

No. 886,016.

PATENTED APR. 28, 1908.

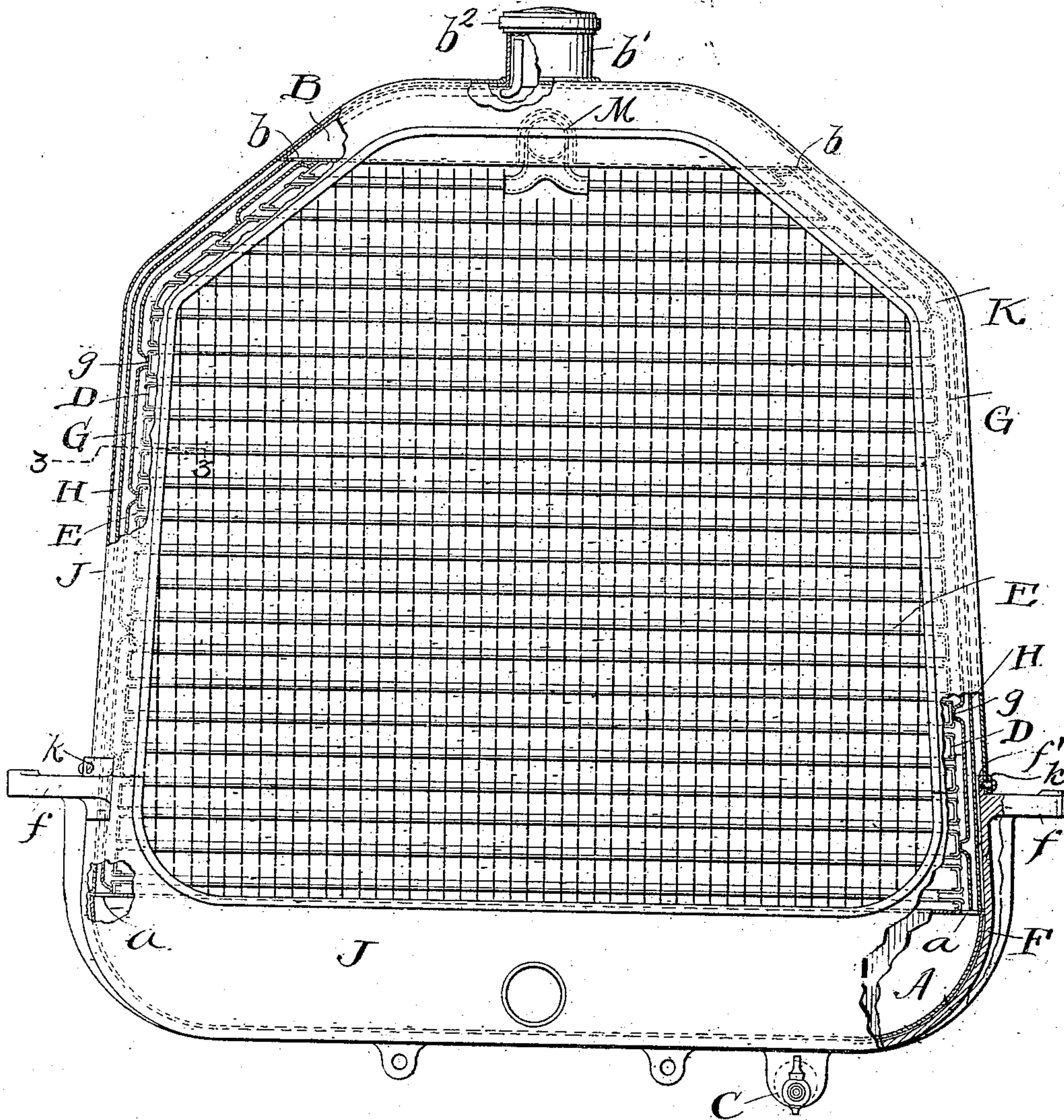
C. SCHMIDT.

AUTOMOBILE RADIATOR.

APPLICATION FILED NOV. 18, 1907.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

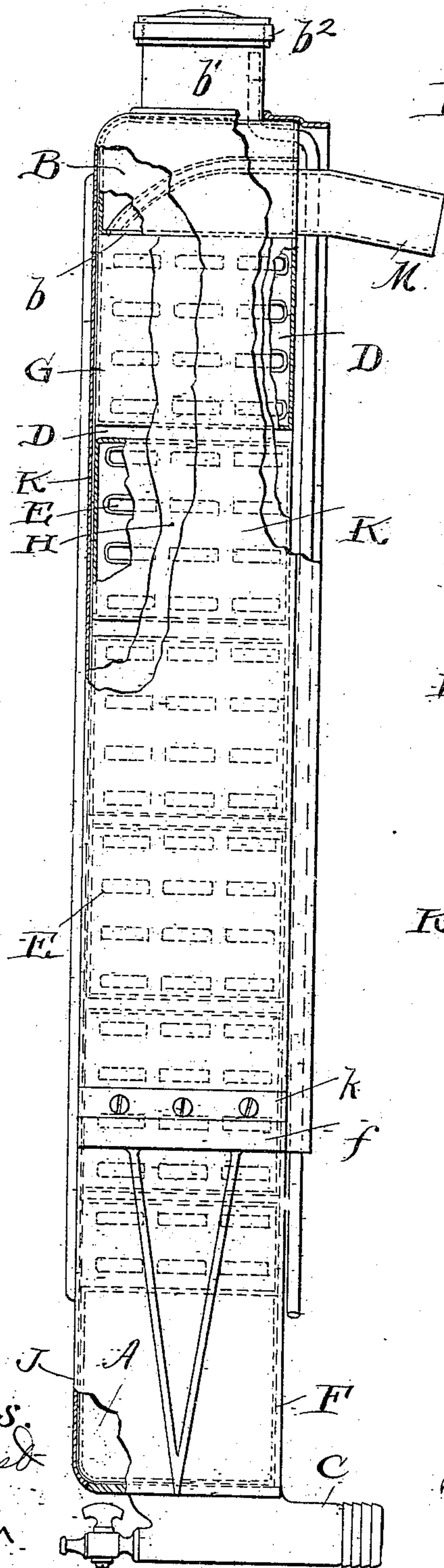


Fig. 2.

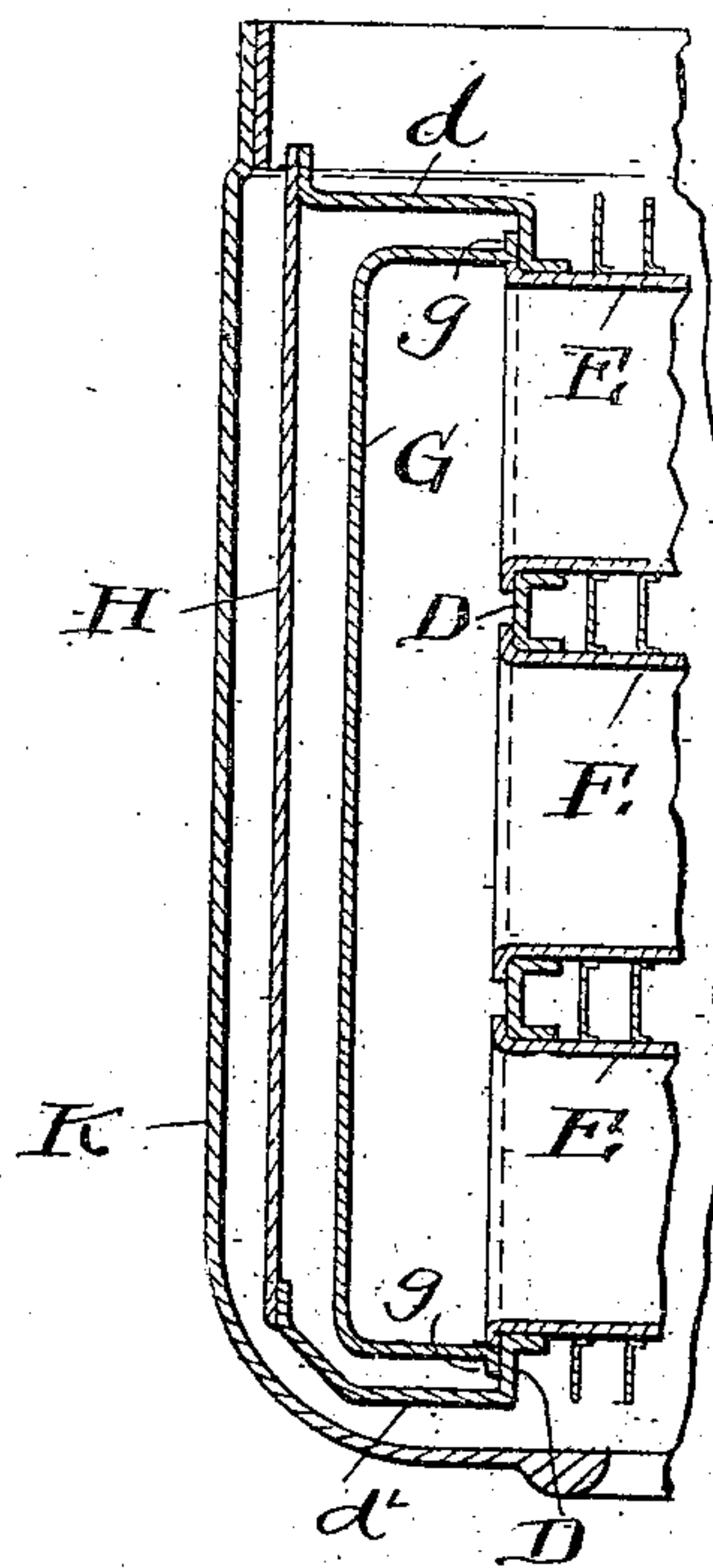


Fig. 3.

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UNITED STATES PATENT OFFICE.

CHARLES SCHMIDT, OF CLEVELAND, OHIO, ASSIGNOR TO THE PEERLESS MOTOR CAR COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF WEST VIRGINIA.

AUTOMOBILE-RADIATOR.

No. 886,016.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed November 18, 1907. Serial No. 402,637.

To all whom it may concern:

Be it known that I, CHARLES SCHMIDT, a citizen of the Republic of France, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Automobile-Radiators, of which the following is a full, clear, and exact description.

The primary object of this invention is to produce an automobile radiator which will not cause the loss of water if it should begin to leak at any points where radiators of the common construction do usually begin to leak; another object is to produce a radiator which may be easily got at when any repairs are required.

In the drawing Figure 1 is a front elevation partly broken away of a radiator embodying the invention. Fig. 2 is a side elevation thereof; and Fig. 3 is a sectional view in the plane of line 3—3 on Fig. 1.

Referring to the parts by letters, A represents the lower radiator tank which is made of sheet metal. It has two inlets *a, a*, through its top near the sides thereof. It also has an outlet pipe C through which water may flow from the tank to the engine casing or other parts to be cooled by said water.

B represents the upper tank which is also made of sheet metal. There are two outlets *b, b*, in the bottom of this tank near its sides; and a filling tube *b'* is connected with the top of said tank. Two metal side plates or headers D, D, extend between these two tanks being riveted or soldered or otherwise connected with the bottom of the upper tank and the top of the lower tank, the points of connection being inside of the openings *a, b*, in the top and bottom tanks respectively.

A large number of horizontal radiator tubes E extend from one side plate to the other, passing through holes therein, and having their projecting ends upset and secured by solder or otherwise to said side plates D. These tubes are preferably rectangular; and they are arranged in horizontal rows, preferably three tubes in a row, located one behind the other. The tubes in the top row are connected with the inlet pipe M of the radiator.

Return-bend caps G are employed to put the ends of adjacent rows of tubes into communication with each other. All of these return-bend caps except the top cap on the left side and the bottom cap on the right side,

are of such size that they cover the ends of four rows of tubes. These caps have marginal flanges *g* which lie against the side plates D and are soldered thereto. The upper return-bend caps on the left side of the radiator covers the ends of only two rows of tubes, and the bottom return-bend cap on the right side covers only two rows of tubes and serves to connect them with the inlet *a* of the tank.

It is quite clear that as water enters the radiator through pipe M it will be compelled to flow downward, passing to the right through two rows of tubes, then to the left through the next two rows of tubes, then to the right through the next two rows of tubes, and so on until discharged into the lower tank.

The radiator as far as above described, is of common construction; but it has several objectionable characteristics of construction which it is the object of the present invention to correct. For example, if any of the soldered joints between the return-bend caps G and the side plates D should begin to leak, the water passing through the opening thus formed will be lost, whereby, before a great while, there will be very little water in the circulating system. Moreover, the above described construction as heretofore used has involved also the use of several tubes connecting the upper and lower tanks.

In order to prevent the loss of water from the cause above specified, and also to avoid the necessity of using the tubes referred to, two long cover plates H are provided. These plates are connected with the upper and lower tanks outside of the opening *a, b*, and the vertical edges of these plates are soldered or otherwise connected with the two outwardly extended flanges *d, d'* of the side plates D, D, so as to embrace and cover all of the return bend plates E. If, now, there should be any break in the joints between the return bend plates E and the plates D the water escaping will not be lost but would simply flow into the pockets formed by the plates H and thence in time into the lower tank. In filling the circulating system with water, the cap *b'* of the filling tube *b'* is removed and water poured into this tube, it will flow from the upper tank through the pockets inclosed by the plates H into the lower tank and thence up through the various rows of tubes.

The radiator as above constructed rests in

a cast metal cradle F which forms the bottom of the radiator frame. It has laterally extended arms *f* by the use of which it may be connected with members of the automobile frame. On these arms are upwardly extended lugs *f'*. The upper part of the radiator frame is a single piece of sheet metal K bent into the form shown; and the ends of this piece are clamped to the lug *f'* by means of clamping plates *k* held on by screws. A sheet metal plate J is soldered to the front edge of the cast metal cradle F and extends up so as to conceal the tank A, and give a good finish to the device. The upper ends of this plate are soldered to the lower ends of the frame member K. This construction of radiator frame is useful because the upper parts of the frame and the plate J may be readily separated from the cradle F by melting the solder and removed so as to allow unrestricted access to the radiator itself.

It will be understood that the filling tube projects up through a hole in this upper part K of the radiator frame.

Having described my invention, I claim:

1. In an automobile radiator, the combination of an upper tank having outlets through

its bottom near its sides, a lower tank having inlets through its top near its sides, side members secured to said two tanks inside of said inlet and outlet openings, rows of horizontal tubes extending between and passing through said side members and secured thereto, return bend plates secured to said side members and covering a plurality of rows of tubes, and cover plates secured to the bottom of the upper tank and to the top of the lower tank outside of said openings therein, and secured at its side edges to said side members.

2. In an automobile radiator, the combination with the radiator proper and a frame comprising a cast metal cradle on which the radiator rests, which cradle has laterally extended arms and upwardly projecting lugs and an upper member of approximately inverted U shape, the lower ends of which are clamped to said lugs.

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

CHARLES SCHMIDT.

Witnesses:

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