Claims

1. A container twist-lock pinning/unpinning assembly for rotatably displacing a cam of a twist-lock between a locking condition in which the cam of the twist-lock engages a corner block of an intermodal container to which the twist-lock is fitted, for locking the twist-lock to the corner block, and an unlocking condition in which the cam is disengaged from the corner block, thereby permitting both insertion and withdrawal of the cam from the corner block, during fitting and removal of the twist-lock to and from the corner block, respectively, the pinning/unpinning assembly comprising:

    a twist-lock body gripping attachment configured, in use, to grip a supporting body of a twist-lock;

    a cam actuating mechanism configured, in use, for actuating the cam of the twist-lock; and

    a rotary actuator configured, in use, to rotate one of the twist-lock body gripping attachment and the cam actuating mechanism relative to one another for displacing the twist-lock between the locking condition and the unlocking condition, thereby permitting said fitting or removal of the twist-lock to and from the corner block.

2. A container twist-lock pinning/unpinning assembly as claimed in claim 1, wherein the rotary actuator is configured, in use, to rotate one of the twist-lock body gripping attachment and the cam actuating mechanism about an axis of rotation of the rotary actuator.

3. A container twist-lock pinning/unpinning assembly as claimed in claim 1, wherein the twist-lock body gripping attachment includes a pair of opposed closable jaw members which are movable relative to one another and are configured to controllably engage and grip the supporting body in a predetermined configuration, as required and determined by the size and shape of the particular twist-lock body and by a location and orientation of an axis of rotation of the cam relative to the twist-lock body, whereby said predetermined configuration optimally orientates and locates the axis of rotation of the cam of the twist-lock with respect to the axis of rotation of the rotary actuator.

4. A container twist-lock pinning/unpinning assembly as claimed in claim 3, wherein the twist-lock body gripping attachment is electronically controllable by one or more electronic control modules, which are configured to displace each one of the controllable

and opposable jaw members, relative to one another to effectively accommodate and grip twist-lock bodies of different shapes and sizes.

5. A container twist-lock pinning/unpinning assembly as claimed in claim 4, wherein the container twist-lock pinning/unpinning assembly includes said one or more electronic control modules.

6. A container twist-lock pinning/unpinning assembly as claimed in claim 3, wherein one or both of the closable jaw members, of the pair of jaw members of the twist-lock body gripping attachment, includes one or more controllable movable portions which are movable with respect to an associated one of the jaw members.

7. A container twist-lock pinning/unpinning assembly as claimed in claim 6, wherein each of the jaw members of the pair of jaw members includes multiple movable controllable portions, which can each be controlled independently, relative to one another, thereby rendering the jaw members configured to controllably accommodate and grip twist-lock bodies of different shapes and sizes.

8. A container twist-lock pinning/unpinning assembly as claimed in claim 7, wherein each movable portion of the jaw members is electronically controllable via one or more associated control modules and wherein each movable portion of the jaw members is controlled by said one or more control modules.

9. A container twist-lock pinning/unpinning assembly as claimed in claim 3, wherein the cam actuating mechanism includes a cam gripping attachment for gripping the cam of the twist-lock and for displacing the cam of the twist-lock relative to the body of the twist-lock.

10. A container twist-lock pinning/unpinning assembly as claimed in claim 3, wherein the container twist-lock pinning/unpinning assembly includes displacing means for displacing at least one of the twist-lock body gripping attachment and the cam actuating mechanism relative to one another and wherein the displacing means is configured to provide for translational movement of the twist-lock body gripping attachment relative to the cam actuating mechanism.

11. A container twist-lock pinning/unpinning assembly as claimed in claim 10, wherein the displacing means is configured for displacing the pair of jaw members relative to one another.

12. A container twist-lock pinning/unpinning assembly as claimed in claim 10, wherein the container twist-lock pinning/unpinning assembly is operable, by operation of the displacing means, to displace a twist-lock which is gripped by the pair of jaw members, such that the axis of rotation of the rotary actuator is coaxially aligned with respect to an axis of rotation of the cam of the twist-lock.

13. A container twist-lock pinning/unpinning assembly as claimed in claim 10, wherein the container twist-lock pinning/unpinning assembly is operable, by operation of the displacing means, to displace a twist-lock which is gripped by the pair of jaw members such that the axis of rotation of the rotary actuator is parallel to, but offset with respect to a central axis of the cam of the twist-lock.

14.. A container twist-lock pinning/unpinning assembly as claimed in claim 12, wherein the axis of rotation of the rotary actuator is substantially perpendicular to a plane in which the closable jaw members move, in use.

15. A container pinning system, including the container twist-lock pinning/unpinning assembly as claimed in claim 1.