Claims

1. A liquid dispenser (10) for dispensing a fluid (80), comprising:

    a. a housing 20 having a height H and a central axis AA parallel to a housing bottom floor 44 and disposed at the midpoint of a housing height H; wherein the housing includes a first housing wall 22, a second housing wall 42 opposite the first housing wall 22, a shaped inner frame 90 having a first inner frame side 92 and a shaped outer frame 24; wherein the outer frame 24 connects the first housing wall 22 with the second housing wall 42, the second housing wall 42 connected to the front wall via side walls 43, top wall 46 and bottom wall 44;

    b. wherein the housing contains a pump 26 configured for pumping fluid (80), preferably in the range of 9 to 41°C and 1 Atm., wherein the pump 26 is connected to a pump inlet conduit 28 and a pump outlet conduit 30;

    c. wherein housing 20 contains a refill bay 70 defined by shaped inner frame 90 and configured to receive a refill 60 that is inserted into refill bay 70 through first inner frame side 92 along either vector R or R’ which vectors are both in the same plane defined by height H and axis AA and wherein both vectors intersect central axis AA on opposite sides at a point midway between first housing wall 22 and second housing wall 42; wherein vector R intersects central axis AA at an angle α between 0 and 75 degrees and vector R’ intersects central axis AA at an angle α’ between 0 and minus 75 degrees; and

d. wherein refill 60 includes outlet interface 48 in fluid communication with refill reservoir 40 and wherein the outlet interface 48 and a pump inlet conduit interface 53 are configured to sealingly engage with each other when refill 60 is fully inserted into refill bay 70,
and wherein the refill is substantially surrounded by the outer frame of the housing,
and wherein the refill 60 passes into refill bay 70 on the opposite side of the dispenser 10 where dispenser outlet 12 is located, outlet 12 being adjacent to top wall 46.

2. The dispenser of claim 1 wherein the outer frame 24 and inner frame 90 are spaced apart over an arc defined by at least a 120 degree angle of rotation β around the central axis AA of a line P drawn perpendicular to axis AA.

3. The dispenser of claim 1 or 2, wherein the angle α is less than 10 degrees.

4. The dispenser according to any one of the preceding claims wherein refill 60 has a transparent or translucent refill reservoir 40.

5. The dispenser of according to any one of the preceding claims wherein pump 26 has an entrainment mechanism which entrains air or gas into fluid 80 prior to dispensing.

6. The dispenser according to any one of the preceding claims wherein refill reservoir 40 is sealingly engaged via a liquid tight coupling 47 to refill adapter 50 and refill adapter 50 includes refill interface 48 in fluid communication with refill reservoir 40, preferably the coupling comprises spout 49 and receptacle 51.

7. The dispenser according to any one of the preceding claims wherein the junction between wall 22 and outer frame 24 and between wall 42 and outer frame 24 comprise a smooth, three dimensional surface, preferably without noticeable boundaries or seams.

8. The dispenser according to any one of the preceding claims wherein the first inner frame side 92 when viewed along central axis AA has a regular or irregular shape, more preferably wherein the first inner frame side shape is selected from a polygonal, circular, ovoidal, curved or curvilinear shape or a combination thereof.

9. The dispenser according to any one of the preceding claims wherein first housing wall 22 defines an open, transparent or translucent window 100 coinciding with at least a portion of refill reservoir 40, preferably with a vertical cross-section of refill reservoir 40.

10. The dispenser according to any one of the preceding claims wherein the refill bay 70 is sized to receive the refill 60 in pressing engagement with the inner frame 90, preferably refill 60 has a refill reservoir 40 whose volume is under 1 liter or 500 mls.

11. The dispenser according to any one of the preceding claims wherein refill bay 70 is sized to receive the refill assembly 60 in pressing engagement via a plurality of protuberances 33 rigidly connected to the inside frame and extending into the refill bay.

12. The dispenser according to any one of the preceding claims wherein refill bay 70 is further defined by a bulkhead 39 connected to the inner frame 90 opposite the first inner frame side 92.

13. A liquid dispenser kit comprising:

a. A liquid dispenser according to any one of the preceding claims; and

b. a refill 60 containing a composition comprising:

i. 1 to 60 % by wt. of one or more lathering surfactant(s) selected from soap, synthetic anionic surfactant(s), amphoteric surfactant(s), nonionic surfactant(s), cationic surfactant(s) or a blend thereof;

ii. 10 to 99 % by wt. of water; and

iii. 0.1 to 30 % by wt. of one or more skin conditioning agent(s) selected from hydrophobic conditioning agent(s), hydrophilic conditioning agent(s) or a blend thereof.

14. The dispenser according to claim 1 further comprising one or more remote proximity sensors for detecting a user’s hands in proximity to the outlet 12.