W. A. BEINKE.

WATER JACKET.

APPLICATION FILED JAN. 3, 1912.

1,050,600. Patented Jan. 14, 1913.

Fig. 5.

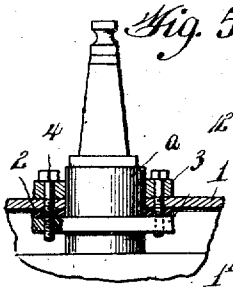



Fig. 1.




Fig. 2.

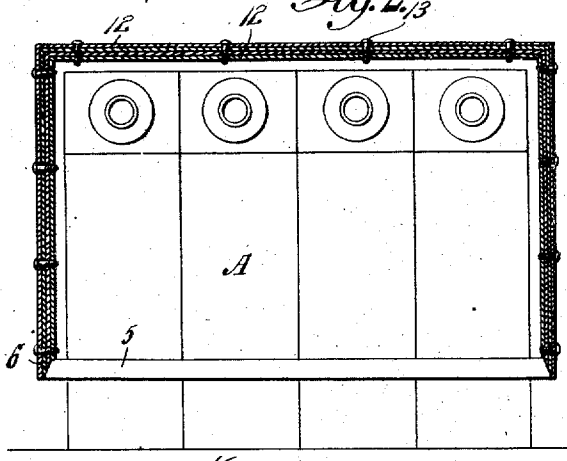



Fig. 3.

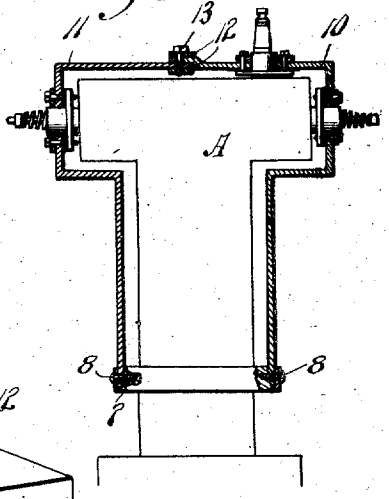
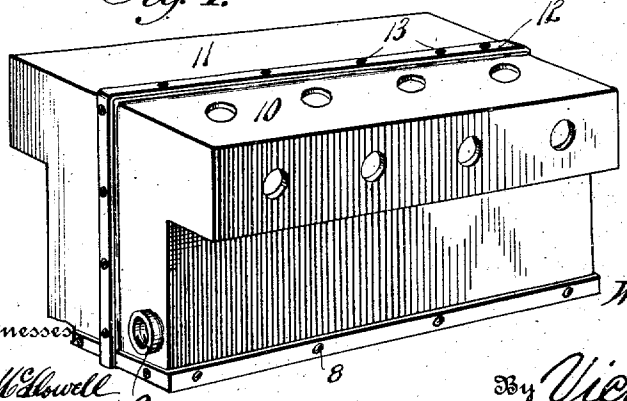



Fig. 4.

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# UNITED STATES PATENT OFFICE.

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## WATER-JACKET.

1,050,600. Specification of Letters Patent. Patented Jan. 14, 1913.

Application filed January 3, 1912. Serial No. 669,219.

*To all whom it may concern:*

Be it known that I, WILLIAM A. BEINKE, a citizen of the United States of America, residing at Webster, in the county of Keokuk and State of Iowa, have invented new and useful Improvements in Water-Jackets, of which the following is a specification.

This invention relates to improvements in engine construction and has particular application to water jackets for explosive engines.

In carrying out the present invention, it is my purpose to provide a jacket for explosive engines which will be capable of containing a quantity of water or other cooling medium to properly cool the cylinders of the engine and which may be readily detached from the engine to permit renewing of the jacket in the event of the latter becoming mutilated or broken.

Furthermore, I aim to provide a detachable jacket for engine cylinders which will be capable of containing a suitable quantity of cooling fluid and which may be applied to the cylinders and securely fastened thereto after the casting of the cylinders, thus permitting grinding of the cylinders subsequent to the casting operation to remove any imperfections.

The invention has for a further object the provision of a jacket which will have detachable engagement with the engine cylinders and be rigidly secured thereto to provide a fluid tight joint between the jacket and the engine to prevent leakage of the cooling fluid.

A still further object of the invention is the provision of a jacket which will be detachably associated with engine cylinders and formed with suitable openings to accommodate the valves and spark plugs of the engine.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of parts hereinafter set forth in and falling within the scope of the claim.

In the accompanying drawing; Figure 1 is a side elevation of an engine equipped with the present invention, the engine being of that type which carries the valves at the sides. Fig. 2 is a longitudinal sectional view through the jacket, the engine cylinders being shown in elevation. Fig. 3 is a transverse sectional view through the jacket, the engine cylinder being shown in elevation. Fig. 4 is a perspective view of the jacket removed from the engine, and Fig. 5 is an enlarged sectional view of a portion of the jacket.

Referring now to the accompanying drawing in detail, the numeral 1′ indicates a casing forming the jacket and comprising the sections 10 and 11, the latter being in the present instance longitudinal sections. These sections, in the present instance, when assembled, present a jacket of substantially T-shape in cross section and such sections are joined by the edges of one section overlapping the adjacent edge of the other section, the edges being bound together through the medium of the retaining strips 12 arranged interiorly and exteriorly of the sections and provided with openings alining with openings in the overlapping ends of the sections and designed to receive screws or other fastening devices 13, which latter are preferably threadedly engaged with a threaded opening in the inner strip, suitable packing being employed between the parts as desired. When applying the sections 10 and 11 to the cylinders of the engine A, said sections are disposed at the sides of the cylinders and slip over the same to bring the edges into overlapping engagement in order to facilitate the fastening of the sections as above described.

In the casting of the cylinders, the valve and spark plug openings thereof are provided with suitable flanged collars *a* projecting outwardly of the walls a suitable distance and designed to permit the operation of the valves and the energization of the spark plugs from their respective operating means, while the upper side of one of the sections of the casing 1′, or both sections if necessary, is provided with a plurality of openings designed to aline with the openings in the cylinder and adapted to have their inclosing walls brought into engagement with the collars *a*. Intermediate the collars *a* and the walls of the openings in the jacket is disposed a packing 2 of suitable water proof material and encircling the openings on the outer surface of the jacket are clamping rings 3 formed with apertures adapted to aline with threaded openings in the flanges of the collars and designed to receive fastening screws 4 to prevent leakage of the cooling fluid past the valve and spark plug openings. Formed integral with the lower ends of the cylinders is a flange 5

extending around the engine and formed with a beveled longitudinal edge 6 provided with threaded apertures 7. The inner sides of the wall of the lower open end of the jacket are designed to snugly engage the flange 5 and are provided with apertures alining with the apertures 7 in the flange for the purpose of receiving screws 8 whereby the jacket may be securely fastened upon the engine. Embracing the lower end of the jacket is a metallic strip of steel or other suitable material designed to bind the lower edges of the walls of the casing against the beveled side of the flange 5 before the application of the securing screws 8, so that previous to the application of the screws, the jacket may be forced downwardly and into engagement with the flange, after which the screws 8 are inserted within the opening to securely hold the jacket in position and provide a fluid tight joint, it, of course, being understood that suitable packing may be arranged between the inner and outer surfaces respectively of the jacket and the flange.

After the sections of the jacket have been assembled and fastened to one another and to the engine as described, the inner walls of the jacket will of course be spaced apart from the walls and head of the cylinders to provide ample water space to facilitate the cooling of the engine. The jacket is provided with suitable nipples 9 designed to receive conveying pipes for the cooling fluid which are usually connected with a pump (not shown) or other suitable mechanism in order to properly circulate the cooling fluid around the cylinders.

I desire to have it understood that the jacket may be of any suitable formation according to the formation of the cylinders of the engine and that I do not limit myself to the particular formation of jacket herein described and delineated.

Having thus described my invention, what I claim and desire to secure by Letters-Patent is:

In engine construction, the combination with an engine cylinder provided with valve openings and having flanged collars encircling said openings, of a jacket detachably associated with the cylinder and adapted to contain a cooling medium and comprising two sections having their proximate edges overlapping each other, retaining strips on the inner and outer sides of the overlapping edges of said sections, means passing through the proximate edges of the sections and the said strips for securing the sections in jacket formation, said jacket being provided with openings alining with the valve openings in the engine cylinder and having their inclosing walls in engagement with the flanges on the collars, clamping rings encircling said collars and mounted on the side of the jacket opposite from the flanges on the collars for securing said walls to the collars to prevent leakage around the parts, and a water tight packing disposed between the flanges on said collars and the adjacent walls of the openings in said jacket.

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

WILLIAM A. BEINKE.

Witnesses:
HARVEY JOHNSTON,
STANTEN T. WHEELER.