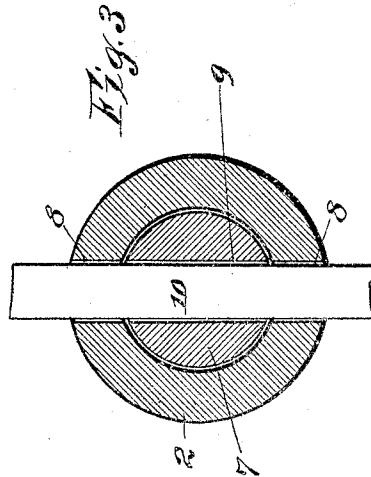
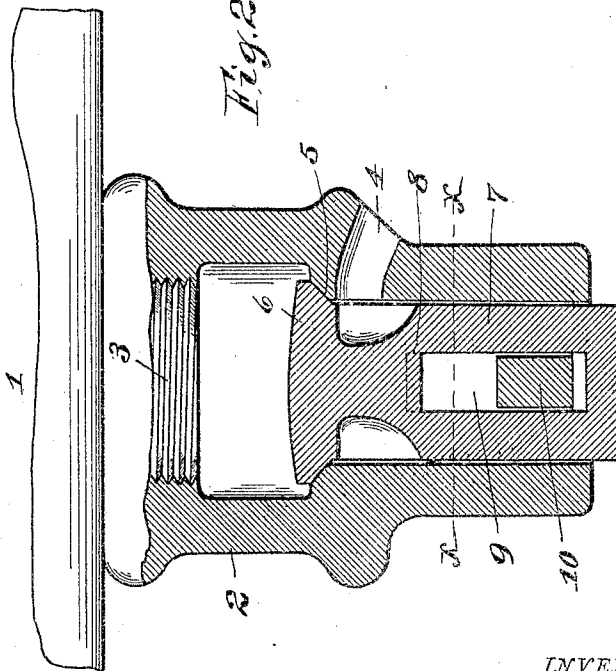
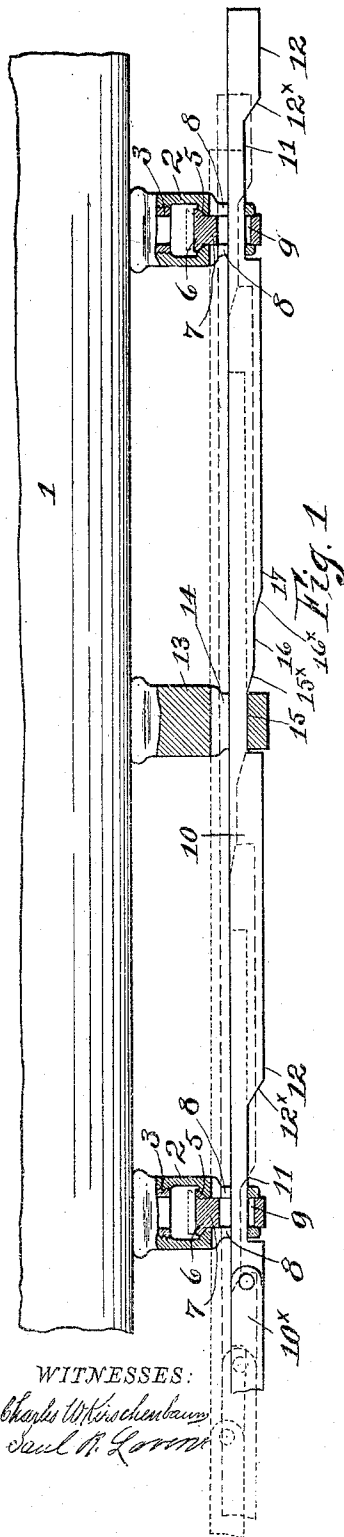


J. H. DE SALIS.
 DEVICE FOR CONTROLLING CYLINDER COCKS OF LOCOMOTIVES.
 APPLICATION FILED DEC. 27, 1909.

958,858.

Patented May 24, 1910.



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UNITED STATES PATENT OFFICE.

JOSEPH H. DE SALIS, OF EAST SYRACUSE, NEW YORK.

DEVICE FOR CONTROLLING CYLINDER-COCKS OF LOCOMOTIVES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOSEPH H. DE SALIS, a citizen of the United States, and resident of East Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Devices for Controlling Cylinder-Cocks of Locomotives, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention pertains to the usual and well known cylinder-cocks of a locomotive, and the main object of the invention is to effect the release from the cylinder, of all water resulting from the condensation of steam, without the escapement of the steam from the cylinders.

To that end the invention consists in the simple and novel construction of a valve-mechanism adapted to be controlled by the engineman as will be hereinafter fully described and set forth in the claims.

In the accompanying drawings Figure 1 represents a side view of a portion of a steam-cylinder of a locomotive provided with the well known cylinder-cocks and illustrating my improved valve-mechanism, the valves being in closed positions; Fig. 2 is an enlarged vertical sectional view on the line —X—X—; and Fig. 3 is a transverse section on the line —Y—Y— in Fig. 2.

Like characters of reference indicate like parts in the several views of the drawings.

—1— denotes a steam-cylinder of a locomotive which is provided on its bottom with the well known cylinder-cocks disposed at the respective end portions thereof as usual. These cylinder-cocks may be of any suitable style or construction, however I have shown the form most commonly used on locomotives, and which consists of a casing —2— which has its upper portion screw-threaded internally to receive a correspondingly threaded nipple —3— attached to the cylinder in the usual manner. The said casing is of cylindrical shape and provided in one side with a port —4— through which the water or steam may escape, and above the port is formed a tapered-valve seat —5— upon which the valve —6— is normally seated, said valve being formed on the upper end of a vertically movable stem —7—.

The lower-portion of the casing is formed with two oppositely disposed vertical slots —8—8—, and the valve-stem is provided

with a coinciding slot —9—, through which slots passes a flat metal bar —10— disposed parallel with the cylinder. To the rear end of the said bar is pivotally connected the usual rod —10*— designed to be attached to a suitable lever arranged in the cab of the locomotive and operative for shifting the bar forwardly and rearwardly.

Adjacent to each cylinder-cock the bar —10— has its bottom edge portion cut out to form two steps —11— and —12— by which it is adapted to bear upon the lower end of the slots —8—8— of the casing incident to the longitudinal shifting movement of the bar. At the junction of the two steps —11—12— the edge of the bar is provided with a rearwardly inclined portion —12*— which causes the bar to raise and lower by its contact with the lower end of the forward slot of the casing. When the bar is in its extreme forward position, it rests with its steps —11—11— in the lower ends of the slots —8—8—, whereby the valves —6—6— are permitted to be seated, in which position they are normally held by the pressure of the steam in the cylinder. When the bar is shifted to its extreme rearward position to carry the steps —12—12— into the slots —8—8—9—9—, the engagement of the inclined edge portions of the bar with the lower ends of the nearer slots —9— of the casings lifts the bar, whereby the engagement of the top edge of the bar with the upper ends of the slots —8—8— of the valve-stems causes the latter to be raised to hold the valves open.

It will be understood that the valves are retained in open positions to allow the steam to discharge from the cylinder, it being the common practice of the person in charge of a locomotive to maintain the valves in this position for short period in order to blow water out of the cylinders and at the same time heat the cylinders to guard against the blowing of the water out through the exhaust, which is very objectionable in certain localities. It is also the practice of the engineman to open the said valves from time to time while the locomotive is traveling over the line, in order to release the water from the cylinders, however, this is objectionable for the reason that the escaping steam tends to obscure the track ahead from the view of the engineman, and thus there is great liability of accidents being caused.

The purpose of the present invention is to provide valve-controlling means which can be regulated so as to efficiently discharge water from the cylinders, while the locomotive is in motion, and at the same time will guard against the escape of steam therefrom.

To attain the objects of my invention, I prefer to employ the longitudinally-shiftable bar shown and which is commonly used in connection with the cylinder-cocks, although other means may be provided, the essential feature of the invention residing in combining with the cylinder-cocks, a means actuated alternately by the two valves incident to pressure of the steam upon the latter, whereby the said pressure in one end of the cylinder and resultant closing of the corresponding valve in closed position will cause the valve at the ends to which the piston is traveling to open. In the operation of the valves the water collecting in the cylinder may be blown out without the escape-ment of steam.

To effect the alternate actions of the valves with the use of the aforesaid shifting bar —10—, I provide the bar with a fulcrum disposed midway between the valves whereby the said valves impart a rocking motion to the bar when the latter is shifted rearwardly to a predetermined degree. This fulcrum may be of any suitable form and in some instances the usual and well known so-called "port-cock" which is common to locomotive-cylinders may be utilized for the purpose. In the present case I have shown a solid metal stud —13— shaped correspondingly with the casings of the valves and screwed into the cylinder in like manner. This stud is provided in its lower portion with a vertical slot —14— extending completely across the same, and coinciding with the slots of said casings and through said slot —14— the bar —10— extends. The said bar has its bottom edge portion cut out intermediate its length to form three steps —15—16—17— each of which is designed to bear on the lower end of the slot —14—, incident to the longitudinal shifting of the bar.

At the junction of the steps —15—16— the edge portion is inclined toward the step —15— as indicated at —15^x— and at the junction of the steps —16—17— the edge portion is inclined toward the step —16— as indicated at —16^x—, said inclined portions serving to permit the steps to be carried successively into the slot —14— and to cause the bar to be lifted accordingly.

The bar is normally in its extreme forward position to maintain the valves —6—6— closed, at which time the step —15— is disposed to rest in the lower end of the slot —14— as shown by full lines in Fig. 1 of the drawings.

In case water should collect in the cylinder in sufficient quantity as to impair the efficiency of the locomotive, the engineman operates the usual hand-lever so as to shift the bar —10— rearwardly in order to carry the step —16— into the slot —14— in which position the said step affords a fulcrum for the bar in the lower end of the slot. This movement of the bar and resultant lifting of the same causes the upper edge of the bar to lie in contact with the lower ends of the valve-stems. By thus positioning the bar during the running of the locomotive, the pressure of steam in one end of the cylinder will force the adjacent valve to closed position, whereby the corresponding end of the bar is pushed down by the valve-stem and thus the described fulcrum of the bar causes the opposite end to be thrown up to maintain the valve thereat in open position, whereupon the latter valve is closed by the steam pressure as before. It will be evident that in thus rocking the bar by the alternate actions of the valves, the cylinder can be relieved effectually of all water without the escape of steam.

When the bar is shifted to its extreme rearward position, the step —17— is carried into the slot —14— and at the same time the aforesaid steps —12—12— are carried into the slots —8—8— of the valve-casings and into the slots —9—9— of the valve-stems, by which movement the bar is lifted to a greater degree and thus unseats both valves.

It will be understood that by maintaining the valves open, the steam is permitted to escape from the cylinders, which is the common practice of an engineman before starting the locomotive for the purpose of heating the cylinders, which is especially essential in cold weather in order to guard against excessive condensation of the steam admitted into the cylinders.

Having described my invention, what I claim is:—

1. The combination with a steam-cylinder and the cylinder-cocks comprising valves closed by pressure, of a bar engaging said valves and adapted to be shifted longitudinally to a position for retaining both valves open, said bar being also adapted to be adjusted to a rocking position whereby movement of the valve at the steam end of the cylinder to its closed position causes the bar to open the other valve for the purpose described.

2. The combination with a steam cylinder, and a pair of cylinder-cocks each comprising a vertically slotted casing and a vertically movable valve disposed therein and provided with a downwardly extending stem having a slot coinciding with the slots in the casing, of a longitudinally shiftable stepped-bar extending through the slots of

the casings and valves and disposed normally
in position to allow the valves to be seated,
said bar being adapted to lift the valve-
stems when shifted to extreme position to
5 retain both valves open, and adapted to be
moved to a predetermined position for rock-
ing, and a fulcrum-member on the cylinder
and disposed intermediate the valves to per-
mit rocking of the bar, whereby the move-
10 ment of the valve at the steam end of the

cylinder to its closed position will force the
corresponding end of the bar down and
thereby cause the opposite end of the bar
to open the other valve as and for the pur-
pose set forth.

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