ABSTRACT

Disclosed are embodiments of a drone with a food and drink holder affixed for convenient and safe retrieval of carry-out orders.

FIELD OF THE INVENTION

The present invention relates to a device for unmanned delivery of food and drink.

DEVICE FOR FOOD AND DRINK DELIVERY

BACKGROUND OF THE INVENTION

There is presently a need for safe, contactless delivery of food and drink from establishments that serve food and drink. While the worldwide pandemic that began in 2019 brought heightened attention to the need for convenient and contactless delivery of carry-out orders, there will continue to be a need for convenient and safe delivery to consumers once the pandemic has ended. This device meets that need by allowing consumers to retrieve carry-out orders while remaining safely in their vehicles or outside the establishment from which they’ve purchased their orders.

Some establishments have windows where carry-out orders can be retrieved by the consumer without entering the establishment. Other establishments, however, require that consumers enter the establishment to physically retrieve their orders. Entering an establishment carries various risks, which are currently heightened due to a global pandemic, as well as inconveniences. Such risks and inconveniences include germs, viruses, unpleasant conversations, accidents that may cause physical harm, and the discomfort of standing in line for an extended period of time.

To alleviate these risks and inconveniences, this device allows consumers to wait outside or in their vehicles. The device enters or is flown into the establishment to a designated landing pad, receiving pad, or countertop. Once the device has arrived or landed, employees may place a drink in a designated cup holder, a portion of food into the food holder, or food and drink into both the cup holder and the food holder. The food holder may be enclosed to prevent food from being knocked from the holder. The food holder may be enclosed to prevent food from being knocked from the holder. US Patent Application Publication No. 2018/0332972 (Jaeckel) describes a combination of drink holder and food holder. The device, once loaded by employees of the establishment, may be directed to leave the establishment and return to the consumer with the food and drink that the consumer ordered.

The device itself is a drone, a remotely operated flying device, with the food and drink holder removably affixed. The drone may be a quadricopter, equipped with one or more sensors and cameras.
These sensors and cameras allow the drone to automatically self-stabilize, as taught by U.S. Patent Application Publication No. 2011/0049290 (Parrot). The camera or camera in the drone will also allow the consumer to monitor the placement of food and drink in the device and determine when to direct the drone to return to the consumer.

The drone may be piloted and controlled by the consumer from the safety of their location outside the establishment. U.S. Patent Application Publication No. 2017/0247106 (Parrot Drones) teaches a wireless radio link between a drone and a tablet, for piloting and control.

The invention is based on the observation that an unmanned delivery device for the delivery of food and drink could be accomplished by combining a food and drink holder with a drone. Accordingly, the device consists of a drone that self-stabilizes and can be remotely and conveniently controlled with a hand-held tablet, with a food and drink holder affixed. The self-stabilization ensures the food and drink will not be dislodged or spill. The food compartment may be open or enclosed; if enclosed, the compartment additionally ensures that food will not be dislodged from the device. The food and drink holder may be permanently attached to the drone, or remotely affixed with clasps.

**SUMMARY OF THE INVENTION**

The invention is based on the observation that an unmanned delivery device for the delivery of food and drink could be accomplished by combining a food and drink holder with a drone. Accordingly, the device consists of a drone that self-stabilizes and can be remotely and conveniently controlled with a hand-held tablet, with a food and drink holder affixed. The self-stabilization ensures the food and drink will not be dislodged or spill. The food compartment may be open or enclosed; if enclosed, the compartment additionally ensures that food will not be dislodged from the device. The food and drink holder may be permanently attached to the drone, or remotely affixed with clasps.

**BRIEF DESCRIPTION OF THE FIGURES**

There follows a description of the embodiment of the invention given with reference to the accompanying figures.

- FIG. 1 illustrates a perspective view of one embodiment of a food and drink holder affixed to a drone.
- FIG. 2 illustrates a perspective view of the food and drink holder affixed to a drone, wherein the food container has a lid that closes and opens.
- FIG. 3 illustrates a perspective view of one embodiment of a food holder affixed to a drone.
- FIG. 4 illustrates a perspective view of the food and drink holder.
- FIG. 5 illustrates a perspective view of the food and drink holder, wherein the food container has a lid that closes and opens.
- FIG. 6 illustrates a perspective view of the food container.
- FIG. 7 illustrates a perspective view of the drone with food and drink holder detached and attachments clasps exposed.

**DETAILED DESCRIPTION OF THE INVENTION**

For the purposes of promoting an understanding of the principles of the invention, reference will now be made to the embodiments illustrated in the drawings, which are described below. It will nevertheless be understood that no limitation of the scope of the invention is thereby limited. The invention includes any alterations and further modifications in the illustrated devices and described methods and further applications of the principles of the invention, which would normally occur to one skilled in the art to which the invention relates.

The device described in this invention is a food and drink holder that is mounted to a drone. The device may be used to permit consumers to purchase food and drink from an establishment and then retrieve it without entering the premises. The device thereby permits consumers to purchase food and drink from an establishment that requires entry for pick-up without exposing themselves to risks and inconveniences, such as viruses or unwanted conversation. The device results in a consumer being able to purchase food and drink in a safe and comfortable manner.

Referring now to FIGS 1-2, one embodiment of a device in accordance with the subject invention is generally indicated as 1. The device includes generally a drone, as well as a food and drink holder. The food and drink holder may be either permanently or remotely affixed to the drone. This may be accomplished by opening and closing clasps 7 that affix the food and drink holder to the drone. The food container may be open 4. Alternatively, it may be open or closed 5 with a lid that opens and closes. The food and drink holder with open food container may be affixed on a drone 1. The food and drink holder with a lid on the food container may be fixed on a drone 2.

In another embodiment, the device may consist of a food container 6, which may be mounted on a drone 3. Alternatively, the food and drink holder may be detachable from one another, allowing the food holder to be mounted on the drone with or without the drink holder.

The drone is self-stabilizing so as to avoid spillage or disruption of food and drink. Additionally, the drone may be remotely controlled, so that the user may be able to control its movements from outside the establishment.

While the invention has been taught with specific reference to these embodiments, one skilled in the art will recognize that changes can be made in form and detail without departing from the spirit and scope of the invention. The described embodiments are to be considered, therefore, in all respects only as illustrative and not restrictive. As such, the scope of the invention is indicated by the following claims rather than by the description.

1. A food and drink holder affixed to a drone comprising:
   a food receptacle, the food receptacle having sidewalls and a bottom wall;
   a drink receptacle, the drink receptacle including a cylindrical sidewall having a central axis; and
   a drone, the drone including a drone body, propulsion unit, and lifting mechanisms.

2. The food and drink holder affixed to the drone as set forth in claim 1, wherein the food and drink holder is affixed to the drone.

3. The food and drink holder affixed to the drone as set forth in claim 2, wherein the food and drink holder is affixed to the drone with clasps that open and close, permitting the food and drink holder to be removed from the drone.

4. A food and drink holder affixed to a drone comprising:
   a food receptacle, the food receptacle having sidewalls, a bottom wall, and a top wall that opens and closes;
   a drink receptacle, the drink receptacle including a cylindrical sidewall having a central axis; and
   a drone, the drone including a drone body, propulsion unit, and lifting mechanisms.

5. The food and drink holder affixed to the drone as set forth in claim 4, wherein the food and drink holder is affixed to the drone.

6. The food and drink holder affixed to the drone as set forth in claim 5, wherein the food and drink holder is affixed to the drone with clasps that open and close, permitting the food and drink holder to be removed from the drone.

7. The food and drink holder affixed to the drone as set forth in claim 4, wherein the top wall of the food receptacle functions as a cover.

8. The food and drink holder affixed to the drone as set forth in claim 7, wherein the cover of the food receptacle may be opened and fastened shut by a fixture.

9. A food holder affixed to a drone comprising:
   a food receptacle, the food receptacle having sidewalls and a bottom wall; and
   a drone, the drone including a drone body, propulsion unit, and lifting mechanisms.

10. The food holder affixed to the drone as set forth in claim 9, wherein the food holder is affixed to the drone.

11. The food holder affixed to the drone as set forth in claim 10, wherein the food holder is affixed to the drone with clasps that open and close, permitting the food holder to be removed from the drone.