

No. 859,161.

PATENTED JULY 2, 1907.

A. WILLMER.

FASTENING WATER COOLED VALVE BOXES TO THE CYLINDERS
OF COMBUSTION ENGINES.

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Fig. 1.

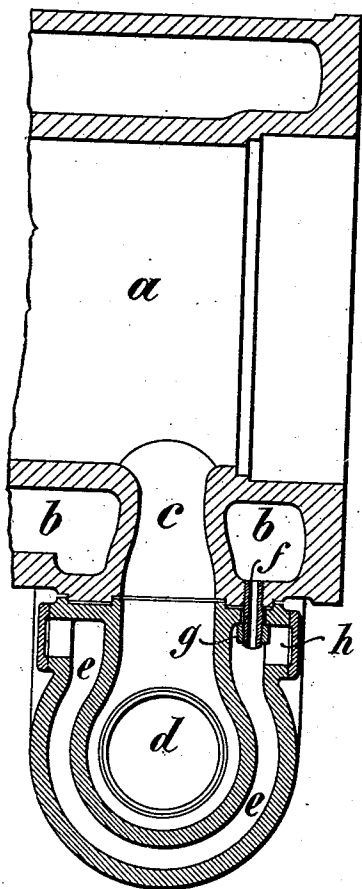
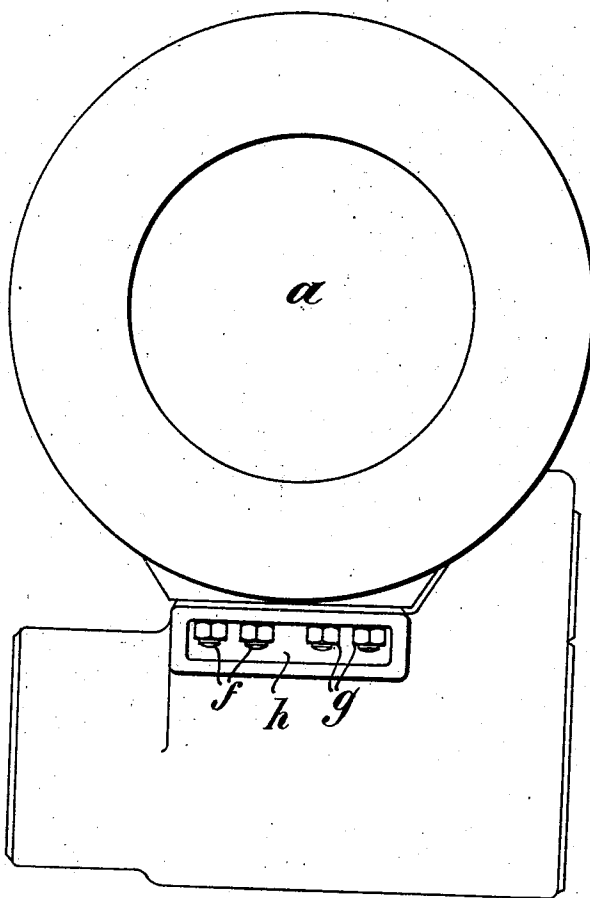


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

ARNOLD WILLMER, OF LINDEN, NEAR HANOVER, GERMANY, ASSIGNOR TO GEBR. KÖRTING, AKTIENGESSELLSCHAFT, OF KORTINGSDORF, NEAR HANOVER, GERMANY, A CORPORATION.

FASTENING WATER-COOLED VALVE-BOXES TO THE CYLINDERS OF COMBUSTION-ENGINES.

No. 859,161.

Specification of Letters Patent.

Patented July 2, 1907.

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To all whom it may concern:

Be it known that I, ARNOLD WILLMER, of Linden, a subject of the King of Prussia, and whose post-office address is No. 9 Marktplatz, Linden, near the city of Hanover, Prussia, German Empire, have invented new and useful Improvements in Fastening Water-Cooled Valve-Boxes to the Cylinders of Combustion-Engines, of which the following is a specification.

The present invention relates to a device for fastening water-cooled valve-boxes to the water-cooled cylinders of combustion engines.

It is found that with water-cooled valve-boxes which are screwed to the working cylinder of a combustion engine difficulties often arise in arranging a sufficient number of bolts or screws for fastening the same. The screws necessitate the water-jacket being cut away too much, or a very large flange must be arranged outside; for which there is no room in most cases.

In accordance with the present invention these difficulties are avoided by the valve-box being secured to the cylinder with the aid of hollow screws, screw-bolts, or the like, which extend at both sides to the water-jacket and permit the cold water to flow through their borings from the one to the other jacket.

In order that the invention may be more clearly understood, reference is made to the accompanying drawing in which one embodiment is shown by way of example, and in which:

Figure 1 is a vertical section through a valve-box and part of a cylinder, and Fig. 2 is a vertical end elevation of part of the same.

Similar letters of reference refer to similar parts in both views.

The drawing represents a valve-box which is fastened laterally to the cylinder of an engine and *a* denotes the cylinder, *b* its water-jacket, *c* the passage from the cylinder to the valve-box *d*, *e* the water-jacket of the valve-box. The valve-box is connected with the cylinder by means of the hollow screw-bolts *f*, the nuts *g* of which are situated in the water-jacket of the valve-box

and can be screwed up from without through lateral holes in the water-jacket which can be closed. The cold water is introduced into the water-jacket of the valve-box and overflows through the borings of the screws *f* or the like into the water-jacket of the cylinder *a*. In this manner the water is well distributed, and the passage *c*, the sides of which are contacted most by the hot gases, is thoroughly and uniformly cooled. Further, this construction has the advantage over that in which solid screws are inserted into the water-jacket, that a considerable weakening of the sides of the water-jacket by special openings for the passage of the cold water, which are arranged besides the holes for the screws, is avoided.

While the construction of parts preferred has been described in the foregoing specification, it is to be understood that numerous changes of construction may be made without departing from the spirit and scope of the invention, and it is therefore not to be understood as limited by the positive terms employed in connection with the description, excepting such as the state of the art may require.

What I claim, and desire to secure by Letters Patent of the United States, is:—

1. In a combustion engine, the combination with a cylinder provided with a water-cooled jacket, of a valve-box provided with a water-cooled jacket, and hollow means fastening said valve-box to said cylinder and forming a passage from the one jacket to the other, essentially as described.

2. In a combustion engine, the combination with a cylinder provided with a water-cooled jacket, of a valve-box provided with a water-cooled jacket, and screws or screw bolts having holes bored longitudinally through the same fastening said valve-box to said cylinder and forming a passage from the one jacket to the other, essentially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ARNOLD WILLMER.

Witnesses:

JAMES M. BOWCOCK,
PAUL R. THOMPSON.