Patent Claims

1. Loading arm assembly (8) for a load-handling vehicle (1), having a main arm (9) and having an auxiliary arm (11), wherein the loading arm assembly (8) is configured for unloading and loading ISO containers (5) and for unloading and loading transportation containers (6) having a hook (7), **characterized in that** a crossbeam (19) having two corner grippers (24, 25) and furthermore, separately therefrom, a telescopic gripping hook (16) is disposed on the auxiliary arm (11).

2. Loading arm assembly according to Claim 1, **characterized in that** the auxiliary arm (11) has two outer sleeves (12, 13), wherein the outer sleeves (12, 13) form a functional unit that is fastened to the main arm (9), wherein an internal part (14) having the crossbeam (19) and the respective corner grippers (24, 25) for gripping ISO containers (5) is disposed on the one outer sleeve (12), and the gripping hook (16) is disposed on another internal part (15) that is guided in the outer sleeve (13).

3. Loading arm assembly according to Claim 1 or 2, **characterized in that** the crossbeam (19) is pivotable relative to the auxiliary arm (11) about two axes (48, 49).

4. Loading arm assembly according to the preceding claim, **characterized in that** the crossbeam (19) is pivotable about a transverse axis (49), on the one hand, wherein the transverse axis (49) extends transversely, in particular perpendicularly, to the longitudinal axis of the crossbeam (19) and transversely, in particular perpendicularly, to

the longitudinal axis (48) of the auxiliary arm (11), wherein the crossbeam (19) is pivotable about the longitudinal axis (48) of the auxiliary arm (11), on the other hand.

5. Loading arm assembly according to either of the preceding Claims 3 or 4, **characterized in that** the crossbeam (19) and the auxiliary arm (11) are connected by way of a universal joint (27), wherein the universal joint (27) has a crosspiece (32) having two axle stump pairs (34, 36, and 33, 35), wherein the auxiliary arm (11) is rotatably connected to one axle stump pair (34, 36), and the crossbeam (19) is rotatably connected to the other axle stump pair (33, 35).

6. Loading arm assembly according to one of the preceding Claims 3 to 5, **characterized in that** the auxiliary arm (11) has a housing (28), wherein the crossbeam (19) engages through the housing, wherein one axle stump pair (34, 36) is rotatably disposed on the housing (28).

7. Loading arm assembly according to the preceding claim, **characterized in that** the axle stump pair (34, 36) that rotatably engages on the housing (28) extends perpendicularly to the crossbeam (19) and perpendicularly to the longitudinal direction of the auxiliary arm (11).

8. Loading arm assembly according to one of the preceding claims, **characterized in that** the main arm (9) is configured so as to be telescopic.

9. Loading arm assembly according to one of the preceding claims, **characterized in that** the auxiliary arm (11) is configured so as to be telescopic.

10. Loading arm assembly according to one of the preceding claims, **characterized in that** the crossbeam (19) has two crossbeam regions (20, 21), wherein each of the two crossbeam regions (20, 21) is configured so as to be telescopic.

11. Loading arm assembly according to one of the preceding claims, **characterized in that** the corner grippers (24, 25) are pivotable about the longitudinal axis of the crossbeam (19).

12. Load-handling vehicle (1) having a loading arm assembly (8) according to one of the preceding claims.

Patent Claims

1. A loading arm assembly for a load-handling vehicle configured for unloading and loading of ISO containers and transportation containers having a hook, the loading arm assembly comprising:

a main arm,

an auxiliary arm connected with respect to the main arm,

a crossbeam, connected with respect to the auxiliary arm, comprising ~~having~~ two corner grippers, and

a telescoping gripping hook connected with respect to the auxiliary arm, wherein:

the telescoping gripping hook is telescopically moveable relative to the crossbeam and corner grippers between a retracted position and a deployed position, such that when the telescoping gripping hook is in the retracted position, the loading arm assembly is configured for unloading and loading of ISO containers via the two corner grippers, and when the telescoping gripping hook is in its deployed position, the loading arm assembly is configured for unloading and loading of transportation containers having a hook.

2. The loading arm assembly according to claim 1, 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 respective corner grippers for gripping ISO containers 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.

3. The loading arm assembly according to claim 1, wherein the crossbeam is pivotable relative to the auxiliary arm about two axes.

4. The loading arm assembly according to claim 3, wherein:

the crossbeam is pivotable about a transverse axis,

the transverse axis extends perpendicularly to a longitudinal axis of the crossbeam and perpendicularly to a longitudinal axis of the auxiliary arm, and

wherein the crossbeam is pivotable about the longitudinal axis of the auxiliary arm.

5. The loading arm assembly according to claim 3, wherein:

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

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

the auxiliary arm is rotatably connected to one axis stump pair, and

the crossbeam is rotatably connected to the other axle stump pair.

6. The loading arm assembly according to claim 3, wherein:

the auxiliary arm comprises a housing,

the crossbeam engages through the housing, and

one axle stump pair is rotatably disposed on the housing.

7. The loading arm assembly according to claim 6, wherein:

the axle stump pair that rotatably engages on the housing extends perpendicularly to the crossbeam and perpendicularly to a longitudinal direction of the auxiliary arm.

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

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

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

the crossbeam comprises two crossbeam regions, and

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

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

12. A load-handling vehicle comprising a loading arm assembly according to claim 1.

13. A load-handling vehicle comprising a loading arm assembly according to claim 2.

14. A load-handling vehicle comprising a loading arm assembly according to claim 3.

15. A load-handling vehicle comprising a loading arm assembly according to claim 4.

16. A load-handling vehicle comprising a loading arm assembly according to claim 5.

17. A load-handling vehicle comprising a loading arm assembly according to claim 6.

18. A load-handling vehicle comprising a loading arm assembly according to claim 7.

19. A load-handling vehicle comprising a loading arm assembly according to claim 8.

20. A load-handling vehicle comprising a loading arm assembly according to claim 9.