T. E. HANNA.

SIGNALING DEVICE.

APPLICATION FILED SEPT. 3, 1918.

1,291,858.

Patented Jan. 21, 1919.

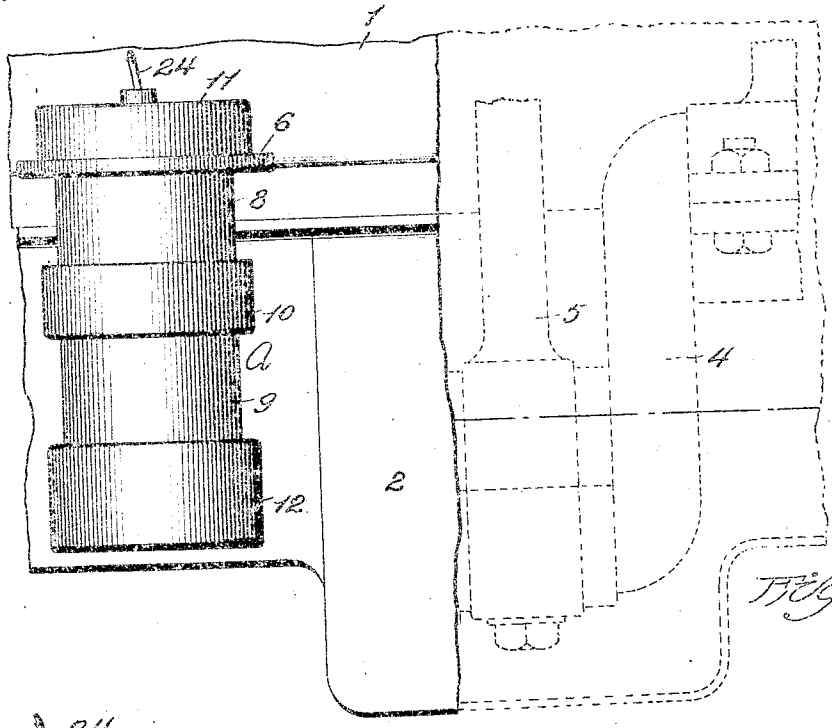


FIG. 1.

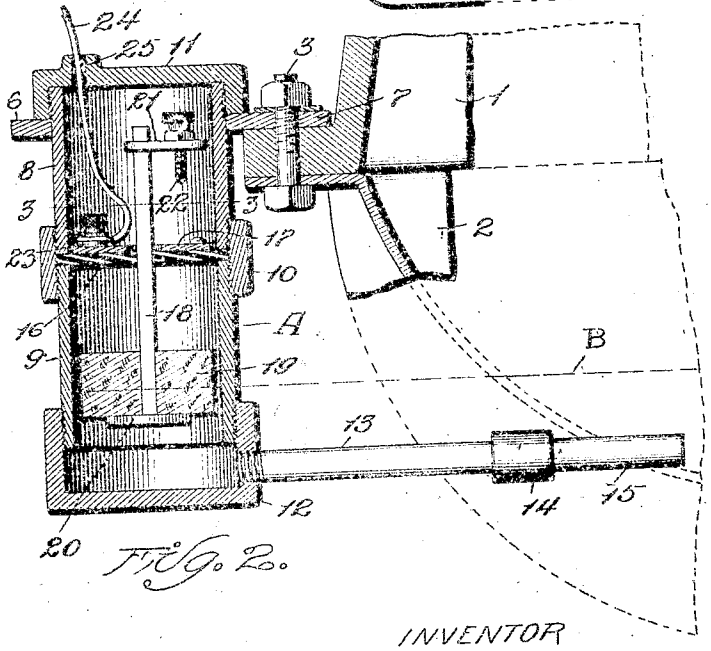


FIG. 2.

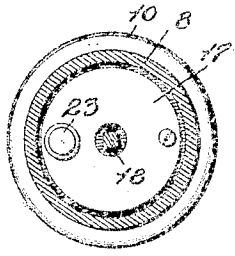


FIG. 3.

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TROY E. HANNA, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO GEORGE F. SCHULENBURG, OF ST. LOUIS, MISSOURI.

SIGNALING DEVICE.

1,291,858. Specification of Letters Patent. Patented Jan. 21, 1919.

Application filed September 3, 1918. Serial No. 252,439.

To all whom it may concern:

Be it known that I, TROY E. HANNA, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Signaling Devices, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

This invention relates to a certain new and useful improvement in signaling devices, the principal object of my present invention being to provide a simple, inexpensive, and efficient signaling device especially adapted for use in connection with gas-engine lubricating systems for automatically effecting an alarm or giving a signal when the supply of lubricant for the engine reaches a certain point or level beyond or below which continued operation of the engine may result in a burning-out of the shaft-bearings or in other damage to the engine and its parts.

With the above and other objects in view, my present invention resides in the provision of a device of the kind and for the purpose stated comprised in a normally open electric circuit having incorporated therein a circuit making-and-breaking means including a float which is influenced by the level of the lubricant in the system, the circuit making-and-breaking means being automatically actuable in a manner to close the circuit, for purposes of alarm or signal, at a time when the lubricant supply has approached or reached a so-called danger level, and in certain novel features of form, construction, arrangement, and combination of parts, all as will hereinafter be described and afterward pointed out in the claims.

While my device is especially adapted for use in connection with gas engines having a lubricating system of the splash type and is accordingly here so shown and described, it is to be understood that my signaling device is equally well adapted for use in connection with other types of engines or in connection with other apparatus or the like in which there is a variable lubricant level.

In the accompanying drawing,—

Figure 1 is an elevational view of the device in operative position in connection with an internal combustion or gas engine having a splash system of lubrication, the engine being broken away and portions or fragments of the crank-case and connecting-rod of the engine being shown in dotted lines;

Fig. 2 shows the device in vertical section and its relation to the crank-case of the engine; and

Fig. 3 is a detail cross-sectional view on approximately the line 3—3, Fig. 2.

Referring more particularly to the said drawing, in which like reference characters refer to like parts throughout the several views, I have shown, for purposes of illustration, a standard engine of the "Ford" type, of which engine 1 indicates the base, 2 the crank-case, which is fixed to the base by bolts or other fastening-devices 3, 4 the crank, and 5 the connecting rod.

My new signaling device proper comprises a shell or casing A adapted in use to be operatively supported on the engine as by means of an embracing-bracket 6 having an apertured extension or arm 7 secured as by one of the bolts 3 to the engine, as shown.

The shell or casing A is made up preferably of tubular sections 8 and 9 arranged end to end and united at their adjacent ends by a union or the like 10, the upper end of upper section 8 having preferably threaded thereupon and being closed by an end-cap 11 and the lower end of lower section 9 having preferably threaded thereupon and being closed by a cup-shaped base 12. Base 12 is apertured to provide a seat for one end of a pipe 13 connected at its other end by a coupling or union 14 with a pipe 15 communicating with the crank-case 2 of the engine, the point of communication between pipe 15 and crank-case 2 being approximately on the level or plane at which the supply of lubricant in the crank-case should be maintained that the engine may operate with safety under sufficient lubrication.

Interposed between the adjacent or meeting ends of the shell-sections 8 and 9, preferably as shown, is a disk 16 of insulation material provided approximately centrally with a preferably non-circular perforation, and fixed upon the upper face of disk 16 is a contact-member in the form preferably of an apertured metallic plate or ring 17. Disposed lengthwise in shell or casing A and working in the perforation of disk 16, is a preferably correspondingly square metallic rod 18 forming the stem of a float 19, which latter is disposed in lower shell-section 9

beneath the disk 16 stem 18 having a metallic disk or contact-member 20 fixed thereto at its lower end and beneath the float 19. Adjacent its upper end and within upper shell-section 8, stem 18 is provided with a lateral arm 21, which carries a contact-member 22 adapted, as hereinafter more fully appears, to contact electrically with the ring 17. Mounted on disk 16 and having electrical connection with ring 17, is a binding-post 23 included in an electric circuit by means of a conductor or wire 24 leading through a suitable aperture 25 in end-cap 11 to the magneto (not shown) of the car or other source of electrical energy; lower shell-section 9 and its base 12 being suitably "grounded", as by means of its described pipe-connection to the machine-frame.

The dash-line B shown in Fig. 2 indicates a working oil or lubricant level for the engine, which, as shown, is such that, through the float 19, the contact-members 20 and 22 will be maintained out of electrical engagement, respectively, with the shell-base 12 and ring 17, the circuit being consequently normally open and the ignition-system of the engine fully operative. As the supply of lubricant in the crank-case 2 reaches the so-called danger level, the float 19 will correspondingly fall in the shell A and the contact-members 20 and 22 engage electrically with the base 12 and ring 17, respectively, and close the circuit, the ignition-circuit of the engine being thereby short-circuited and continued operation of the engine being consequently automatically stopped. When the circuit is so closed, effecting the alarm or signal stated, the current from the magneto or other source of electrical energy follows the following course, namely, through the conductor 24 to binding-post 23, to ring 17, to contact-member 22, to arm 21, to rod or stem 18, to contact-member 20, to base 12, to pipes 13—15, and thence to "ground" through the engine crank-case 2.

My new signaling device has been found highly efficient in use and is both simple and inexpensive in form and construction. The stem or rod 18 and its described disk-aperture are preferably formed non-circular, as stated, to obviate rotary movement of the stem or rod 18 which might carry its contact member 22 into premature electrical engagement with the binding-post 23, which projects upwardly into a plane higher than a desired or necessary oil or lubricant signaling level.

I am aware that minor changes in the form, construction, arrangement, and combination of the several parts of my device may be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

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

1. In a signaling device, the combination with a normally open electric circuit, of an oil reservoir comprising a pair of connected sections disposed end to end, an insulation-disk disposed between said sections and insulating the same one from the other, the lower section being also included in the circuit and adapted for communication with the crank-case of an engine, a fixed contact on the disk also included in the circuit, a float disposed within the lower reservoir section and influenced by variations of oil level therein, a metallic stem carried by and movable with the float, the stem having a portion projecting into the upper reservoir section, and contacts on the stem adapted for electrical engagement with said fixed contact and with said lower reservoir section to close the circuit to effect an alarm.

2. The combination with the crank-case of a gas-engine, of a signaling device comprising a normally open electric circuit, an oil reservoir consisting of a pair of connected sections disposed end to end, an insulation disk disposed between said sections and insulating the same one from the other, the lower reservoir section having communication with the crank-case and being included in said circuit, a fixed contact on the disk also included in the circuit, a float disposed in the lower reservoir section and influenced by variations of oil level therein, a metallic stem carried by and movable with the float and projecting at its upper end into the upper reservoir section, and contacts on the stem adapted for electrical engagement, respectively, with said fixed contact and with the lower reservoir section to close the circuit to effect an alarm.

In testimony whereof, I have signed my name to this specification.

TROY E. HANNA.