THE INVENTION CLAIMED IS

1. A medical injection device comprising:

a housing having a proximal end, a distal end, and sidewall therebetween defining an interior;

a brake member received within the interior of the housing;

a cartridge holder received within the interior of the housing, distal of the brake member;

a cartridge received within the cartridge holder and holding a composition therein;

a load spring washer comprising:

a main body having a proximal surface and a distal surface; and

one or more protrusions extending proximally away from the proximal surface of the main body, the load spring washer received within the interior of the housing and positioned between the brake member and the cartridge holder such that, when the medical injection device is assembled, the one or more protrusions abuts the brake member and the distal surface abuts the cartridge and/or the cartridge holder;

an injection needle in fluid communication with the cartridge and arranged at a distal end of the housing; and

an actuation member arranged at the proximal end of the housing, the actuation member configured to actuate the medical injection device to deliver the composition through the injection needle.

2. The medical injection device of claim 1, wherein a cross-sectional profile of the one or more protrusions of the load spring washer, taken along a plane extending between the proximal surface and the distal surface, comprises a parallelogram.

3. The medical injection device of claim 1, wherein the one or more protrusions of the load spring washer comprises a cylindrical shape.

4. The medical injection device of claim 3, wherein the cylindrical shape defines a hollow interior.

5. The medical injection device of claim 4, wherein the hollow interior is

filled with a gas.

6. The medical injection device of claim 4, wherein the hollow interior comprises a vacuum.

7. The medical injection device of claim 1, wherein a cross-sectional profile of the one or more protrusions of the load spring washer, taken along a plane extending between the proximal surface and the distal surface, comprises a rhomboid.

8. The medical injection device of claim 1, wherein a cross-sectional profile of the one or more protrusions of the load spring washer, taken along a plane extending between the proximal surface and the distal surface, comprises an s-shape.

9. The medical injection device of claim 1, wherein a cross-sectional profile of the one or more protrusions of the load spring washer, taken along a plane extending between the proximal surface and the distal surface, comprises an l-shape.

10. The medical injection device of claim 1, wherein the main body of the load spring washer comprises a plurality of rings.

11. The medical injection device of claim 10, wherein the plurality of rings comprise concentric circles, with a gap between each of the concentric circles.

12. The medical injection device of claim 11, wherein at least one of the concentric circles has a width that is greater than a width of another of the concentric circles.

13. The medical injection device of claim 10, wherein a cross-sectional profile of the one or more protrusions of the load spring washer, taken along a plane extending between the proximal surface and the distal surface, comprises a u-shape, wherein the u-shape comprises:

a first arm connected to a first of the plurality of rings of the main body and a second arm connected to a second of the plurality of rings of the main body, both the first arm and the second arm extending parallel to a longitudinal axis defined by the proximal surface

and the distal surface of the main body; and

a cross-member connected to the first arm and the second arm and extending perpendicular to the longitudinal axis defined by the proximal surface and the distal surface of the main body.

14. The medical injection device of claim 10, wherein the one or more protrusions of the load spring washer comprise an arch comprising:

a first arm connected to a first of the plurality of rings of the main body and a second arm connected to a second of the plurality of rings of the main body, both the first arm and the second arm extending parallel to a longitudinal axis defined by the proximal surface and the distal surface of the main body; and

a curved portion connected to the first arm and the second arm.

15. The medical injection device of claim 1, wherein the one or more protrusions of the load spring washer comprise a frustoconical portion.

16. The medical injection device of claim 1, wherein the load spring washer comprises an elastomeric material.

17. The medical injection device of claim 16, wherein the load spring washer comprises an ethylene propylene diene monomer rubber.

18. The medical injection device of claim 16, wherein the load spring washer has a Shore A hardness of 20-40.

19. The medical injection device of claim 1, wherein the main body of the load spring washer has an H shape cross-section.

20. The medical injection device of claim 1, wherein the main body of the load spring washer has a star shape cross-section.