No. 859,925. PATENTED JULY 16, 1907.

L. H. DES ISLES.

ALARM SIGNAL FOR MOVABLE BEARINGS.

APPLICATION FILED OCT. 17, 1904.

Fig. 1.

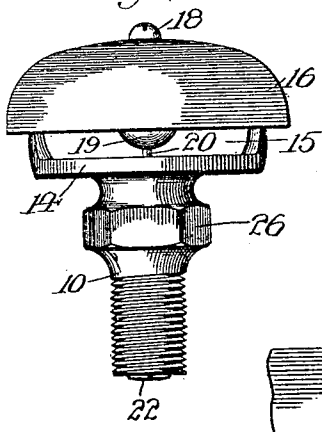


Fig. 2.

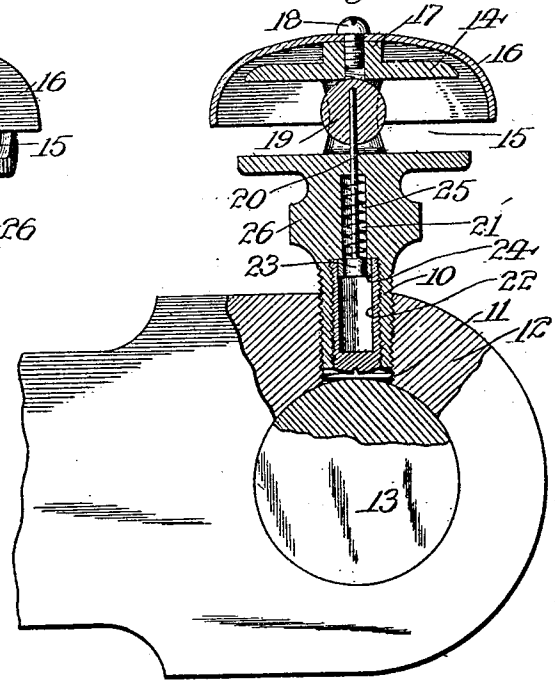


Fig. 3.

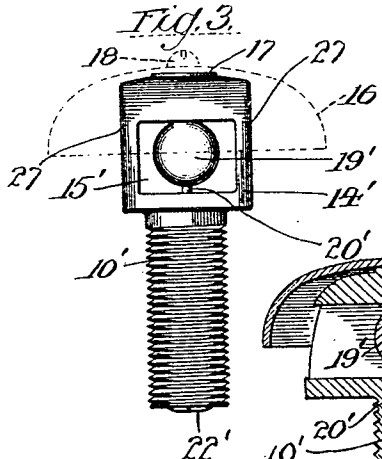
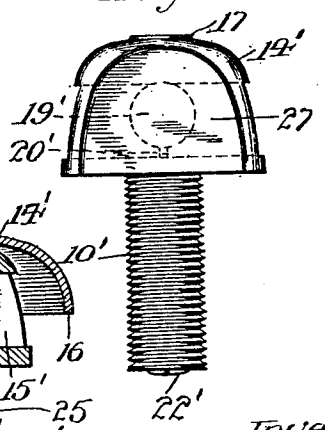


Fig. 4.



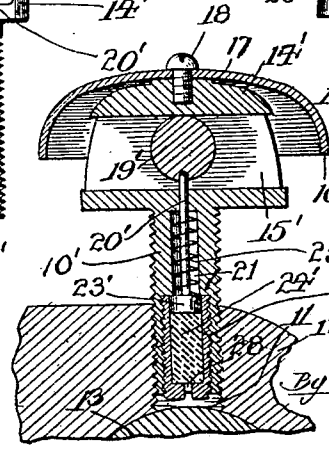


Fig. 5.

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ALARM-SIGNAL FOR MOVABLE BEARINGS.

No. 859,925. Specification of Letters Patent. Patented July 16, 1907.

Application filed October 17, 1904. Serial No. 228,689.

To all whom it may concern:

Be it known that I, LEONARD H. DES ISLES, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Alarm-Signals for Movable Bearings, of which the following is declared to be a full, clear, and exact description.

The improvement relates to signals for crank pins, cross heads and like movable bearings whereby an alarm will be sounded in case the bearing becomes over-heated.

Efficient electrically operated signals are now in use for stationary bearing boxes, but such electrical alarms are not readily applicable to movable bearings.

The present invention seeks to provide a simple and effective construction comprising a bell or sounder which may be conveniently mounted directly upon the crank pin, cross head and like shifting bearings and so arranged that the bell or sounder will be actuated by the movement of the bearing when the latter becomes over-heated.

The invention consists in the features of construction, combinations and arrangements of parts hereinafter set forth, illustrated in the accompanying drawing and more particularly pointed out in the appended claims.

In the drawing Figure 1 is an elevation of one form of the improved alarm signal. Fig. 2 is a vertical section thereof mounted in position upon the bearing. Fig. 3 is a side elevation of another form of the improved alarm signal, with the bell or sounder therefor shown in dotted lines. Fig. 4 is a side elevation of the form shown in Fig. 3, and Fig. 5 is a sectional view of the same mounted in position on a bearing.

The improved alarm signal comprises a suitable support 10 which is preferably cylindrical as shown, and threaded on its lower end so that it may be screwed into an opening in the crank pin or other movable bearing. As indicated in Fig. 2, the support 10 is threaded into an opening 11 which extends through the crank pin bearing 12 about the crank pin 13.

The support 10 is preferably provided with an enlarged head portion 14 on its outer end, which is cored out as shown in form of an open-sided chamber 15. A suitable bell or sounder and a coöperating clapper therefor, are provided upon the outer end of the support and the bell or sounder 16 is preferably of metal and rigidly secured to a central projecting stud 17, on the outer end of the head 14 by a screw 18. The bell 16 is preferably cup-shaped as shown, and its edges extend over the open sides of the chamber 15.

The bell-clapper or hammer is preferably arranged inside the bell and within the chamber 15, and is preferably in the form of a ball 19. The ball-clapper is normally held out of operation but when released, is freely movable within the chamber 15 against the bell or sounder 16. The edges of the bell 16 project a sufficient distance over the open sides of the chamber 15 to prevent the escape of the ball clapper 19 when the latter is released.

Suitable thermostatic locking means are provided for holding the ball-clapper out of operation. In the form shown, such means consists of a locking-pin 20, arranged to shift within a central longitudinal bore 21 formed in the support 10. The end of the locking-pin normally projects, as shown, into the ball chamber 15 and into a hole in the ball-clapper so that the latter is held against movement.

For convenience, in constructing and assembling the parts, a hollow plug 22 is threaded into the enlarged inner end of the bore 21 in the support 10, and the locking-pin 21 is provided on its lower end with an enlarged portion or head 23, which is arranged within the end of the hollow plug 22 and secured in place by a body of fusible material 24, such as solder or the like.

In assembling the parts, the pin is first secured within the end of the hollow plug 22 as described. A coiled wire spring 25 is slipped over the pin and the pin and plug are then inserted into the hollow core of the support 10 with the pin extending into the hole of the ball-clapper 19. In this position, the coiled spring 25 is compressed between the end of the bore 21 and the head 23 of the locking pin. In this position also, the ball-clapper 19 is securely held out of operation, notwithstanding the movement of the bearing upon which the alarm is mounted.

In the form shown in Figs. 1 and 2 the support 10 is provided below the head 14 with a hexagonal portion 26 adapted to receive a wrench and by which the alarm signal may be screwed into a suitable opening in the movable bearing.

As shown in Fig. 2, the support 10 and parts carried thereby, are arranged to be inserted a considerable distance within the bearing and with its lower end closely adjacent the journal thereof so that any heat developed will be readily transmitted to the body of the support and to the thermostatic locking means for the bell-clapper. As soon as the bearing becomes overheated, the fusible material 24 will melt and the compressed spring 25 will shift the locking pin inwardly, thereby releasing the ball-clapper 19. The movement of the bearing will then cause the ball to move about within the chamber 15, striking against the bell 16 so that the alarm will be sharply rung.

The signal alarm thus constructed is simple and compact, may be directly mounted upon a crank pin, cross head or like shifting bearing. There is no necessity with the improved construction, of employing electrical or other connections which cannot be readily applied to a movable bearing, and which when so applied, readily get out of order. Moreover, with the improved

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construction there is no need of providing a tappet or other operating means for operating the clapper of the alarm bell, since as soon as the clapper is released the movement of the bearing and bell will sound the alarm and continue to do so until attention has been called to the fact that the bearing has been over-heated. That is to say, the alarm is self-contained and will be operated solely by the movement of the bearing when its clapper is released by the heating of the thermostatic lock. By removing the signal alarm from the bearing and by removing the plug 22 from the support 10, the locking pin may be readily again fixed in position and the parts reassembled to again set the alarm.

The form shown in Figs. 3 and 4 is more compact than that shown in Figs. 1 and 2 and may be more readily applied and removed from the bearing.

In the form shown in Figs. 1 and 2, there might be some inconvenience in inserting a wrench between the head 14 and the body of the bearing to quickly remove the signal alarm when desired.

In the form shown in Figs. 3 and 4, the head 14′ is arranged closely adjacent the screw-threaded portion of the support 10′ so that the signal alarm will only project a slight distance from the bearing when mounted in place thereon. The head 14′ is flattened as shown, and the ball chamber 15′ extends through the flattened head from end to end. By first removing the bell 16 a wrench may be quickly and conveniently applied to the flattened walls 27 of the head 14′ to quickly remove the signal alarm from position. The arrangement of the bell and ball-clapper in this form are similar to that already described in connection with the form shown in Figs. 1 and 2, the ball 19′ being arranged to shift when released within the open-ended chamber or channel 15′. The head 23′ of the locking-pin 20′ is somewhat larger than that shown in Fig. 2 and is held in normal position by a body 24′ of hard lubricant, such as grease, or the like, which fills the hollow plug 22′. The lower end of the plug is provided with an opening 28 and when the bearing becomes over-heated the body of lubricant 24′ will fuse or melt and be forced by the spring-actuated head 23′ of the locking-pin, through the opening 28 on to the journal 13 and thereby assist in cooling the bearing. The head 23′ of the locking-pin is thus in effect a spring-actuated plunger for forcing the body of fusible lubricant into the opening when it becomes heated.

In the form shown in Fig. 2, as soon as the fusible material 24 melts, the plunger will be quickly shifted to release the ball-clapper 19. In the form shown in Fig. 5, the descent of the plunger 23′ when the bearing becomes overheated, will be somewhat slower. For this reason, the pin 20′ in this form projects only a slight distance, as shown, within the ball-clapper 19′ so that a slight movement of the locking-pin will serve to release the same and sound the alarm.

It is obvious that the details of construction may be varied without departing from the essentials of the invention.

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

1. An alarm signal for movable bearings comprising a support arranged to be mounted on the bearing, a bell or sounder on said support, a clapper carried by said support, said clapper being freely movable when released and arranged to be operated by the movement of said bearing to strike said bell or sounder and a thermostatic lock on said support normally holding said clapper out of operation and arranged to shift when heated to release the same and permit its operation, substantially as described.

2. A signal for movable bearings comprising an alarm bell or sounder, a clapper freely movable when released and arranged to be operated by the movement of the bearing to strike said bell or sounder, and a shiftable thermostatic lock normally engaging and holding said clapper out of operation but arranged to shift when heated out of engagement therewith to release said clapper and permit its operation, substantially as described.

3. A self-contained signal for movable bearings comprising a support arranged to be mounted on the bearing, a bell or sounder on said support, a clapper freely movable when released and arranged to be operated by the movement of the bearing to strike said bell or sounder, and a thermostatic lock on said support normally holding said clapper against operation but arranged to be moved, when heated, out of operative relation therewith to release said clapper and permit its operation, substantially as described.

4. A signal for movable bearings comprising a bell or sounder, a coöperating clapper arranged to be actuated by the movement of the bearing, a shiftable lock normally engaging and holding said clapper out of operation and a body of fusible material for securing said lock in place.

5. A self-contained signal for movable bearings comprising a support arranged to be mounted on the movable bearing, a bell or sounder mounted on the end of said support, a clapper within said bell arranged to be operated by the movement of the bearing, a spring-actuated locking pin for preventing the operation of said clapper, shiftably mounted within a bore in said support and a body of fusible material normally holding said pin in place.

6. A signal for movable bearings comprising a support arranged to be mounted on the movable bearing, a bell or sounder mounted on the end of said support, a ball-clapper freely movable when released within said bell and thermostatic locking means for holding said ball-clapper against operation but arranged to release the same when heated.

7. A signal for movable bearings comprising a support arranged to be mounted on the movable bearing, a bell or sounder mounted on the end of said support, a ball-clapper freely movable when released within said bell, a locking pin shiftable in said support and normally engaging a hole in said ball and a body of fusible material normally holding said locking pin in place.

8. A signal for movable bearings comprising a threaded support adapted to be screwed into a hole in the bearing, a bell or sounder mounted upon the end of said support, a clapper within said bell, a hollow plug threaded into a longitudinal bore in said support, a spring-actuated locking pin for holding said clapper against operation shiftable within said hollow plug and bore and a body of fusible material between said plug and pin normally holding the latter in place.

9. A signal for movable bearings comprising a support adapted to be mounted on the movable bearing and provided with an enlarged head on its end having an open-sided chamber formed therein, a bell or sounder secured to said head and extending over the open sides of said chamber, a ball-clapper freely movable when released within said chamber and thermostatic locking means for said ball.

10. A signal for movable bearings comprising a support adapted to be mounted on the movable bearing and provided with an enlarged head on its end having an open-sided chamber formed therein, a bell or sounder secured to said head and extending over the open sides of said chamber, a ball-clapper freely movable when released within said chamber, a locking pin shiftable within a bore in said support and normally engaging a hole in said ball and a body of fusible material normally holding said pin in place.

11. A signal for movable bearings comprising a threaded support adapted to be screwed into an opening in the movable bearing and provided with an enlarged head on its end having an open-ended chamber formed therein and flattened side walls adapted to receive a wrench, a bell or sounder secured to the end of said support and extending over the open ends of said chamber, a clapper movable

within said chamber and a thermostatic lock engaging and holding said clapper against operation.

12. In signals, the combination with a movable bearing, of a self-contained alarm mounted on said movable bearing and a thermostatic lock on said movable bearing normally holding said alarm against operation but arranged to shift, when heated, to release the same, said alarm being operated when released solely by the movement of the bearing and independently of said thermostatic lock substantially as described.

13. In signals, the combination with a movable bearing, of a support mounted upon said bearing, a bell or sounder, fixed on the outer projecting end of said support, a cooperating clapper freely movable when released and arranged to be actuated solely by the movement of the bearing, and a thermostatic lock normally engaging and preventing the operation of said clapper.

14. A signal for movable bearings comprising a suitable support arranged to be mounted within an opening in the bearing, a bell or sounder and a coöperating clapper therefor mounted upon the outer end of said support, said clapper being freely movable when released and operated solely by the movement of the bearing, said support having a chamber or bore opening through the inner end thereof, a spring actuated locking device shiftable within said bore or member and arranged to normally engage and hold said clapper out of operation and a body of hard lubricant arranged within the inner end of said bore and normally holding said locking device in position, whereby, when the bearing is overheated, the shift of said locking device will release the bell and clapper into coöperative relation and force the body of lubricant through the lower open end of the bore into the bearing.

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