W. S. KRAUSE.

SEPARABLE DRAIN COCK.

APPLICATION FILED OCT. 13, 1913.

1,100,136.

Patented June 16, 1914.

2 SHEETS—SHEET 1.

Fig. 11

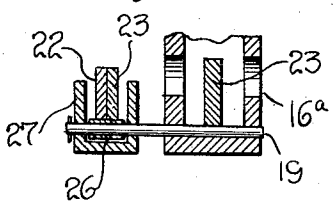


Fig. 1

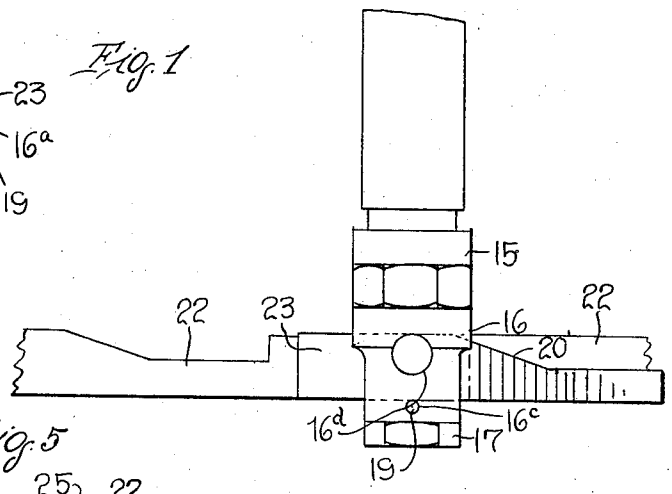


Fig. 5

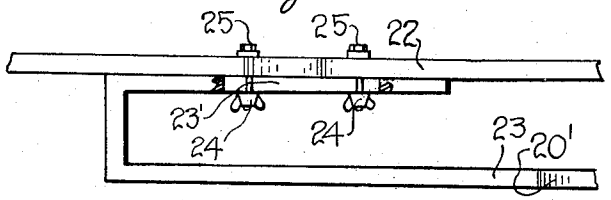


Fig. 6

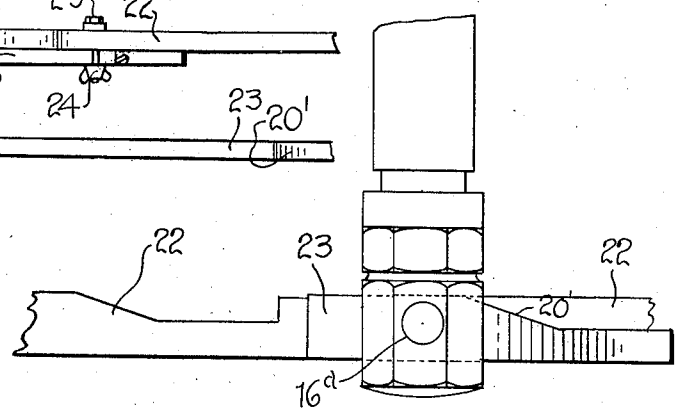
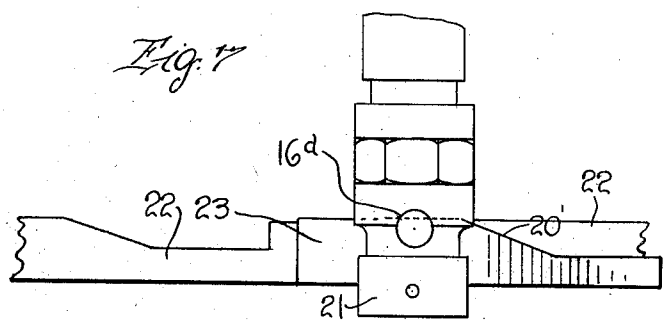


Fig. 7



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2 SHEETS—SHEET 2.

Fig. 3

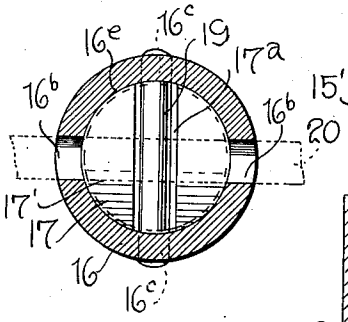


Fig. 2

Fig. 4

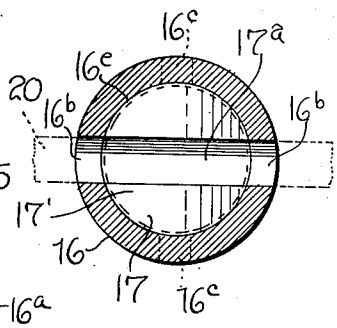


Fig. 8

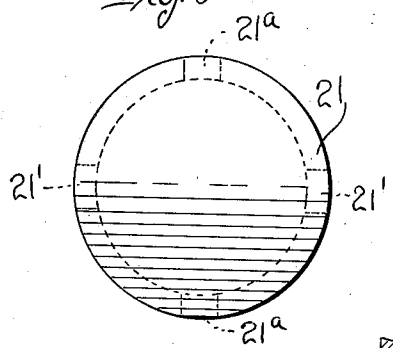


Fig. 9

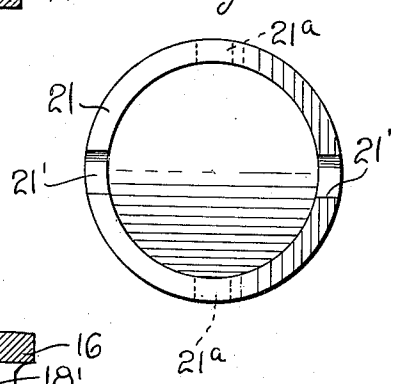
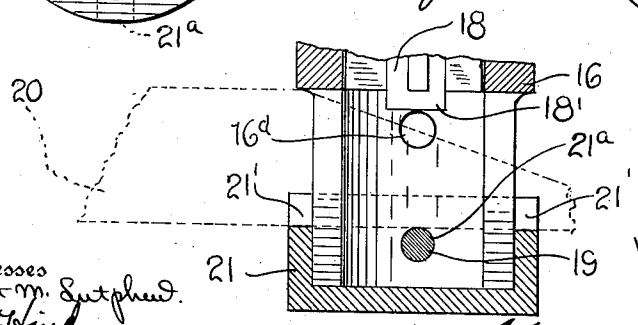


Fig. 10



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UNITED STATES PATENT OFFICE.

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SEPARABLE DRAIN-COCK.

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Application filed October 13, 1913. Serial No. 794,966.

To all whom it may concern:

Be it known that I, WILLIAM S. KRAUSE, a citizen of the United States, residing at Trinidad, in the county of Las Animas and State of Colorado, have invented certain new and useful Improvements in Separable Drain-Cocks, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to separable drain-cocks, and it more particularly relates to improved combination cylinder-cocks and slide-bars for locomotives.

One of the objects of this invention is to provide certain improvements in devices of this character whereby the inconveniences, difficulties, expenses and loss of time heretofore encountered, are avoided.

A further object of this invention is to provide such improvements on devices of this character that combine the element of perfect safety with the saving of time and expense in repairing and cleaning the cylinder-cocks.

It is well known that the owners and operators of locomotives frequently encounter the necessity and difficulty of removing fragments of broken cylinder rings and other foreign matter from the drain-cocks of the cylinders, and owing to the construction of the cylinder-cocks which have heretofore been employed, it is a difficult, tedious and expensive operation to clean or repair the drain-cocks, because of the engagement thereof with the slide-bar which raises the valves of the cylinder-cocks.

Therefore, it is a further object of this invention to construct the combined valve seat and guide member of the cylinder-cock in two separable sections, so that the slide-bar or valve-actuating member may be quickly removed out of engagement with said member, so as to allow it to be unscrewed from the upper member which communicates directly with the interior of the cylinder.

A still further object of this invention is to provide an improved form of adjustable slide-bar, which may be used in connection with the improved cylinder-cock described in the foregoing or in connection with the old and well-known style of cylinder-cock illustrated in Figure 6, in combination with my improved adjustable slide-bar.

In the accompanying drawings which supplement this specification, Fig. 1 is a view in side elevation illustrating a combined cylinder-cock and slide-bar constructed in accordance with my invention. Fig. 2 is an enlarged vertical sectional view of the drain-cock, as herein disclosed. Fig. 3 is a horizontal sectional view through the medial section of the drain-cock, illustrated in Fig. 2, above the lower section. Fig. 4 is a view similar to Fig. 3, except that the lower section is partially unscrewed, or at right angles to the position shown in Fig. 3. Fig. 5 is a top plan view of the slide-bar embodied herein. Fig. 6 is a view similar to Fig. 1. except that the old style drain-cock is employed in connection with my improved slide-bar. Fig. 7 is a view similar to Figs. 1 and 2, of a modified form of drain-cock. Fig. 8 is an enlarged bottom plan view of the drain-cock illustrated in Fig. 7. Fig. 9 is a top plan view of the lower element in Fig. 7, detached. Fig. 10 is an enlarged fragmental vertical sectional view taken through the cock illustrated in Fig. 7. Fig. 11 is a fragmentary vertical sectional view taken through the lower portion of Fig. 1 in the direction of the fastening pin therein included.

In these drawings in which similar reference characters correspond with similar parts throughout the several views, the improved cylinder-cock which constitutes my invention consists of an upper section 15, a medial section 16, a lower section 17, a valve 18, and a cotter pin or other suitable fastening element 19. The upper section is screw-threaded at 15′ for engagement with the engine cylinder, in the usual manner, and is provided at 15^a with internal screw-threads which engage with the external screw-threads 16′ of the middle section. This middle section is provided with a valve-seat 16^a in which the valve 18 is seated. The middle section is provided with oppositely disposed slots 16^b which intersect the lower edge thereof, so as to bifurcate the member 16, and each of its furcations is provided with an aperture 16^d through which the tapered pin or securing element 19 extends and is fixedly seated. An aperture 16^d is provided in one of the furcations between the upper ends of the slots 16^b and constitutes an outlet for the steam and water which is drained out from the cylinder. A member 17 constitutes a screw-threaded plug which is engaged with the internal screw-threads 16^e, the screw-threaded boss 17′ being diametri-

cally slotted or bifurcated, the slot 17ª being of a width substantially equal to that of the slot 16ᵇ. A slide-bar 20, which may be of any proper or preferred construction, extends through the slot 16ᵇ and has its lower rectilinear surface resting upon the upper end of the boss 17′, and extending at right angles to the slot 17ª. The slide-bar 20 is provided with a cam-surface 20′, which is upwardly inclined and adapted to contact with the boss 18′ of the valve 18, when said rod 20 is moved longitudinally in one direction, through the slot 16ᵇ.

Now, if the cylinder-cock becomes clogged, or choked, it is only necessary to knock out the pin 19, unscrew the member 17, drop the slide-bar 20 out of the slot 16ᵇ, and unscrew the member 16, so that a punch or other suitable tool may be inserted in the aperture through the member 15 which communicates with the cylinder, to remove any obstruction or foreign matter therefrom, while the foreign matter may be easily removed from the members 16 and 18 by any desirable and available means. It will be seen that a drain-cock of this character may be dismembered, cleaned and reassembled within a very few minutes, so as to avoid unnecessary delays to a train in which the engine is equipped with my improved drain-cock.

In case the pin 19 becomes accidentally displaced, and lost, it is impossible for the member 17 to become lost, for when it is rotated through an arc of ninety (90) degrees, the slide-bar 20 falls into the slot 17ª and prevents further rotation of the plug 17. However, when the member 20 is in the slot 17ª, it is lowered to such an extent that it will not raise the valve 18 to the usual extent; so that when the engineer attempts to open the valve, and finds that something is out-of-order, he may, without appreciable loss of time, insert another member 19 when his engine arrives at the next station. In lieu of the member 17, however, I may employ a cap or lower section 21, provided with diametrically opposite notches 21′ and diametrically opposite apertures 21ª. This cap may be fitted under and around the lower end of the member 16, with the apertures 16ᶜ and 21ª in registry, so that the securing member 19 passes through these registering apertures; while the recesses or notches 21′ register with the slots 16ᵇ, so that the slide-bar 20 is seated in these registering slots and recesses.

In lieu of the usual form of slide-bar, I have herein disclosed an adjustable slide-bar which is particularly illustrated in Figs. 1, 5, 6, 7 and 11. This slide-bar is intended to coöperate with one or more of the ordinary or improved drain-cocks and, as herein disclosed, comprises an elongated endwise movable bar or member 22 adapted to be positioned to the rear or behind the cock or cocks, while coacting with each of the cocks is the substantially U-shaped member 23, one of the stems thereof being adapted to lie against the member 22 and be suitably held or clamped thereto through the medium of the suitable clamping devices herein shown as composed of the bolts 25 and winged nuts 23, the contacting stems of the member 23 being provided with an elongated slot 23′ whereby it will be readily observed that the position of the member 23 upon the member 22 may be readily and conveniently adjusted as the requirements of practice may dictate. The free end portion of the outermost stem of the member 23 is provided with the cam surface 21′ adapted to pass through the slots 16ᵇ and engage with the boss 18′ of the valve 18, as has been hereinbefore recited.

While the contact of the member 23 with the pin 19 serves to maintain the elongated member 22 in operative position, I find it of advantage to project such pin 19 exteriorly of the section 16 and to position thereon the roller 26 on which the member 22 and the adjacent stem of the member 23 are adapted to rest and be supported, such roller 26 affording an anti-friction means. I have also found it of advantage to also secure to the projected portion of the pin 19 the flanged guide-way 27 substantially U-shaped in cross section which serves to prevent any undue lateral movement of the member 22.

From the foregoing description of my improvements, it is thought to be obvious that a drain-cock and slide-bar therefor constructed in accordance with my invention is of an extremely simple and comparatively inexpensive nature and is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and of the effectiveness of its operation and it will also be obvious that my invention is susceptible of some change and modification without material departure from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice.

Having thus described this invention, what is claimed is:—

1. A drain cock comprising an upper section adapted to be secured to an engine cylinder and to communicate with the interior thereof, a medial section secured to the upper section and carrying a valve and having its lower end slotted, the slot thereof intersecting its lower end and extending into proximity with the valve, a lower section provided with a slot normally at right angles to the slot of the medial section, and securing means extending through the slot of the lower section and engaged with the medial section.

2. A cylinder cock comprising an upper

section adapted to be secured to an engine cylinder and to communicate with the interior thereof, a medial section in screw-threaded engagement with the upper section and being provided with a vertical slot intersecting its lower end and with opposite apertures adjacent to its lower end, said lower end being internally screw-threaded, a plug provided with a diametrically slotted and externally screw-threaded boss in engagement with the internal screw-threads of said slotted lower end of the medial section, and securing means extending through the slot of the lower section and through the opposite apertures of the medial section.

3. A cylinder cock comprising an upper section adapted to communicate with the interior of an engine cylinder, a medial section in engagement with the upper section and being provided with vertical slots intersecting its lower end, a lower section in engagement with the intermediate section and closing the open ends of the slots, and a pin directed through the intermediate section and the lower section for holding such lower section against displacement.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

WILLIAM S. KRAUSE.

Witnesses:
F. W. CLARK,
MRS. OTTELEOC KRAUSE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."