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G. BOWMAR

PISTON

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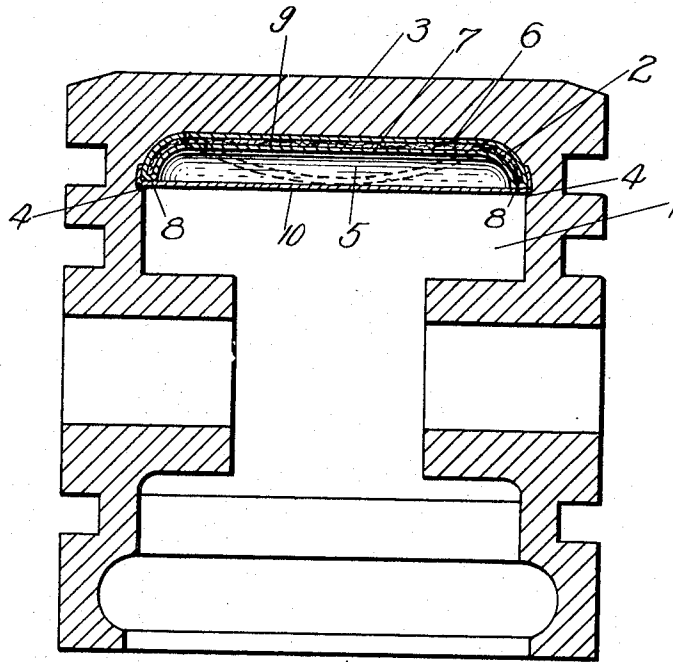


Fig. 1.

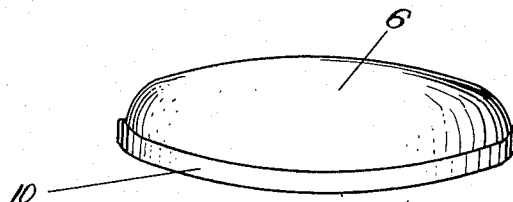


Fig. 2.

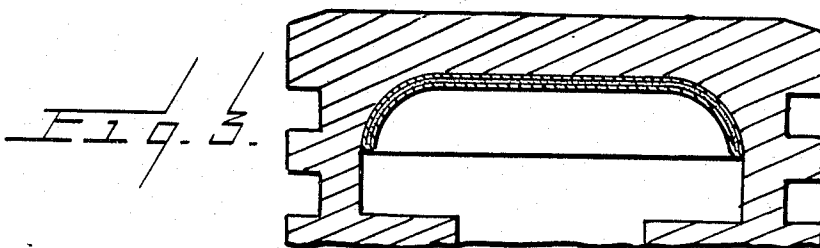


Fig. 3.

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PISTON.

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To all whom it may concern:

Be it known that I, GERSHON BOWMAR, a subject of the King of Great Britain, residing at Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Pistons; and the object of the invention is to devise means to prevent the heat generated by the explosion of gases within the cylinder from passing through the head and carbonizing the oil therearound, which will not be affected by the heat of the surrounding body of metal to render it inoperative; and it consists, essentially, of a piston head and inclosed air chamber cast within the head in proximity to its upper face and an interlining of non-conducting material formed in the upper wall of the chamber, as hereinafter more particularly explained by the following specification.

Fig. 1 represents a sectional view of my piston head with my air chamber located therein.

Fig. 2 is a perspective detail of my air chamber.

Fig. 3 is a sectional detail of the upper portion of the piston showing an alternative construction of my device inserted therein.

In the drawings like characters of reference indicate corresponding parts in each figure.

1 indicates a piston head of ordinary construction, 2 is a chamber which is formed of sheet metal and cast within the head against the upper wall 3 thereof so that an annular supporting shoulder is formed at 4 engaging the exterior edge of the bottom wall of the chamber. 5 is my heat non-conducting chamber which consists of an upper outer wall 6 and an upper inner wall 7 formed of sheet metal which are preferably welded together at 8 to form an integral top member for the chamber, an intervening space therebetween constituting a secondary chamber provided with a suitable filling 9 of heat non-conducting material such as fibrous asbestos. 10 is the bottom wall of the chamber which is welded around the outer edge of the outer wall 6. The chamber 5 is filled with air.

Heretofore the means devised for forming a heat non-conducting barrier across the head of the piston have been in the form of a vacuum chamber. When these chambers were inserted in the mould and the molten

metal poured forming the pistons the heat of such metal caused the upper wall of the chamber to sag downward as indicated roughly by dotted lines in Fig. 1 thereby destroying the non-conducting effect of the chamber and increasing the weight of the piston.

By my device the air within the chamber serves to some extent to form a support for the upper wall of the chamber when subject to the heat of the molten metal or to heat otherwise generated, such being aided by the non-conducting interlining 9 hereinbefore described thereby forming a chamber top which will always be rigid and have no tendency to sag downward and therefore always form a perfect chamber forming a practically perfect barrier to any heat radiating downward through the piston.

In the construction shown in Fig. 3 the bottom wall is dispensed with, the double wall construction forming an open chamber, the intervening space between the double wall being filled with asbestos or forming a dead air space.

By my construction also the piston may be made more compact, that is, with the wrist pin located nearer to the head than is permissible in the ordinary construction for the reason that the wrist pin in my construction will not be effected by the heat passing through the piston head when in close proximity to the head as is the case in the ordinary construction of piston head.

What I claim as my invention is:

1. In a piston, a piston body, an air chamber secured entirely within said body and having spaced upper walls forming a secondary chamber, and a filling of heat non-conducting material for said secondary chamber.

2. In a piston, a body having a hollow interior, a reinforcing member in double wall formation rigidly supported within said body in engagement with the interior face of the piston head and having a filling of heat non-conducting material, and an air chamber closing in said reinforcing member.

3. The combination in a piston having an air chamber formed of non-porous metal positioned therewithin, of a secondary chamber positioned between said air chamber and the piston head, and a filling of heat non-conducting material for said secondary chamber.

4. In a piston head, a heat non-conducting barrier consisting of a cap like member of non porous metal located within the forward end of the piston and comprising upper and lower and intermediate walls forming parallel chambers, and a filling of non-conducting material between said upper and intermediate walls.
5. In a piston head, a heat non-conducting barrier comprising a cap-like member located within the forward end of the piston and comprising an upper and lower metal wall having their outer edges downturned and drawn together, and a filling of non-conducting material between such walls.

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