T. E. MURRAY.

ENGINE CYLINDER.

APPLICATION FILED NOV. 20, 1917.

1,267,253. Patented May 21, 1918.

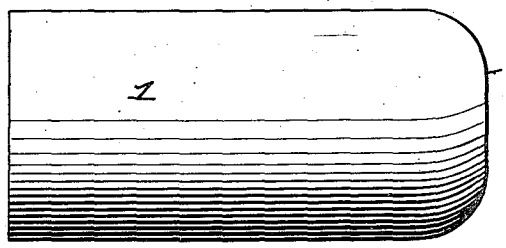

Fig: 1.

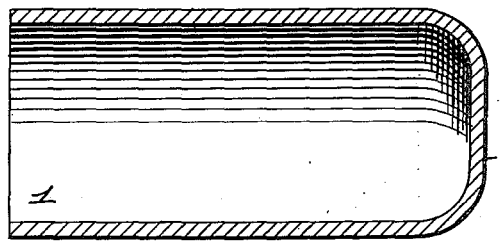

Fig: 2.

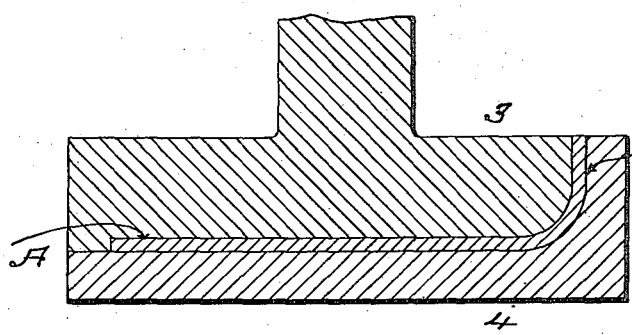

Fig: 3.

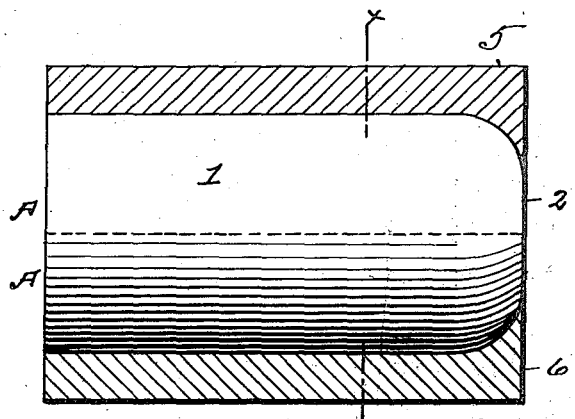

Fig: 4

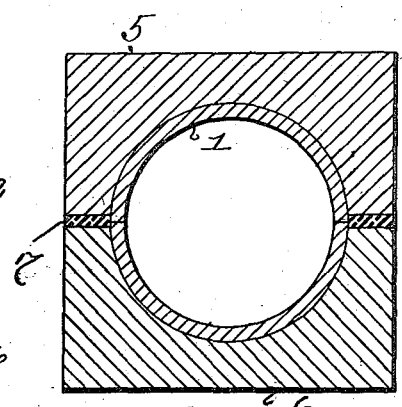

Fig: 5.

INVENTOR

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UNITED STATES PATENT OFFICE.

THOMAS E. MURRAY, OF NEW YORK, N. Y.

ENGINE-CYLINDER.

1,267,253. Specification of Letters Patent. Patented May 21, 1918.

Application filed November 20, 1917. Serial No. 202,952.

To all whom it may concern:

Be it known that I, THOMAS E. MURRAY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Engine-Cylinders, of which the following is a specification.

The invention is an engine cylinder.

The cylinder may be a part of an internal combustion or steam engine, but is more especially intended for the former class of motors. The object is to secure the maximum lightness, coupled with ample strength, and so to adapt the cylinder for use in aeroplane internal combustion engines.

To this end, I form the cylinder and head integrally of sheet metal, such as steel. Hitherto a cylinder of this type has been made by repeated drawings of a blank, with intervening reheatings of the metal made necessary by its working. To make such a cylinder in this way sometimes requires as many as ten drawings, and from two to five reheatings. I avoid the whole of such drawings and reheatings, and produce a cylinder and head fully as strong and at very much less expenditure of time and money. My invention consists in the construction of said cylinder and head integrally of homogeneous metal, and also the method of producing the same from seamless interchangeable unit half sections, as hereinafter set forth.

In the accompanying drawings—

Figure 1 is a side elevation of my engine cylinder completed. Fig. 2 is a longitudinal section thereof. Fig. 3 is a longitudinal section of the dies for producing a unit half section of said cylinder. Fig. 4 shows two half sections forming the cylinder in elevation and disposed between the welding electrodes. Fig. 5 is a transverse section on the line x, x of Fig. 4.

Similar numbers and letters of reference indicate like parts.

The completed cylinder 1 is formed integrally with its head 2 of sheet metal in the following manner:

I prepare a plurality of seamless longitudinally divided half cylinder sections A, integral with which are half or semicircular head sections B. These unit half sections may be made in any numbers, and as they are all exactly alike, any two of them may be assembled to form a complete cylinder and head. To accomplish this I make each unit half section by pressing a blank of sheet metal between suitably formed dies 3, 4, Fig. 3, which dies are to be so shaped that not only will the half cylindrical section A, but the semicircular head B will be made by a single pressing operation. Two of the unit half sections thus produced are placed between the electrodes 5, 6, in each of which is a recess conforming to the shape of a unit half section. In these recesses the unit half sections are seated, with the edges of one unit half section facing the edges of the other unit half section. Between the opposing faces of said electrodes outside of the half sections may be interposed a layer 7 of insulating material. The welding current when established is caused to pass transversely across the joint between said half sections. Said electrodes may be pressed together during the passage of the welding current, whereby the contacting edges of said half sections become united, and a complete cylinder and head of homogeneous metal is finally produced.

I claim:

As a new article of manufacture and sale, an engine cylinder and head integrally formed of sheet metal and composed of two longitudinal seamless half sections of said cylinder and integral therewith two diametral sections of said head, the said half sections being placed edge to edge and electrically welded together.

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

THOMAS E. MURRAY.

Witnesses:

GERTRUDE P. PORTER,

MAY T. MCGARRY.