## CLAIMS

1. A plunger assembly for a die casting machine shot sleeve, the plunger assembly comprising:

a plunger body having an outer diameter, the plunger includes a head that provides a wall;

a piston ring is arranged on the plunger body adjacent to the wall;

a nut is secured to the outer diameter and urges the piston ring toward the wall to retain the piston ring securely on the plunger body; and

a rod secured to the outer diameter, the rod is axially spaced from the nut to provide an axial gap between the rod and the nut.

2. The plunger assembly according to claim 1, wherein the plunger body extends along an axis, the wall is perpendicular to the axis, and the piston ring abuts the wall but does not overlie the outermost diameter of the head.

3. The plunger assembly according to claim 1, wherein the piston ring includes an unthreaded inner diameter in an interference fit with the outer diameter and wherein a cross-section through the piston ring remains same throughout its length.

4. The plunger assembly according to claim 1, wherein the piston ring includes a threaded inner diameter in threaded engagement with the outer diameter.

5. The plunger assembly according to claim 4, wherein the threaded inner diameter is in threaded engagement with the outer diameter along the entire length of the piston ring.

6. The plunger assembly according to claim 1, comprising a spring element provided axially between the piston ring and the nut.

7. The plunger assembly according to claim 6, wherein the spring element includes at least one Belleville washer.

8. The plunger assembly according to claim 1, wherein the head is frusto-conical in shape and whose outermost diameter terminates at the start of the wall.