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(71) Applicant: **Burley, Kevin Dennis
Catford, London SE6 3LD (GB)**

(72) Inventor: **Burley, Kevin Dennis
Catford, London SE6 3LD (GB)**

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(74) Representative: **Jones, Graham Henry
Graham Jones & Company
77 Beaconsfield Road
Blackheath, London SE3 7LG (GB)**

(54) **A device for permitting secure delivery and/or collection of goods using one-time access codes**

(57) A device (2) for permitting secure delivery and/or collection of goods using one-time access codes, which device (2) comprises an access door (4) for being opened by a person delivering and/or collecting the goods, lock means (6) which is programmable to permit the person to open the access door (4) once only per visit with a pre-arranged one-time access code, input means (8) for enabling the person to input the pre-arranged one-time access code, and programmer means

for programming the device (2) with the pre-arranged one-time access code, the device (2) being such that the programmer means (10) is operable by an authorised person for whom the goods are to be delivered and/or collected. The device (2) may have a body portion for receiving the goods, the device (2) then being such that permitted access is available for the purpose of removing the goods from the body portion (50) and such that once a delivery has been made the relevant pre-arranged one-time access code is no longer operable.

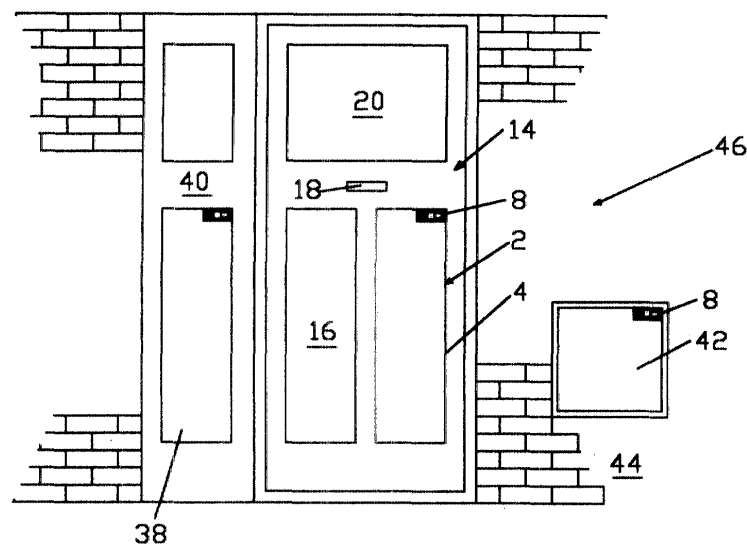


Fig 1

Description

[0001] This invention relates to a delivery device for permitting secure delivery and/or collection of goods and, more especially, this invention relates to a delivery device for permitting secure delivery and/or collection of goods using one-time access codes.

[0002] The delivery and/or collection of goods often presents a problem. For example, goods in the form of newspapers and letters can be delivered through a conventional letter box. Goods that are any larger generally cannot be delivered through the letter box and a person has to be present in order to take delivery of the goods. It is often not convenient for a person to be present to take delivery of the goods. For example, if the delivery of the goods is to a home, then the person may have to be at work. If the delivery of the goods is to a firm, for example a vehicle repair workshop wanting parts delivered, then the firm may not be open if the goods are delivered too early in the morning or too late at night. Often, the delivery person may not be able to give a specific delivery time and it is not convenient to wait for long periods of time for a delivery person. Even the delivery of registered letters or recorded delivery letters can cause problems in that a person needs to be present to sign for the letters. Similar problems occur in the case of goods needing to be collected.

[0003] It is an aim of the present invention to obviate or reduce the above mentioned problems.

[0004] Accordingly, in one non-limiting embodiment of the present invention there is provided a device for permitting secure delivery and/or collection of goods using one-time access codes, which device comprises an access door for being opened by a person delivering and/or collecting the goods, lock means which is programmable to permit the person to open the access door once only per visit with a pre-arranged one-time access code, input means for enabling the person to input the pre-arranged one-time access code, and programmer means for programming the device with the pre-arranged one-time access code, the device being such that the programmer means is operable by an authorised person for whom the goods are to be delivered and/or collected and such that once a delivery has been made the relevant pre-arranged one-time access code is no longer operable.

[0005] By its use of the pre-arranged one-time access code, the device of the present invention is able to avoid the need for persons to be present to take delivery of goods and/or to oversee the collection of goods. The device can also avoid people having to rush to a door for delivery and/or collection of goods when it is not convenient, for example because the person is in the bathroom, or because the person is an invalid and cannot move quickly. The pre-arranged one-time access code may be given to the person making the delivery and/or collection by telephone, fax, electronic order or any appropriate means. The authorised person is able to ob-

tain delivered goods and/or arrange for the collection of goods at his or her convenience. The authorised person is not subjected to the annoyance of having to wait in for, or be interrupted by, the person delivering and/or collecting the goods. If a delivery and/or collection is to a firm, then the delivery and/or collection can be made before the firm opens. In the case of delivered goods, these goods are available for use directly the firm opens. If the delivery is a home delivery, this can reduce the need for a homeowner to use his or her vehicle to buy and collect goods, for example from supermarkets. The person delivering and/or collecting the goods is also not tied to a specific arrival time, and he or she avoids the inconvenience of having to return if nobody is present. More efficient use is able to be made of delivery and collection vehicles, and congestion and pollution on the roads is able to be reduced as a result. If desired, the device of the present invention may be used for business to business deliveries such as a large retail business supplying smaller high street retail business.

[0006] Preferably, the relevant pre-arranged one-time access code is no longer operable by being no longer stored in the device. The relevant pre-arranged one-time access code may however be stored if desired, providing the pre-arranged one-time access code is no longer operable. Storing the relevant pre-arranged one-time access code would enable a hard copy print out to be obtained at some time in the future, for example in case of a security breach.

[0007] If desired, the device may include random code generator means for generating the pre-arranged one-time access code. The random code will usually be a number code but it may alternatively be a symbol code. The uses of the random code generator means gives added security and users may prefer the simplicity of having a one-time access code provided for them.

[0008] The device of the present invention may have a body portion for receiving the goods, the device then being such that permitted access to the body portion is available for removing or inserting the goods.

[0009] Usually, the device will be one in which the access door is at a front part of the body portion. The access door may be at other parts of the body portion if desired so that, for example, the access door could be in a side part of the body portion.

[0010] The access door may be also the door by which the authorised person removes delivered goods. The access door is preferably provided with draught-proofing means.

[0011] If desired, the device may be one which includes a goods-removal door for use by the authorised person for removing delivered goods. The goods-removal door may be at a rear part of the body portion. The goods-removal door may be at another position in the body portion if desired so that, for example, the goods-removal door may be at a side part of the body portion.

[0012] The optional goods-removal door may be pro-

tected by a pre-arranged one-time access code so that non-authorised persons, for example members of a household such as children, cannot access unsuitable items.

[0013] Preferably, the goods-removal door will be provided with draught-proofing means.

[0014] The device may include receipt-issuing means for issuing a receipt to the person delivering and/or collecting the goods as proof of attendance. Any suitable and appropriate type of receipt may be issued. Thus, the receipt may be a printed ticket. The receipt may give the time and date of the delivery and/or collection.

[0015] The device may include recording means for enabling the person delivering and/or collecting the goods to record a message. Any suitable and appropriate type of recording means may be employed including a hard copy printer and/or a video camera.

[0016] The device may include internet connection means for connecting the device to the internet in order to notify the authorised person via the internet that their goods have been delivered and/or collected. Additionally, or alternatively, the internet connection means may be used to notify a firm employing the delivery/collection person that their employee has delivered and/or collected the goods. A customer can thus be able to check that a delivery has been made to a workplace before the customer arrives at the workplace. For both domestic and business customers it is possible for the person delivering and/or collecting the goods to add contact details such as a telephone number to a message notifying the customer that the goods have been delivered or collected.

[0017] The device may include access-denial means for preventing opening of the access door by the person delivering and/or collecting the goods in the event of a predetermined number of incorrect attempts to input the pre-arranged access code. Thus, for example, if the delivery person makes three incorrect attempts, then the access-denial means may operate. Any suitable and appropriate number of incorrect attempts may be chosen consequent upon which the access-denial means will operate. Access may be controlled by various means such for example as keypads inside and outside, or a keypad inside and a swipe card outside, or infrared devices inside and outside, or radio transmitters and receivers.

[0018] The device may include alarm means which operates consequent upon the access door not being closed in a pre-determined time period. The alarm means thus helps to ensure that the access door is correctly closed. This helps to overcome a problem in that some persons delivering and/or collecting goods may be careless about closing the access door so that delivered foods will then not be secure. The alarm means may be an audible alarm means and/or a visual alarm means.

[0019] The body portion may have shelves. The interior of the body portion may be of any suitable and ap-

propriate design.

[0020] If desired, the body portion may have an inner extra secure compartment for securing valuable goods, the inner extra secure compartment having its own door.

5 The door of the inner extra secure compartment will usually be accessed from within the body portion.

[0021] The body portion may be provided with insulation for enabling goods which are perishable to be delivered and kept cool.

10 **[0022]** The device of the present invention may include alarm means for causing an alarm to operate consequent upon tampering with the device. The alarm means may be connectable to an alarm organisation such for example as a private security company or the police. The alarm means may be an audible and/or a visual alarm means.

[0023] The body portion may be a rigid or a flexible body portion.

20 **[0024]** The access door, and the body portion when present, will preferably be constructed to prevent access by a thief through the access door and the body portion into premises provided with the device.

[0025] The present invention also extends to a premises when provided with the device.

25 **[0026]** The premises may be any suitable and appropriate premises including houses, flats, offices, retail outlets and factories. Because an address has to be given to permit delivery of goods, this discourages persons and organisations from using fraudulent methods of payment. Amounts of stock at a depot can be closely controlled to demand, helping to prevent surplus holding of stocks in individual outlets. Large stocks of goods can be avoided, thereby avoiding providing thieves with the temptation to rob bulk stocks of goods.

35 **[0027]** The device of the present invention may be provided in a door of the premises. Alternatively, the device may be provided in a side structure on either side of a door, or in a wall of the premises, or generally wherever suitable and appropriate in the premises.

40 **[0028]** Embodiments of the invention will now be described solely by way of example and with reference to the accompanying drawings in which:

Figure 1 is a front view of part of premises provided with a delivery device;

Figure 2 is a top section through part of Figure 1;

Figure 3 is side cross section through part of Figure 1;

50 Figure 4 illustrates a frame forming part of the delivery device shown in Figure 1;

Figure 5 shows a control panel forming part of the delivery device shown in Figure 1;

Figure 6 illustrates how the delivery device may be programmed;

55 Figure 7 is a cross section illustrating a first design of the delivery device;

Figure 8 is a cross section similar to Figure 7 but shows a second design of delivery device;

Figure 9 is a cross section similar to Figure 7 but shows a third design of delivery device;
 Figure 10 shows a plan of premises and a yard using a secure area and a room for storage of goods; and
 Figures 11-13 show examples of possible movement of goods and information using a delivery device of the present invention.

[0029] Referring to Figures 1 - 6, there is shown a delivery device 2 for permitting secure delivery of goods (not shown) using one-time access codes. The delivery device 2 comprises an access door 4 for being opened by a delivery person (not shown) delivering the goods. The delivery device 2 also includes lock means 6 which is programmable to permit the delivery person to open the access door 4 once only per delivery with a pre-arranged one-time access code. Input means 8 are provided for enabling the delivery person to input the pre-arranged one-time access code. Programmer means 10 are provided for programming the delivery device 2, for example the lock means 6, with the pre-arranged one-time access code. The relevant pre-arranged one-time access code is preferably arranged to be no longer operable by being no longer stored in the device.

[0030] The delivery device 2 is such that the programmer means 10 is operable by an authorised person for whom the goods are to be delivered.

[0031] As shown in Figure 1, the delivery device 2 is such that the access door 4 forms a panel in a door 14. The door 14 is provided with a normal panel 16, a letter box 18 and a glazed portion 20.

[0032] As can be seen from Figure 3, the access door 4 opens upwardly about a concealed hinge 22. The hinge 22 is mounted to a top part 24 of a frame 12. The frame 12 is of angled construction as can best be appreciated from Figure 4.

[0033] As can be seen from Figure 3, the access door 4 is provided with insulation 26. Draught proofing seals 28, 30 are also employed around the frame 26.

[0034] Figure 5 shows how the input means 8 can be in the form of a control panel having numbered input buttons 32 for inputting the pre-arranged one-time access code. The input buttons 32 may be numbers and/or letters.

[0035] As shown in Figure 5, the input means 8 is provided with a microphone 34 forming part of recording means for enabling the delivery person to record a message.

[0036] As also shown in Figure 5, the input means 8 in the form of the control panel includes alarm means 36 for providing an audible siren in case of unauthorised tampering with the delivery device 2. The alarm means 36 may also be connected to an alarm organisation such for example as an alarm monitoring station or a police station.

[0037] Figure 1 also shows how the delivery device 2 may alternatively be in the form of a delivery device 38

sited in a side part 40 adjacent the door 14. Still further, Figure 1 shows how the delivery device could be a delivery device 42 sited in a wall 44 of premises 46 containing the door 14.

[0038] As can best be seen from Figure 2, the delivery device 2 is such that when the access door 4 is opened, goods can be delivered directly inside the premises 46. The goods will just fall or be placed inside the premises 46.

[0039] It is generally preferred that the delivery device 2 be such that it has a body portion for receiving the goods. With a body portion, the body portion can be constructed to deny a thief access into the premises 46.

[0040] Figure 7 shows a delivery device 48 which may be constructed as the delivery device 2 described above and indeed similar parts have been given the same reference numerals for ease of comparison and understanding. The delivery device 48 is such that it has a body portion 50. The body portion 50 is a flexible body portion made up of an expandable mesh. The expandable mesh may be made of nylon or any suitable and appropriate type of material. As shown in Figure 7, the mesh has expanded from the position shown by reference number 52 to the position shown by reference number 54. Goods 56 are shown contained in the body portion 50.

[0041] Figure 8 shows a delivery device 58 in which there is a solid walled body portion 60. The body portion 60 is provided with insulation 62 so that goods 64 can be stored in the body portion 60 and kept cool. As shown in Figure 8, the body portion 60 is provided with shelves 66 for receiving some of the goods 64. The goods 64 may be provided with freezer bags or ice in order to keep a cool temperature within the body portion 60. The body portion 60 may even be provided with a refrigeration unit if desired.

[0042] In Figure 8, the delivery device 58 is shown mounted in a wall 68. The delivery device 58 has an access door 70 which pivots about a top concealed hinge 72. The access door 70 is mounted in a frame 74 as shown. The body portion 58 is provided with a goods-removal door 76 which opens about a hinge 78.

[0043] Referring now to Figure 9, there is shown a delivery device 80 having a rigid walled body portion 82. The delivery device 80 has a front access door 84 which pivots about a top concealed hinge 86. The body portion 82 has a rear goods-removal door 88. The body portion 82 is shown containing goods 90. A lock 92 is provided for locking the goods removal door 88 from inside the premises in which the delivery device 80 is installed. A lock 94 is similarly provided for locking the access door 84 from inside. The delivery device 80 has input means 96 for enabling the delivery person to input the pre-arranged one-time access code. Programmer means 98 are provided for enabling an authorised person to programme in the pre-arranged one-time access code for the delivery of goods, and also for preventing the removal of goods from the delivery device 80 by unauthorised

persons, for example children in a household or various persons in a factory.

[0044] Figure 10 shows factory premises 100 having a lorry 102 parked in a yard 104. In one corner of the yard 104 is a secure store room 106. The store room 106 is for receiving goods 108. A delivery person 110 is shown taking the goods 108 from the lorry 102 and putting them in the store room 106. Access to the store room 106 is via an access door 112. Programmer means 114 are provided for the access door 112. Access to the yard 104 is via an access door in the form of a pair of gates 116. Programmer means 118 are provided for the gates 116. A removal door 120 has programmer means 122.

[0045] Figure 11 shows the possible movement of information and goods for customer orders online, or by telephone, fax etc. Figure 12 shows the possible movement of information and goods where a customer orders from a display and collects from a retail outlet. Figure 13 shows the possible movement of information and goods where a customer orders from a display at a retail outlet and requires a home delivery.

[0046] It is to be appreciated that the embodiments of the invention described above with reference to the accompanying drawings have been given by way of example only and that modifications may be effected. Thus, for example, the delivery device 2 could alternatively or additionally be used for enabling a collection to be made. Time delay means may be employed to provide extra security on the delivery device 2. The delivery device 2 may include video surveillance means. Access to a programming unit may be restricted to authorised persons. Time restriction on access may be employed so that, for example, a system may be programmed to allow up to one month for delivery. Fail safe locks may be employed that lock shut on electrical or controller fault. The delivery device 2 may also be used to control selective admission to remote areas, either real or virtual, for example within a computer network. This may allow ticket-less access to various areas, and thus avoid the need for security attendants. The code to enable access may be delivered from another location by means of coded access to enable programming.

Claims

1. A device for permitting secure delivery and/or collection of goods using one-time access codes, which device comprises an access door for being opened by a person delivering and/or collecting the goods, lock means which is programmable to permit the person to open the access door once only per visit with a pre-arranged one-time access code, input means for enabling the person to input the pre-arranged one-time access code, and programmer means for programming the device with the pre-arranged one-time access code, the device being

such that the programmer means is operable by an authorised person for whom the goods are to be delivered and/or collected and such that once a delivery has been made the relevant pre-arranged one-time access code is no longer operable.

2. A device according to claim 1 in which the relevant pre-arranged one-time access code is no longer operable by being no longer stored in the device.
3. A device according to claim 1 or claim 2 and including random code generator means for generating the pre-arranged one-time access code.
4. A device according to any one of the preceding claims and including a body portion for receiving the goods, the device being such that permitted access to the body portion is available for removing or inserting the goods.
5. A device according to claim 4 in which the access door is also the door by which the authorised person removes delivered goods.
6. A device according to any one of claims 1 - 4 and including a goods-removal door for use by the authorised person for removing the delivered goods.
7. A device according to any one of the preceding claims and including receipt-issuing means for issuing a receipt to the person delivering and/or collecting the goods as proof of attendance.
8. A device according to any one of the preceding claims and including recording means for enabling the person delivering and/or collecting the goods to record a message.
9. A device according to any one of the preceding claims and including internet connection means for connecting the device to the internet in order to notify the authorised person via the internet that their goods have been delivered and/or collected, and/or to notify a firm employing the delivery/collection person that their employee has delivered and/or collected the goods.
10. A device according to any one of the preceding claims and including access-denial means for preventing opening of the access door by the person delivering and/or collecting the goods in the event of a pre-determined number of incorrect attempts to input the pre-arranged access code.
11. A device according to any one of the preceding claims and including alarm means which operates consequent upon the access door not being closed in a pre-determined time period.

12. A device according to claim 4 in which the body portion has an inner extra secure compartment for receiving valuable goods, the inner extra secure compartment having its own door.

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13. A device according to claim 4 in which the body portion has insulation for enabling goods which are perishable to be delivered and kept cool.

14. A device according to any one of the preceding claims and including alarm means for causing an alarm to operate consequent upon tampering with the delivery device.

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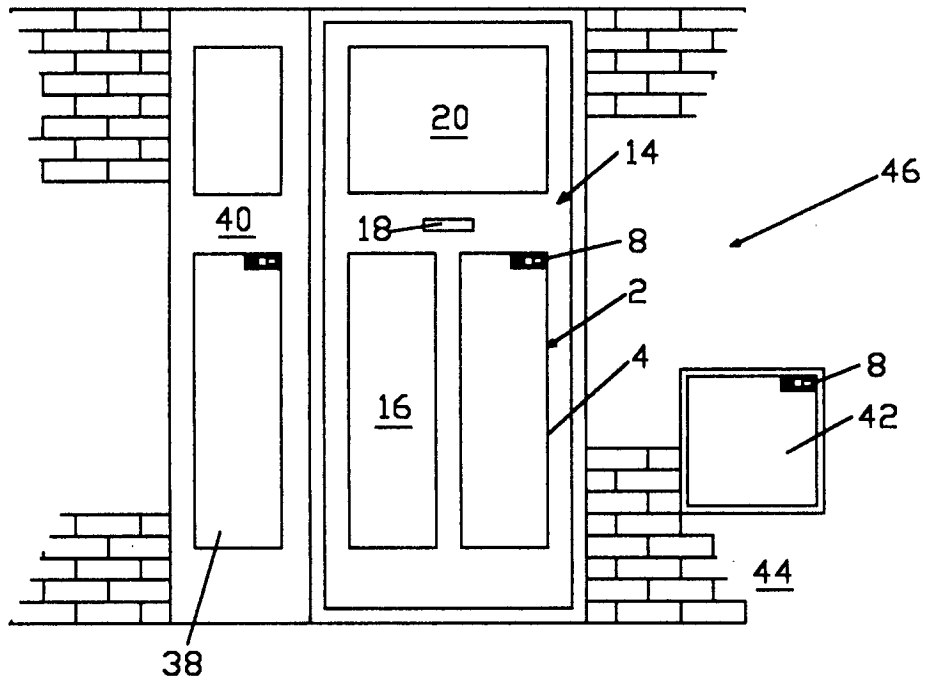


Fig 1

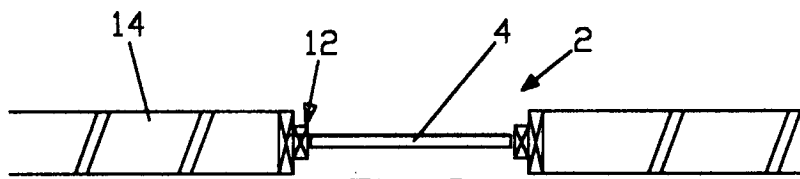


Fig 2

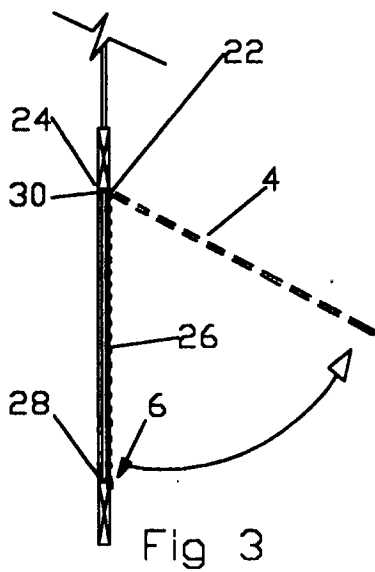


Fig 3

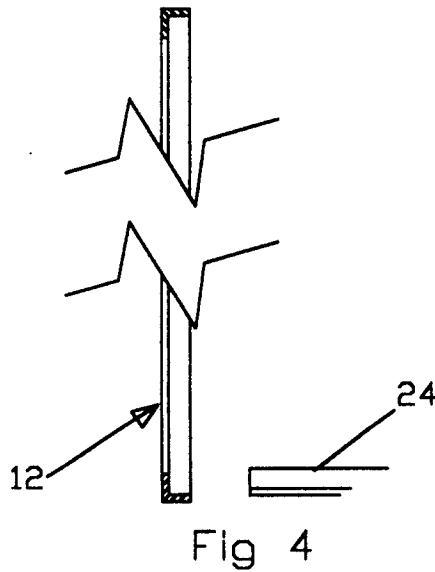


Fig 4

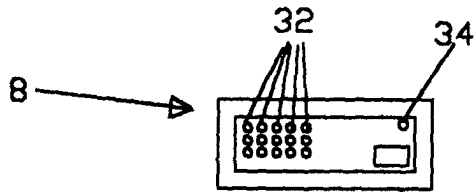


Fig 5

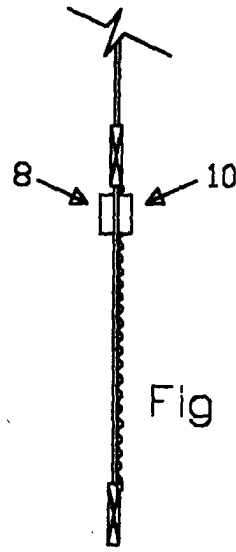


Fig 6

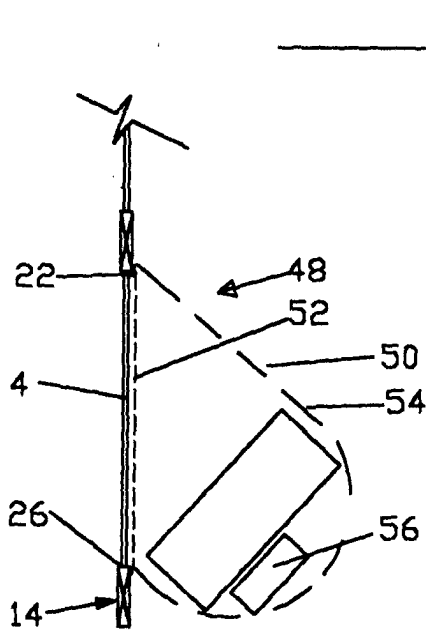


Fig 7

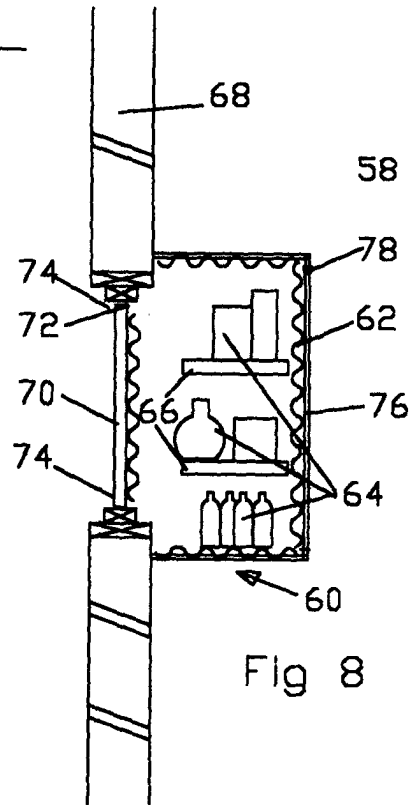


Fig 8

