Patent Claims

1. A loading arm assembly for a load-handling vehicle, the loading arm assembly comprising:

a main arm,

an auxiliary arm connected with respect to the main arm,

a crossbeam connected with respect to an end of the auxiliary arm and is pivotable relative to the auxiliary arm about both a first axis extending perpendicularly to a longitudinal axis of the crossbeam, and a second axis extending perpendicularly to both the first axis and the longitudinal axis of the crossbeam, and

two corner grippers, each being disposed on opposite ends of the crossbeam;

wherein:

the crossbeam and the auxiliary arm are connected by way of a universal joint,

the universal joint has a crosspiece having two axle stump pairs,

the auxiliary arm is rotatably connected to one of the two axle stump pairs, and

the crossbeam is rotatably connected to the other of the two axle stump pairs.

2. The loading arm assembly according to claim 1, wherein the crossbeam is pivotable by means of a motorized, pneumatic and/or hydraulic drive about the first and second axes.

3. The loading arm assembly according to claim 1, wherein

the first axis extends perpendicularly to a longitudinal axis of the auxiliary arm.

4. The loading arm assembly according to claim 1, wherein:

the auxiliary arm has a housing,

the crossbeam engages through the housing, and

one axle stump pair is rotatably disposed on the housing.

5. The loading arm assembly according claim 4, wherein the axle stump pair that rotatably engages on the housing extends perpendicularly to the longitudinal axis of the crossbeam and perpendicularly to a longitudinal axis of the auxiliary arm.

6. The loading arm assembly according to claim 1, wherein the main arm is configured so as to be telescopic.

7. The loading arm assembly according to claim 1, wherein the auxiliary arm is configured so as to be telescopic.

8. The loading arm assembly according to claim 1, wherein:

the crossbeam has two crossbeam regions, and

each of the two crossbeam regions is configured so as to be telescopic.

9. The loading arm assembly according to claim 1, wherein the corner grippers are pivotable about the longitudinal axis of the crossbeam.

10. The loading arm assembly according to claim 1, further comprising a gripping hook disposed on the auxiliary arm.

11. The loading arm assembly according to claim 10, wherein the gripping hook is disposed telescopically.

12. The loading arm assembly according to claim 10, wherein:

the auxiliary arm comprises first and second outer sleeves and first and second internal parts,

the first and second outer sleeves form a functional unit that is fastened to the main arm,

the crossbeam and the two corner grippers are disposed on the first internal part that is guided in the first outer sleeve, and

the gripping hook is disposed on the second internal part that is guided in the second outer sleeve.

13. A load-handling vehicle comprising the loading arm assembly according to claim l.

14. The load-handling vehicle according to claim 13, wherein:
the auxiliary arm has a housing,
the crossbeam engages through the housing, and
one axle stump pair is rotatably disposed on the housing.

15. The load-handling vehicle according claim 14, wherein the axle stump pair that rotatably engages on the housing extends perpendicularly to the longitudinal axis of the crossbeam and perpendicularly to a longitudinal axis of the auxiliary arm.

16. The load-handling vehicle according to claim 13, wherein:
the crossbeam has two crossbeam regions, and
each of the two crossbeam regions is configured so as to be telescopic.

17. The load-handling vehicle according to claim 13, wherein the corner grippers are pivotable about the longitudinal axis of the crossbeam.

18. The load-handling vehicle according to claim 13, wherein the loading arm assembly further comprises a gripping hook disposed on the auxiliary arm.