J. B. BEAM.

AUTOMOBILE RADIATOR.

APPLICATION FILED AUG. 17, 1918.

1,387,755. Patented Aug. 16, 1921.

Fig. 1.

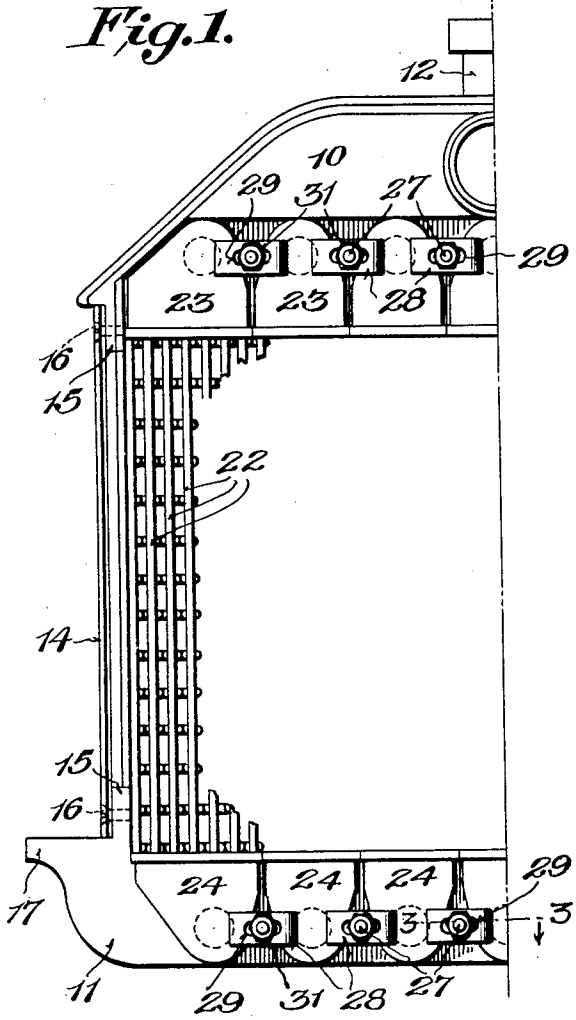


Fig. 2.

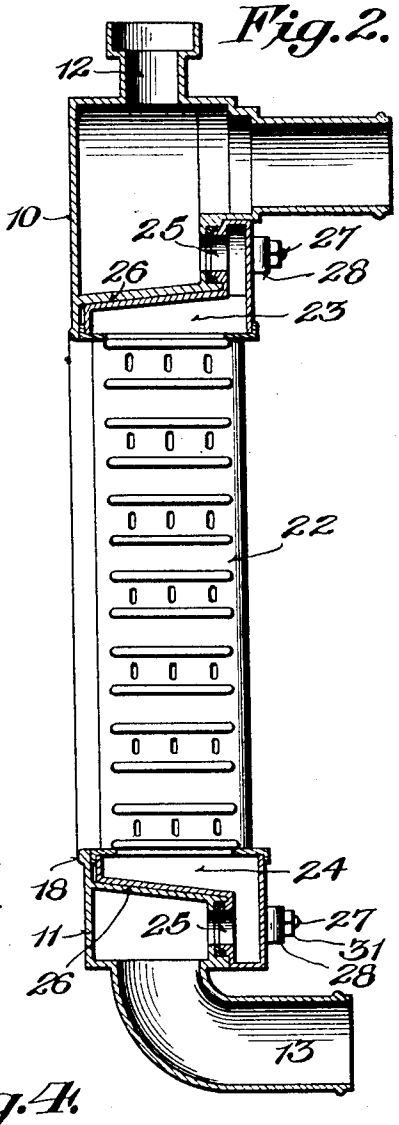


Fig. 3.

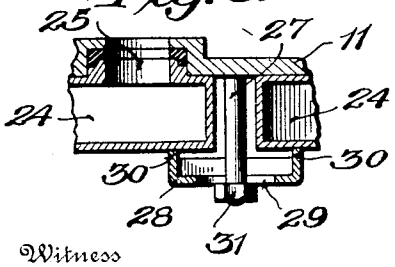
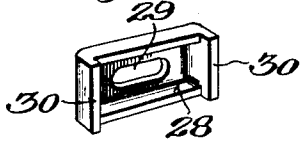


Fig. 4.



Witness

Chas. L. Griesbauer

Inventor

Jacob B. Beam,

By T. Lloyd Moorman

Attorney

UNITED STATES PATENT OFFICE.

JACOB B. BEAM, OF PUNXSUTAWNEY, PENNSYLVANIA.

AUTOMOBILE-RADIATOR.

1,387,755. Specification of Letters Patent. Patented Aug. 16, 1921.

Original application filed July 30, 1917, Serial No. 183,552. Divided and this application filed August 17, 1918. Serial No. 250,397.

To all whom it may concern:

Be it known that I, JACOB B. BEAM, a citizen of the United States, residing at Punxsutawney, in the county of Jefferson and State of Pennsylvania, have invented new and useful Improvements in Automobile-Radiators, of which the following is a specification.

This invention relates to radiators for use in connection with motor vehicles for the purpose of cooling the water which circulates in the cylinders of the engine, and is a division from the subject matter of an application filed by me July 30, 1917, Serial No. 183,552.

The primary object of the present invention is to provide means for easily and quickly removing or securing the independent tube sections of the radiator in position.

To this end the invention includes a stud carried by the radiator casing and projecting between adjacent tube sections and a slotted element mounted upon the stud for contacting engagement with the headers of the adjacent tube sections and fastening means mounted upon the end of the stud for holding the slotted elements in such contact.

The invention also consists of the following novel details of construction, combination and arrangement of parts to be hereinafter more fully described and illustrated in the accompanying drawings.

In the drawings:—

Figure 1 is a partial rear elevation of the radiator having the improved securing means applied thereto, portions of the tube sections broken away;

Fig. 2 is a central sectional view of the same;

Fig. 3 is an enlarged fragmentary horizontal section taken centrally through one of the spanners and the adjacent portion of the radiator on line 3—3 of Fig. 1;

Fig. 4 is a detail perspective view of one of the slotted elements or spanners.

In the usual construction of radiators, the radiator proper is ordinarily made of a single casting, which contains the upper and lower water headers, which are connected together by the water circulating tubes. In this form of radiator, it is necessary to make the casting of suitable thickness in order to secure strength and to prevent damage to the casting when the central core which forms the space occupied by the water circulating tubes is removed. In order to present a neat and attractive appearance, it is necessary to use in connection with this casting, a cover or casing, thereby adding to the cost of manufacture and increasing the amount of material necessary to construct the radiator.

In order to overcome these and other disadvantages the present invention contemplates the provision of a casing made in separate sections, so that the above mentioned central core is not necessary in its manufacture and the casing may be made of lighter material. As shown in the accompanying drawings, the radiator includes an upper casting 10 and a lower casting 11, both of which are hollow and provide upper and lower water chambers, the former being equipped with a water inlet 12 and the latter with an outlet 13, both of which are connected to the water circulating system of a motor in the usual manner. The sections 10 and 11 are connected together by side sections 14, the upper ends and lower ends of which are secured to inset lugs 15 formed on the sections 10 and 11, by means of screws 16 or analogous devices. The lower section 11 is provided with laterally extending flanges 17, which are adapted to be secured to the machine frame in the usual manner. The castings are also provided with a finish bead 18 upon their front faces, so that it is not necessary to employ an additional cover or casing for the radiator.

The water circulating tubes, which are similar in construction to those shown and described in the above mentioned application, are formed of a single piece of sheet metal and are indicated at 22. These tubes are arranged in independent sections, which are composed of a plurality of tubes secured together at each end by headers 23 and 24, the former being adapted to communicate with the upper water chamber 10 and the latter with the lower water chamber 11 through the medium of a water tight joint 25. These headers are provided with inclined faces 26, which are adapted to contact with similarly formed faces provided upon the adjacent walls of the upper and lower castings or sections 10 and 11. This prevents binding of the headers and sections when the former are being re-

moved and also provides a sufficiently tight joint between the parts to prevent any relative movement after the independent tube sections are secured in position. In addition this prevents binding of the tubes of adjacent sections during such insertion or removal.

As before stated the particular novelty of the present invention resides in the manner of securing the independent tube sections in position and for this purpose each of the casings 10 and 11 have projecting rearwardly therefrom studs or bolts 27, one of these bolts being positioned between each of the upper and lower headers 23 and 24 of adjacent independent tube sections, these headers being so formed as to provide room for the passage of the bolts or studs. Removably mounted upon each of the bolts or studs 27 is a slotted element or spanner 28, the slot 29 of which is adapted to take over the threaded end of the stud to removably hold the independent tube sections in position. For the purpose of securing the proper strength, the spanner 28 is of channel formation and has each of its ends 30 projecting slightly for engagement with the outer faces of the headers of the adjacent tube sections, while a nut 31 serves to bind the parts together. By forming the spanners in the manner shown and described, they may be stamped from sheet metal and bent into shape, so as to manufacture them at a low cost without sacrificing their strength. The provision of the slot 29 serves to permit of proper positioning of the spanners in the event of difference in the size of the headers. Also by slotting the spanner, the latter may be moved laterally for proper engagement with the radiator sections, while by extending the ends beyond the side walls of the channel, the side walls are prevented from contact with the sections and a more secure engagement is effected.

Should any of the independent tube sections become damaged, or their removal be desired for any other reason, it is only necessary to loosen the particular spanners 28, by loosening the nuts 31 to permit of the removal of the desired section. As new section may be substituted for the one removed with equal facility.

The invention is susceptible of various changes in its form, proportions and minor details of construction and the right is reserved to make such changes.

Having described the invention, what is claimed is:—

1. A radiator for motor vehicles embodying a casing comprising upper and lower water chambers and side walls connecting said chambers, removable independent tube sections communicating with said chambers and means including spanners adjustable laterally for engagement with the adjacent tube sections for holding the latter in position.

2. A radiator for motor vehicles embodying a casing comprising upper and lower water chambers and side walls connecting said chambers, removable independent tube sections, headers at each end of each of said sections and means carried by the casing and adjustable laterally for engagement with said headers for holding the removable tube sections in position.

3. The combination with a radiator for internal combustion engines having upper and lower water chambers and removable independent tube sections, of a spanner comprising a longitudinally channeled member adapted to engage the adjacent tube sections, walls located at each end of the channel and extending beyond the edges of the channel, and means for removably securing the spanner in position.

4. The combination with a radiator for internal combustion engines having upper and lower water chambers and removable independent tube sections, of a spanner comprising a channeled member forming a base and side walls, end walls of greater width than the side walls to provide engaging edges for contact with the adjacent tube sections and means for removably securing the spanner in position.

5. The combination with a radiator for internal combustion engines having upper and lower water chambers and removable tube sections, of a spanner comprising a slotted element engageable with the adjacent tube sections and studs carried by the radiator and passing through the slot of the spanner for adjustably and removably holding the spanner in position.

In testimony whereof, I affix my signature.

JACOB B. BEAM.