CLAIMS

1. An apparatus for the removable retention of a store/payload to a vehicle comprising:

a housing having an elongated base, said base having a first and second distal end;

a retention receptacle disposed adjacent said first distal end, said retention receptacle configured to removably receive and retain the store/payload;

a release receptacle disposed adjacent said second distal end, said release receptacle configured to house a release mechanism assembly; and

said release mechanism assembly configured to move between a closed and locked position and an opened and unlocked position, wherein when the release mechanism assembly is in said closed and locked position the store/payload is retained to the vehicle, and wherein when the release mechanism assembly is in said open and unlocked position the store/payload may be disengaged from the vehicle.

2. The apparatus of Claim 1, further comprising:

a spring loaded lock pin configured to engage a slot in the store/payload when said release mechanism assembly is in said closed and locked position.

3. The apparatus of Claim 2, further comprising:

a bellcrank link having a first and second end and a fixed pivot disposed between said first and second end, wherein said second end of said bellcrank link is affixed to said release mechanism assembly;

a first link attached between said first end of said bellcrank link and said lock pin, wherein when said release mechanism assembly is moved to said

unlocked and open position, said bellcrank link is configured to rotate about said pivot and cause said lock pin to disengage from said slot.

4. The apparatus of any of Claims 1 through 3, further comprising:

an elongated slot disposed in said release receptacle, said slot configured to receive and guide a pin protruding from a shaft slidably disposed in said release receptacle, wherein said elongated slot is configured to retain said release mechanism assembly in said open and unlocked position.

5. The apparatus of any of Claims 1 through 4, wherein the vehicle is an unmanned aerial vehicle.

6. A method for the removable retention of a store/payload to a vehicle comprising the steps of:

providing a housing having an elongated base, said base having a first and second distal end;

providing a retention receptacle disposed adjacent said first distal end, said retention receptacle configured to removably receive and retain the store/payload;

providing a release receptacle disposed adjacent said second distal end, said release receptacle configured to house a release mechanism assembly; and

said release mechanism assembly configured to move between a closed and locked position and an opened and unlocked position, wherein when the release mechanism assembly is in said closed and locked position the store/payload is retained to the vehicle, and wherein when the release mechanism assembly is in said open and unlocked position the store/payload may be disengaged from the vehicle.

7. The method of Claim 6, further comprising the step of:

providing a spring loaded lock pin configured to engage a slot in the store/payload when said release mechanism assembly is in said closed and locked position.

8. The method of Claim 7, further comprising the steps of:

providing a bellcrank link having a first and second end and a fixed pivot disposed between said first and second end, wherein said second end of said bellcrank link is affixed to said release mechanism assembly;

providing a first link attached between said first end of said bellcrank link and said lock pin, wherein when said release mechanism assembly is moved to said unlocked and open position, said bellcrank link is configured to rotate about said pivot and cause said lock pin to disengage from said slot.

9. The method of any of Claims 6 through 8, further comprising the steps of:

providing an elongated slot disposed in said release receptacle, said slot configured to receive and guide a pin protruding from a shaft slidably disposed in said release receptacle, wherein said elongated slot is configured to retain said release mechanism assembly in said open and unlocked position.

10. The method of any of Claims 6 through 9, wherein the vehicle is an unmanned aerial vehicle.

11. A vehicular system, comprising:

a vehicle;
a store/payload; and
an apparatus for the removable retention of the store/payload to the vehicle, the apparatus including:

a housing having an elongated base, said base having a first and second distal end,

a retention receptacle disposed adjacent said first distal end, said retention receptacle configured to removably receive and retain the store/payload,

a release receptacle disposed adjacent said second distal end, said release receptacle configured to house a release mechanism assembly, and

said release mechanism assembly configured to move between a closed and locked position and an opened and unlocked position, wherein when the release mechanism assembly is in said closed and locked position the store/payload is retained to the vehicle, and wherein when the release mechanism assembly is in said open and unlocked position the store/payload may be disengaged from the vehicle.

12. A vehicular system of Claim 11, wherein the vehicle is an unmanned aerial vehicle which is constructed and arranged for flight.

CLAIMS

1. An apparatus for removable retention of a store or payload to a vehicle, comprising:

an elongated base having a first distal end and a second distal end;

a retention receptacle disposed adjacent said first distal end, said retention receptacle configured to removably receive and retain the store or payload;

a release receptacle disposed adjacent said second distal end, said release receptacle housing a release mechanism assembly;

said release mechanism assembly configured to move between a closed and locked position and an opened and unlocked position, wherein when the release mechanism assembly is in said closed and locked position the store or payload is retained to the vehicle, and wherein when the release mechanism assembly is in said open and unlocked position the store or payload may be disengaged from the vehicle; and

a spring loaded lock pin configured to advance into the retention receptacle when said release mechanism assembly is in said closed and locked position,

wherein the retention receptacle includes a hollow tube having an opening in a wall thereof through which the spring loaded lock pin is advanced when said release mechanism assembly is in said closed and locked position.

2. The apparatus of claim 1, further comprising:

a bellcrank link having a first end and a second end and a fixed pivot disposed between said first end and said second end, wherein said second end of said bellcrank link is affixed to said release mechanism assembly;

a first link attached between said first end of said bellcrank link and said lock pin, wherein when said release mechanism assembly is moved to said unlocked and open position, said bellcrank link is configured to rotate about said fixed pivot and cause said lock pin to retract from said retention receptacle.

3. The apparatus of claim 2, further comprising:

an elongated slot disposed in said release receptacle, said elongated slot configured to receive and guide a pin protruding from a shaft slidably disposed in said release receptacle, wherein said elongated slot is configured to retain said release mechanism assembly in said open and unlocked position.

4. The apparatus of claim 1, wherein the release receptacle includes a second hollow tube, and wherein the release mechanism assembly is configured to move axially within the second hollow tube between the closed and locked position and the open and unlocked position.

5. The apparatus of claim 1, wherein the release mechanism assembly has a ring disposed outside the second hollow tube, and wherein axial movement of the release mechanism assembly between the closed and locked position and the open and unlocked position is effected by pulling on the ring.

6. A method for removable retention of a store or payload to a vehicle, comprising the steps of:

providing an elongated base having a first distal end and a second distal end;

providing a retention receptacle disposed adjacent said first distal end, said retention receptacle configured to removably receive and retain the store or payload; and

providing a release receptacle disposed adjacent said second distal end, said release receptacle housing a release mechanism assembly, said release mechanism assembly configured to move between a closed and locked position and an opened and unlocked position, wherein when the release mechanism assembly is in said closed and locked position the store or payload is retained to the vehicle, and wherein when the release mechanism assembly is in said open and unlocked position the store or payload may be disengaged from the vehicle; and

providing a spring loaded lock pin configured to advance into the retention receptacle when said release mechanism assembly is in said closed and locked position,

wherein the retention receptacle includes a hollow tube having an opening in a wall thereof through which the spring loaded lock pin is advanced when said release mechanism assembly is in said closed and locked position.

7. The method of claim 6, further comprising the steps of:

providing a bellcrank link having a first end and a second end and a fixed pivot disposed between said first end and said second end, wherein said second end of said bellcrank link is affixed to said release mechanism assembly;

providing a first link attached between said first end of said bellcrank link and said lock pin, wherein when said release mechanism assembly is moved to said unlocked and open position, said bellcrank link is configured to rotate about said fixed pivot and cause said lock pin to retract from said retention receptacle.

8. The method of claim 7, further comprising the steps of:

providing an elongated slot disposed in said release receptacle, said elongated slot configured to receive and guide a pin protruding from a shaft slidably disposed in said release receptacle, wherein said elongated slot is configured to retain said release mechanism assembly in said open and unlocked position.

9. A UAV (Unmanned Aerial Vehicle), comprising:

a skin defining a boundary between an inside of the UAV and an outside the UAV;

an elongated base disposed on the inside of the UAV, the elongated base having a first distal end and a second distal end;

a retention receptacle disposed adjacent said first distal end, said retention receptacle having a hollow, tubular shape and having an opening in a wall thereof;

a release receptacle disposed adjacent said second distal end, said release

receptacle having a hollow, tubular shape and housing a release mechanism assembly therein; and

a lock pin, coupled to the release mechanism assembly at the second distal end,

wherein said release mechanism assembly is constructed and arranged to move axially within the release receptacle between a first position and a second position,

wherein said lock pin is constructed and arranged to advance into the retention receptacle through the opening in the wall thereof in response to movement of the release mechanism assembly from the first position to the second position, and

wherein said lock pin is constructed and arranged to retract from the retention receptacle in response to movement of the release mechanism assembly from the second position to the first position.