~~Claims:~~

CLAIMS:

1. A lid adapted for assembly to a beverage container, comprising:

a substantially planar member having a peripheral edge;

a socket formed near the peripheral edge of the planar member and having a cylindrical socket sidewall and a socket bottom wall;

a score line disposed in the socket bottom wall and defining a tear panel, wherein the score line is located inward from the cylindrical socket sidewall, defining an annular surface between the score line and the cylindrical socket sidewall, with the annular surface providing a seating arrangement segment;

a cap having a cap bottom surface extending across a lower edge of a cylindrical cap sidewall, the cap movably disposed in the socket, locating the cap bottom surface adjacent the socket bottom wall, the cap comprising a pointed projection extending downward from the cap bottom surface ~~and disposed offset to a center axis of the cap~~,

wherein when the cap is assembled in the socket, the pointed projection extends downwardly into the socket and is disposed immediately above the score line; and

an earn feature for driving the cap between opening, removal and resealing positions relative to the score line, the earn feature comprising at least one earn surface in cooperative engagement with a cam surface, wherein the earn feature translates a rotational motion into a linear motion substantially perpendicular to a plane defined by the rotational motion.

2. The lid of claim 1, wherein the pointed projection is disposed offset to a center axis of the cap.

3~~2~~. The lid of claim 1 or 2, wherein the cap fits substantially within the socket, and

wherein the earn feature comprises earn surfaces formed in one of the cylindrical sidewalls of the socket and the cap, and at least ~~two projections~~one projection formed in the other of the cylindrical sidewalls of the socket and the cap.

3~~4~~. The lid of ~~claim~~ of claims 1, 2 or 3, wherein the cap and ~~socket~~planar member form a seal between ~~one another in~~ at least one of ~~the following configurations~~:

~~creating a seal between~~ the seating arrangement ~~segment~~ of the socket and the lower surface of the cap~~,~~; and

~~creating a seal between~~ an upper surface of the substantially planar member and a contacting surface of a flange extending radially outward from a peripheral edge about the cap.

4~~5~~. The lid of ~~claim~~ of claim 1 or 2, further comprising a hinge section defined by ends of the score line, wherein the hinge section extends between the tear panel and the annular surface maintaining attachment of the tear panel to the planar member when the score line is fractured.

~~5. The lid of claim 1, wherein the earn feature includes earn surfaces formed on an outer cylindrical surface of the cap and projections formed on the inner cylindrical surface of the socket,~~

~~wherein at least a portion of each of the earn surfaces is adapted to engage with a mating surface of each of the respective projections whereby rotational movement of the cap imparts translational movement to the cap.~~

~~6. The lid of claim 5, wherein the cap further comprising an upper end, a lower end, and a pointed projection extending downward from the lower end,~~

~~wherein the tear panel fractures when the pointed projection is driven downwardly by said translational movement of the cap to impinge upon the score line.~~

6~~7~~. The lid of claim 1 or 2, further comprising a detent feature for securing the cap in a first position associated with pre-opening, and a second position associated with post-opening.

7. The lid of claim 1 or 2, wherein the earn feature includes earn surfaces formed on an outer cylindrical surface of the cap, and projections formed on the inner cylindrical surface of the socket,

wherein the earn surfaces are adapted to engage the projections whereby rotational movement of the cap imparts translational movement to the cap.

8. The lid of claim 7, wherein the cap has an upper end and a lower end, the tear panel separating from the socket bottom wall when the pointed projection is driven downwardly by the earn feature to impinge upon the score line.

~~8.~~9. The lid of claim 7, configured wherein ~~in~~ at least one of:

the detent feature is associated with the earn feature;

the pre-opening position is associated with functions of storage and transport, and the post-opening position is associated with resealing;

the detent feature includes at least a portion of the earn feature; and

the earn feature includes cam ~~surfaces~~elements formed on the cap which engage with cam followers formed in the cylindrical socket sidewall, and wherein the detent feature includes detents formed in the ~~earn surfaces~~cam elements which cooperate with the cam followers to hold the cap in the pre-opening and post opening positions.

~~9.~~10. A lid ~~assembly~~ for a container of claim 1 or 2, said earn feature further comprising:

~~a lid adapted to be connected to a top edge of a container sidewall, the lid including a socket having a cylindrical socket sidewall and a socket bottom wall;~~

~~the socket having a score line formed in the socket bottom wall, the score line defining a tear panel;~~

~~a cap rotatably and detachably connected to the socket in juxtaposition to the tear panel;~~

a first drive system for driving the cap into operable engagement with the tear panel, thereby pushing the tear panel into the can to form an opening in the socket; and

a second drive system, operable in cooperation with the first drive system, to increase the engagement between the cap and the tear panel,

wherein the ~~cap includes a~~ sharp projection is formed in a center of the bottom wall of the cap, and the ~~socket includes a second~~ score line is formed in a center of the ~~socket~~ bottom wall of the socket, in juxtaposition to the sharp projection when the cap is positioned in the socket.

~~10. The lid assembly for a container of claim 9, wherein the lid includes the socket extending downwardly into the interior space and having a sidewall and a bottom wall, and~~

~~wherein the cap includes a sidewall and a bottom wall, and wherein the cap fits in the socket.~~

11. The lid ~~assembly~~ for a container of claim 9, wherein the first drive ~~means~~ system includes a first linear motion drive mechanism~~,~~ ~~capable of converting~~ adapted to convert rotational motion of the cap into linear motion of the cap.

12. The lid ~~assembly~~ for a container of claim ~~11~~10~~;~~, wherein the second drive system includes a second linear motion drive mechanism, adapted to convert rotational motion of the cap into a separation force applied upon the tear panel.

13. The lid ~~assembly~~ for a container of claim ~~11~~10, wherein the first linear motion drive mechanism includes first and second cam structures, formed respectively on the cap cylindrical sidewall and socket cylindrical sidewall.

14. The lid ~~assembly~~ for a container of claim 13, arranged in at least one of the following configurations:

wherein the second linear motion drive mechanism includes third and fourth cam structures, formed respectively on the cap bottom wall and the socket bottom wall;

wherein the first cam structure includes a groove formed in the cap cylindrical sidewall, and the second cam structure includes at least one projection formed on the socket cylindrical sidewall;

wherein the third cam structure includes at least one cap ramp and the fourth cam structure includes at least one socket ramp in sliding engagement with the at least one cap ramp; and

wherein the at least one cap ramp includes three ramps arranged peripherally around the cap bottom wall, in sliding engagement with the at least one socket ramp.

~~15. A lid assembly for a container according to claim 9, the cap further comprising a grip and a cap rotation enhancing element comprising a feature for receiving an implement capable of engaging the grip, wherein said implement enhances a rotation of the cap.~~

15~~16~~. The lid ~~assembly~~ for a container of claim 9, wherein the ~~second~~ score line includes at least two intersecting lines, and wherein the sharp projection is juxtaposed at the intersection between the two intersecting lines.

16~~17~~. A lid ~~assembly~~ for a container according to ~~claim~~ any one of claims 1, 2, or 9, wherein the ~~second~~ score line is substantially in the shape of a loop.

17~~18~~. A lid ~~assembly~~ for a container according to ~~claim~~any one of claims 1, 2, or 9, wherein the ~~second~~ score line is substantially ~~"~~S~~"~~ shaped.

18~~19~~. A method of making and using a resealable can lid assembly, comprising:

forming a lid from a substantially planar blank;

forming a socket in the lid, the socket having a socket sidewall, a socket bottom wall, projections extending towards a center of the socket from the socket sidewall and socket ramps integral with the socket bottom wall;

forming a score line in the socket bottom wall, the score line defining a tear panel,

wherein the score line is located inward from the cylindrical socket sidewall, defining an annular surface between the score line and the cylindrical socket sidewall, the annular surface providing a socket seating arrangement segment, and wherein a start of the score line and an end of the score line do not meet but defines a hinge for the tear panel;

forming a cap having a cap sidewall, a cap bottom wall, at least one cam groove formed in the cap sidewall, a cap sealing ring defined on the cap bottom surface extending about a peripheral edge thereof, a piercing element extending downward from the cap bottom surface wherein the piercing element is located in alignment with the score line when the cap is inserted into the socket, cap ramps integral with the cap bottom wall and located within an interior of the cap sealing ring;

inserting the cap into the socket and locating at least one projection to slideably engage with each associated cam groove; and

locating each socket ramps of the socket ramps and each mating cap ramp of the cap ramps in contact with one another,

wherein when the cap is rotated within the socket in a first direction, each at least one projection cooperatively engages with the respective cam groove enabling the piercing element to initiate a fracture of the score line and the tear panel to initiate separation from the socket bottom wall, and each cap bottom ramp of said at least one cap bottom ramp and the mating at least one socket bottom wall ramp to cooperatively engage with one another to generate and apply an opening force to the tear panel causing the score line fracture to propagate and subsequently cause the tear panel to fold away from the socket bottom wall,

wherein the cap is rotated in second direction and removed from the socket, and

wherein the cap is reinserted into the socket and rotated in the first direction seating the cap sealing ring against the socket seating arrangement segment to seal the lid.

19~~20~~. A method according to claim ~~19~~18, further comprising forming a puncture element in a center of the cap bottom wall, and a central score line in a center of the socket bottom wall, and juxtaposing the puncture element and the central score line when the cap is inserted into the socket.

20~~21~~. A method of making a resealable ~~can lid~~ assembly for a can, comprising:

forming a lid from a substantially planar blank;

forming a socket in the lid, the socket having a socket sidewall, a socket bottom wall, a socket sidewall drive mechanism component integral with the socket sidewall, and a socket bottom wall drive mechanism component integral with the socket bottom wall;

forming a score line in the socket bottom wall, the score line defining a tear panel,

wherein the score line is located inward from the socket sidewall and external of the socket bottom wall drive mechanism component, defining an annular surface between the score line and the socket sidewall providing a socket seating arrangement segment;

forming a cap having a cap sidewall, a cap bottom wall, cap sidewall drive mechanism component integral with the cap sidewall, a cap bottom wall drive mechanism component integral with the cap bottom wall and located within an interior of ~~the~~ a cap sealing ring;

forming a piercing element integral with the cap bottom wall, located within an interior of the cap sealing ring;

inserting the cap into the socket locating the socket sidewall drive mechanism component to slideably engage with the cap sidewall drive mechanism component;

locating the socket bottom wall drive mechanism component and the cap bottom wall drive mechanism component in contact with one another, and

locating the piercing element in registration with the score line,

wherein when the cap is rotated within the socket in a first direction, the socket sidewall drive mechanism component engages with the cap sidewall drive mechanism component, driving the cap bottom surface towards the socket bottom wall, creating an opening force applied by the piercing element onto the score line causing the score line to fracture and the tear panel to partially separate from the socket bottom wall;

~~wherein as the cap continues to rotate within the socket in the first direction, the socket bottom wall drive mechanism component and the cap bottom wall drive mechanism component to cooperatively engage with one another to generate and apply secondary opening force to the tear panel causing the score line fracture to propagate and the tear panel to continue to separate from the socket bottom wall, and bend to separated section of the tear panel away from the socket bottom wall,~~

wherein the cap is rotated in second direction and removed from the socket, and

wherein when the cap is reinserted into the socket and rotated in the first direction, the cap sealing ring is seated against the socket seating arrangement segment, sealing the resealable lid,

21. A method according to claim 20, wherein as the cap continues to rotate within the socket in the first direction, the socket bottom wall drive mechanism and the cap bottom wall drive mechanism component to cooperatively engage with one another to generate and apply a secondary opening force to the tear panel causing the score line fracture to propagate and the tear panel to continue to separate from the socket bottom wall, and bend to separated section of the tear panel away from the socket bottom wall.

22. A method according to claim 20, further comprising forming a puncture element in a center of the bottom wall of the cap, and a second score line in a center of the bottom wall of the socket, and juxtaposing the puncture ~~element~~ element and the second score line when the cap is inserted into the socket.

23. A method according to claim 20, wherein at least one of the socket bottom wall drive mechanism component and the cap bottom wall drive mechanism component is provided in a shape of a ramp.

24. A resealable ~~lid~~ assembly for a beverage container comprising:

a lid comprising a substantially planar surface having a peripheral edge;

a socket comprising a socket cylindrical sidewall extending downward from the substantially planar surface, a socket bottom wall sealingly extending across a lower end of the socket cylindrical sidewall, a socket sidewall drive mechanism component integral with the socket cylindrical sidewall, a score line disposed in the bottom wall of the socket and defining a tear panel, wherein the score line is located inward from the socket cylindrical sidewall, defining an annular surface between the score line and the socket cylindrical sidewall providing a socket seating arrangement segment, and a socket bottom wall drive mechanism component integral with the socket bottom wall and located within an interior of the socket seating arrangement segment;

a cap comprising a cap cylindrical sidewall, a cap bottom wall, and a cap sealing ring defined on the cap bottom surface extending about a peripheral edge thereof, a cap sidewall drive mechanism component integral with the cap sidewall, and a cap bottom wall drive mechanism component integral with the cap bottom wall and located within an interior of the cap sealing ring, the cap fitted into the socket and being movable between a storage position, an opening position, a drinking position, wherein the cap is removed from the socket, and a resealing position abutting the cap sealing ring and the socket seating arrangement segment against one another forming a seal therebetween;

wherein the cap is rotationally inserted into the socket locating the socket sidewall drive mechanism component in slideably engagement with the cap sidewall drive mechanism component and the socket bottom wall drive mechanism component and the cap bottom wall drive mechanism component are located in juxtaposition and in contact with one another,

wherein when the cap is rotated within the socket in a first direction, the socket sidewall drive mechanism component engages with the cap sidewall drive mechanism component, driving the cap bottom surface towards the socket bottom wall, creating an opening force applied by the

piercing element onto the score line causing the score line to fracture and the tear panel to partially separate from the socket bottom wall;

wherein as the cap continues to rotate within the socket in the first direction, the socket bottom wall drive mechanism component and the cap bottom wall drive mechanism component to cooperatively engage with one another to generate and apply secondary opening force to the tear panel causing the score line fracture to propagate and the tear panel to continue to separate from the socket bottom wall, and bend to separated section of the tear panel away from the socket bottom wall,

wherein when the cap is rotated in second direction , the cap is removed from the socket enabling passage of a beverage from a beverage container through an orifice created by the fractured score line and opened tear panel, and

wherein when the cap is reinserted into the socket and rotated in the first direction, the cap sealing ring is seated against the socket seating arrangement segment, sealing the resealable cap.

25. The resealable ~~lid~~ assembly of claim 24, further comprising at least one of:

the cap <u>bottom wall</u> drive mechanism component formed having a vertically sloping ramp,

the mating socket <u>bottom wall</u> drive mechanism component formed having a vertically sloping ramp,

the socket sidewall drive mechanism component formed as a protrusion extending towards a center of the socket, and

the cap sidewall drive mechanism component formed as a groove inward from the cap sidewall.

26. The resealable ~~lid~~ assembly of claim 24, wherein the cap bottom wall drive mechanism component and the mating socket bottom wall drive mechanism component each include a vertically sloping ramp.

27. The resealable lid assembly of claim 24, wherein the socket sidewall drive mechanism includes a projection formed in the socket cylindrical sidewall and the cap sidewall drive mechanism component includes a groove formed in the cap cylindrical sidewall, wherein the projection is slideably located within the groove.

28. A resealable lid assembly for a beverage container comprising:

a lid substrate having a generally planar section bound by a peripheral edge;

a socket comprising a socket cylindrical sidewall extending downward from the generally planar section, a socket bottom wall sealingly extending across a lower end of the socket cylindrical sidewall, a socket sidewall drive mechanism component integral with the socket sidewall, a score line disposed in the socket bottom wall and defining a tear panel, wherein the score line is located inward from the socket cylindrical sidewall,

defining an annular surface between the score line and the socket cylindrical sidewall providing a socket seating arrangement segment, and

a socket bottom wall drive mechanism component integral with the socket bottom wall and located within an interior of the socket seating arrangement segment;

a cap comprising a cap cylindrical sidewall, a cap bottom wall, and a cap sealing ring defined on the cap bottom surface extending about a peripheral edge thereat: a cap sidewall drive mechanism component integral with the cap bottom side wall, and a cap bottom wall drive mechanism component integral with the cap bottom wall and located within an interior of the cap sealing ring, the cap fitted into the socket and being movable between a storage position, an opening position, a drinking position,

wherein the cap is removed from the socket, and a resealing position abutting the cap sealing ring and the socket seating arrangement segment against one another forming a seal therebetween;

a first drive mechanism provided by cooperative operation between the socket sidewall drive mechanism and the cap sidewall drive mechanism component, the first drive mechanism detachably and rotatably connecting the cap to the socket controlling vertical displacement between the cap and the socket, and being operable by rotation of the cap, driving the cap bottom surface towards the socket bottom wall, creating an opening force applied by the piercing element onto the score line causing the score line to fracture and the tear panel to partially separate from the socket bottom wall; and

a second linear drive mechanism provided by cooperative interaction between the socket bottom wall drive mechanism component and the cap bottom wall drive mechanism component, the second linear drive mechanism cooperative interaction operating in conjunction with the cooperative operation of the first drive mechanism, to apply a force provided by a combination of the first drive mechanism and the second linear drive mechanism causing the fracture of the score line to propagate and displace a portion of the tear panel away from the socket bottom wall creating an orifice between the tear panel and the socket bottom wall.

29. The resealable assembly for a beverage container of claim 28, wherein the socket sidewall drive mechanism is adapted to engage with the cap sidewall drive mechanism component during a rotation of the cap in a first direction within the socket, driving the cap bottom surface towards the socket bottom wall, creating an opening force applied by the piercing element onto the score line causing the score line to fracture and the tear panel to partially separate from the socket bottom wall,

wherein the socket bottom wall drive mechanism and the cap bottom wall drive mechanism component are adapted to cooperatively engage with one another during a continued rotation of the cap within the socket to generate and apply a secondary opening force to the tear panel causing the score line fracture to propagate and the tear panel to continue to separate from

the socket bottom wall, and bend to separated section of the tear panel away from the socket bottom wall,

wherein the cap is adapted to be removed from the socket when the cap is rotated in a second, opposite direction, enabling passage of a beverage from a beverage container through an orifice created by the fractured score line and opened tear panel, and

wherein the cap sealing ring is adapted to be seated against the socket seating arrangement segment when the cap is reinserted into the socket and rotated in the first direction, sealing the resealable cap.

30~~29~~. The resealable lid assembly of claim 28, further comprising at least one of:

the cap bottom wall drive mechanism component formed having a vertically sloping ramp,

the mating socket bottom wall drive mechanism component formed having a vertically sloping ramp,

the socket sidewall drive mechanism component formed as a protrusion extending towards a center of the socket, and

the cap sidewall drive mechanism component formed as a groove inward from the cap sidewall.