duct 19. This duct is closed when opening the passage 12' by screwing the valve against its upper seat. The bar 20 forms a suitable means for attaching the valve 11 within the cab. Lugs 21 are provided to form stops for the handle spring 17 that throws the handle 15 into the normal or mid position to cut off fluid pressure and to release the air from the cylinder 6. To properly secure this cylinder to the crosshead guides or locomotive cylinder, bolting lugs 19 are formed on one part of the cylinder as shown. To further insure the proper operation of the device in case the spring 17 is broken, the handle 15 is made to hang downward so the effect of gravity will throw the valve in mid position.

Claims:

1. The combination with the cylinder drain cock of a locomotive, of a drain-cock operating device actuated by fluid-pressure; conduits connecting said device with a source of supply of fluid under pressure and ar-

5 ranged to be normally open to prevent leakage from said source of supply from actuating said device at undesirable times, and a controlling valve placed between said conduits and source of supply, said valve being
10 arranged to close by gravity and normally occupy a mid position in which the fluid conduits are in communication with the atmosphere, said controlling valve being further
15 arranged to admit the fluid to either conduit when the other is open to the exhaust, for the purpose of actuating said drain-cocks in the manner described.

2. The combination with the cylinder
15 drain cock of a locomotive, of a drain-cock operating device actuated by fluid-pressure; conduits connecting said device with a source of supply of fluid under pressure and arranged to be normally open to prevent leakage
20 from said source of supply from actuating said device at undesirable times, and a controlling valve placed between said conduits and source of supply, said valve being arranged to close by gravity and normally
25 occupy a mid position in which the fluid conduits are in communication with the atmosphere, said controlling valve being further arranged to occupy three positions; first the mid position which closes the conduits to the source of supply and opens them
30 to the exhaust; second, the position which admits fluid pressure to one of the conduits for opening the cocks, to the exclusion of the other conduit which is still open to the exhaust; third, the position opposite to the
35 second and in which fluid pressure is placed in communication with the conduit for closing the cocks to the exclusion of the other conduit, which is being exhausted, for the
40 purpose described.

3. The combination with a locomotive cylinder drain-cock; of a supplemental operat-

ing cylinder connected therewith, a piston arranged within said operating cylinder, a
45 pivotal lever mounted therein and connected with the drain cock; and fluid conduits arranged with a controlling valve and connecting said operating cylinder with a source of fluid pressure.

4. The combination with a locomotive cylinder drain-cock; of a supplemental operating cylinder connected therewith, a piston
50 arranged within said operating cylinder, a pivotal lever mounted therein and connected with the drain cock, and fluid conduits arranged with a controlling valve and connecting said operating cylinder with a source
55 of fluid pressure and a notched sliding bar arranged to actuate the cylinder cocks.

5. The combination with a locomotive cylinder drain-cock; of a supplemental operating cylinder connected therewith, and located for protection back of and in horizontal
60 alinement with the locomotive cylinder.
65

6. The combination with a locomotive cylinder drain-cock; of a supplemental operating cylinder connected therewith, and located for protection back of and in horizontal
70 alinement with the locomotive cylinder, and attached to the locomotive cross-head guide bars.

7. In a fluid pressure drain-cock operating system, the combination with a drain-cock and a source of fluid supply; of a cylinder having connection with said source, a
75 member wholly arranged in the cylinder and reciprocated therein by the action of the fluid, and a jointed connection between the member and drain cock.

CHARLES L. HEISLER.

Witnesses:

A. J. FISCH,

DOUGLAS M. BAXTER.