L. I. STEWART.

RADIATOR SHIELD.

APPLICATION FILED APR. 9, 1918.

1,295,629.

Patented Feb. 25, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

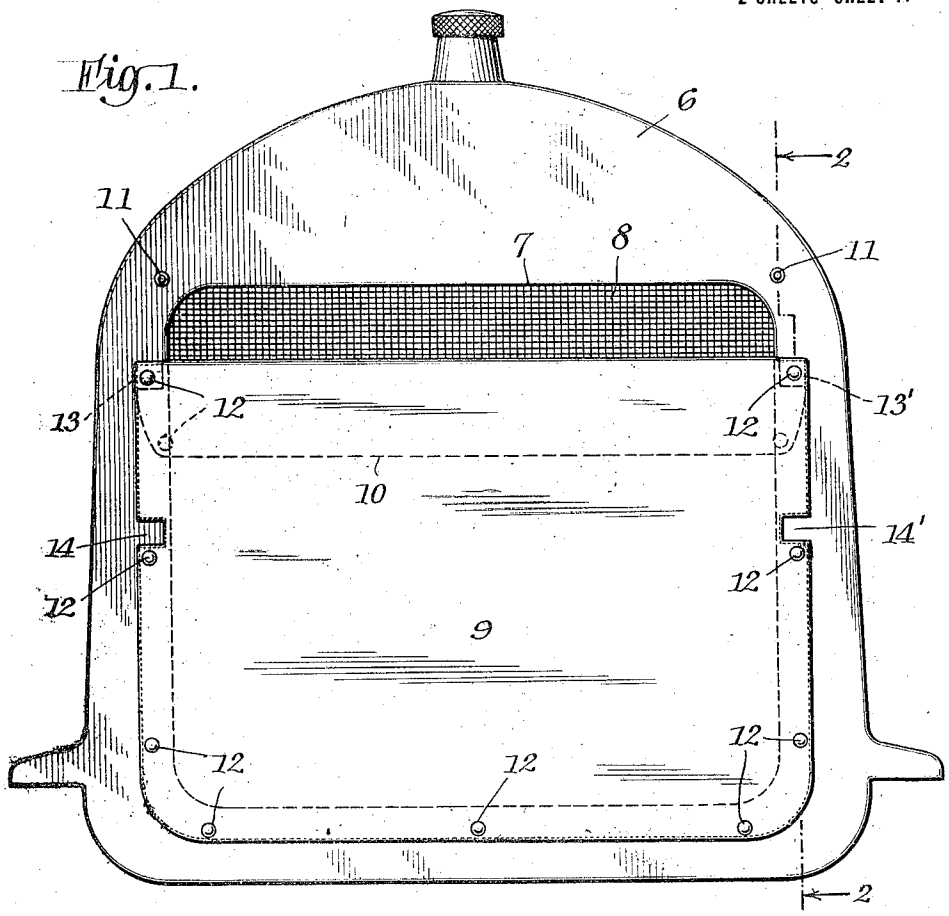
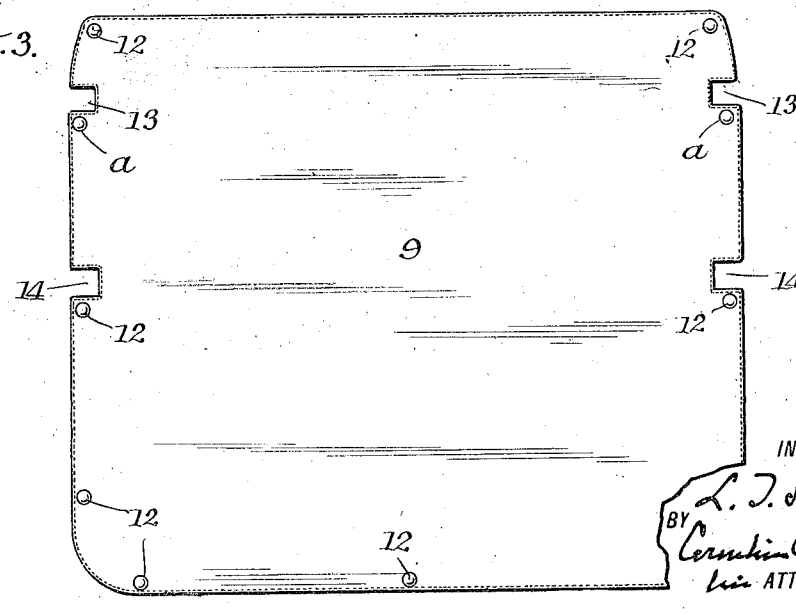


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 2.

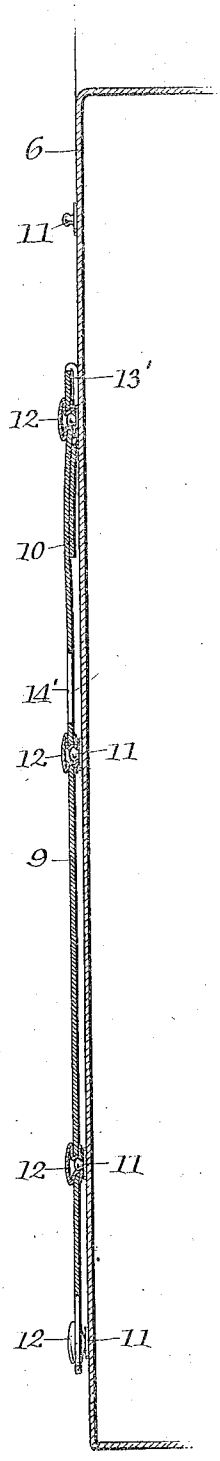
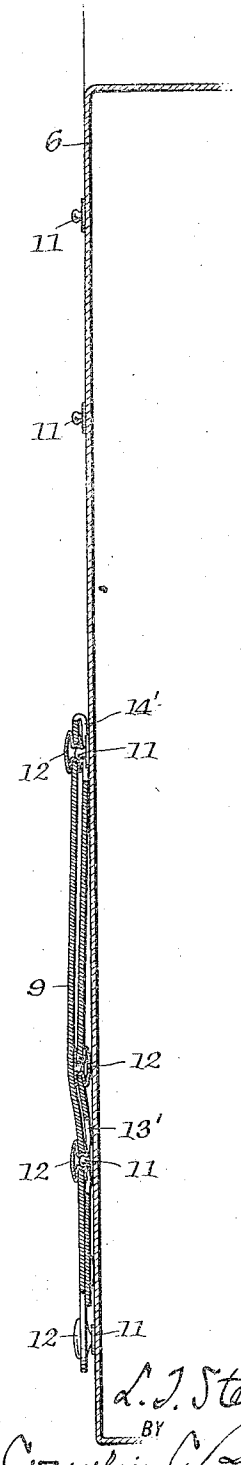


Fig. 4.



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UNITED STATES PATENT OFFICE.

LEWIS I. STEWART, OF NEW YORK, N. Y.

RADIATOR-SHIELD.

1,295,629. Specification of Letters Patent. Patented Feb. 25, 1919.

Application filed April 9, 1918. Serial No. 227,452.

To all whom it may concern:

Be it known that I, LEWIS I. STEWART, a citizen of the United States, and a resident of New York city, county of Kings, State of New York, have invented certain new and useful Improvements in Radiator-Shields, of which the following is a specification.

My invention relates to devices in the nature of attachments designed for use with the cooling systems of automobiles and similar self propelled vehicles in which an internal combustion engine is employed as a source of power, the purpose thereof being to control the temperature of the cooling liquid employed for cooling the engine by regulating the flow of air to the radiator whereby the cooling liquid is cooled by a current of air. As otherwise stated, the object or end in view in the prior devices herein referred to as well also as in my device is to prevent the cooling liquid from being cooled to too low a temperature and to thereby provide for the operation of the engine at as high a temperature as is practicable, having in mind the necessity for adequate lubrication, and at as high a temperature as is consistent with a not too rapid evaporation of the cooling liquid, such as would follow an inordinately high temperature thereof.

One of the objects of my invention is to provide a simple, cheap, and effective device designed for use with, and which may be readily attached to or removed from the radiator of a cooling system, and whereby the amount or volume of air flowing through the radiator may be controlled.

Another object is to provide such a device with means whereby it may be readily adjusted according to the temperature of the atmosphere to substantially arrest the flow of air through the radiator when the temperature is inordinately low, or to provide for the flow of varying and regulated quantities of air at higher temperatures below, however, the temperature at which the device should be removed and an unrestricted flow of air permitted.

With the above and other objects in view, my invention consists in the improved air flow regulating device for use with the radiators of automobiles illustrated in the accompanying drawing and hereinafter described and claimed, and in such variations and modifications thereof as will be obvious to those skilled in the art to which my invention relates.

In the drawing accompanying and forming a part of this specification and wherein the preferred embodiment of my invention is illustrated;

Figure 1 is a view showing in elevation an automobile radiator equipped with my invention and as seen from a position in front thereof;

Fig. 2 is a view showing a section upon a plane indicated by the line 2—2, Fig. 1;

Fig. 3 is a view showing the flexible air intercepting shield of my device by itself; and,

Fig. 4 is a view similar to Fig. 2 but showing the shield folded differently than in said figure.

Referring to the drawing, the reference numeral 6 designates a radiator for cooling the water or other liquid used for cooling the internal combustion engine employed to drive an automobile or like self propelled vehicle, the conventional form of radiator shown being for the purpose of illustrating my invention, and its method of use in connection with the cooling system of an automobile. It is to be understood, however, that my invention may be and is adapted for use with and for application to any of the various forms or constructions of automobile radiators or radiator systems at present in use. The radiator structure regarded in its entirety is provided with an inlet opening through which the cooling air enters and gains access to the tubes, cells, or other structure provided for the purpose of securing an interchange of heat between the heated cooling liquid and the air for cooling the same, the upper portion of the cellular or tubular structure through which the liquid circulates being shown conventionally at 8. As the tubular or cellular structure is made up of a large number of air and liquid passages separated by metallic walls, and the front end of said structure is commonly exposed directly to the air, it follows that the air inlet opening referred to may be regarded as corresponding with and formed by the front end of the cellular structure of the radiating device or mechanism, and that, conversely, the air openings of the cellular structure, collectively considered, may be regarded as comprising the air inlet to the radiator.

The reference numeral 9 designates an air intercepting shield made of flexible material capable of withstanding wind and weather, and adapted to regulate and control the amount of air flowing past or through the cellular structure of the radiator to thereby vary the cooling effect of the air and provide for the operation of the engine at as high a temperature as is consistent with the proper lubrication thereof. This shield extends across the opening through which air is admitted to the radiator, and, when so used that it covers the whole of said opening, substantially arrests the flow of air through the radiator. Preferably, however, more or less of the upper end of the shield is designed to be folded and made to overlie the remaining portion, to thereby vary the area of the air inlet opening cut off or intercepted by the shield as shown in Figs. 1 and 2 wherein a small part 10 of the upper end of the shield is folded down back of the main body portion thereof, so that air may flow through but a small part of the cellular structure 8. In Fig. 4 I have shown more of the shield folded down back of the body whereby more of the air inlet opening is uncovered and air may flow through a larger part of the cellular radiator structure, and a greater cooling action or effect is secured.

The periphery of the shield 9 is detachably secured to the radiator or to the casing associated with the same or to an equivalent element of the radiator mechanism considered as a whole, so that the shield may be used to substantially arrest or to permit varying regulated quantities of air to flow through the radiator, as above explained. Or it may be removed and not used in case the cooling effect of the radiator is not greater than is deemed necessary, as in the summer time, or in warm spells. In the form of my invention illustrated this end is accomplished by providing a plurality of spaced fastening members or heads 11 arranged about the air inlet opening 7, and a corresponding number of coöperating fastening members or sockets 12 arranged along the periphery of the shield and adapted to detachably engage said heads, whereby a plurality of separable fastening devices are provided for detachably securing the shield in place, and for permitting it to be readily and quickly removed if desired. It will be appreciated, however, that any form of fastening devices may be used for detachably securing the shield in place, and that my invention is not limited to the use of head-and-socket separable fasteners of the form illustrated.

In order to facilitate the folding down of the upper portion of the shield 9 (in case it is not desired to entirely prevent the flow of air through the radiator) and the securing of the folded shield in place at such times, one or more pairs of oppositely disposed or located notches, recesses, or slits are provided in the side edges of the shield, as shown at 13, 13′ and 14 and 14′, Fig. 3, these notches being provided in order to prevent the side edges of the folded down portion of the shield from interfering with the operation of the fastening members when the upper portion of the shield is folded down back of the lower portion thereof. Thus, when the shield is folded, as shown in Figs. 1 and 2, the recesses 13, 13′ are brought into positions such that they will coincide or register with the uppermost pair of the several fastening devices provided by the coöperating pairs of fastening members 11, 12, in which position of the parts the next to the upper pair of head fastening members 11 extend through the upper pair of recesses 13 and 13′ and into the pair of socket members marked *a* in Fig. 3, and when the shield is folded as shown in Fig. 4 both pairs of recesses take up positions such that pairs of the head fastening members extend through them, and into socket members 12 carried by the shield. Were these recesses not present the act of folding the upper portion of the shield downward would bring portions of the side edges thereof in positions to cover the openings of one or more pairs of socket members, and prevent the entrance of the head members thereinto, while their presence prevents such obstruction and permits a free entry of the heads into the sockets. In addition to this they permit the folded down portion of the shield to be arranged smoothly back of the body portion, and the whole to be securely held in place by the fastening devices.

By the above described construction it is seen that the shield may be readily fastened to the radiator in either its spread out or folded condition and may be as readily removed therefrom. In other words, the type of radiator shield invented by me as herein described and claimed may be briefly said to constitute a "fan-fold" structure and consequently the entire radiator core surface is exposed in proportion to the requirements according to the atmospheric and weather conditions. When removed from the radiator the shield may be easily stored in a minimum space at any suitable place in the machine.

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

1. In a device of the class described and in combination with a radiator, a plurality of fastening members spaced apart from one another and arranged about the air inlet opening of the radiator, a shield formed of flexible material and adapted to extend across the opening aforesaid, a plurality of

spaced fastening members carried by and located adjacent the periphery of said shield and adapted to coöperate with said first mentioned fastening members to thereby hold said shield in place, and means whereby a portion of said shield may be folded upon and made to overlie another portion thereof, the double thickness of material thus secured extending across the said air inlet opening.

2. In a device of the class described and in combination with a radiator having a plurality of spaced fastening members located adjacent its periphery, a flexible shield adapted to extend across the front of the radiator to thereby interrupt the flow of air therethrough and which shield is provided with a pair of oppositely located notches or recesses formed in its side edges, and a plurality of spaced fastening members carried by and located adjacent the periphery of said shield and adapted to coöperate with said first mentioned fastening members to thereby hold said shield in place, said notches being so arranged that they may be brought into positions such that an oppositely located pair of said first mentioned fastening devices will extend through them when the shield is folded about or upon a line extending between the side edges thereof.

3. In a device of the class described and in combination with a radiator having an inlet opening through which air may flow, an air intercepting shield formed of flexible material and adapted to extend across the opening aforesaid, a plurality of spaced separable fastening devices arranged about the periphery of said shield and adapted to hold the same in place, one member of each fastening device being carried by the radiator and the other by the flexible shield and two notches or recesses formed one in each of two oppositely disposed edges of said shield, and so arranged that they may be brought into coincidence with two oppositely located separable fastening devices when the shield is folded about a line extending between the side edges of said shield in which said notches are formed.

4. In a device of the class described and in combination with a radiator having an inlet opening through which air may flow, an air intercepting shield adapted to extend across the opening aforesaid, a plurality of spaced fastening devices arranged about the periphery of said shield and adapted to hold the same in place, and means whereby a portion of said shield may be folded upon and made to overlie another portion thereof, the double thickness of material thus secured extending across the said air inlet opening.

5. In a device of the class described and in combination with a radiator having an inlet opening through which air may flow, an air intercepting shield formed of flexible material and adapted to extend across the opening aforesaid, said shield having oppositely located notches or recesses formed in its side edges, and a plurality of spaced separable fastening devices arranged about the periphery of said shield and adapted to hold the same in place, said notches or recesses being so arranged that they may be made to coincide with oppositely located separable fastening devices when the shield is folded about a line extending between the side edges thereof.

6. An air intercepting shield for use with an automobile radiator, the same being formed from flexible material and having oppositely located notches or recesses formed in its side edges, and a plurality of spaced fastening members arranged along the periphery of said shield, said notches or recesses being so arranged that they may be brought into coincidence with oppositely located fastening members when the shield is folded upon a line extending between the side edges thereof.

In witness whereof, I have hereunto set my hand at the borough of Manhattan, city and State of New York, this 1st day of April, 1918.

LEWIS I. STEWART.

In presence of—
T. J. DELANEY,
J. T. MCCARTHY.