A. BRETAGNE.

RADIATOR.

APPLICATION FILED APR. 16, 1918.

1,406,256. Patented Feb. 14, 1922.

Fig. 1.

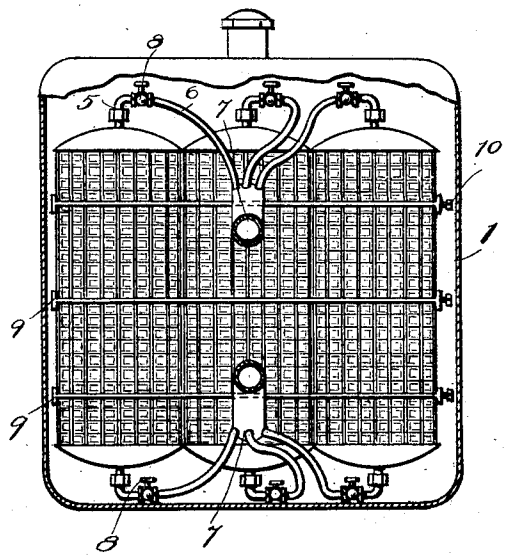


Fig. 2.

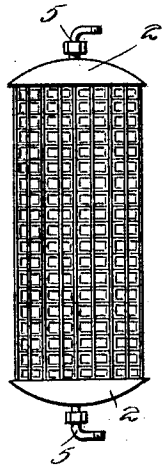


Fig. 3.

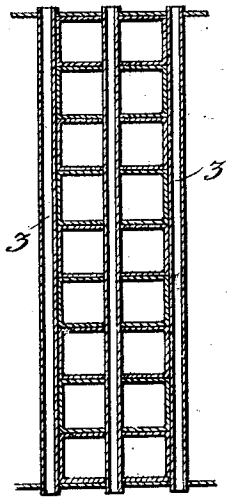
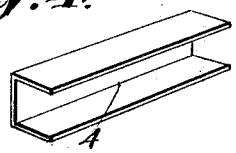


Fig. 4.



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RADIATOR.

1,406,256. Specification of Letters Patent. Patented Feb. 14, 1922.

Application filed April 16, 1918. Serial No. 228,898.

To all whom it may concern:

Be it known that I, ALCIDE BRETAGNE, a citizen of France, and resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

My invention is an improvement in radiators, of the type used in connection with internal combustion engines for motor vehicles, and the invention has for its object to provide a radiator formed from sections independent of each other, and connected with common collectors or manifolds and so arranged that any section may be cut out from the circulation and removed without affecting the efficiency of the remaining sections.

In the drawing:—

Figure 1 is a sectional view of a motor vehicle hood showing the radiator in elevation and the collectors in section,

Figure 2 is a front view of a section detached,

Figure 3 is an enlarged sectional detail showing the construction of the sections, and

Figure 4 is a perspective view of a portion of one of the radiating fins.

The present embodiment of the invention is shown in connection with the hood 1 of a motor vehicle, the radiator sections which in the present instance are three in number being arranged within the casing and supported in any suitable or desired manner.

Each of the sections comprises a pair of headers 2 spaced apart from each other, and connected by a series of water pipes 3 which extend from one header to the other, and communicate with the headers at their ends. These pipes are arranged in spaced parallel relation, and the radiating fins 4 are arranged between the pipes, the said fins being as shown in Figure 4 channel shaped plates which are arranged in superposed relation extending from the front to the rear of the section. A number of series of pipes is provided, each series being arranged in a plane extending from front to rear of the section, and the free edges of each series of plates 4 abut against the adjacent series of pipes. Each header has a connection 5 adapted for engagement with a pipe 6 which leads to a common collector 7 and these collectors are connected with the circulation system of the motor to receive the water therefrom and deliver the water thereto. A valve 8 is arranged between each connection and the adjacent pipe, and any of these valves may be closed when desired. The sections are clamped together by the clamps as shown in Figure 1. Each of these clamps 9 embraces all of the sections of the radiator, extending entirely around the sections and set screws 10 are provided for holding the sections closely together. Should it be necessary for any reason, as for instance for repairing or cleaning, to remove a section, the valves 8 at the ends of the section are closed, the clamps are loosened, and the section is removed. The remaining sections may serve until a new section has been replaced or until the old section is repaired.

It will be understood that as many sections may be used as may be found necessary or desirable, and the sections consist essentially of spaced headers connected by water pipes and having radiating fins in connection with the pipes. The improved radiators may be easily transported, since the sections may be separated, and the radiator may be quickly set up when desired.

It will be noticed that the connection for the filling cap is with one of the headers, preferably the header of the central section when an odd number of sections is used.

With reference to Figure 1 it will be observed that the branch pipes 6 of the manifolds 7 are substantially less in diameter than the manifolds 7 and may therefore be readily bent so that the manifolds may be positioned for connection with the water circulating system of an internal combustion engine. That is to say the manifolds 7 may be connected with the upper and lower pipes or conduits of an internal combustion engine of any desired type. By reason of this construction it is not necessary to build the radiator for a particular type of engine.

I claim:—

1. A radiator comprising a plurality of vertically arranged independently removable sections having their upper and lower ends formed with headers, upper and lower manifolds having branch pipes detachably connected to said upper and lower headers, a valve interposed in each branch pipe of the upper and lower manifolds whereby to independently control the circulation of water through each section, and a plurality of spaced parallel transversely extending clamps embracing all the sections for de-

tachably connecting the same and having set screws engaging the side of one of the sections.

2. A radiator comprising a plurality of vertically arranged independently removable sections having their upper and lower ends formed with headers, upper and lower manifolds having branch pipes detachably connected to said upper and lower headers, a valve interposed in each branch pipe of the upper and lower manifolds whereby to independently control the circulation of water through each section, and a plurality of spaced parallel transversely extending clamps embracing all the sections for detachably connecting the same and having set screws engaging the side of one of the sections, said branch pipes being substantially less in diameter than the diameter of said manifolds, whereby the branch pipes may be readily bent.

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Witnesses:
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