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INDICATING INSTRUMENT FOR AUTOMOBILE RADIATORS.

APPLICATION FILED DEC. 28, 1920.

1,387,890. Patented Aug. 16, 1921.

Fig. 1.

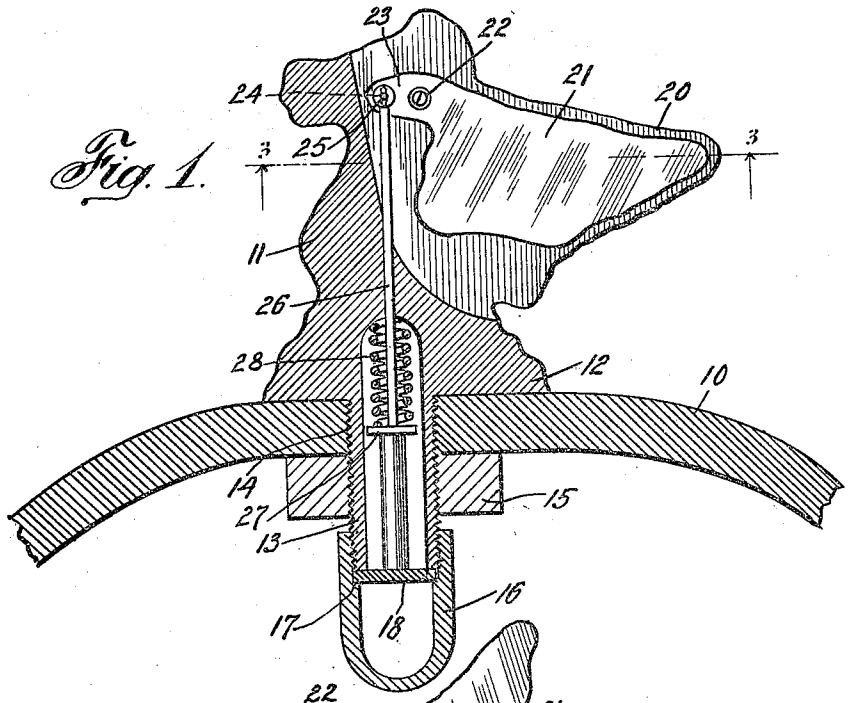
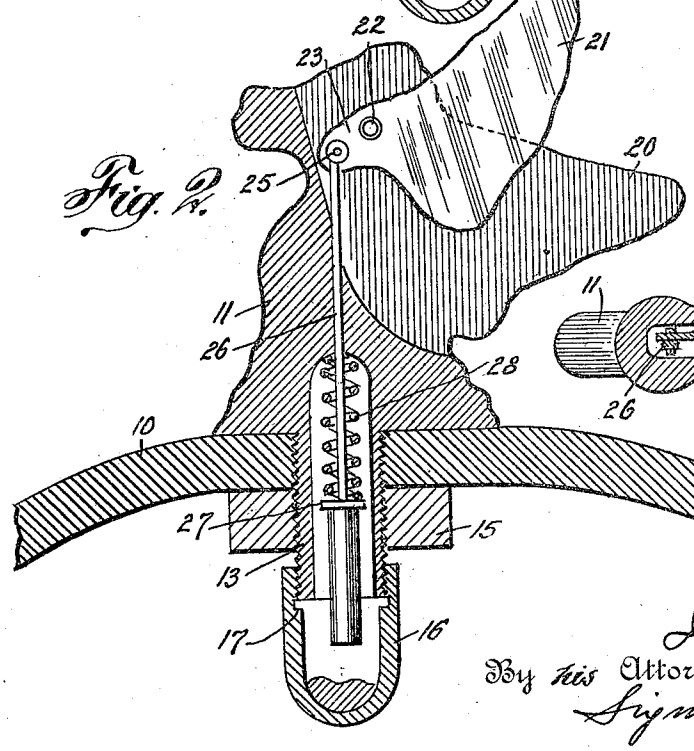


Fig. 2.



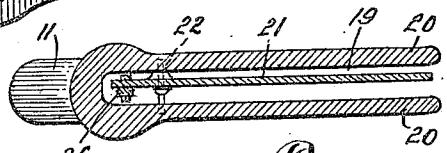


Fig. 3.

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By his Attorney
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UNITED STATES PATENT OFFICE.

JOSEPH KLEIDMAN, OF NEW YORK, N. Y., ASSIGNOR TO PEGASUS INDICATOR MANUFACTURING CO., INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

INDICATING INSTRUMENT FOR AUTOMOBILE-RADIATORS.

1,387,890. Specification of Letters Patent. Patented Aug. 16, 1921.

Application filed December 28, 1920. Serial No. 433,639.

To all whom it may concern:

Be it known that I, JOSEPH KLEIDMAN, a citizen of Poland, and resident of the city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Indicating Instruments for Automobile-Radiators, of which the following is a specification.

The present invention relates to improvements in a mechanism for indicating abnormal conditions in radiators, forming part of the liquid circulation cooling system for the cylinders of internal combustion engines.

One of the objects of the present invention is to provide a device of the character mentioned, in the form of a visible signal, which indicates abnormal conditions in the radiator and cooling system, more particularly the fact that the temperature of the cooling liquid has risen above the normal, effective temperature.

Another object of the invention is to produce an indicator of the type mentioned, which is simple in construction, efficient in operation and which is capable of manufacture on a commercial scale, or in other words one which is not so difficult to make as to be beyond the reasonable cost of such a contrivance.

A further object of the invention is to provide an indicator of the type mentioned, which is at all times operative, requiring no care at all on the part of the operator of the motor vehicle.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claims, without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical central section taken through an indicator constructed in accordance with the present invention; Fig. 2 is a similar view, some of the elements being shown in other positions; and Fig. 3 is a section taken on line 3—3 of Fig. 1.

In the drawings, the numeral 10 indicates a portion of the closure member or cap of the radiator, forming part of the cooling system of an internal combustion engine. This cap may be of any suitable construction and provided with means (not shown) for engagement with the filler opening of the radiator. On top of the cap is mounted a signal support 11 of any suitable configuration. In the case illustrated, the signal support is made in the form of a winged animal, thereby providing an attractive ornament for the radiator cap. The base 12 of the support rests upon the top of the cap, and from this base projects downward a tubular stem 13, made, preferably, integral with the support and extending through and into the said cap. This stem is provided with exterior screw-threads, meshing with those of a central opening 14 in the cap 10 and also with those of a lock nut 15, the latter abutting against the inner face of the top of the cap, so as to hold the support 11 securely in position thereon. A thimble 16 is drawn over the lower end of the stem 13, said thimble being for this purpose provided with interior threads, meshing with the threads of the said stem. This thimble is provided below its threads with an interior annular shoulder 17, supporting a disk 18 of a suitable fusible alloy. The disk is held tightly against the lower end of the stem 13 by screwing home the thimble. The fusible disk is made of an alloy which melts at a predetermined temperature, preferably at the temperature which, when reached by the cooling fluid, would cause the engine to be overheated.

The support 11 is provided with a central vertical recess 19, obtained in the present case by spacing apart the wings 20 of the representation of the animal constituting the same. Into this recess is placed a signal member 21, in the form of a plate, which is pivoted at 22 to the support and provided with an extension 23, having a slot 24, in the latter being seated the pivot pin 25 of a substantially vertically disposed plunger 26, that extends slidably through the support into the stem 13 thereof. Within the tubular stem, the plunger 26 is provided with an enlargement 27, on which rests an expansion spring 28, the other end of which abuts

against the signal support, thereby having a tendency to force the lower end of the plunger into contact with the fusible disk 18.

The operation of this device is as follows: The spring 28 is held in its compressed position (Fig. 1) by the fusible disk 18, and the length of the plunger is such that the signal member 21 is held between the wing portions 20 of the support, that is to say it is concealed from view, when the plunger rests upon the said disk. The cap 10, with the elements of the indicator shown in the positions in Fig. 1 of the drawings, is mounted upon the radiator in the usual manner. If, in operation, the engine is overheated by reason of abnormal conditions, the temperature of the cooling liquid obviously rises above normal. When this occurs, the disk 18 is fused, thereby permitting its spring 28 to act, with the result that the plunger 26 is shifted downward in the direction of its longitudinal axis, swinging the indicator plate 21 around its pivot 22 upward, that is to say out of the recess 19, thereby at once indicating to the driver that the engine is in an overheated condition. After stopping the motor and removing the conditions which have caused overheating of the motor, the operator inserts a new fusible disk into the indicator, whereby the latter is again ready for operation.

Attention is called to the fact that the spring-pressed plunger has a two-fold purpose, its first function being to shift the signal 21 to danger position, and its second purpose being to transmit the tension of the spring 28 to the fusible disk 18. It is to be noted that fusible plugs or disks have heretofore been made use of in connection with heat indicators, but these devices have been inefficient for the reason that the cohesion of the particles of the fusible material is not immediately destroyed when the temperature, for which they are calculated, is reached. In the present construction, as soon as the fusible disk is softened by abnormal temperature, its union will be destroyed by the plunger under the action of the spring 28. The indicator is thus efficient and reliable in use.

It is to be observed that the thimble 16 is imperforate, thereby preventing the fused material of the disk 18 from falling into the cooling fluid in the radiator.

It is obvious that, while herein a specific signal support and signal member have been described, others may just as well be used without departing from the invention, which lies mainly in the provision of a visible signal controlled by a fusible member, which is disposed within the air space of the radiator.

What I claim is:—

1. In an indicator for the radiators of internal combustion engines, the combination with the closure member for the filling opening of a radiator, of a signal support rising from said closure member, a signal member pivoted to said support, a fusible body held in fixed position below said closure member, and a spring-pressed plunger resting upon said fusible body and connected to said signal member, said signal member being concealed from view by said support as long as said fusible body prevents a movement of said plunger.

2. In an indicator for the radiators of internal combustion engines, the combination with the closure member for the filling opening of a radiator, of a signal support rising from said closure member and having a hollow stem extending therethrough, a signal member pivoted to said support, a fusible body, a thimble secured to said stem and holding said fusible member in place thereon, and a spring-pressed plunger resting on said fusible body and connected to said signal member, said signal member being concealed from view by said support as long as said fusible body prevents a movement of said plunger.

Signed at New York, in the county of New York, and State of New York, this 16th day of December, A. D. 1920.

JOSEPH KLEIDMAN.