

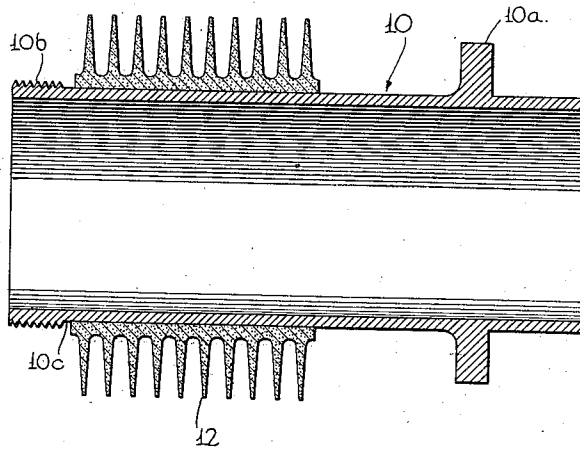
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FINNED CYLINDER

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2,393,036

FINNED CYLINDER

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1 Claim. (Cl. 257—261)

This invention relates to a heat transfer structure, such as of a finned cylinder, and has for an object the provision of improvements in this art.

Cylinders of internal combustion engines, compressors, and the like often require cooling fins. The fins may be cast integrally with the barrel, but since the cylinder is usually of a strong metal like steel the fins do not exchange heat as rapidly as desired. It is common to form threads on the outer surface of a cylinder barrel or sleeve to secure a cylinder head. The threads are raised externally to keep the barrel thin and uniform. There is also usually an anchorage flange near the lower end of the cylinder. Consequently there is an annular groove in the cylinder barrel where the fins are to be located.

Many methods have been proposed for providing fins of good heat transfer material on the cylinder within the groove. It is an object of the present invention to provide a new and improved method of furnishing such cylinders or others with cooling projections or fins and to provide a new and improved finned cylinder structure.

The objects and advantages of the invention will be apparent from the following description of an exemplary embodiment, reference being made to the accompanying drawing, wherein the single figure is an axial section of a finned cylinder made in accordance with the present invention.

In the embodiment illustrated a cylinder barrel 10 is formed with an anchorage flange 10a and head-attaching external threads 10b, a circumferential groove 10c being left between the flange and threads.

According to the present invention there is built up in situ in the groove 10c a finned structure 12 of any desired form or arrangement of

comminuted metal and suitable binder according to methods now well known in powder metallurgy for different and unrelated purposes. A metal of good heat transfer properties, such as copper, aluminum, silver, etc., may be used, copper being at present preferred.

The molded structure may for some purposes have value without further treatment but preferably it is sintered under heat and pressure to a final compressed shape to give it a permanent, homogeneous, strong character. The fins are pressed principally axially to make them thinner rather than smaller in diameter.

By this same action the fin structure is shrunk and bonded to the cylinder barrel, thus forming a good heat transfer medium for the cylinder.

The fins may have any shape and disposition desired, either annular, spiral, axial or any other arrangement. Preferably they are circumferentially disposed and joined at the base so as to form a mechanically strong tight muff or band on the cylinder barrel. The fin-connecting base band is compressed radially during sintering. Instead of fins some other form of heat transfer projections may be made in the same way.

While one embodiment of the invention has been described for purposes of illustration, it is to be understood that there may be various embodiments within the limits of the prior art and the scope of the subjoined claim.

What is claimed is:

A finned engine cylinder construction comprising a barrel of ferrous metal having a circumferential groove therein, and a circumferentially finned muff of heat and pressure sintered copper powder molded and sintered in situ on the barrel.

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