No. 612,653. Patented Oct. 18, 1898.

L. C. WITKOWSKI.

APPARATUS FOR LUBRICATING AND COOLING JOURNALS.

(Application filed Jan. 13, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

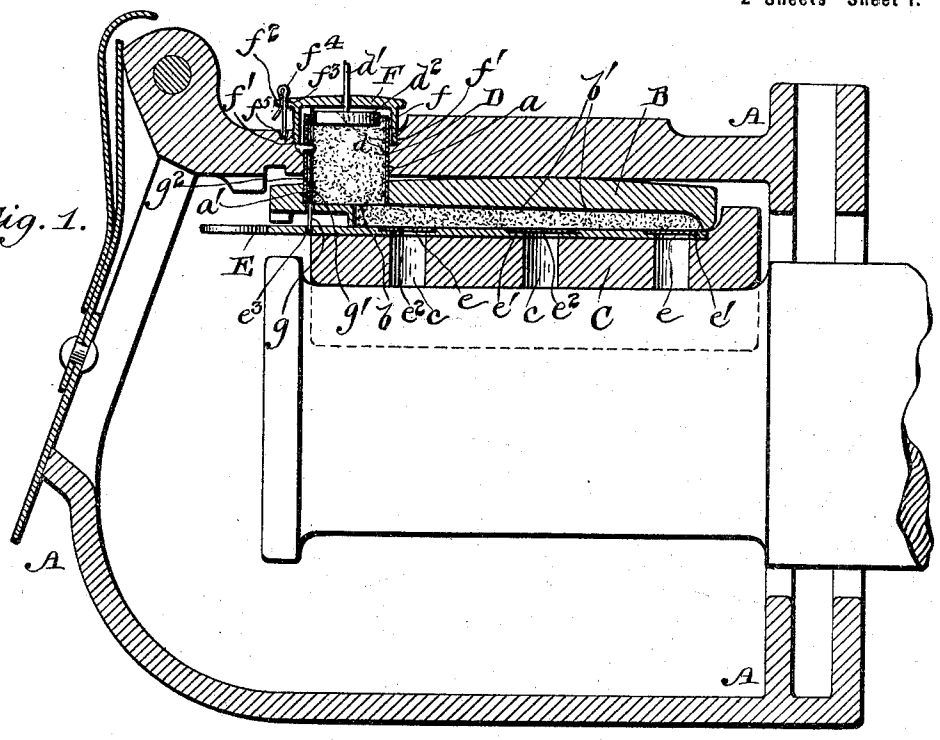
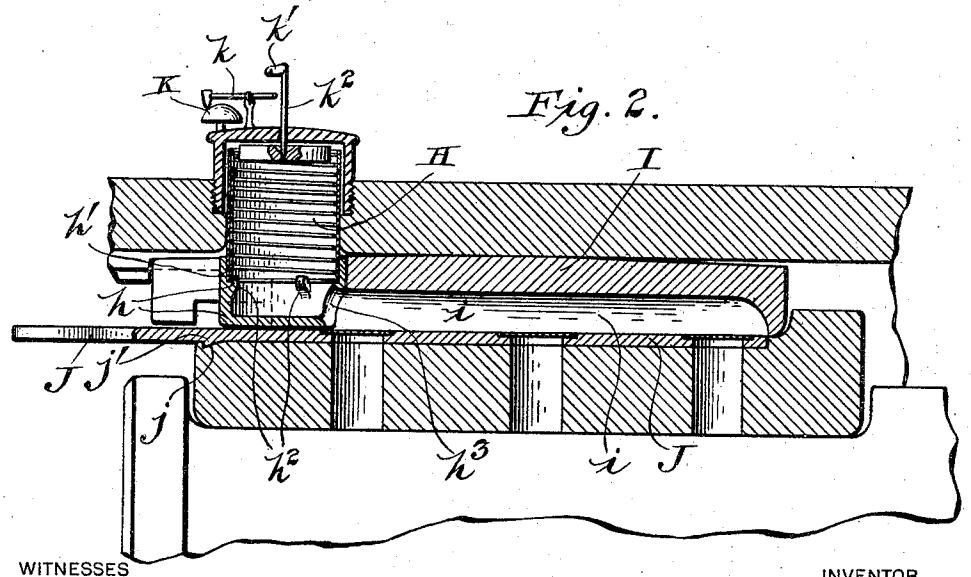


Fig. 2.



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Severance.

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Fig. 3.

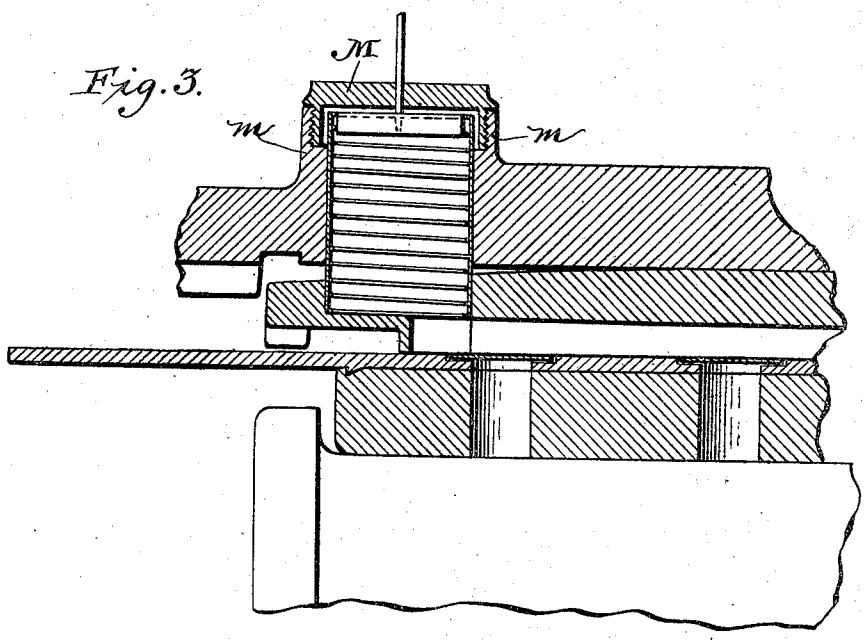


Fig. 4.

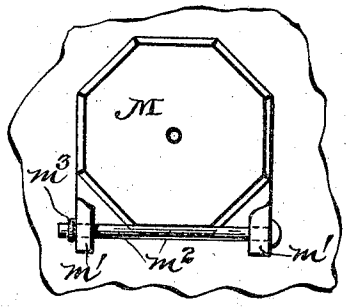


Fig. 5.

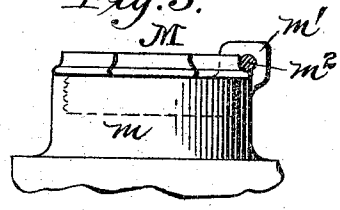


Fig. 6.

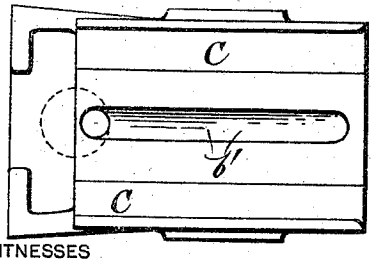
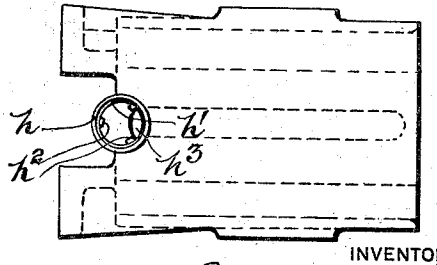


Fig. 7.



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UNITED STATES PATENT OFFICE.

LOUIS C. WITKOWSKI, OF WASHINGTON, DISTRICT OF COLUMBIA.

APPARATUS FOR LUBRICATING AND COOLING JOURNALS.

SPECIFICATION forming part of Letters Patent No. 612,653, dated October 18, 1898.

Application filed January 13, 1898. Serial No. 666,538. (No model.)

To all whom it may concern:

Be it known that I, LOUIS C. WITKOWSKI, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Apparatus for Lubricating and Cooling Journals; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in devices for cooling and lubricating journal-bearings, and while it is applicable to all styles of journal-bearings, yet it is more particularly adapted to car-journal bearings.

It consists in providing an apparatus for lubricating and cooling journals having a suitable reservoir for containing a cooling and lubricating agent, said reservoir being provided with a discharge-passage, a fuse-carrier independent of said reservoir, and a removable fuse-plug adapted to close the discharge-passage, the fuse-carrier being adapted to be withdrawn and a new fuse inserted.

It also consists, in a device for cooling and lubricating journals or bearings, in the combination, with a suitable supporting means, of a flexible receptacle and means mounted interiorly of the said receptacle for preventing the collapsing of the same, the construction being such that the said receptacle will not be broken by means of the parts with which it comes in contact.

It further consists in providing a journal-box with a suitable receptacle for holding a cooling and lubricating substance, the said receptacle having an outlet leading to the journal-bearings and a removable slide forming a fuse-carrier, the said slide being adapted to hold a series of fuses for regulating the flow of the cooling and lubricating substance through a series of channels to the bearing-surfaces.

It further consists in certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter more fully described and claimed.

In the accompanying drawings, Figure 1 represents a vertical central section through a journal-box, showing my improved lubricating and cooling mechanism applied thereto. Fig. 2 represents a detail sectional view similar to Fig. 1, but showing a little different arrangement of the parts which constitute the receptacle for containing the lubricant. Fig. 3 represents a similar detail view showing a receptacle with a different kind of cover. Fig. 4 represents a top plan view of the same; Fig. 5, a side elevation of the top portion of the lubricant-holding receptacle. Fig. 6 represents an inverted plan view of the wedge or key employed for holding the frictional bearing or brass in place on the bearing and showing the outlet from the lubricating-receptacle and the channel formed on the under side of the said wedge; and Fig. 7 represents a top plan view of a similar wedge, but showing the construction of the wedge as used in Fig. 2.

A in the drawings represents a journal-box; B, a key plate or wedge; C, a bearing-plate, and D a receptacle for holding a lubricating and cooling substance.

While I desire it to be understood that my improved cooling and lubricating device is applicable and useful with respect to all kinds of journal-bearings, yet it is particularly well adapted for use upon car-journals, and for the sake of setting forth my invention I have illustrated the same in the drawings as applied to car-journals.

As shown in Fig. 1 of the drawings, my invention is adapted to be applied to standard journal boxes and bearings now in use without appreciably changing the same. The top of the journal-box A is provided with an opening or orifice, as at *a*, in which is inserted my improved receptacle D for containing a suitable lubricant. The receptacle D is preferably cylindrical in shape and extends downwardly below the top of the box and into the wedge B, a recess or socket similar to the aperture *a* being provided with the said wedge. In journal-bearings of this character the movement of the car, especially in rounding curves and in passing over uneven places, causes more or less play between the key or wedge B and the journal-box A. For this reason, although a rigid receptacle may be used, yet I prefer to employ one which is flexible and more or less yielding, so that allowance will be made for any movement of the parts. In practice I prefer to construct

the receptacle of cloth or canvas, the same being held in a distended position by means of internal rings or similar devices.

As shown in Fig. 1 of the drawings, the cloth-receptacle D is held distended by means of a spiral spring, as *d*, which preferably extends from top to bottom to stiffen the flexible receptacle. The lower end of the receptacle D rests upon the bottom of the socket *a'*, the said socket not extending entirely through the key or wedge B and being provided at one side with an opening, as *b*, which communicates with a groove or channel, as *b'*, formed in the under surface of the said wedge. This channel *b'* is preferably made to extend for nearly the entire length of the wedge and is adapted to cover vertical passages or holes, as *c c*, formed in the bearing piece or brass C. While only one of these apertures *c* may be used, yet in order to distribute the lubricant more effectively upon the bearing I prefer to use two or more of these holes, there being three illustrated in the drawings. In order to control the discharge of the lubricating substance from the receptacle D through these apertures, I mount a fuse-carrier, as E, preferably in the bearing-piece C, a groove being formed in the upper surface thereof to receive the same. This carrier E is preferably constructed in the form of an elongated plate or slide and provided with one or more apertures, as *e e*, which are adapted to coincide with the apertures *c* in the bearing-piece when the parts are in place. The upper portion of the said apertures *e* are provided with a countersunk portion, as *e' e'*, which is adapted to receive a fuse, as e^2. The fuses e^2 are preferably thin disks of fusible metal and may be constructed so as to fuse at any desired degree of heat, so that the journal-bearings attaining that degree of heat or a greater degree the fuses will melt and permit the cooling and lubricating material to flow upon the bearing-surfaces. The outer end of the fuse-carrier E extends beyond the end of the journal-bearings and is within easy reach when the lid of the journal-box is raised, so that it may be taken out or put in place, as desired.

The top of the receptacle D is closed by means of a cap or cover, as F, which is provided with a downwardly-extending annular flange, as *f*, having screw-threads upon its outer periphery adapted to engage corresponding screw-threads formed in the journal-box, as at *f'*. The flange *f* is preferably made a little larger than the receptacle D, so as not to bear upon the same when the parts are assembled. In order to prevent the cap F from jarring loose and becoming unscrewed by the jolting of the car, it is provided with a laterally-extending flange, as f^2, which is provided with an aperture, as f^3. A cotter-pin, as f^4, may be inserted through this aperture, one end of the said cotter-pin being made longer than the other and extending downwardly, so as to engage a socket or recess, as f^5, formed in the top of the journal-box A. The shorter end of the cotter-pin will be free to spring out, so as to lock the same in place in the usual and well-known manner.

In order to prevent the fuse-carrier E from jarring out of place, I prefer to locate a vertical rod, as *g*, preferably interiorly of the receptacle D at the lower end of the said rod, extending downwardly and through an aperture in the wedge B and engaging a socket or aperture, as e^3, in the fuse-carrier E and thereby locking the same in place. The rod *g* is surrounded near its lower portion by a coil-spring, as *g'*, which at one end rests upon the bottom of the recess or socket *a'* formed in the wedge B. The upper end of the said spring bears against a pin or shoulder, as g^2, formed upon the rod *g*, the construction being such that the spring normally tends to hold the rod in its highest position. The upper end of the rod extends above the receptacle D, and when the cover F is screwed into place it will bear against the upper end of the rod *g* and force the said rod *g* downwardly, so as to engage the aperture e^3 in the fuse-carrier. It will be apparent from this construction that when the receptacle is filled with lubricating and cooling material and the cover is screwed in place that the fuse-carrier will be locked against accidental or other removal. Upon the box becoming empty the cap F may be removed to refill it, the spring *g'* at the same time operating to lift the rod *g* and permit the withdrawal of the fuse-carrier E, so that new fuses may be inserted in the countersinks *e'*.

I preferably mount in the receptacle D an indicator, as *d'*, which is provided at its lower end with a disk, as d^2, which rests upon the lubricant in the said receptacle. A rod extends from the said disk upwardly through the cover F and is provided with a target or other suitable indicator on its upper end. It will be apparent that when the receptacle is full of lubricant the indicator will be held up and show that the said receptacle is full; but when the lubricating substance has been discharged upon the bearing the indicator will be allowed to fall and the target will therefore show that the receptacle needs refilling.

As illustrated in Fig. 1 of the drawings, my invention is shown as applied to a standard journal-box for cars of comparatively heavy weight. In applying my invention to journal-boxes for cars of light capacity it may be desirable to slightly change the construction of the same, especially as the wedge or key used in the said latter journal-boxes does not extend out so far toward the end of the car-axle as those used in the boxes for cars of heavier capacity. As illustrated in Fig. 2 of the drawings, a flexible receptacle H is mounted in an aperture formed in the top of the journal-box, the lower end of the said receptacle extending below the top portion of the said box and into a socket formed in the wedge I. As this socket comes in the forward edge of the wedge I, as illustrated in

Fig. 7 of the drawings, the lower end of the receptacle H is preferably provided with a rigid bottom portion or cup, as h, provided with an annular seat, as h', to receive the lower end of the flexible receptacle H. In order to prevent any displacement of the lower edge of the said receptacle, one or more lugs, as h^2, are formed interiorly of the said cup h and extend upwardly a short distance interiorly of the receptacle H. A discharge-aperture, as h^3, is formed in the said cup h, which communicates with a channel i, similar to the channel b' above described. A fuse-carrier, as J, is also provided, which is adapted to extend beneath the cup H and to regulate the flow of the lubricant from the channel i in the same manner as above described. In order to lock the slide or fuse-carrier J in place, a notch, as j, may be provided in the bearing-piece C, which is adapted to be engaged by a lug, as j', formed upon the under surface of the fuse-carrier J. When it is desired to withdraw the fuse-carrier J, it is merely necessary to spring the outer end thereof upwardly sufficiently to disengage the lug and notch.

In connection with my improved indicator I contemplate using an alarm mechanism, as illustrated in Fig. 2 of the drawings. In this construction a bell or sounding-piece, as K, is mounted upon the cover and a striker, as k, is mounted in close proximity to the same, one end of the said striker extending into the path of a projection or lug, as k', formed upon the indicator k^2. As the indicator descends upon the lubricant passing out of the receptacle H the lug or projection k' will bear the end of the striker k downwardly until it slips past the same, when the other end will drop again and strike the bell K. This form of device is particularly well adapted for use in journals which are located in engine-rooms or machine-shops, and can be more distinctly heard than would be possible upon a railway-car.

As illustrated in Figs. 3, 4, and 5 of the drawings, the capacity of the receptacle for holding the lubricant may be increased by casting a raised portion upon the top of the journal-box, as at m. This permits of the receptacle being made longer, and more lubricant can therefore be carried therein. The upper end of the receptacle is closed by a cover M, which screws into the raised portion m. In order to hold the same from unscrewing, the cover M may be made with many sides, it being illustrated in Figs. 4 and 5 as having eight sides. Projections or lugs m' are formed upon the portion m of the journal-box and are adapted to receive a pin, as m^2, which when put in place will extend along one side of the cover M, so that the said cover cannot be turned when the pin is in place. The pin may be held from displacement by means of a cotter-pin, as m^3.

From the above description, it will be noted that by providing the lubricating and cooling device with several outlets leading to the journal-surfaces at different points if the axle or journal becomes heated at one end of the bearing, the fuse at that end might melt and the bearing be cooled without melting the other fuses and without discharging all of the lubricant. So it will appear that in case the whole journal becomes unduly heated, all the fuses will be melted and the lubricating and cooling substance will be evenly distributed along the entire surface of the bearing. By the construction of my device also the condition of the material in the box is readily seen at a glance at the indicator and the cover can be quickly removed and new lubricant put in place and the slide or fuse-carrier can be quickly withdrawn and new fuses located therein as may be required.

While I have described my improved receptacle for holding lubricant as made of any suitable flexible material, such as cloth or canvas or like substance, yet I wish to be understood as constructing the same in such a manner as to be impervious to liquids, so that where oil or grease is used in the same it will not leak out and escape through the walls of the said receptacle. Of course it will be apparent that it may be constructed of rubber cloth or any other liquid-proof material.

In regard to the fuse-carrier or slide I desire to call attention to the fact that I do not wish to limit myself to placing the same in a groove or slot formed in the bearing or brass of the car-journal, as it will be apparent that the groove or slot to receive the same might be formed in the wedge or key without departing in the least from the spirit of my invention.

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

1. In an apparatus for lubricating and cooling journals, the combination of a suitable reservoir for containing a cooling or lubricating agent, having a discharge-passage, a fuse-carrier independent of the said reservoir and a removable fuse-plug adapted to close the discharge-passage, the fuse-carrier being adapted to be withdrawn and a new fuse inserted, substantially as described.

2. In an apparatus for lubricating and cooling journals, the combination with a journal or bearing, of a suitable reservoir for containing a cooling or lubricating agent, having a discharge-passage, and a fuse-carrier independent of said reservoir, a plurality of fuse-plugs adapted to close the discharge-passage, the fuse-carrier being adapted to be withdrawn and a new series of fuses inserted and when in place to distribute the lubricant at different points along the journal or bearing, substantially as described.

3. In an apparatus for lubricating and cooling journals, the combination with a suitable receptacle for holding a cooling and lubricating substance, of a fuse-carrier independent of the said reservoir, adapted to control the

discharge of the said substance from the same, fusible plugs mounted in the said carrier and means for holding the said carrier in position whereby it will not accidentally get out of place, substantially as described.

4. In an apparatus for lubricating and cooling journals the combination with a reservoir for containing a cooling and lubricating agent having a discharge-passage, of a removable slide forming a fuse-carrier, and removable fuse-plugs adapted to be carried by the said slide for regulating the discharge of the lubricant, substantially as described.

5. In an apparatus for lubricating and cooling journals, the combination with a journal-box provided with a suitable opening, of a flexible receptacle suspended therein and adapted to contain a suitable cooling and lubricating material, the said flexible receptacle extending through the key of the bearing, and means for regulating the discharge of the lubricating substance from the lower end of the said receptacle, substantially as described.

6. In an apparatus for lubricating and cooling journals, the combination with a journal-box, of a flexible receptacle suspended vertically in said journal-box, rings mounted interiorly thereof to hold the said receptacle from collapsing, the lower end of the said receptacle being adapted to discharge a lubricating substance upon the bearing, and means for controlling the said discharge, substantially as described.

7. In a device for lubricating and cooling journals, the combination with a receptacle for holding a lubricating substance, and an indicator mounted in the said receptacle, of a slide forming a fuse-carrier and fuse-plugs adapted to be removed bodily, if desired, carried by the said fuse-carrier, the construction being such that the fuse-plugs may be made to regulate the discharge of the lubricant, substantially as described.

8. A device for lubricating and cooling journals, comprising a suitable receptacle for holding the lubricant, an indicator adapted to rest upon the said lubricant and having a shank extending up through the cover thereof, an alarm mounted upon the cover of the said receptacle, and a striker adapted to engage the said alarm, and means upon the shank of the indicator adapted to operate the striker when the lubricant passes out of the receptacle for calling attention to the emptying of the said receptacle, substantially as described.

9. In a device for cooling and lubricating journals, the combination with a bearing, of a key for holding the same in place, a receptacle mounted in the journal-box and extending into the said key, and means for regulating and directing the discharge of the material in the said receptacle to the journal-bearing, the construction being such that allowance is made for any movement of the key with relation to the other parts by means of the flexible walls of the said receptacle, substantially as described.

10. In a device for cooling journals, the combination with a journal-box, of a receptacle for holding a cooling or lubricating substance, a bearing mounted on the journal, a key for holding the said bearing in place, the said key being provided with a channel for directing the lubricating substance to the bearing, the said bearing being provided with one or more apertures for directing the lubricating substance to the bearing and means for controlling the discharge through the said apertures, substantially as described.

11. In a device for cooling and lubricating journal-bearings the combination with a suitable receptacle mounted in the journal-box, a bearing mounted upon said journal, a key for holding the said bearing in place, said key being provided with a groove for directing the said lubricating and cooling material to the bearing, the said bearing being provided with one or more openings, a fuse-plug carrier mounted in a slide in the said bearing and provided with apertures adapted to coincide with the apertures or openings formed in the said bearing, fuse-plugs mounted in the apertures in the said carrier for closing them, the construction being such that upon the bearings becoming heated the fuse-plugs will melt and permit the cooling and lubricating substance to flow upon the bearing-surface, substantially as described.

12. In a device for cooling and lubricating journal-bearings the combination with a suitable receptacle, of a cap for closing the same, a cotter-pin adapted to pass through an aperture in the said cover, one leg of the said pin being extended beyond the other and adapted to engage an aperture formed in the box, the construction being such that the extended leg will prevent the accidental removal of the cover, substantially as described.

13. In a device for cooling and lubricating journal-bearings the combination with a receptacle for holding a cooling and lubricating substance, of a fuse-carrier adapted to regulate the discharge of the said cooling and lubricating substance, a pin mounted in the journal-box and adapted to extend through and engage an aperture formed in the said fuse-carrier, the construction being such that the fuse-carrier cannot be accidentally removed from place, substantially as described.

14. In a device for cooling and lubricating journal-bearings the combination with a suitable receptacle, of a many-sided cover adapted to be screwed thereon, a pin adapted to engage lugs formed upon the journal-box, the said pin also engaging one of the sides of the cover whereby it is prevented from unscrewing, substantially as described.

15. In a device for cooling and lubricating journals, the combination with a suitable receptacle for holding a cooling or lubricating substance, of a slide carrying fuse-plugs for

regulating the discharge of the said substance from the said receptacle, a pin adapted to extend downwardly through the said receptacle and engage an aperture formed in the said slide for preventing the accidental removal thereof, substantially as described.

16. In a device for cooling and lubricating journals, the combination of a receptacle for holding a lubricating substance, a bearing-piece for engaging the journal, a key for holding the said bearing-piece in place, said key being provided with an aperture, a supporting-cup for holding the lower end of the receptacle in position, the said cup being adapted to be fitted into said aperture formed in the key, the construction of the part being such that the base will be locked into position in the said key, substantially as described.

17. In a device for cooling and lubricating journals, the combination of a receptacle for holding a lubricating substance, a bearing-piece for engaging the journal, a key for holding the said bearing-piece in place, said key being provided with an aperture, a supporting-cup for holding the lower end of the receptacle in position, internal lugs in the said cup portion for holding the lower end of the said receptacle against accidental displacement, the said cup being adapted to be fitted into said aperture formed in the key, the construction of the parts being such that the cup will be locked into position in the said key, substantially as described.

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

LOUIS C. WITKOWSKI.

Witnesses:
EDWARD T. FENWICK,
JOHN L. FLETCHER.