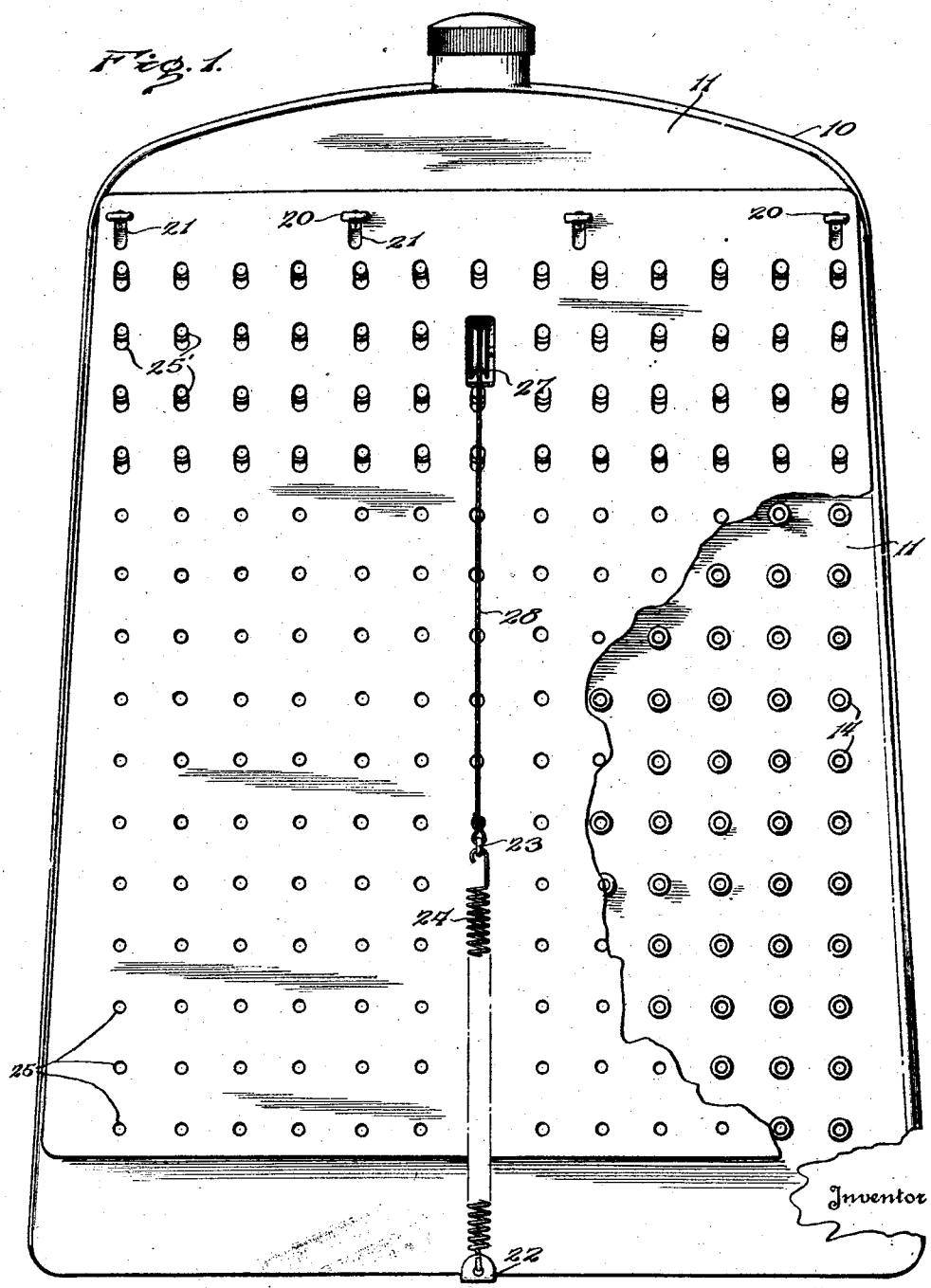
Jan. 11, 1927. 1,613,913

J. SNYDER

RADIATOR AND COVER THEREFOR

Filed March 18, 1925 2 Sheets-Sheet 1

Fig. 1.



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Fig. 2.

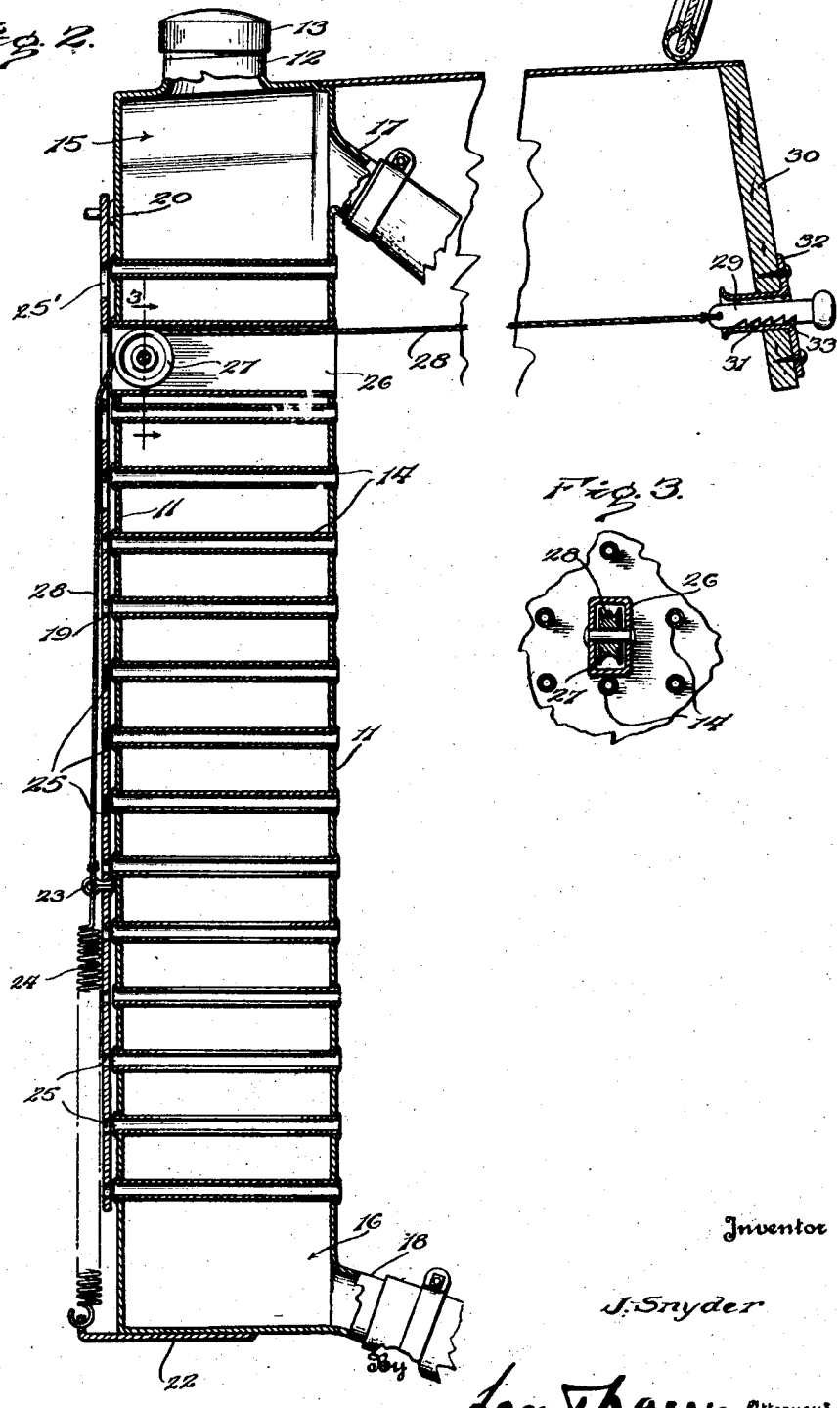


Fig. 3.

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Patented Jan. 11, 1927. 1,613,913

UNITED STATES PATENT OFFICE.

JOE SNYDER, OF FREMONT, NEBRASKA.

RADIATOR AND COVER THEREFOR.

Application filed March 18, 1925. Serial No. 16,520.

This invention relates to an improved radiator for internal combustion engines as well as a front cover for the radiator.

The invention seeks, among other objects, to provide a radiator which will function to efficiently cool the water flowing therethrough and which will be adapted for general use in lieu of engine radiators as now employed.

The invention seeks, as a further object, to provide a radiator employing air conducting tubes and wherein the water flowing through the radiator will be caused to circulate over and around said tubes.

A further object of the invention is to provide a front cover for the radiator which will be yieldably held to overlie the front face of the radiator, wherein said cover will be provided with openings to permit a flow of air through the air tubes of the radiator, and wherein the cover may be adjusted to close said tubes.

And the invention seeks, as a still further object, to provide means accessible from the driver's seat of the vehicle for raising the front cover.

Other and incidental objects will appear hereinafter.

In the accompanying drawings:

Figure 1 is a front elevation of the radiator, a portion of the cover being broken away.

Figure 2 is a vertical sectional view through my improved radiator and cover.

Figure 3 is a detail sectional view on the line 3—3 of Figure 2, looking in the direction indicated by the arrows.

In carrying the invention into effect, I employ a radiator shell 10 which, as shown in Figure 1, may be widened toward its lower end, and is formed with parallel front and back walls 11. Rising from the upper end of the shell is a filler tube 12 normally closed by a screw cap 13. Extending transversely through the shell are vertical rows of parallel air tubes 14 which project through the front and back walls 11 of the shell and are upset at their ends against said walls for rigidly securing the tubes in place. As brought out in Figure 1, corresponding tubes of the several rows are alined horizontally while, as shown in Figure 2, the rows of tubes terminate short of the ends of the shell to define a receiving chamber 15 at the upper end of the shell and a discharge chamber 16 at the lower end of the shell. Communicating with the chamber 15 is an inlet 17 and leading from the chamber 16 is an outlet 18. Thus, water entering the chamber 15 through the inlet 17 will flow downwardly within the shell over and around the tubes 15 into the chamber 16 to thence discharge into the outlet pipe 18. Accordingly, the water will be efficiently cooled by the currents of air flowing through the tubes. The tubes 14 are of like diameter.

In conjunction with the radiator, I provide a front cover 19 to overlie the front face of the radiators. Fixed to the front wall of the radiator shell adjacent the upper ends of the rows of tubes 14 are studs 20 and formed in the cover near its upper edge are slots 21 accommodating said studs for slidably and detachably mounting the cover. Fixed to the bottom wall of the radiator shell is a forwardly projecting arm 22 and engaged through the cover near its lower edge is a medially disposed staple 23 with which is connected at one end a spring 24, the opposite end of which is engaged with the arm 22. Thus, the spring will yieldably hold the cover drawn down at the front of the radiator and will prevent flapping of the cover. Formed in the cover to register with the forward ends of the radiator tubes 14, are vertical rows of openings 25. At the upper end portion of the cover, these openings are elongated, as indicated at 25′ while throughout the remaining major portion of the cover the openings are circular and are of a diameter corresponding to the diameter of said tubes.

Extending transversely through the radiator shell near the upper end thereof is a medially disposed casing tube 26 which extends through the front and back walls of the shell and is upset thereagainst for rigidly connecting the tube with the shell. As shown in Figure 3, the casing tube is preferably squared and journaled in the forward end of said tube is a pulley 27. Trained over said pulley is a cord or other flexible element 28 extending through the tube 26 and connected at its forward end to the staple 23 of the cover. The rear end of said cord is attached to a rack bar 29. This rack bar is mounted upon the instrument board 30 or other part of the vehicle convenient to the driver's seat and extending through the instrument board is a guide sleeve 31 freely accommodating the bar. At its base end, the sleeve is provided with a plate 32 which is screwed or

otherwise secured to the instrument board for connecting the sleeve therewith, and upstanding within the tube at its rear end is a shoulder 33 to coact with the teeth of the bar.

As will now be seen in view of the foregoing, the openings of the cover 19 will normally register with the radiator tubes 14 so that air will be freely admitted through said tubes. However, should it be deemed likely in cold weather that the water in the radiator might freeze, the rack bar 29 is pulled rearwardly a short distance for elevating the cover until the openings in the lower portion thereof are disposed out of register with the corresponding tubes of the radiator, when the cover will serve to cut off circulation of air through said tubes. The openings at the upper end portion of the cover are elongated in order that when the cover is thus elevated, portions of the elongated openings will still remain in registration with the tubes at the upper end portion of the radiator to permit a circulation of air therethrough so that the heated water at the top of the radiator will be partially cooled. However, the slots 21 in the cover are of such length that the cover may be further adjusted upwardly for closing all of the air tubes of the radiator, when circulation of air through the radiator will be completely cut off. Freezing may thus be effectually avoided. The rack bar 29 provides, of course, a means whereby the cover may be secured in adjusted position when either raised or lowered and I accordingly provide an arrangement whereby the flow of air through the radiator tubes may be regulated to a nicety. To remove the cover, the heads of the studs 20 are turned to aline with the slots 21 of the cover while the cord 28 is detached from the staple 23 and the spring 24 disengaged from the arm 22, when the cover may be displaced.

Having thus described the invention, what I claim is:

1. The combination with a radiator having a plurality of air tubes extending from front to rear thereof, of a cover overlying the radiator and provided with openings to register with said tubes, and means for shifting the cover to one position having the openings in the lower portion thereof disposed out of register with the tubes at the lower portion of the radiator or to another position having all of the openings in the cover disposed out of register with all of said tubes, the openings near the upper end portion of the cover being elongated whereby when the cover is shifted to said first mentioned position said elongated openings will remain in registration with the tubes at the upper end portion of the radiator.

2. The combination with a radiator having a plurality of air tubes extending from front to rear thereof, of a cover overlying the radiator and provided with openings to register with said tubes, and means for shifting the cover to close said tubes, certain of said openings being elongated whereby the cover may be shifted to a position closing certain of said tubes only.

3. The combination with a radiator having a plurality of air tubes extending from front to rear thereof, of a cover overlying the radiator and provided with openings to register with said tubes, and means for shifting the cover to close said tubes, certain of said openings being of a contour whereby the cover may be shifted to a position closing certain of said tubes only.

In testimony whereof I affix my signature.

JOE SNYDER. [L. S.]