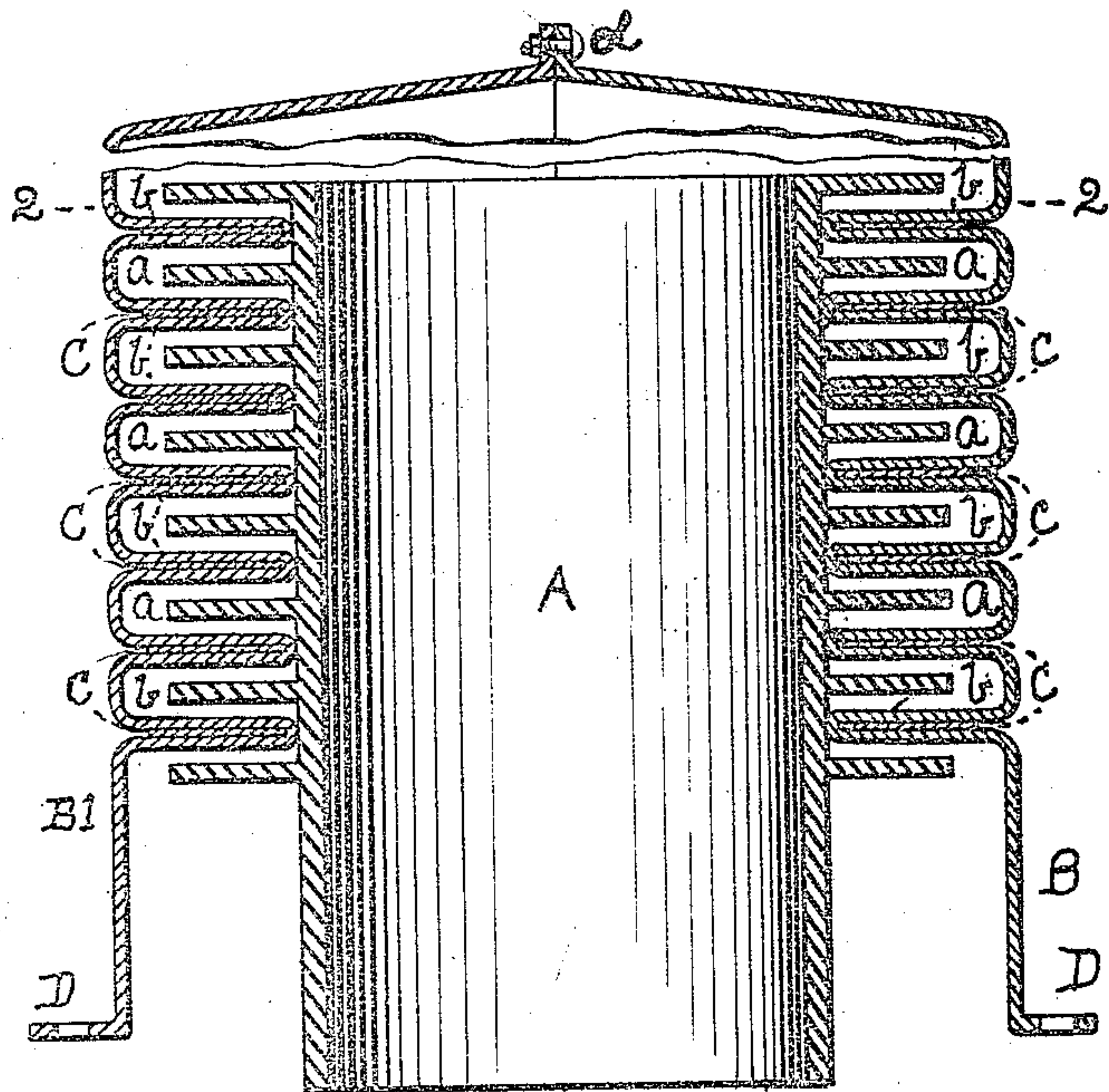


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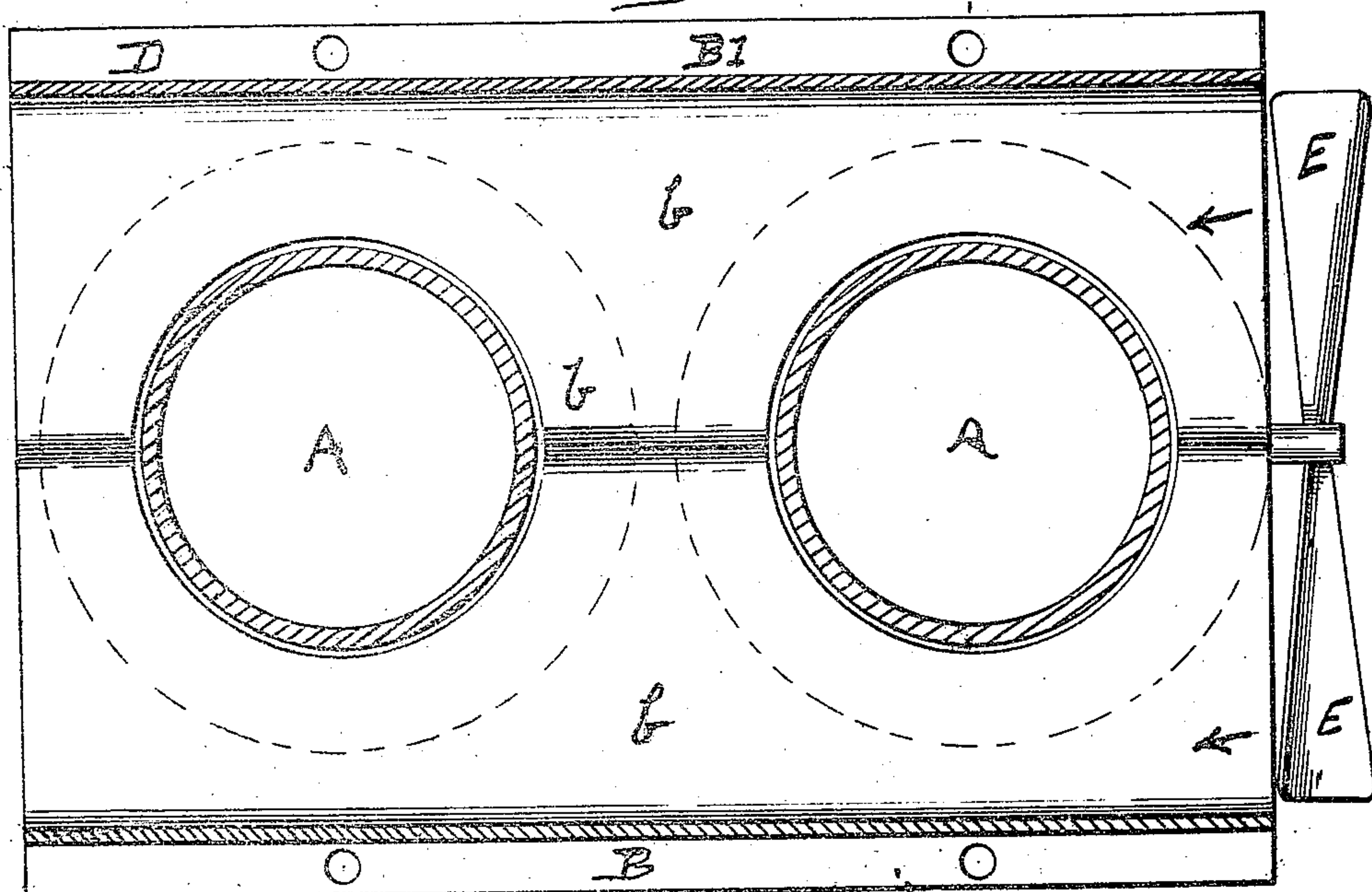
PATENTED NOV. 5, 1907.

E. J. STODDARD.  
GAS ENGINE.

APPLICATION FILED APR. 29, 1907.



*Fig. 1*



*Fig. 2*

WITNESSES

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# UNITED STATES PATENT OFFICE.

ELLIOTT J. STODDARD, OF DETROIT, MICHIGAN.

## GAS-ENGINE.

No. 869,991

Specification of Letters Patent.

Patented Nov. 5, 1907.

Application filed April 29, 1907. Serial No. 370,761.

To all whom it may concern:

Be it known that I, ELLIOTT J. STODDARD, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Gas-Engines, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to gas engines, and the object of my improvements is to provide for more efficiently air cooling a gas engine cylinder.

In the accompanying drawing:—Figure 1, is a cross section of a portion of a gas engine cylinder, and a hood therefor, showing an embodiment of my invention. Fig. 2, is a horizontal section, the section being taken on the line 2—2 Fig. 1.

A is a portion of the gas engine cylinder having cooling ribs *a*, extending outward therefrom.

B, B<sup>1</sup> are the two halves of a hood which being united by a joint at *d* form a hood, such as is used upon automobiles. D, D, are the flanges by which the hood B, B<sup>1</sup>, is secured to the chassis of the automobile.

*b* indicates fins or flanges extending from the walls of the hood B, B<sup>1</sup>, between the ribs *a*. I have represented the fins B as each made by bending inward and back in parallel and adjacent folds, the sheet metal of the hood B, B<sup>1</sup>.

C represents sheets of paper, or other heat insulating material, interposed between the closely adjacent part of the folds constituting the fins *b*.

E indicates a fan by which a current of air is forced through the hood B, B<sup>1</sup>, for cooling the gas engine cylinder. By making the hood in two parts, as indicated, the hood can be placed in position and removed therefrom without disturbing other parts.

The operation of the above described device is as follows:—An air cooled engine cylinder parts with its heat in two ways: First, by imparting the heat to the air by actual contact; second, by radiating the heat, which radiant heat passes freely through the air without perceptibly heating the air. In the ordinary arrangement of the cooling ribs, one rib radiates the heat to the other, so that there is but little heat thrown off by radiation. By interposing a heat absorbing object, such as a fin *b* between adjacent ribs, the radiant heat is absorbed by such fins and conducted away, or imparted by contact to the air passing over its surface,

and thus the rate of dissipating heat from the engine cylinder may be very greatly increased.

The heat insulating material may evidently be omitted and the outside air allowed to circulate between the folds. In this case it would be better to make adjacent surfaces of the folds as little radiant as possible or practicable, and it would be well to cover the surfaces of the folds which are toward the ribs with a heat absorbing substance.

What I claim is:—

1. In combination, a gas engine cylinder having cooling ribs and fins separate from said cylinder extending between said cooling ribs so as to intercept the radiant heat from adjacent cooling ribs and prevent one of said cooling ribs from radiating heat to the other of said cooling ribs, substantially as described.

2. In a gas engine, the combination of a cylinder having cooling ribs, a hood and fins connected with said hood and extending between said ribs so as to intercept the radiant heat from adjacent cooling ribs and prevent one of said ribs from radiating heat to the other of said cooling ribs.

3. In a gas engine, the combination of a cylinder having cooling ribs, of a hood, the material of said hood being bent inward and outward to form fins extending between said ribs to intercept the radiant heat from adjacent ribs and to prevent one of said ribs from radiating heat to the other of said ribs.

4. In a gas engine, the combination of a cylinder having cooling ribs and a hood, the material of said hood being bent inward and outward to form fins extending between said ribs to intercept the radiant heat from adjacent ribs and prevent one of said ribs from radiating heat to the other of said ribs, and heat insulating material between an inward and outward fold of each of said fins.

5. In combination with an object to be cooled, having cooling ribs thereon, of fins separate from said object extending between adjacent ribs so as to intercept the radiant heat from said ribs and prevent one of said ribs from radiating heat to the other of said ribs.

6. In combination with an object to be cooled, having cooling ribs thereon, of fins supported beyond the outer edge of said ribs and extending between said ribs so as to intercept radiant heat from adjacent ribs and to prevent one of said ribs from radiating heat to the other of said ribs.

7. The combination with a gas engine cylinder, having cooling ribs, of a composite fin consisting of two plates of metal separated by a material adapted to prevent the transmission of heat from one sheet to the other extending between adjacent ribs so as to intercept radiant heat from said ribs and prevent one of said ribs from radiating heat to the other of said ribs.

In testimony whereof, I sign this specification in the presence of two witnesses.

ELLIOTT J. STODDARD.

Witnesses:

MAY E. KOTT.

ALICE TOWNSEND.