

S. I. FEKETE.
 RADIATOR SHUTTER.
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1,249,731.

Patented Dec. 11, 1917.

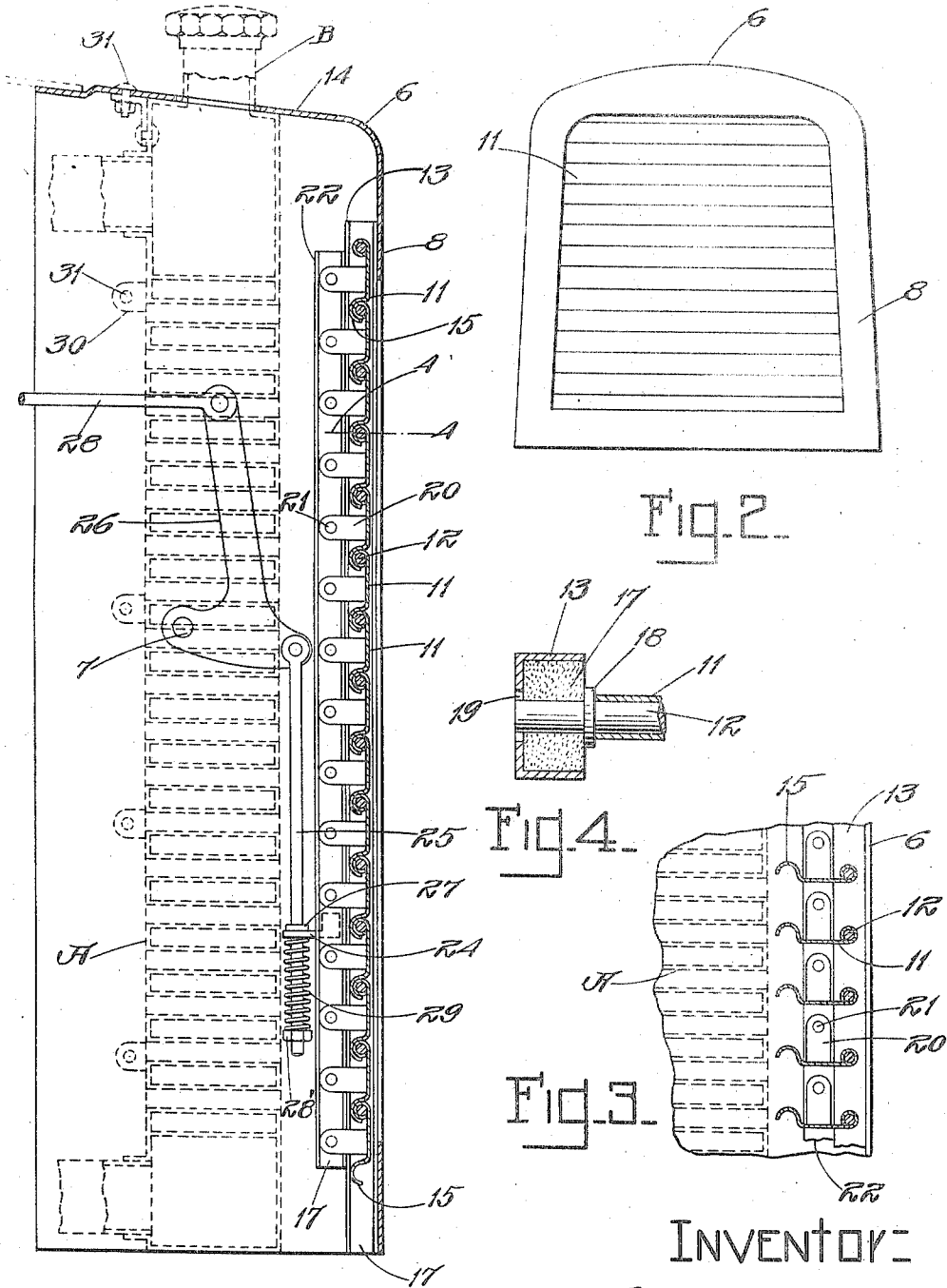


Fig. 1.

Fig. 2.

Fig. 4.

Fig. 3.

INVENTOR:

Stephen J. Fekete

by *MacLeod, Carter, Copeland & DeLong*
 Attys.

UNITED STATES PATENT OFFICE.

STEPHEN IVAN FEKETE, OF DETROIT, MICHIGAN, ASSIGNOR TO KENT MOTORS COMPANY, OF DETROIT, MICHIGAN, A CORPORATION.

RADIATOR-SHUTTER.

1,249,731.

Specification of Letters Patent.

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Application filed October 13, 1916. Serial No. 125,351.

To all whom it may concern:

Be it known that I, STEPHEN IVAN FEKETE, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Radiator-Shutters, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object an improved radiator shutter which can be applied to the radiator of an automobile for the purpose of controlling the flow of air through the radiator.

As is well known to those skilled in the art, economy of operation of the ordinary water cooled internal combustion engines employed in automobiles depends largely on the maintenance about the engine of a temperature which is as close to the boiling point of water as possible. This is particularly true at the present time when the fuel employed includes a large proportion of low grade distillates which are not easily vaporizable at ordinary temperatures. Accordingly, it is desirable to provide a shutter for regulating the flow of air through the radiator. By this means the flow of air through the radiator may be entirely shut off when the engine is first started, thereby causing the temperature in the cooling system to rise rapidly until the point of maximum efficiency is reached. After this, the shutter may be opened to give whatever flow of air through the radiator is requisite to maintain the temperature of maximum efficiency under the conditions of operation which are then prevailing.

My invention provides a radiator shutter which is applicable to the ordinary radiator and which when so applied is attractive in appearance but does not change noticeably the lines of the car. It is so constructed that it does not become noisy or rattle, even after a long period of use. It provides means for regulating the flow of air through the radiator quickly and accurately and at the will of the operator.

In the drawings, Figure 1 is a vertical section showing my radiator shutter and casing therefor applied to the radiator of an ordinary automobile, the radiator being shown in dotted lines.

Fig. 2 is a front elevation of the radiator shutter and casing.

Fig. 3 is a portion of a side section similar to Fig. 1 showing the position of the slats when the shutter is wide open.

Fig. 4 is an enlarged horizontal section on line 4-4 of Fig. 1 and shows the method of constructing the bearings for the trunnions of the slats.

Referring to the drawings, at A is shown the radiator, and at B the filler. These parts form no part of my invention and therefore have been indicated in dotted lines in the drawings. The radiator shutter is comprised of a series of slats 11 secured to trunnion rods 12, which are carried in a frame 13 of U-section. This frame 13 is carried in the radiator shutter casing 6, which is of the general form of the radiator with which it is to be used as seen in Fig. 2. The radiator shutter casing 6 has a flange 14 extending rearwardly substantially parallel with the corresponding portion of the radiator and another flange 8 at right angles to the first one. The flange 8 extends inwardly and forms the border about the opening, through which the air passes to the radiator. This opening is closed by the slats 11, and is substantially the size and shape of the perforated portion of the radiator. The casing 6 is held in place on the radiator by lugs 30 and bolts 31.

Each slat 11 is provided with a half-round grooved portion 15 located near its lower edge so that when the radiator shutter is closed, the half-round grooved portion 15 will lie about the portion of the slat which is mounted on the trunnion of the slat next below and the shutter will present a substantially smooth or flat appearance on the exterior. The frame which carries the slats, shown in Fig. 1, is built up of members 13 which are U-shaped in cross section (see Fig. 4) said members being filled with a strip or bar of some dense non-metallic material 17, as for instance that which is ordinarily known in commerce as brake-lining and which contains asbestos for one of its components. Each trunnion rod is provided with a collar 18 which rests adjacent the side of the strip of brake-lining material 17 and receives the end thrust of the slat. The trunnion 12 extends through the brake lining but the hole 19 in the U-shaped supporting member 13 is larger than the diameter of the trunnion rod so that there is no possibility of the trunnion rod coming in

contact with the metallic U-shaped member. It will therefore be seen that when the shutter is open the slats are supported without any metallic contact between each other or
 5 between the trunnions and the supporting means. I have found as a result of exhaustive tests under trying conditions that, where metallic contacts are used between the slats and the supporting means, the radiator shutter becomes noisy within a few hundred
 10 miles and is practically valueless on that account. The above construction however even after being run for some thousands of miles under trying conditions shows no signs
 15 of becoming noisy or wearing unduly.

The operating means will now be described. Each of the slats is provided with a rearwardly extending lug 20 pivoted at 21 to a bar 22. This bar 22 is similar in
 20 shape to the U-shaped member 13 and also contains a strip 17 of the brake lining material so that there is no contact between the lugs and pivots and the bar 22.

The bar 22 is provided with a lug 24
 25 through which extends a bar 25 pivoted at its upper end to a bell crank 26 which is itself pivoted at 7 to the rearwardly extending flange 14. The bell crank lever 26 is moved by a rod 28 which extends back to
 30 the dash board of the vehicle, not shown, or to some other point within the reach of the operator of the vehicle. The rod 25 is provided with a collar 27 which rests against the upper side of the lug 24, and at 28⁷ with
 35 a nut there being a spring 29 between the nut and the lug 24. Spring 29 is employed to take care of the backlash between the connecting parts of the operating mechanism.

40 What I claim is:

1. The improved radiator shutter comprising a casing adapted to be detachably secured to the radiator of an automobile, pivoted slats within the said casing, each
 45 of said slats being provided with trunnions, strips of brake lining material secured to opposite sides of the interior of said casing having holes therein to receive the said trunnions, and operating means for moving said
 50 slats in unison.

2. The improved radiator shutter com-

prising a casing adapted to be detachably secured to the radiator of an automobile, pivoted slats within the said casing, each of
 55 said slats being provided with trunnions, strips of brake lining material secured to opposite sides of the interior of said casing having holes therein to receive the said trunnions, each of said slats being provided with a rearwardly extending lug, a bar pivotally
 60 connected to each of said lugs and means within the reach of the operator for moving said bar.

3. The improved radiator shutter comprising a casing adapted to be detachably
 65 secured to the radiator of an automobile, pivoted slats within the said casing, each of said slats being provided with trunnions, strips of brake lining material secured to opposite sides of the interior of said casing
 70 having holes therein to receive the said trunnions, each of said slats being provided with a rearwardly extending lug, a bar pivotally connected to each of said lugs and means within the reach of the operator for moving
 75 said bar, a bar operating the slats in unison, and a strip of brake lining material interposed between the lugs and the bar to prevent rattling.

4. The improved shutter comprising a casing adapted to be secured to the radiator
 80 of an automobile, a series of slats and a series of trunnion rods one for each end of each slat, each of said slats having an off-set portion along one edge extending in-
 85 wardly toward the radiator and forming a groove, and an off-set curved portion along the other edge which extends inwardly toward the radiator and is adapted to fit within the groove of the adjacent slat, one of
 90 said trunnions being mounted in each off-set curved portion at each end thereof upon which said slats are pivoted, said portions being arranged so that when the slats are
 95 closed they present an exterior surface which is substantially flat.

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

STEPHEN IVAN FEKETE.

Witnesses:

A. H. STALL,
 J. L. VETTE.