~~The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:~~ Claims

1. A shuttle for a warehouse, having a runway for said shuttle and a plurality of article spaces along and adjacent to said runway, said shuttle comprising:
a chassis made up of first and second chassis portions and an article-carrying area between said chassis portions;
a pair of first running wheels on said first chassis portion, said first running wheels adapted to travel along the runway;
a pair of second running wheels on said chassis spaced from said first running wheels, said second running wheels adapted to travel along the runway;
a pair of extendable arms mounted to said chassis in order to transfer an article between an article space and said article-carrying area; and
a connector assembly connecting said first and second chassis portions, wherein one of said arms is mounted to said first chassis portion and the other of said arms is mounted to said second chassis portion and wherein said connector assembly is adapted to vary the spacing between said first and second chassis portions and thereby varying the spacing between said arms to engage articles of different widths~~.~~, characterised in that said article-carrying area includes an article support surface between said arms, said article support surface being expandable and contractible in response to varying of the spacing between said arms, wherein said article support surface is defined by a plurality of overlapping plates.

2. The shuttle as claimed in claim 1 wherein said connector assembly comprises at least one rack and pinion assembly.

3. The shuttle as claimed in claim 2 wherein said at least one rack and pinion assembly comprises a rack bar that is fixedly connected to one of said chassis portions and is slideably connected to the other of said chassis portions and a motor that operates a pinion gear engaged with said rack bar.

4. The shuttle as claimed in claim 3 wherein said at least one rack and pinion assembly comprises a spaced apart pair of rack bars wherein said motor operates a pair of said pinion gears, each engaged with one of said rack bars and a shaft coordinating operation of said pinion gears.

5. The shuttle as claimed in claim 1 including a drive assembly for extending and retracting said arms, said drive assembly including a first drive associated with said one of said arms, a second drive associated with the other of said arms, another motor and another shaft interconnecting said another motor with said first and second drives.

6. The shuttle as claimed in claim 5 including a universal joint connected with said shaft to accommodate flexing between said first and second chassis portions.

~~7. The shuttle as claimed in any of the preceding claims wherein said article-carrying area includes an article support surface between said arms, said article support surface being expandable and contractible in response to varying of the spacing between said arms.~~

~~8. The shuttle as claimed in claim 7 wherein said article support surface is defined by a plurality of overlapping plates.~~

~~9~~7. The shuttle as claimed in claim ~~8~~1 wherein at least some of said plates are supported at one side portion by a support bar and at the opposite side portion by resting on an adjacent one of said plates.

~~10~~8. The shuttle as claimed in claim ~~9~~7 wherein said support bars are supported by said connector assembly.

~~11~~9. The shuttle as claimed in claim ~~9~~8 including a flexible band, wherein said support bars are connected with said flexible band to maintain a maximum spacing between said support bars.

~~12~~10. The shuttle as claimed in claim 1 including a control, said control having a first output for effecting rotation of said first running wheels, a second output for effecting extension and retraction of said arms and a third output of effecting spacing between said first and second chassis portions.

~~13~~11. The shuttle as claimed in claim ~~12~~10 including an encoder input to said control, said encoder input rotated from one of said first running wheels or said second running

wheels.

~~14~~12. The shuttle as claimed in claim 1 wherein said second running wheels are mounted to one chosen from said second chassis portion and said connector assembly.

~~15. A shuttle for a warehouse, having a runway for said shuttle and a plurality of article spaces along and adjacent to said runway, said shuttle comprising:~~
~~a chassis made up of an operation module and an article-carrying area adjacent said operation module;~~
~~said operation module comprising a pair of first running wheels, a motor that is adapted to rotate at least one of said first running wheels, an encoder adapted to sense position along the runway and a controller for receiving external commands and an input from said encoder, said controller producing an output to said motor;~~
~~a pair of second running wheels on said chassis spaced from said first running wheels, said second running wheels adapted to travel along the runway; and~~
~~a connector assembly connecting said operation module and said second running wheels, said connector assembly supporting said article-carrying area.~~

~~16. The shuttle as claimed in claim 15 wherein said connector comprises at least one chosen from a plain tube and a rack bar.~~

~~17. The shuttle as claimed in claim 16 wherein said connector comprises at least two spaced apart plain tubes and including an end member joining said plain tubes and supporting said second running wheels.~~

~~18. The shuttle as claimed in claim 16 including at least one belted section supported by said plain tubes.~~

~~19. The shuttle as claimed in claim 18 including at least two belted sections supported by said plain tubes.~~

~~20. The shuttle as claimed in claim 19 including an article aligning rail between said belted sections.~~

21. The shuttle as claimed in claim 20 including a plurality of article sensors on said article-aligning rail.

22. The shuttle as claimed in claim 16 wherein said article-carrying area comprises at least one fixed article-carrying platform.

23. The shuttle as claimed in claim 22 including a pair of extendable arms mounted to opposite sides of said article-carrying area.

24. The shuttle as claimed in claim 16 wherein said connector comprises a rack bar and further including a carriage module having a pinion assembly that engages teeth in said rack bar to move said carriage module along said rack bar.

25. The shuttle as claimed in claim 24 wherein said connector comprises at least two spaced apart rack bars and wherein said pinion assembly comprises at least two pinion gears, each engaging one of said rack bars, a drive shaft connecting said pinion gears and a drive motor that is operable to rotate said pinion gears.

26. The shuttle as claimed in claim 24 including a pair of extendable arms, one mounted to said operation module and one to said carriage module.

27. The shuttle as claimed in claim 26 including a common shaft extending between said arms that is rotatable to extend and retract said arms and including another motor at said operation module that is operable to rotate said common shaft.

28. An operation module for use with a shuttle for a warehouse having a runway for said shuttle and a plurality of article spaces along and adjacent to said runway, said shuttle having an article-carrying area, a connector assembly and a pair of running wheels, wherein said connector assembly supports said article-carrying area, said operation module comprising:

a housing;

another pair of running wheels at said housing;

a motor at said housing that is adapted to rotate at least one of said another running wheels, an encoder at said housing that is adapted to sense position along the runway and a controller at said housing, said controller adapted to receive external commands and an input from said encoder, said controller adapted to produce an

~~output to said motor; and~~

~~an interface that is configured to engage the connector assembly, wherein said operation module is adapted for use with a variety of different connector assemblies.~~