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1,534,153

L. D. BAX

PISTON RING

Filed June 9, 1924

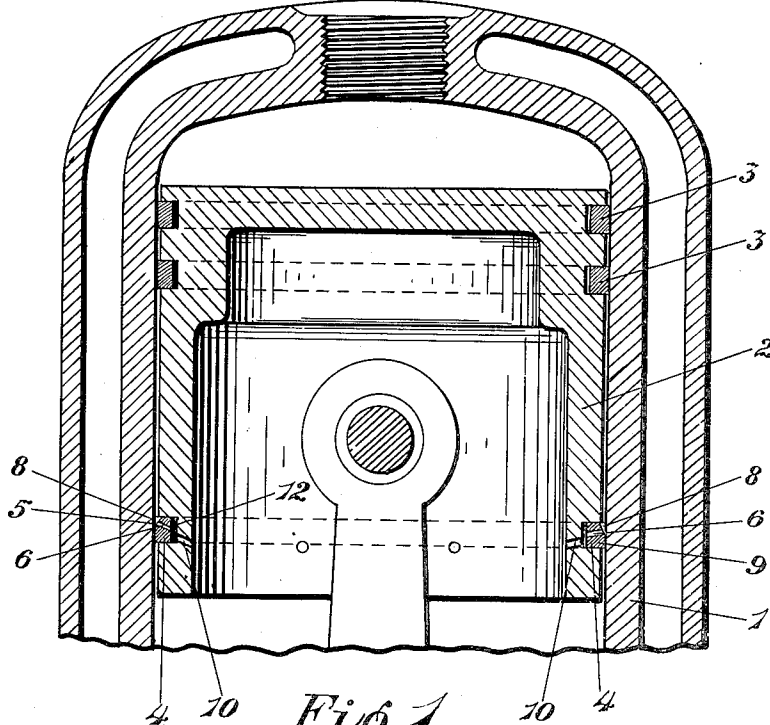


Fig. 1

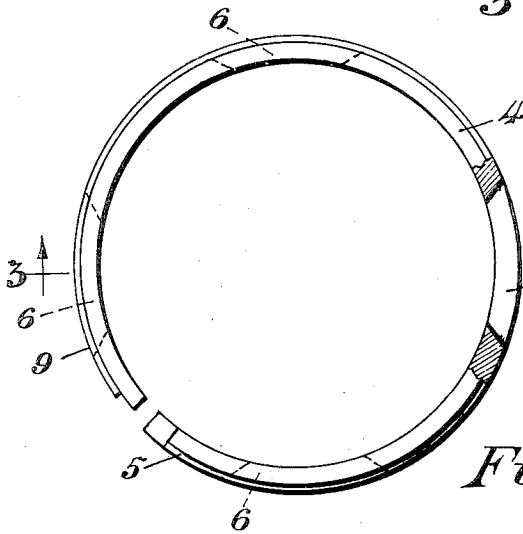


Fig. 2

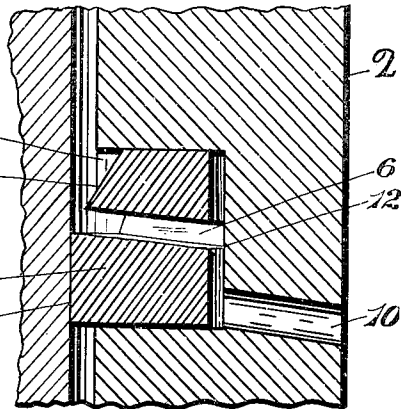


Fig. 4

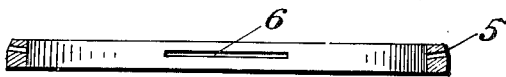


Fig. 3

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LIONEL D. BAX, OF DENVER, COLORADO.

PISTON RING.

Application filed June 9, 1924. Serial No. 718,866.

To all whom it may concern:

Be it known that I, LIONEL D. BAX, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Piston Rings, of which the following is a specification.

My invention relates to piston rings and its object is to provide a one-piece ring of very simple construction which in conjunction with the piston to which it is applied, provides an efficient means for the distribution of oil over the wall of the cylinder with which the ring engages and for the return of surplus oil to the crank case of the engine, during the upstroke of the piston.

My invention is particularly applicable to the lower rings used auxiliary to the compression rings at the upper end of the piston, and it comprises with the above object in view a circular transversely split body of hardened steel which is beveled at the outer edge of its upper face to form a pocket in which a small quantity of the lubricant which entered the space above the ring during the down stroke of the piston, is carried upwardly by its movement in the opposite direction and which at the lower edge of said beveled portion has a plurality of slanting apertures through which the surplus oil is caused to pass to the space of the piston groove back of the ring.

The piston to which the ring is applied is hollow and it has in its circumferential wall a plurality of openings through which the oil which entered the piston groove as hereinabove described, is drained to the crank case of the engine below the piston.

It will be evident that during the upstroke of the piston, the film of oil in the pocket formed by the beveled edge of the rim is distributed over the wall of the cylinder for lubrication of the piston while the slight compression above the piston and the partial vacuum below the same combine to compel the surplus oil to return to the crank case through the communicating apertures of the ring and the piston.

An embodiment of my invention has been illustrated in the accompanying drawings in the several views of which like parts are similarly designated, and in which—

Figure 1 represents a fragmentary sectional elevation of a cylinder and a piston to which my improved ring is applied;

Figure 2, a partially sectional plan view of the ring;

Figure 3, a section taken on the line 3—3, Figure 2; and

Figure 4, a section in the plane of that of Figure 1, showing the ring and the adjacent parts of the piston and the cylinder wall drawn to an exaggerated scale.

Referring in detail to the drawings, 1 designates the jacketed cylinder of an internal combustion engine, and 2 the hollow trunk piston which has a reciprocating movement therein.

The piston is equipped adjacent its upper end with the usual compression rings 3 and it has below the same an annular groove 12 in which the ring of my invention is slidably fitted.

The ring indicated in its entirety by the reference numeral 4, is beveled at the outer edges of its upper face to provide the slanting surface 5 which in conjunction with the cylinder wall 1 with which the outer circumferential face 9 of the ring engages, forms a pocket 8 in which a small portion of the lubricant which passed the ring during the down stroke of the piston, is carried upwardly by the up-stroke of the same, as hereinbefore explained.

The surplus oil in the space above the ring passes to the space of the piston groove rearward of the same through elongated apertures 6 which slant from the lower edge of the beveled portion 5 downwardly to the inner circumferential surface of the ring, and the oil which entered the piston groove is drained to the crank case through slanting holes 10 at the bottom of the groove.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. The combination with an engine-cylinder, of a piston having a ring-groove provided with openings for the drainage of oil, and a ring in the groove, engaging the wall of the cylinder, the ring having at the outer edge of its face uppermost with relation to the compression-stroke of the piston, a bevel which in conjunction with the cylinder wall, forms a pocket to carry a lubricant, and the ring having at the lower portion of said bevel, apertures for the passage of surplus lubricant to the space of the groove back of the ring.

2. As a new article of manufacture, a pis-

ton ring having an upper face, a bevel at the outer edge of said face, and apertures extending inwardly from the lower portion of the bevel to the inner circumferential surface of the ring. 10

5 face of the ring. In testimony whereof I have affixed my signature.

3. As a new article of manufacture, a piston ring having an upper face, a bevel at

LIONEL D. BAX.