from said receiving container. Once the shipment has been delivered by the unmanned flying object to the receiving container, which for example is installed in the front garden of the addressee's house, the addressee can remove the shipment from the receiving container.

However, in the case of the aforementioned attempts, the actual delivery of the shipment from the unmanned flying machine to the receiving container has proven to be extremely difficult. A first challenge lies in the fact that the unmanned flying machine has to land accurately on the receiving container so that the shipment can then be transferred. A "dropping" of the shipment from the unmanned flying machine onto the receiving container has proven to be impracticable, since fragile goods contained in the shipment are often damaged as a result. In other cases the unmanned flying device cannot land on the receiving container due to the geographical or structural conditions, and therefore the shipment must be delivered over a distance of 2 m between the unmanned flying machine, which has landed in the vicinity of the receiving container, and the receiving container. Besides unmanned flying machines, further unmanned transport devices also exist, such as self-steering vehicles or ships, which experience similar problems. To summarise, the transfer of the shipment over what is known as the 'last metre' between an unmanned transport device and receiving container constitutes a significant problem.

Proceeding from this situation, the object of the present invention is to specify a possibility for transferring a shipment safely from an unmanned transport device to a receiving container, i.e. in particular in such a way that the content of the shipment remains intact as it is transferred over the 'last metre'.

Summary

In one aspect, the present invention refers to an assembly comprising an unmanned autonomous transport device for delivering a shipment, a receiving container and a transfer device, wherein the transfer device is designed to lower the shipment from the unmanned transport device to the receiving container, to lift the shipment from the receiving container to the transport device and/or to transfer the shipment between the transport device and the receiving container, the shipment being guided in each case by

the transfer device, and wherein the receiving container is embodied as a letterbox, parcel box, letter and parcel box and/or drop-off and pickup station for receiving the shipment.

Detailed description of the invention

The object of the invention is achieved by the features of the independent claims. Advantageous embodiments are specified in the dependent claims.

The object is therefore achieved by an assembly comprising an unmanned transport device for delivering a shipment and a transfer device, wherein the transfer device is designed to lower the shipment from the unmanned transport device to a receiving container, to lift the shipment from the receiving container to the transport device and/or

Claims

1. An assembly comprising an autonomous unmanned transport device for delivering a shipment, a receiving container and a transfer device, wherein

the transfer device is designed to lower the shipment from the unmanned transport device to the receiving container, to lift the shipment from the receiving container to the transport device and/or to transfer the shipment between the transport device and the receiving container, the shipment being guided in each case by the transfer device, and wherein

the receiving container is embodied as a letterbox, parcel box, letter and parcel box and/or drop-off and pickup station for receiving the shipment.

2. The assembly according to the preceding claim, wherein the transfer device is embodied as a vertically and/or horizontally adjustable lifting table, as a vertically and/or horizontally adjustable lift, as a vertically and/or horizontally adjustable platform, as a vertically and/or horizontally adjustable gripper arm, as a cable winch and/or in a self-mobile manner.

3. The assembly according to any one of the preceding claims, wherein the transfer device is arranged on the transport device and the transfer device is embodied as a suction device for suctioning and also for lowering and/or lifting the shipment.

4. The assembly according to any one of the preceding claims, wherein the transfer device has a guide device designed to guide the shipment during the lowering, lifting and/or transfer of the shipment.

5. The assembly according to any one of the preceding claims, wherein the receiving container has a container interior and a closable opening, through which the shipment can be transferred by means of the transfer device between the transport device and the receiving container, wherein the transfer device is arranged and embodied in the container interior in such a way that the transfer device, when the opening is closed, is arranged within the container interior and can extend through the opened opening in order to transfer the shipment.

6. The assembly according to any one of the preceding claims, wherein the transport device has a receiving device, in particular a box and/or a case, for receiving the shipment and the transfer device is designed to transfer the shipment into the and/or from the receiving device.

7. The assembly according to the preceding claim, wherein the receiving device has at least two levels and/or chambers for each receiving at least one shipment, and the transfer device is designed to transfer the shipment in all levels and/or chambers.

8. The assembly according to either one of the two preceding claims, wherein the receiving device is arranged on the transport device in such a way and is capable of flight such that the transport device with the receiving device can land on the receiving container, in particular with contact.

9. The assembly according to any one of the preceding claims, wherein the unmanned transport device is embodied as a flying machine, in particular as an aircraft, as a UAV, as a drone, as a parcelcopter, as a helicopter, as a multicopter, as a quadcopter, as a tiltwing aircraft, as a vehicle, or as a floating object.

10. The assembly according to any one of the preceding claims, wherein the transfer device is arranged on the transport device and the transfer device has an electronic acknowledgement device for acknowledging a transfer of the shipment by a person, wherein the acknowledgement device is arranged on the transfer device in such a way that the acknowledgement device can be lowered away from the transport device and/or can be lifted towards the transport device.

Claims

1. An assembly comprising an unmanned transport device (1) for delivering a shipment (2) and a transfer device (4), wherein

the transfer device (4) is designed to lower the shipment (2) from the unmanned transport device (1) to a receiving container (3), to lift the shipment (2) from the receiving container (3) to the transport device (1) and/or to transfer the shipment (2) between the transport device (1) and the receiving container (3), the shipment being guided in each case by the transfer device (4).

2. The assembly according to the preceding claim, wherein the transfer device (4) is embodied as a vertically and/or horizontally adjustable lifting table (4), as a vertically and/or horizontally adjustable lift (4), as a vertically and/or horizontally adjustable platform (4), as a vertically and/or horizontally adjustable gripper arm (4), as a cable winch (4) and/or in a self-mobile manner.

3. The assembly according to any one of the preceding claims, wherein the transfer device (4) is arranged on the transport device (1) and the transfer device (4) is embodied as a suction device (4) for suctioning and also for lowering and/or lifting the shipment (2).

4. The assembly according to any one of the preceding claims, wherein the transfer device (4) has a guide device (5) designed to guide the shipment (2) during the lowering, lifting and/or transfer of the shipment (2).

5. The assembly according to any one of the preceding claims, comprising the receiving container (3), wherein the receiving container (3) has a container interior (7) and a closable opening (6), through which the shipment (2) can be transferred by means of the transfer device (4) between the transport device (1) and the receiving container (3), wherein the transfer device (4) is arranged and embodied in the container interior (7) in such a way that the transfer device (4), when the opening (6) is closed, is arranged within

the container interior (7) and can extend through the opened opening (6) in order to transfer the shipment (2).

6. The assembly according to any one of the preceding claims, wherein the transport device (4) has a receiving device (8), in particular a box and/or a case, for receiving the shipment (2) and the transfer device (4) is designed to transfer the shipment (2) into the and/or from the receiving device (8).

7. The assembly according to the preceding claim, wherein the receiving device (8) has at least two levels (9) and/or chambers (9) for each receiving at least one shipment (2), and the transfer device (4) is designed to transfer the shipment (2) in all levels (9) and/or chambers (9).

8. The assembly according to either one of the two preceding claims, wherein the receiving device (8) is arranged on the transport device (1) in such a way and is capable of flight such that the transport device (1) with the receiving device (8) can land on the receiving container (3), in particular with contact.

9. The assembly according to any one of the preceding claims, wherein the unmanned transport device (1) is embodied as a flying machine, in particular as an aircraft, as a UAV, as a drone, as a parcelcopter, as a helicopter, as a multicopter, as a quadcopter, as a tiltwing aircraft, as a vehicle, or as a floating object.

10. The assembly according to any one of the preceding claims, comprising the receiving container (3), wherein the receiving container (3) is embodied as a letterbox, parcel box, letter and parcel box and/or drop-off and pickup station for receiving the shipment (2).

11. The assembly according to any one of the preceding claims, wherein the transfer device (4) is arranged on the transport device (1) and the transfer device (4) has an electronic acknowledgement device (10) for acknowledging a transfer of the shipment (2) by a person, wherein the acknowledgement device (10) is arranged on the transfer device

(4) in such a way that the acknowledgement device (10) can be lowered away from the transport device (1) and/or can be lifted towards the transport device (1).

12. A method for transferring a shipment (2) between an unmanned transport device (1) and a receiving container (3), the method having the following steps:

lowering the shipment (2) from the unmanned transport device (1) to the receiving container (3), guided by a transfer device (4),

transferring the shipment (2) between the unmanned transport device (1) and the receiving container (3), guided by the transfer device (4), and/or

lifting the shipment (2) from the receiving container (3) to the transport device (1), guided by the transfer device (1).