No. 855,687. PATENTED JUNE 4, 1907.

I. S. BARNETT.

HEAT RADIATING RING.

APPLICATION FILED FEB. 6, 1904.

Fig. 1.

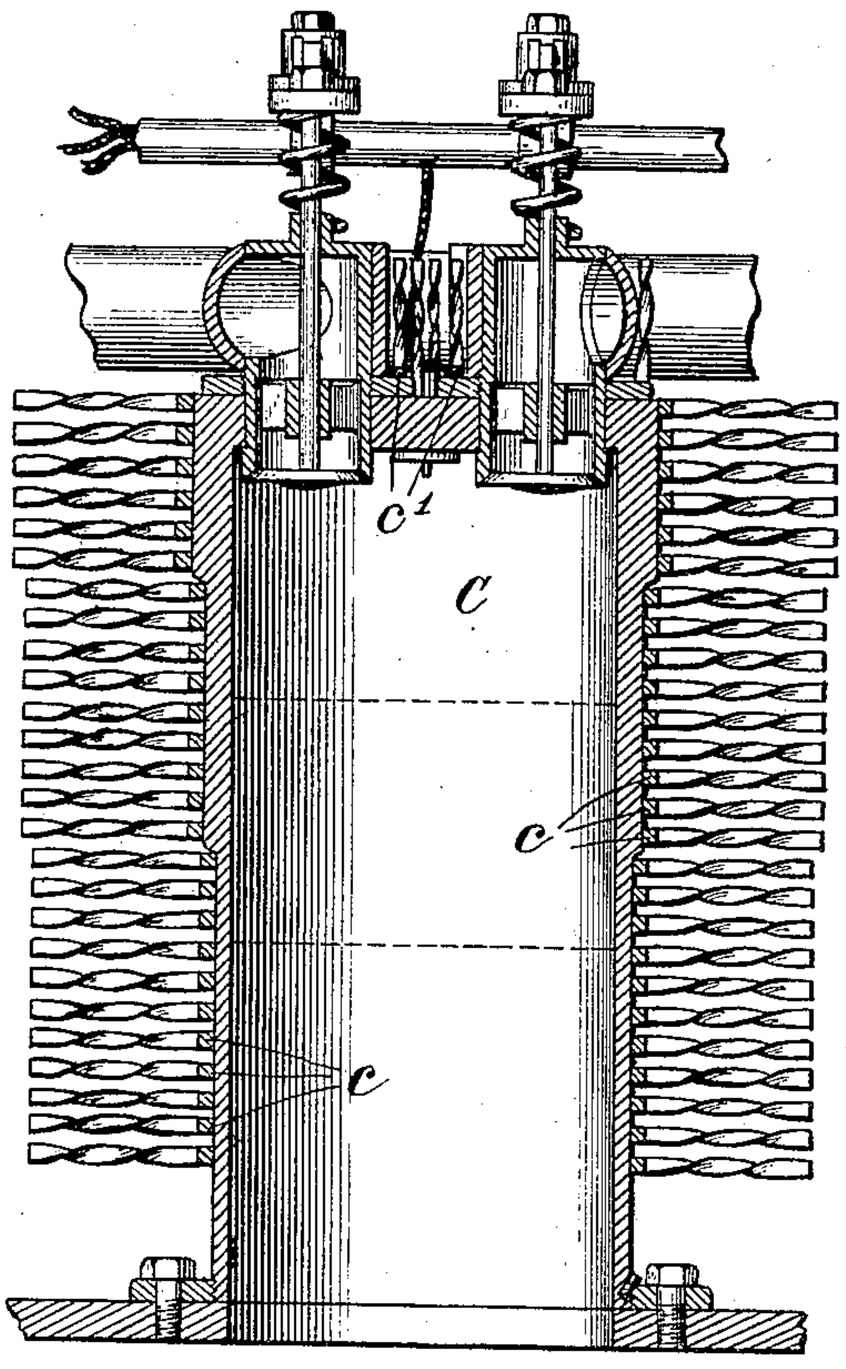
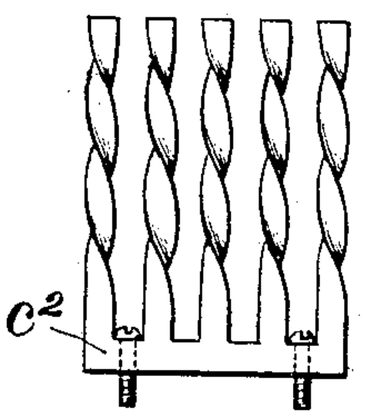


Fig. 3.



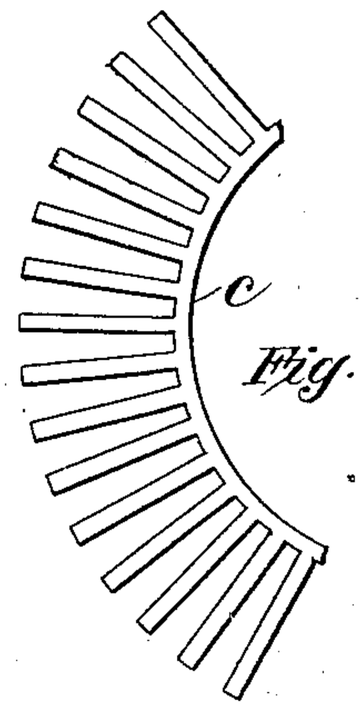
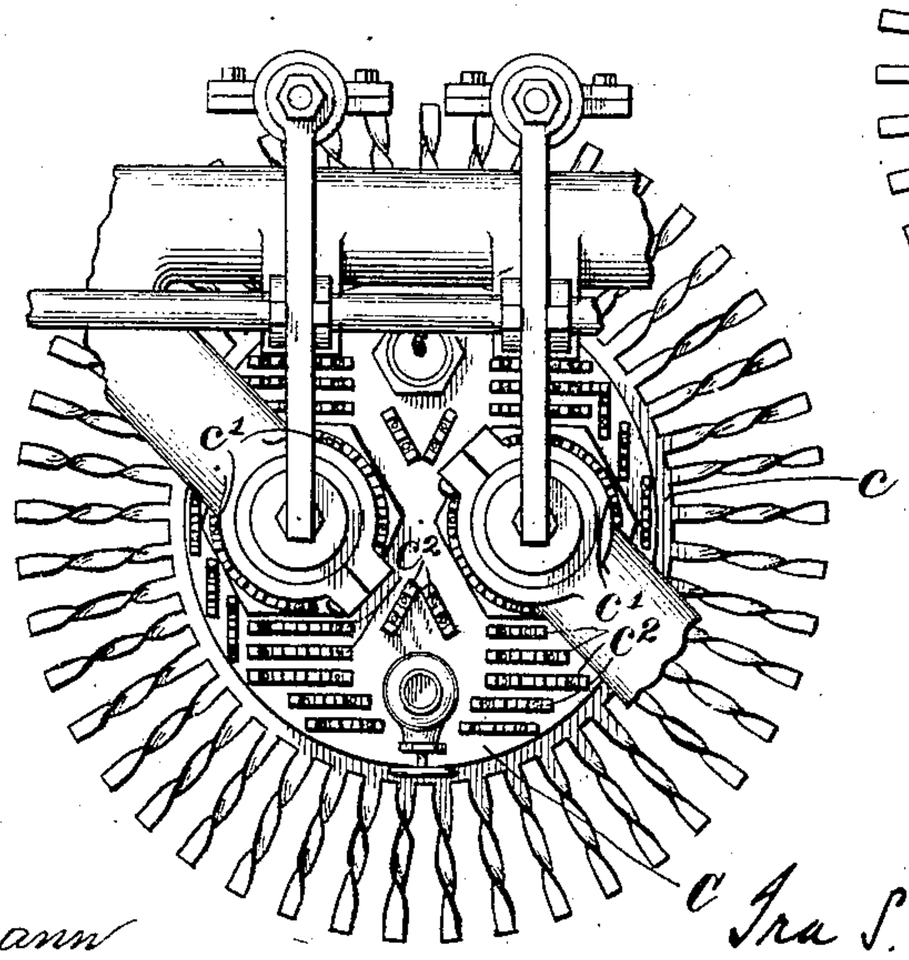


Fig. 4.

Fig. 2.



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IRA SAYRE BARNETT, OF LOUISVILLE, KENTUCKY.

HEAT-RADIATING RING.

No. 855,687. Specification of Letters Patent. Patented June 4, 1907.

Application filed February 6, 1904. Serial No. 192,409.

To all whom it may concern:

Be it known that I, IRA SAYRE BARNETT, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Heat-Radiating Rings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to heat-radiating devices for gas-engine cylinders or other bodies exposed to high temperatures, and particularly that class of such devices consisting of metal rings surrounding the cylinder or tubular body and having outstanding projections for effecting radiation and dissipation of heat from the cylinder-walls.

The invention consists of an improved heat-radiating ring of this character, and its main objects and advantages are simplicity, strength and economy of construction, stamping from sheet or plate metal, and great effectiveness both in promoting circulation of air between the projections and rapidly dissipating the heat therefrom.

In the accompanying drawings, I have illustrated a gas-engine cylinder equipped with my improved heat-radiating devices, since it is for the cooling of such cylinders that the invention is most frequently applied, though it is of course susceptible of general application. The invention will first be described with reference to said drawings, which are to be taken as a part of this specification, and then pointed out more particularly in the annexed claims.

Figure 1 represents in central longitudinal section the said cylinder with my improved heat-radiating devices applied thereto. Fig. 2 is a top plan view of such cylinder, showing the cylinder-head. Fig. 3 is an enlarged detail view of a group of projections to be placed on the cylinder-head. Fig. 4 is a detail view of a fragment of a heat-radiating ring before its projections have been twisted as shown in the preceding figures.

My improved device, in its preferred form, consists of a thin ring having integral fingers or elongated projections of twisted shape radiating out therefrom. It is desirably stamped from flat sheet or plate metal, by means of any suitable die adapted to cut out the inner ring with its projections of angular cross-section, as shown fragmentarily in Fig. 4, after which the projections are twisted; though the device may be formed in other ways. This construction is simple, economical and quickly effected, and results in decided practical advantages such as strength, rigidity, and close arrangement of the projections; while the thickness of the device is slight and hence a large number can be assembled closely on the cylinder, as shown in Fig. 2. The spiral or twisted shape of the fingers promotes the circulation of air around them, increases the air contact therewith, and provides greater radiating surfaces and sharp thin edges for emission of heat. The cylinder C is shown having a number of such rings, *c*, fitted tightly around it and in close proximity. These rings are preferably driven into place over the end of the cylinder, to insure intimate contact therewith, though they may be otherwise secured in place. The cylinder is shown having its walls formed in sections of different diameters; the diameter of each section being uniform however, to provide outer straight walls for receiving the rings. One of the advantages of these rings is that they do not require any greater thickness of cylinder walls for their attachment, such as many devices which are inserted into grooves in the cylinder; but they may be applied to a cylinder having thin walls, and actually strengthen the same; so that the cylinder to which they are to be applied has to be simply turned down to the requisite thickness for strength, thus avoiding the trouble and expense of providing grooves, and furnishing a material reduction of weight, as well as less metal exposed to heat. Around the valve-casings in the cylinder-head are also shown rings or segments *c'*, and all over the cyinder-head short bars or strips c^2, such as that which appears in Fig. 3, both having similar twisted projections. These devices are secured in place by screws. Like the rings *c*, they may be stamped from sheet metal and afterward twisted.

Should the engine-cylinder or other body to which the rings are to be applied be other than perfectly cylindrical in shape, the rings would of course be formed to correspond; and hence the word "rings" in the following claims is to cover other forms than purely circular.

I claim as my invention and desire to secure by Letters Patent of the United States.

1. A heat-radiating device consisting of a metal ring adapted to fit over a cylinder or

other body and having fingers or elongated projections of twisted shape formed integrally therewith and radiating therefrom, substantially as described.

2. A heat-radiating device comprising in an integral structure an inner thin ring stamped from sheet metal with radiating projections which are twisted.

3. A heat-radiating device comprising in an integral structure stamped from sheet metal an inner ring with elongated radiating projections which are twisted one or more times around and thus provide sharp spiral edges.

4. A heat-radiating device comprising a ring adapted to fit over a cylinder or other body and having elongated radiating fingers or projections of substantially spiral or twisted form.

5. A heat-radiating device comprising in an integral structure a thin ring adapted to fit over a cylinder or other body and having closely-arranged slender elongated projections radiating from its outer edge, the said projections being spirally-twisted from an original angular cross-section.

6. A heat-radiating device comprising a metal ring adapted to fit over a cylinder or other body and having closely-arranged thin elongated projections radiating from its outer edge and of spirally twisted form.

7. A heat-radiating device comprising in an integral structure stamped from sheet metal a thin ring with closely-arranged slender radiating projections formed to present a spirally twisted effect out of an original angular cross-section.

8. A heat-radiating device comprising in an integral structure a thin ring having closely-arranged slender elongated fingers projecting out therefrom and bent out of an original angular cross-sectional shape.

9. A heat-radiating device comprising in an integral structure stamped from sheet metal a thin strip adapted for attachment to a cylinder or other body and having closely-arranged slender elongated projections twisted spirally.

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

IRA SAYRE BARNETT.

Witnesses:

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