position because, in one or more embodiments, the reservoir may be filled with liquid while it is in an orientation in which liquid in the reservoir would leak through the vent if the vent were always open (i.e., in the vented position). For example, in one or more embodiments, the reservoir may be filled while it is in an orientation in which the liquid used to fill the reservoir is located above the vent assembly (relative to the direction of gravitational forces acting on the liquid). In such an arrangement, the liquid could potentially leak through the vent assembly unless the vent assembly can be closed or placed in an unvented position as described herein. In such arrangements, changing the orientation of the reservoir (e.g., inverting the reservoir) can place the vent assembly above the liquid so that the liquid does not typically leak through the vent assembly when the vent assembly is in the vented position. If, for example, the reservoir is inverted for attachment to a spray gun, the vent assembly is preferably located above the liquid being dispensed.

In one aspect of the present invention, there is provided a vent assembly comprising: an aperture formed in a wall of a spray gun reservoir configured to be attached to a spray gun, wherein the reservoir defines an interior volume, and wherein the aperture is in fluid communication with the interior volume of the reservoir; a closure member retained on the wall of the reservoir proximate the aperture, wherein the closure member is configured for movement between a vented position and an unvented position, wherein the closure member comprises a sealing surface that closes the aperture when the closure member is in the unvented position, and wherein the sealing surface does not close the aperture when the closure member is in the vented position, wherein the closure member is configured for rotation about an axis extending through the wall of the reservoir when moving between the vented position and the unvented position and wherein, when the closure member is in the vented position, a liquid contained in the reservoir can flow to the spray gun by the force of gravity without allowing the liquid to leak through the vent assembly; a closure member retainer, wherein the closure member retainer is configured to retain the closure member on the wall of the reservoir when the closure member is in the vented position; and a cam surface configured to generate a compressive force on the closure member when the closure member is moved into the unvented position, wherein the compressive force forces the sealing surface of the closure member against the wall of the reservoir -when the sealing surface is positioned over the aperture, wherein the closure member is mounted on a post extending from the wall of the reservoir, wherein the closure member is configured for rotation on the post; and wherein the closure member retainer is located on the post and configured to retain the closure member on the post when the closure member is in the vented position, and further wherein the compressive force is generated between the closure member retainer and the cam surface when the sealing surface is positioned over the aperture.

In one or more embodiments, the closure member is configured for linear movement between the vented position and the unvented position.

In one or more embodiments, the closure member is configured for rotation about an axis extending through the wall of the reservoir when moving between the vented position and the unvented position.

In one or more embodiments, the cam surface is located between the closure member and the wall of the reservoir, wherein rotation of the closure member from the vented position to the unvented position generates a compressive force between the closure member retainer and the cam surface such that the sealing surface of the closure member is forced against the against the wall of the reservoir when the sealing surface is positioned over the aperture.

~~In one or more embodiments, the closure member is mounted on a post extending from the wall of the reservoir, wherein the closure member is configured for rotation on the post; and wherein the closure member retainer is located on the post and configured to retain the closure member on the post when the closure member is in the vented position, and further wherein the compressive force is generated between the closure member retainer and the cam surface when the sealing surface is positioned over the aperture.~~ In one or more embodiments, the closure member retainer comprises a shoulder extending outwardly from the post relative to the axis, and in one or more embodiments, the closure member comprises an inner surface facing the post and a top surface facing away from the wall of the reservoir, wherein the closure member comprises a stepped transition between the inner surface and the top surface wherein a top edge of the inner surface does not coincide with an inner edge of the top surface of the closure member. In one or more embodiments, the shoulder of the closure member retainer contacts the top edge of the inner surface of the closure member when the closure member is in the unvented position.

In one or more embodiments, the aperture extends through the cam surface. In one or more embodiments, the cam surface comprises an aperture surface portion that is located in a plane that is perpendicular to the axis about which the closure member rotates, and wherein the aperture extends through the aperture surface portion of the cam surface.

In one or more embodiments, the reservoir comprises an opening and a detachable lid configured to close the opening when the lid is attached to the reservoir over the opening. In one or more embodiments, the reservoir comprises a base located opposite the opening, and wherein the aperture is located in the base. In one or more embodiments, the aperture of the vent assembly is located in the lid.

In one or more embodiments, the vent assembly comprises a stop configured to limit movement of the closure member in one direction when the closure member is in the unvented position. In one or more embodiments, the stop protrudes from the wall of the reservoir. In one or more embodiments, the stop is located proximate the cam surface.

In one or more embodiments, the vent assembly comprises a plurality of apertures and wherein the closure member comprises a plurality of sealing surfaces, wherein each aperture of the plurality of apertures is closed by a sealing surface of the plurality of sealing surfaces when the closure member is in the unvented position. In one or more embodiments, the closure member comprises a plurality of relief surfaces, wherein a relief surface is positioned above each aperture of the plurality of apertures when the closure member is in the vented position. In one or more embodiments, the vent assembly comprises a plurality of cam surfaces, and wherein each aperture of the plurality of apertures is located in a cam surface of the plurality of cam surfaces, and further

wherein each aperture of the plurality of apertures is closed by a sealing surface of the plurality of sealing surfaces when the closure member is in the unvented position.

~~In another aspect of the present invention, t~~There is ~~provided~~ also disclosed a method of opening and closing a vent assembly on a spray gun reservoir configured to be attached to a spray gun, the method comprising: rotating a closure member between an unvented position and a vented position about an axis extending through a wall of the reservoir, wherein a sealing surface on the closure member closes an aperture when the closure member is in the unvented position, and wherein in the vented position, the sealing surface does not close the aperture, wherein, when the closure member is in the vented position, a liquid contained in the reservoir can flow to the spray gun by the force of gravity without allowing the liquid to leak through the vent assembly; and wherein movement of the closure member from the vented position to the unvented position generates a compressive force on the closure member such that the sealing surface of the closure member is forced by a cam surface against a wall of the reservoir when the sealing surface is positioned over the aperture.

In another aspect of the present invention, there is provided a method of opening and closing a vent assembly on a spray gun reservoir configured to be attached to a spray gun, comprising: rotating a closure member mounted on a post extending from a wall of a reservoir, wherein the closure member rotates on the post about an axis extending through the post and the wall, wherein the closure member rotates between an unvented position and a vented position, wherein in the unvented position a sealing surface on the closure member closes an aperture, and wherein in the vented position, the sealing surface does not close the aperture, wherein, when the closure member is in the vented position, a liquid contained in the reservoir can flow to the spray gun by the force of gravity without allowing the liquid to leak through the vent assembly; and wherein rotation of the closure member from the vented position to the unvented position generates a compressive force on the closure member between a closure member retainer on the post and a cam surface on the wall of the reservoir such that the sealing surface of the closure member is forced against the wall of the reservoir when the sealing surface is positioned over the aperture.

In one or more embodiments, the closure member retainer comprises a shoulder located on an exterior surface of the post, and wherein the closure member is compressed between the shoulder and the cam surface when the closure member is in the unvented position. In one or more embodiments, the closure member comprises an inner surface facing the post and a top surface facing away from the wall of the reservoir, wherein the closure member comprises a stepped transition between the inner surface and the top surface wherein a top edge of the inner surface does not coincide with an inner edge of the top surface of the closure member, and further wherein the shoulder of the closure member retainer contacts the top edge of the inner surface of the closure member when the closure member is in the unvented position.

As used herein, the term "liquid" refers to all forms of flowable materials including, e.g., flowable materials that can be applied to a surface using a spray gun (whether or not they are intended to color the surface) including (without limitation) paints, primers, base coats, lacquers, varnishes and similar paint-like materials as well as other materials such as adhesives, sealers, fillers, putties, powder coatings, blasting powders, abrasive slurries, mold release agents and foundry dressings

What is claimed is:

1. A vent assembly comprising:

an aperture formed in a wall of a spray gun reservoir configured to be attached to a spray gun, wherein the reservoir defines an interior volume, and wherein the aperture is in fluid communication with the interior volume of the reservoir;

a closure member retained on the wall of the reservoir proximate the aperture, wherein the closure member is configured for movement between a vented position and an unvented position, wherein the closure member comprises a sealing surface that closes the aperture when the closure member is in the unvented position, and wherein the sealing surface does not close the aperture when the closure member is in the vented position, wherein the closure member is configured for rotation about an axis extending through the wall of the reservoir when moving between the vented position and the unvented position and wherein, when the closure member is in the vented position, a liquid contained in the reservoir can flow to the spray gun by the force of gravity without allowing the liquid to leak through the vent assembly;

a closure member retainer, wherein the closure member retainer is configured to retain the closure member on the wall of the reservoir when the closure member is in the vented position; and

a cam surface configured to generate a compressive force on the closure member when the closure member is moved into the unvented position, wherein the compressive force forces the sealing surface of the closure member against the wall of the reservoir -when the sealing surface is positioned over the aperture,

wherein the closure member is mounted on a post extending from the wall of the reservoir, wherein the closure member is configured for rotation on the post; and wherein the closure member retainer is located on the post and configured to retain the closure member on the post when the closure member is in the vented position, and further wherein the compressive force is generated between the closure member retainer and the cam surface when the sealing surface is positioned over the aperture.

~~2. A vent assembly according to claim 1, wherein the closure member is configured for linear movement between the vented position and the unvented position.~~

~~3~~2. A vent assembly according to claim 1, wherein the cam surface is located between the closure member and the wall of the reservoir, wherein rotation of the closure member from the vented position to the unvented position generates a compressive force between the closure member retainer and the cam surface such that the sealing surface of the closure member is forced against the wall of the reservoir when the sealing surface is positioned over the aperture.

~~4. A vent assembly according to claim 1, wherein closure member is mounted on a post extending from the wall of the reservoir, wherein the closure member is configured for rotation on the post; and wherein the closure member retainer is located on the post and configured to retain the closure member on the post when the closure member is in the vented position, and further wherein~~

~~the compressive force is generated between the closure member retainer and the cam surface when the sealing surface is positioned over the aperture.~~

~~5~~3. A vent assembly according to claim 41, wherein the closure member retainer comprises a shoulder extending outwardly from the post relative to the axis.

~~6~~4. A vent assembly according to claim ~~5~~3, wherein the closure member comprises an inner surface facing the post and a top surface facing away from the wall of the reservoir, wherein the closure member comprises a stepped transition between the inner surface and the top surface wherein a top edge of the inner surface does not coincide with an inner edge of the top surface of the closure member.

~~7~~5. A vent assembly according to claim ~~6~~4, wherein the shoulder of the closure member retainer contacts the top edge of the inner surface of the closure member when the closure member is in the unvented position.

~~8~~6. A vent assembly according to any one of claims 1 to ~~7~~5, wherein the aperture extends through the cam surface.

~~9~~7. A vent assembly according to claim ~~8~~6, wherein the cam surface comprises an aperture surface portion that is located in a plane that is perpendicular to the axis about which the closure member rotates, and wherein the aperture extends through the aperture surface portion of the cam surface.

~~10~~8. A vent assembly according to any one of claims 1 to ~~9~~7, wherein the reservoir comprises an opening and a detachable lid configured to close the opening when the lid is attached to the reservoir over the opening.

~~11~~9. A vent assembly according to claim ~~10~~8, wherein the reservoir comprises a base located opposite the opening, and wherein the aperture is located in the base.

~~12~~10. A vent assembly according to claim ~~10~~8, wherein the aperture of the vent assembly is located in the lid.

~~13~~11. A vent assembly according to any one of claims 1 to ~~12~~10, wherein the vent assembly comprises a stop configured to limit movement of the closure member in one direction when the closure member is in the unvented position.

~~14~~12. A vent assembly according to claim ~~13~~11, wherein the stop protrudes from the wall of the reservoir.

~~15~~13. A vent assembly according to claim ~~13~~11, wherein the stop is located proximate the cam surface.

~~16~~14. A vent assembly according to any one of claims 1 to ~~5~~3, wherein the vent assembly comprises a plurality of apertures and wherein the closure member comprises a plurality of sealing surfaces, wherein each aperture of the plurality of apertures is closed by a sealing surface of the plurality of sealing surfaces when the closure member is in the unvented position.

~~17~~15. A vent assembly according to claim ~~16~~14, wherein the closure member comprises a plurality of relief surfaces, wherein a relief surface is positioned above each aperture of the plurality of apertures when the closure member is in the vented position.

~~18~~16. A vent assembly according to any one of claims ~~16~~ 14 to ~~17~~15, wherein the vent assembly comprises a plurality of cam surfaces, and wherein each aperture of the plurality of apertures is located in a cam surface of the plurality of cam surfaces, and further wherein each aperture of the plurality of apertures is closed by a sealing surface of the plurality of sealing surfaces when the closure member is in the unvented position.

~~19. A method of opening and closing a vent assembly on a spray gun reservoir configured to be attached to a spray gun, wherein the method comprises:~~

~~rotating a closure member between an unvented position and a vented position about an axis extending through a wall of the reservoir, wherein a sealing surface on the closure member closes an aperture when the closure member is in the unvented position, and wherein in the vented position, the sealing surface does not close the aperture, wherein, when the closure member is in the vented position, a liquid contained in the reservoir can flow to the spray gun by the force of gravity without allowing the liquid to leak through the vent assembly;~~

~~and wherein movement of the closure member from the vented position to the unvented position generates a compressive force on the closure member such that the sealing surface of the closure member is forced by a cam surface against a wall of the reservoir when the sealing surface is positioned over the aperture.~~

~~20~~17. A method of opening and closing a vent assembly on a spray gun reservoir configured to be attached to a spray gun, wherein the method comprises:

rotating a closure member mounted on a post extending from a wall of a reservoir, wherein the closure member rotates on the post about an axis extending through the post and the wall, wherein the closure member rotates between an unvented position and a vented position, wherein in the unvented position a sealing surface on the closure member closes an aperture, and wherein in the vented position, the sealing surface does not close the aperture, wherein, when the closure member is in the vented position, a liquid contained in the reservoir can flow to the spray gun by the force of gravity without allowing the liquid to leak through the vent assembly;

and wherein rotation of the closure member from the vented position to the unvented position generates a compressive force on the closure member between a closure member retainer on the post and a cam surface on the wall of the reservoir such that the sealing surface of the closure member is forced against the wall of the reservoir when the sealing surface is positioned over the aperture.

~~21~~18. A method according to claim ~~20~~17, wherein the closure member retainer comprises a shoulder located on an exterior surface of the post, and wherein the closure member is compressed between the shoulder and the cam surface when the closure member is in the unvented position.

~~22~~19. A method according to claim ~~21~~18, wherein the closure member comprises an inner surface facing the post and a top surface facing away from the wall of the reservoir, wherein the closure member comprises a stepped transition between the inner surface and the top surface wherein a top edge of the inner surface does not coincide with an inner edge of the top surface of the closure member, and further wherein the shoulder of the closure member retainer contacts the top edge of the inner surface of the closure member when the closure member is in the unvented position.