

(12) **UK Patent Application** (19) **GB** (11) **2579551** (13) **A**

(43) Date of A Publication **01.07.2020**

(21) Application No: **1819635.2**

(22) Date of Filing: **30.11.2018**

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(51) INT CL:  
**B65D 41/34** (2006.01) **A47G 29/14** (2006.01)

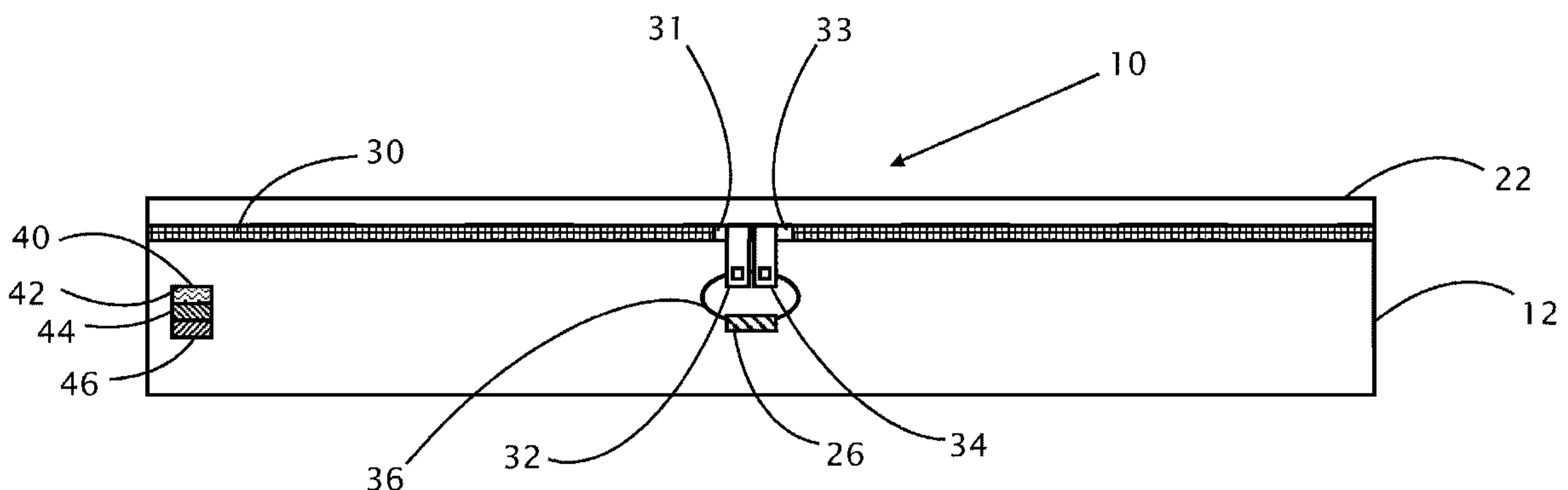
(56) Documents Cited:  
**EP 2226265 A1** **WO 2017/184596 A1**  
**WO 2002/008084 A1** **US 9495851 A1**  
**US 20160275769 A1** **US 20110285507 A**  
**US 20040066296 A1**

(58) Field of Search:  
INT CL **A47G, B65D**  
Other: **WPI, EPODOC, Patent Fulltext**

(54) Title of the Invention: **Improvements in or relating to organic material**  
Abstract Title: **A transportable container**

(57) A transportable container 10 comprising a body 12 and lockable lid 22. The container may be sealed with a tamper-evident seal 36 comprising a unique code. Ideally, the tamper-evident seal is scannable by machine. Preferably, the container is insulated for transporting a hot or cold item. Ideally, the container comprises a display 40 for monitoring conditions within the container. Ideally, the lid comprises a zipper closure 30. There is also a method claim for transporting a container. There is also a claim for a software application suitable for performing the steps of the method claim.

**Figure 1A**



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Figure 1B

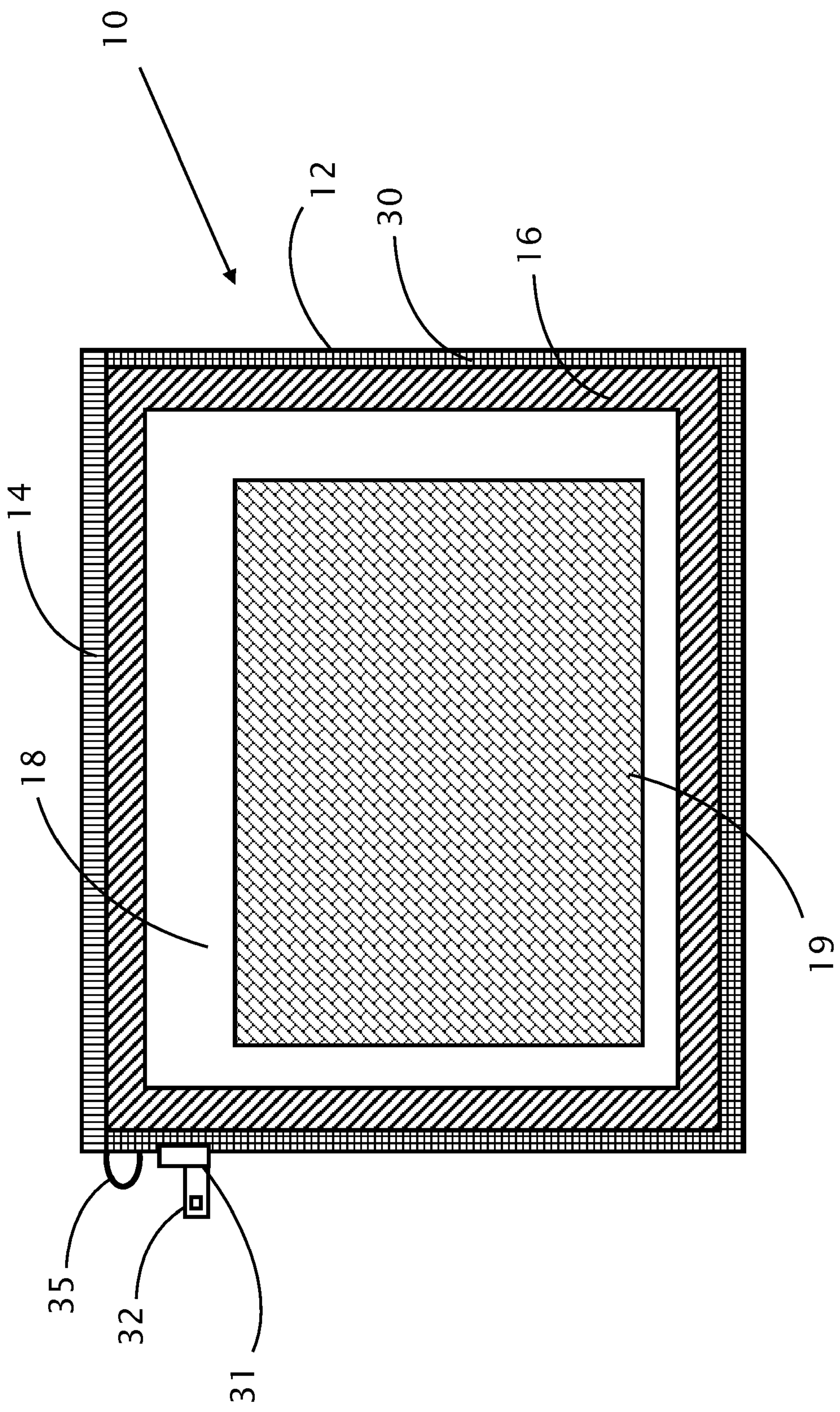


Figure 2

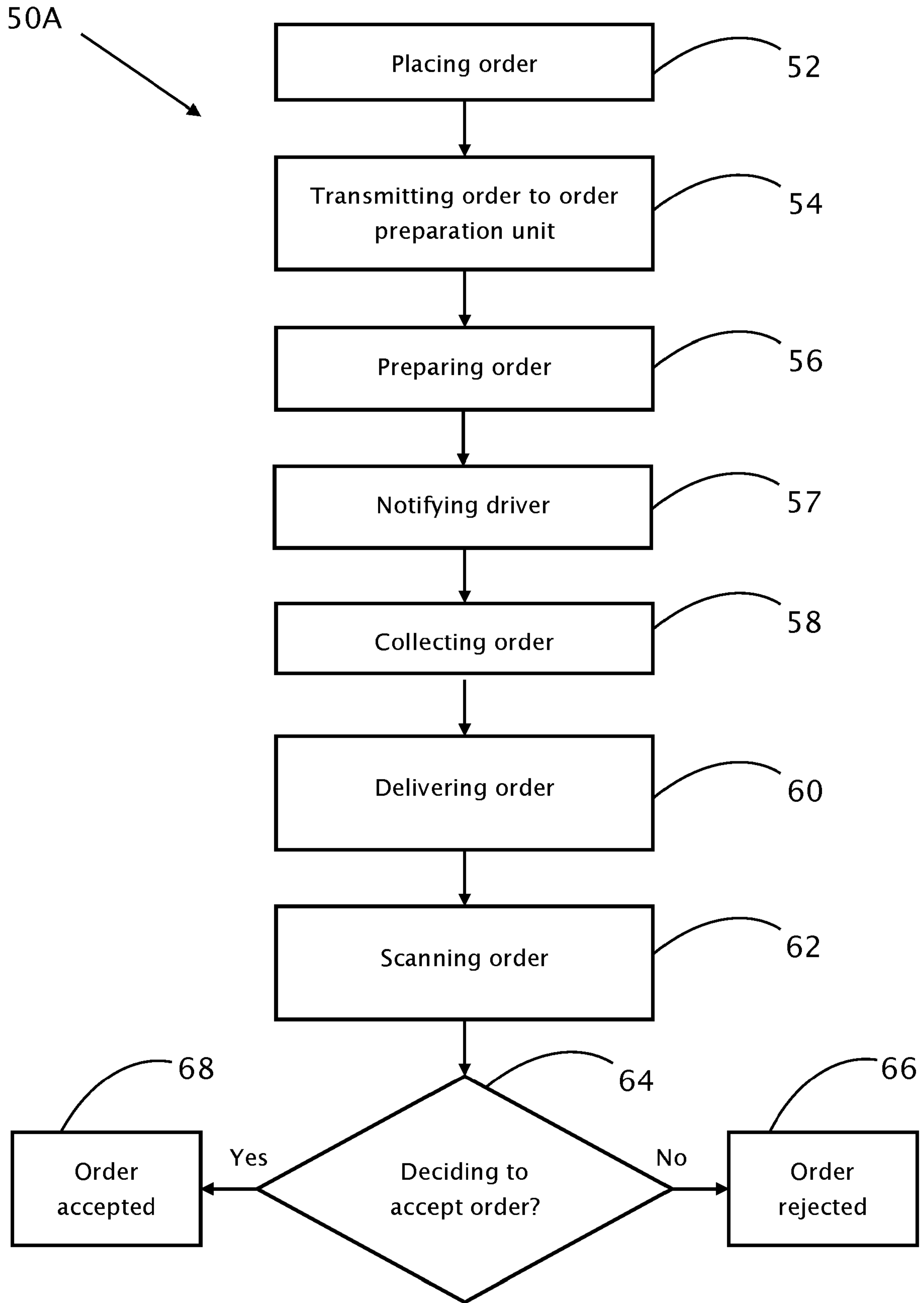
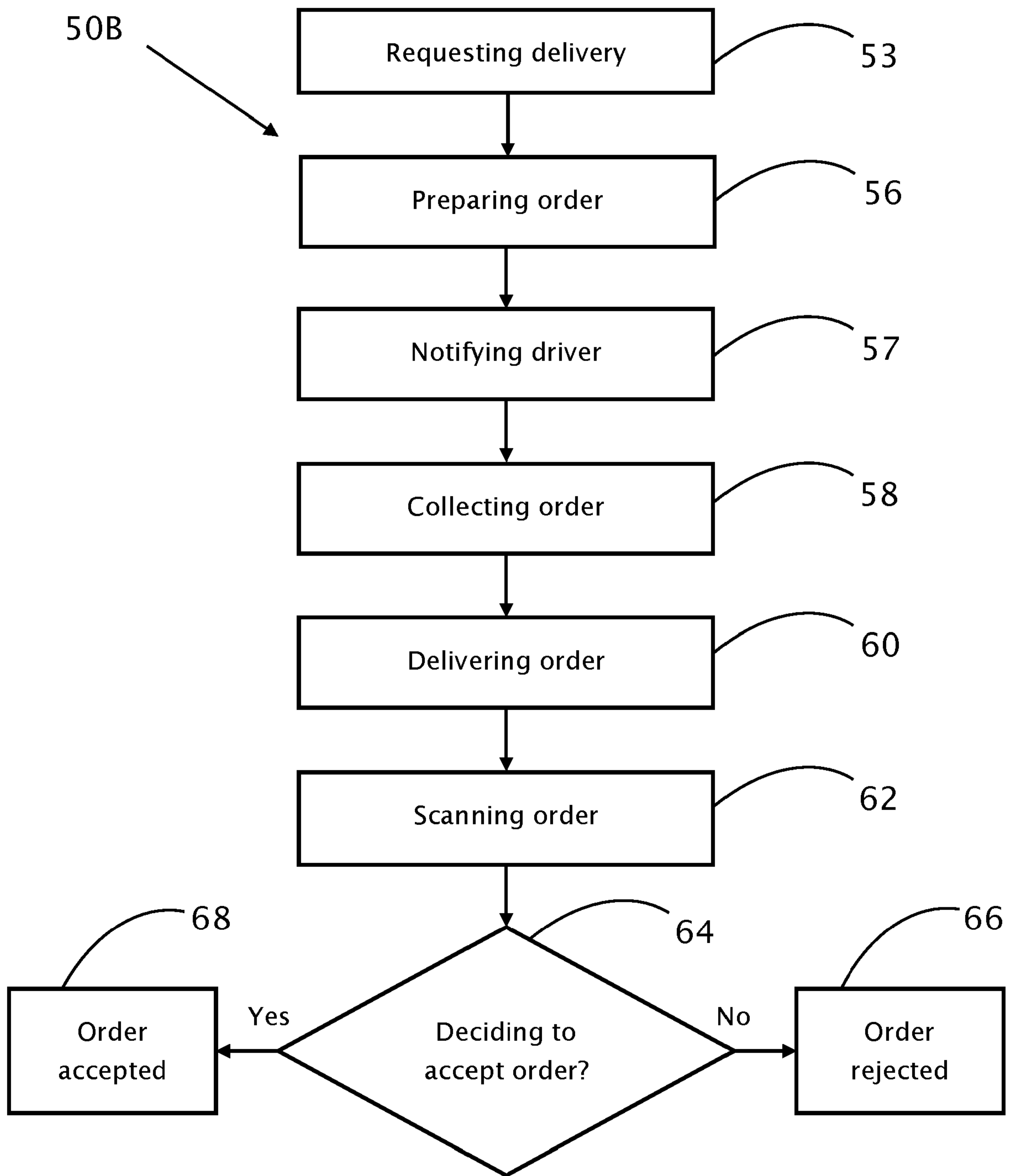


Figure 3

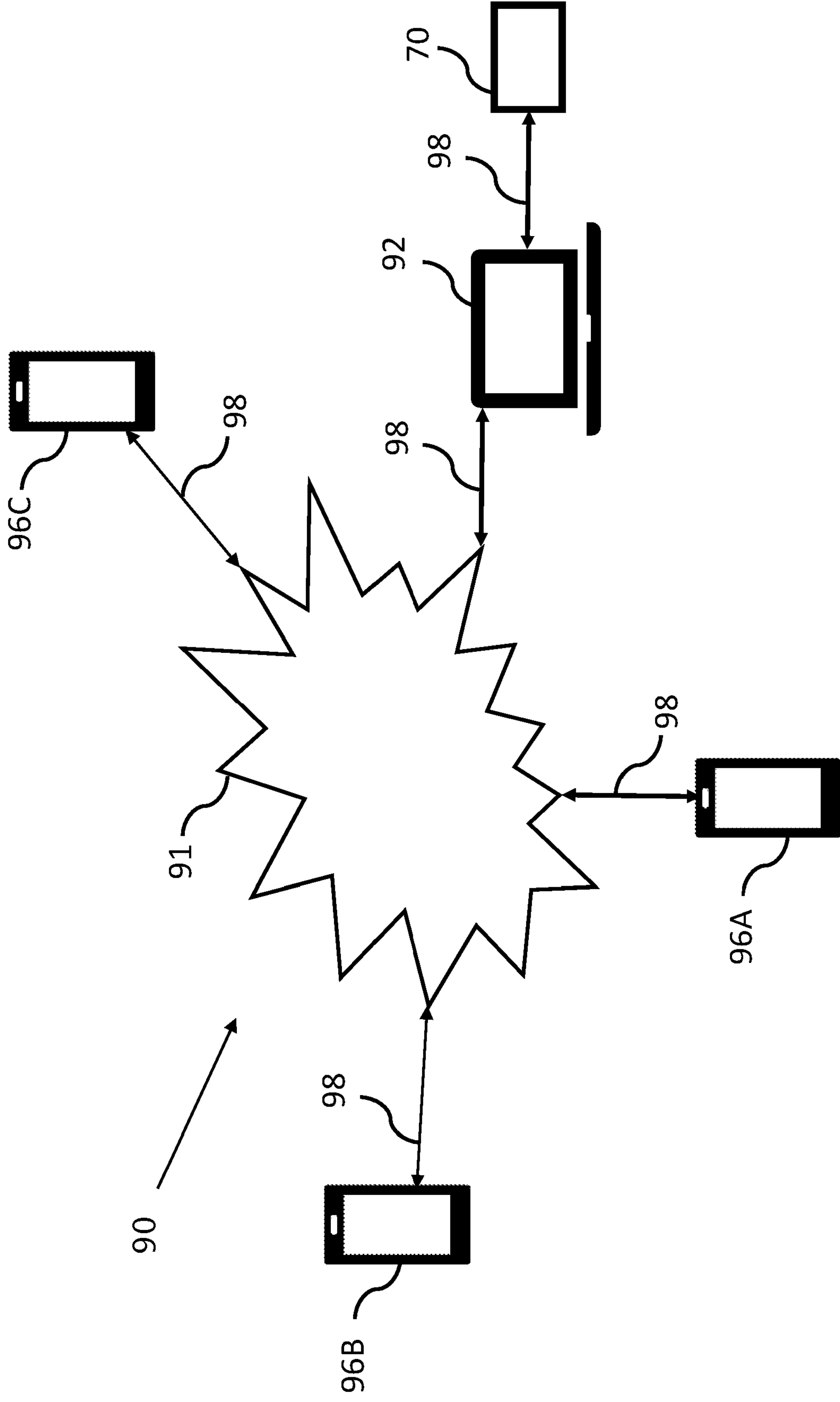


**Figure 4**

Order no.	Item type	Item details	Container label ID	Driver ID	Customer ID	Delivery address	Item preparer ID	Collection address
10001	Hot food	Meal	123456	101	C04	15, WC1A	OP12	77, HA1
10002	Cold medical	Organs	145789	105	C15	12, W5	OP17	88, BA8
10003	Legal	Affidavit	134568	101	C21	41, SW1	OP71	101, DE4

70 →

Figure 5





## IMPROVEMENTS IN OR RELATING TO ORGANIC MATERIAL

The present invention relates to a secure delivery system for food and a food package suitable for use in that system.

5 There is increasing demand for services such as Deliveroo and Uber Eats for the delivery of fast food as consumers lead ever more busy lives with less time to shop for ingredients and to prepare food for themselves. There are concerns about the security of existing services with issues such as the wrong food being delivered or the food being tampered with en route such that not all of the food is delivered or that the right food is delivered with some unexpected additional ingredients.

10 Furthermore, manufacturers of and customers for high value items need reassurance that the package which that the manufacturer prepared and despatched is that which is delivered to the customer.

A way of ameliorating these problems has been sought.

According to the invention there is provided a container for securely transporting an object wherein the container comprises a container body for receiving the object and a lid wherein the container has a lockable closure which may be secured by a tamper-evident seal having a unique code.

15 According to the invention there is also provided a method for secure transportation of an item to a customer wherein the method comprises the steps of:

- a. Placing the item in a container and securing the container with a tamper-evident seal having a unique code;
- b. Scanning the code;
- 20 c. Delivering the container which comprises the item to the customer such that the customer can check the seal and scan the code; and
- d. Informing the customer whether the code scanned by the customer is identical to the code scanned in step c such that the customer can decide whether to accept the container.

25 Advantages of the invention include that the tamper evident seal having a unique code prevents the contents of the container being tampered with en-route and provides a guarantee that the delivered container is the same as that which was despatched to the customer.

In some embodiments, the tamper-evident seal may have a machine-readable code such as a barcode. In some embodiments, the lockable closure may secure the lid to the container body. In some



embodiments, the container may contain a source of heat or cooling to help maintain the temperature of the contents of the container at a suitable level.

5 In some embodiments, the item may be a consumable item, a medical item, or a legal item. Examples of a consumable item include an item which is hot, room temperature, or cold; an item which is a food stuff and/or a beverage. Examples of a medical item include an item which needs to be kept cold; and/or an item which is an item for treatment or prophylaxis of a human or animal body (such as a medicament or a vaccine), an organ, or blood. Examples of a legal item include an original document such as an affidavit, a deed, an assignment, a declaration.

10 In some embodiments, the container may be insulated such that it is suitable for the transport of a hot or cold item. In some embodiments, an insulated container may have a display on an external surface to indicate conditions of an internal space of the container. In some embodiments, the display may be a countdown timer which indicates the remaining time during which the temperature of the internal space or condition of the item remains acceptable. In some embodiments, the display may be a temperature display which indicates the temperature level of the internal space.

15 In some embodiments, the lockable closure may comprise a zip for ease of closure. In some embodiments, the zip may comprise two slides. In some embodiments, the zip may comprise one slide and the container may have a security loop to which the slide may be secured in a closed position.

20 In some embodiments, in step b of the method of the invention the scanned code is saved in a database. In some embodiments, in step c of the method the container is delivered by a delivery driver. In some embodiments, in step a of the method the container is sealed by a delivery driver or by an item preparer.

In some embodiments, the method of the invention may be initiated by a customer requesting an item from an item preparer. In some embodiments, the method of the invention may be initiated by an item preparer who has received a request for an item and who requires a secure delivery.

25 In some embodiments, the method of the invention may comprise a step (a0) for notifying a delivery driver that the item is nearly ready for collection. Advantages of such a step (a0) include that the delivery driver can commence their journey to the item preparer such that they arrive close to when step a has been completed such that any waiting time for the container is minimised such that a hot item does not cool down or a cold item does not heat up meanwhile.

According to the invention, there is further provided a software application operable to perform a method according to the invention.

According to the invention, there is also provided a system operable to perform a method according to the invention which system comprises a computer server having access to a database, an item preparer communication terminal, a customer communication terminal, and a delivery driver communication terminal wherein the communication terminals are in data communication with the server. In some embodiments, a communication terminal may be a tablet computer such as a smart phone having a camera suitable for scanning the tamper-evident seal code.

According to the invention, there is further provided a kit comprising one or more containers according to the invention and one or more tamper-evident seals each having a unique code.

The invention will now be illustrated with reference to the following Figures of the accompanying drawings which are not intended to limit the scope of the claimed invention:

**FIGURE 1A** shows a schematic elevational view of a securable container according to the invention;

**FIGURE 1B** shows a schematic cross-sectional view of a container base of the securable container according to the invention;

**FIGURE 2** shows a schematic flowchart of a first embodiment of the ordering process according to the invention;

**FIGURE 3** shows a schematic flowchart of a second embodiment of the ordering process according to the invention;

**FIGURE 4** shows a database for use in the ordering process according to the invention; and

**FIGURE 5** shows a schematic diagram of the communication system used by the ordering process according to the invention.

The securable container according to the invention is indicated generally at 10 on Figures 1A and 1B. Securable container 10 comprises a container base 12 and a container lid 22 which are connected on one side by a hinge 14. As shown in Figure 1B, container base 12 forms an internal space 18 for receiving an item 19 for secure transport. The container lid 22 is secured to container base 12 on their other sides by secure container zip 30. Container zip 30 has a first slider pull 32 mounted on a first zip slider 31 and a second slider pull 34 mounted on a second zip slider 33. Prior to delivery, the first and



second slider pulls 32,34 are secured together by slider pull tag 36. Slider pull tag 36 has container label 26 which displays a barcode having a unique number by which at least the contents of the container and its destination may be identified. The slider pull tag 36 and container label 26 are colour coded according to the item type as defined in field 74 of the database 70. In an alternative embodiment shown in Figure 1B, the container zip 30 may have a single slider 31 and slider pull 32 which may be secured to a security loop 35 mounted on the container 10 proximal to the position of the single slider when it has been used to zip the container 10 into a closed position.

Where the container 10 is used to transport temperature-sensitive items such as food or medical items (e.g. blood or organs), container 10 has an external temperature display 40. Temperature display 40 may be thermally linked to an interior surface. In an alternative embodiment shown in Figure 1B, the container base 12 has an insulated wall 16 and optionally the container lid 22 may be insulated. Furthermore, the container 10 may contain a source of heat or cooling to help maintain the temperature of the contents of the container 10 at a suitable level.

The temperature display 40 may have three panels 42,44,46 for example to show that the temperature of the contents of container 10 are ideal (for example by activating or illuminating panel 42), borderline (for example by activating or illuminating panel 44), or unacceptable (for example by activating or illuminating panel 46). Where the contents of the container 10 need to be kept warm, panel 42 could be used to indicate a high temperature; panel 44 could be used to indicate a moderate temperature; and panel 46 could be used to indicate a low temperature. Conversely, where the contents of the container 10 need to be kept cool, panel 42 could be used to indicate a low temperature; panel 44 could be used to indicate a moderate temperature; and panel 46 could be used to indicate a high temperature. In an alternate embodiment, the temperature display 40 may be programmed to illuminate panels 42,44 to indicate that the temperature was approaching a borderline level or to illuminate panels 44,46 to indicate that the temperature was approaching an unacceptable level. In an alternative embodiment, the temperature display 40 may be replaced by a countdown timer which indicates the time during which the temperature of the item will remain acceptable. The time for the countdown timer may be selected according to the type of item, the ambient temperature, and the size and/or type of container.

A first embodiment of the ordering process according to the invention is indicated generally at 50A on Figure 2. The ordering process 50A comprises the sequential steps of placing an order 52, transmitting the order to an order preparation unit 54, preparing the order 56, notifying the driver 57, collecting the order 58, delivering the order 60, scanning the order 62, making a decision about whether to accept the order 64, and either rejecting the order 66 or accepting the order 68.

The ordering process 50A uses a database which is indicated generally at 70 on Figure 4. Database 70 includes the following fields: order number 72, item type 74, item details 76, the container label 26 ID number 78, the delivery driver identification number 80, customer identification number 82, delivery address 84, item preparer identification number 86, and the collection address 88.

- 5 The item type field 74 defines the order class which may be for example a hot food, cold food (for example ice cream), cold medical, normal medical, or legal order.

The item details field 76 defines what the order contains. For example for a food order, the item details field 76 may list the number and type of dishes which have ordered as well as any notes on how each of them should be prepared, e.g. with additional sauce or no salt. Alternatively for a medical order,  
10 the item details field 76 may list whether the order comprises medicaments, organs, blood, for example.

The container label identification number field 78 receives the unique number for the barcode on the container label 26. When a delivery driver arrives at the collection address to collect the sealed container 10 for the order, the driver will scan the barcode on the container label 26 typically using  
15 their communication terminal 94C which may comprise an app on a tablet computer such as a smartphone. In an alternative embodiment, the item preparer may also scan the barcode on the container label 26.

The driver identification field 80 identifies the delivery driver allocated to the order and may be linked to a separate database providing additional information about the delivery driver. The customer  
20 identification field 82 identifies the customer allocated to the order and may be linked to a separate database providing additional information about the customer. The item preparer field 86 identifies the item preparer allocated to the order and may be linked to a separate database providing additional information about the item preparer.

The delivery address field 84 identifies the delivery address for the order in case it is different to the  
25 customer's billing address. The collection address field 88 identifies the collection address for the order in case the item preparer has several addresses.

The ordering process uses a communications system which is indicated generally at 90 on Figure 5. Communications system 90 comprises a computer server 92, the database 70, and communication terminals 94A,94B,94C which are connected by data connections 98, optionally via the internet 91.  
30 The computer server 92 is connected to the database 94 by data connection 98. The communication terminals 94A,94B,94C are in the form of tablet computers such as a smartphone, typically having a



touch-sensitive screens and a camera to scan the barcode on the container label 26. The communication terminals 94A,94B,94C comprise a customer communication terminal 94A, a item preparer communication terminal 94B, and a delivery driver communication terminal 94C. The data connection 98 to the internet 91 may be made using a wired or wireless connection such as Bluetooth or WiFi. In an alternative embodiment, the computer server 92 may be connected to the database 94 via the internet 91.

The ordering process 50A is designed to be initiated by a customer as the first step is to place an order. Typically, a customer would use the ordering process 50A to order food from a restaurant. The following example provides further details on how process 50A would work.

10 In the first step 52 of placing the order, the customer will typically (on the first occasion at least) download an app on to their communication terminal 94A, launch the app, select an item preparer (typically a restaurant), select a menu, and submit a food order. The food item details are saved in field 76 of database 70 along with the item type 74 (e.g. hot or cold food) and delivery address 86.

15 In the second step 54 of transmitting the food order to a food preparation unit, the food order is assigned by the server 92 to a suitable restaurant or restaurant kitchen, e.g. according to the location of the customer. The server 92 then updates the database 70 with the information about the item preparer ID 86 and the collection address 88. The server 92 then allocates a delivery driver to the order according to factors such as the size of the order (and estimated preparation time), location of the driver, delivery schedule of the driver, estimated journey time for the driver, and/or traffic conditions. The server 92 then updates the database 70 with the driver ID 80. The server 92 then sends a message to the communication terminal 94C for the selected driver to notify him/her of the allocated order 72 and to the customer communication terminal 94A to advise them that a delivery driver has been allocated.

25 In the third step of preparing the food order 56, the item preparer (which may be a restaurant or restaurant kitchen) receives the food order, and makes a decision on whether to accept it, prepares the food order, notifies 57 the driver that the food order will be ready imminently, and then packs the food order in a securable food container 10 according to the invention. By performing the notifying step 57 during the food preparation step 56 instead of at the end of it, the driver should arrive at the collection address soon after when the food order has been packed such that the food should still be hot on delivery to the customer.

In the fifth step, the driver collects the food order from the collection address 88. In the collection step 58, the driver uses their communication terminal 96C to scan a barcode at the collection address

such that the database 70 and the customer are updated by the server 92. The driver then secures the container 10 by attaching a colour coded container label 26 to the slider pulls 32,34 to secure them and scans the slider pull tag 36. The server 92 then updates the container label ID field 78 of the database 70 with that information.

5 In the sixth step, the driver delivers 60 the container 10 to the customer. In the seventh step, the customer scans 62 the slider pull tag 36 using their communication terminal 96A to check that it is the right package and checks that the container label 26 is still securing the container 10 such that its contents have not been tampered with. The server 92 compares the customer scan of the container label 26 of the slider pull tag 36 with the driver scan of the container label 26 which was saved to the  
10 database 70 in the fifth step 58. The server 92 then informs the customer whether the two scans are for the same container label 26 via their communication terminal 96A. The customer may also check the temperature indicator 40 to check whether the contents of the container 10 are still at an acceptable container.

In an eighth step, the customer then decides whether to accept 68 the container 10 or to reject 66 it  
15 on the basis of the information provided by the server 92 and the condition of the container 10. If the container 10 is rejected, then the driver returns it. The customer records their decision 64 on their communication terminal 94A such that the server 92 updates the database 70 and charges them for the order if it is accepted 68.

In an alternative embodiment, ordering process 50A may be used for the delivery of a medical or legal  
20 item.

A second embodiment of the ordering process according to the invention is indicated generally at 50B on Figure 2. The ordering process 50B comprises the sequential steps of requesting a delivery 53, preparing the order 56, notifying the driver 57, collecting the order 58, delivering the order 60, scanning the order 62, making a decision about whether to accept the order 64, and either rejecting  
25 the order 66 or accepting the order 68. Ordering process 50B differs from ordering process 50A in that the initial steps of placing an order 52 and transmitting the order to an order preparation unit 54 are replaced by the step of requesting a delivery 53. Ordering process 50A is designed to be initiated by a consumer placing an order with a food preparer. In contrast, ordering process 50B is designed to be initiated by an item preparer who has an item which needs to be delivered securely to a customer.  
30 Thus, the first step is for the item preparer to request a secure delivery of the requested item to the customer.



In the second step of ordering process 50B which comprises preparing the order 56, the item preparer prepares the order, notifies 57 the driver that the food order will be ready imminently, and then packs the order in a securable container 10 according to the invention. By performing the notifying step 57 during the preparation step 56 instead of at the end of it, the driver should arrive at the collection address soon after when the order has been packed such that if the order comprises a hot or cold item, it should still be at the right temperature on delivery to the customer.

In the fourth step, the driver collects 58 the food order from the collection address 88. In the collection step 58, the driver uses their communication terminal 96C to scan a barcode at the collection address such that the database 70 and the customer are updated by the server 92. The driver then secures the container 10 by attaching a colour coded container label 26 to the slider pulls 32,34 to secure them and scans the slider pull tag 36. The server 92 then updates the container label ID field 78 of the database 70 with that information.

In the fifth step, the driver delivers 60 the container 10 to the customer. In the sixth step, the customer scans 62 the slider pull tag 36 using their communication terminal 96A to check that it is the right package and checks that the container label 26 is still securing the container 10 such that its contents have not been tampered with. The server 92 compares the customer scan of the container label 26 of the slider pull tag 36 with the driver scan of the container label 26 which was saved to the database 70 in the fourth step 58. The server 92 then informs the customer whether the two scans are for the same container label 26 via their communication terminal 96A. The customer may also check the temperature indicator 40 to check whether the contents of the container 10 are still at an acceptable container.

In a seventh step, the customer then decides whether to accept 68 the container 10 or to reject 66 it on the basis of the information provided by the server 92 and the condition of the container 10. If the container 10 is rejected, then the driver returns it. The customer records their decision 64 on their communication terminal 94A such that the server 92 updates the database 70 and charges them for the order if it is accepted 68.

As for the first embodiment of the ordering process 50A, ordering process 50B uses the database which is indicated generally at 70 on Figure 4.

## CLAIMS

1. A container for securely transporting an item for a customer wherein the container comprises a container body for receiving the object and a lid wherein the lid has a lockable closure which may be secured by a tamper-evident seal having a unique code.
- 5 2. A container as defined in Claim 1 wherein the tamper-evident seal has a machine-readable code.
3. A container as defined in Claim 1 or Claim 2 wherein the item is a consumable item, a medical item, or a legal item.
4. A container as defined in any one of the preceding Claims wherein the container is insulated  
10 such that it is suitable for the transport of a hot or cold item.
5. A container as defined in Claim 4 wherein the insulated container has a display on an external surface to indicate conditions of an internal space.
6. A container as defined in any one of the preceding Claims wherein the lockable closure comprises a zip.
- 15 7. A method for secure transportation of an item to a customer wherein the method comprises the steps of:
  - e. Placing the item in a container and securing the container with a tamper-evident seal having a unique code;
  - f. Scanning the code;
  - 20 g. Delivering the container which comprises the item to the customer such that the customer can check the seal and scan the code; and
  - h. Informing the customer whether the code scanned by the customer is identical to the code scanned in step c such that the customer can decide whether to accept the container.
- 25 8. A method as defined in Claim 7 wherein in step b the scanned code is saved in a database.
9. A method as defined in Claim 7 or Claim 8 wherein in step c the container is delivered by a delivery driver.
10. A method as defined in any one of Claims 7 to 9 wherein in step a the container is sealed by a delivery driver or by an item preparer.

11. A method as defined in any one of Claims 7 to 10 wherein the method is initiated by a customer requesting an item from an item preparer.
12. A method as defined in any one of Claims 7 to 10 wherein the method is initiated by an item preparer who has received a request for an item and who requires a secure delivery.
- 5 13. A method as defined in any one of Claims 7 to 12 which comprises a step (a0) for notifying a delivery driver that the item is nearly ready for collection.
14. A software application operable to perform a method as defined in any one of Claims 7 to 13.
15. A kit comprising one or more containers as defined in any one of claims 1 to 6 and one or  
10 more tamper-evident seals each having a unique code.



**Application No:** GB1819635.2

**Examiner:** Mr James Tagg

**Claims searched:** 1-6 & 15

**Date of search:** 15 March 2020

**Patents Act 1977: Search Report under Section 17**

**Documents considered to be relevant:**

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1-6 & 15	US2004/066296 A1 (ATHERTON PETER) See figures 13a-b & 16, paragraphs [0111] & [0124].
X	1, 3-4 & 15	WO02/08084 A1 (REALLY USEFUL PRODUCTS LTD) Container body 1, lockable lid 41 & coded tamper-evident seal 79.
X	1-4 & 15	US2011/285507 A (NELSON ERIK) See whole document.
X	1-6 & 15	US2016/275769 A1 (BOEING) See whole document, in particularly paragraphs [0037], [0058] & [0068].
X	1-6 & 15	WO2017/184596 A1 (REYLAND PAUL) See whole document.
X	1-6 & 15	US9495851 A1 (AMAZON TECH INC) See whole document.
X	1, 3	EP2226265 A1 (SCHAEFER GMBH FRITZ) Container 1, lid 5a-b and lock 7.

**Categories:**

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

**Field of Search:**

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>X</sup> :

Worldwide search of patent documents classified in the following areas of the IPC

A47G; B65D

The following online and other databases have been used in the preparation of this search report





WPI, EPODOC, Patent Fulltext
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**International Classification:**

<b>Subclass</b>	<b>Subgroup</b>	<b>Valid From</b>
None		