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(54) Abstract Title: **Luggage tracking system**

(57) There is provided a luggage tracking system utilising respective tags 10 issued by a central recordal agency; the tags being securely carried by individual pieces of luggage and visible externally therefrom; each said tag containing at least one identification symbol unique to that piece of luggage and presented in both human readable 4 and machine readable 1 form; the tag also containing human readable data presenting contact information 2,3,6,7 sufficient to enable a finder of the piece of luggage to establish contact with said agency, thereby to promote the retrieval of lost luggage. The tag 10 may be adhesively applied to the exterior of the luggage, housed in a plastics envelope attached to the luggage or located in a secure windowed cavity built into the luggage. The machine readable symbol may be in a bar code or a microchip. The contact means 2,3,6,7 may comprise telephone, e-mail, internet and telex.

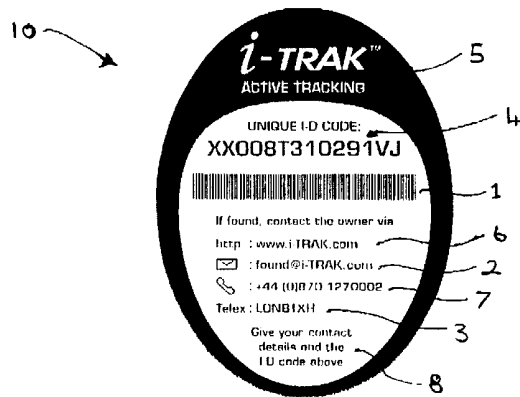


Fig. 1

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10



5  
4  
1  
2  
3  
6  
7  
8

Fig 1

11



Fig. 2

12



Fig 3

**i-TRAK™** These are your unique i-TRAK tags. Please read the instruction booklet before use

**i-TRAK™**  
ACTIVE TRACKING

UNIQUE ID CODE:  
**XX008T310138C9**

If found, contact the owner via  
 Http : [www.i-TRAK.com](http://www.i-TRAK.com)  
 Email : [found@i-TRAK.com](mailto:found@i-TRAK.com)  
 Tel : +44 (0)870 1270002  
 Telex : LONB1XH

Give your contact details and the ID code above

**EXTERNAL tag**

**i-TRAK™**  
ACTIVE TRACKING

UNIQUE ID CODE:  
**XX008T310138C9**

If found, contact the owner via  
 Http : [www.i-TRAK.com](http://www.i-TRAK.com)  
 Email : [found@i-TRAK.com](mailto:found@i-TRAK.com)  
 Tel : +44 (0)870 1270002  
 Telex : LONB1XH

Give your contact details and the ID code above

**INTERNAL tag**

**i-TRAK™**  
ACTIVE TRACKING

Your UNIQUE ID CODE  
**XX008T310138C9**

If your tag is lost, ring on for more at [www.i-TRAK.com](http://www.i-TRAK.com)

**REFERENCE tag**

WARNING: PRODUCT CONTAINS STRONG ADHESIVE.  
KEEP AWAY FROM CHILDREN AND ANIMALS. AVOID INGESTION AND PROLONGED CONTACT WITH SKIN

Fig.4

13

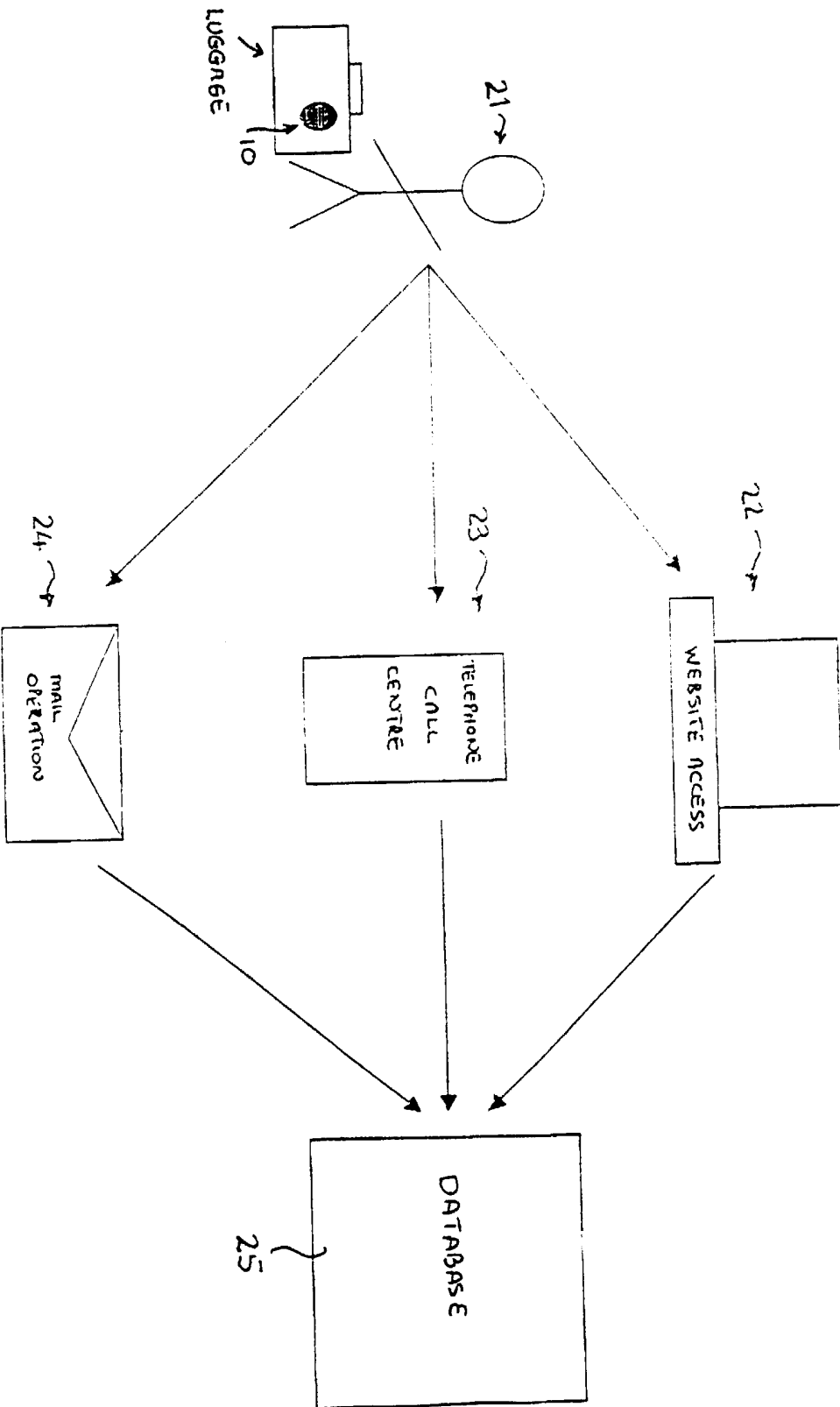


Fig.5

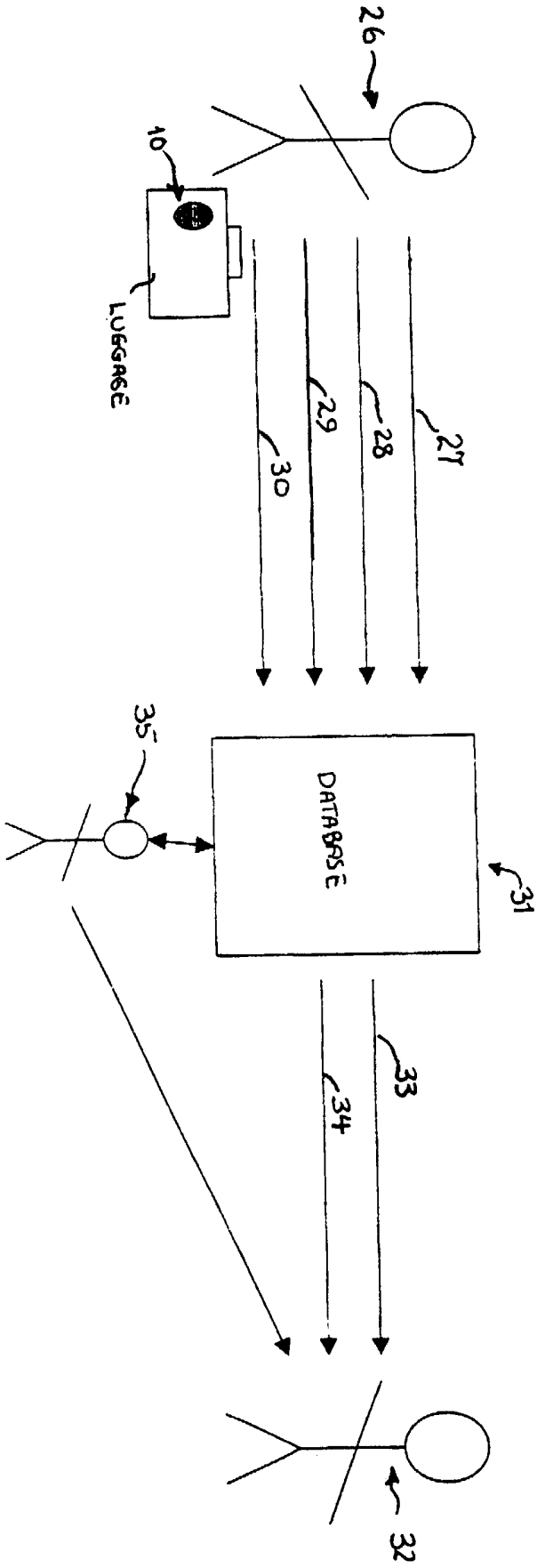


Fig. 6

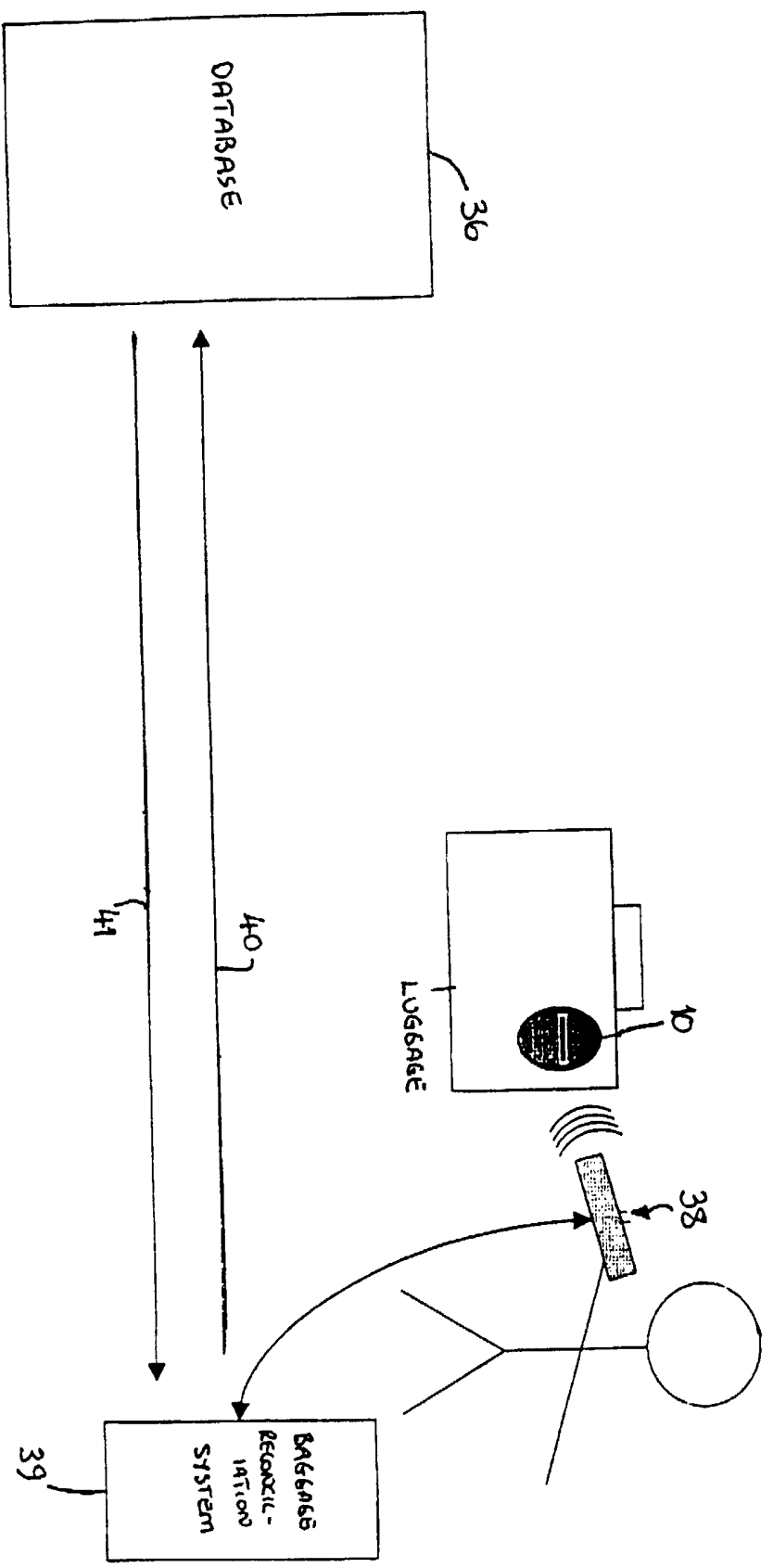


Fig. 7

## Luggage Tracking System

This invention relates to a luggage tracking system intended to facilitate and/or speed up the procedure of reuniting a traveller with lost luggage. It is especially, though not exclusively, applicable to luggage lost during air transit. References herein to "lost" luggage are intended to be construed as relating primarily to luggage that fails to arrive at its intended destination at the same time as the passenger who checked it in, though the term is intended to embrace all mishandled, mislaid or misdirected luggage.

10

### Background to the Invention

The travel industry is not only one of the largest industries in the world but it is also a growing market. Airports, airlines and related businesses are spending billions of dollars each year to ensure that they are able to cope with predicted increases in passenger transit. The rapid growth of the industry, however, has exacerbated a number of logistical difficulties; one of which is the maintenance of adequate control over the routing of passengers' luggage.

Airlines are now receiving more complaints about lost luggage than ever before and this is not surprising, bearing in mind the additional pressures imposed upon the luggage-handling systems as a result of initiatives that have been taken to make journey and connection times shorter between one airline and another. In addition, there is increased pressure to allow later check-in times for passengers, despite the need for added security checks in airports. As a consequence, airports are unable to cope with the increased amount of luggage and the reduced time in which to move it.

In consequence of the foregoing, of an estimated 1,500 million pieces of luggage checked in each year, some 9,000,000 are lost, as defined above; around 75,000 of these being permanently lost.

The current system for tracing luggage, used in common by most airlines, relies upon information such as name, address, type and colour of baggage, the airline destination tag and its number along with flight numbers and dates. This, coupled  
5 with a brief description of the luggage's contents and any external distinctive features are the tracing elements for luggage. The available information is limited, however, because (for example) passengers are often reluctant to advertise personal details, such as a name and address, on the outside of their luggage. Thus, in circumstances where a piece of luggage loses such external identification as it  
10 may have, it becomes extremely difficult to reunite the luggage with its owner.

### Summary of the Invention

The invention aims to address the problem of finding lost luggage. It requires the  
15 use of a special identification tag, which is securely carried by the luggage and visible externally thereof. The tag may, for example, be securely attached (directly or indirectly), as by adhesive, to an exterior surface of the luggage. Alternatively, the tag may be enclosed within a windowed cavity formed in the luggage, or otherwise embedded in the luggage. The identification tag has a secure, unique identification  
20 code, (UIC) which is compatible with the current tracing system used by airlines.

The UIC can contain information which permits integrated use of the Internet and airline communication systems, and can incorporate descriptive codes developed by the airlines, thus permitting it to link with existing airline baggage reconciliation  
25 schemes.

By means of the invention, travellers are empowered to become proactive in reducing the likelihood of their items of luggage being irretrievably lost.



### Detailed Description of Invention

According to the invention from one aspect there is provided a luggage tracking system utilising respective tags issued by a central recordal agency; the tags being  
5 securely carried by individual pieces of luggage and visible externally therefrom; each said tag containing at least one identification symbol unique to that piece of luggage and presented in both human readable and machine readable form; the tag also containing human readable data presenting contact information sufficient to enable a finder of the piece of luggage to establish contact with said agency, thereby  
10 to promote the retrieval of lost luggage.

Preferably, the tag is securely attached to an external surface of the piece of luggage to which it is assigned, and is designed to be easily readable. By this means, the tag is presented so as to be readily accessible to, and readable by,  
15 anyone who finds it.

In one preferred embodiment, the tag is fabricated from a flexible plastics material (e.g. a plastic polymer material such as a thermoplastic, for example polyester, polypropylene, PVC, ABS, Nylon or vinyl) capable of withstanding extremes of  
20 temperature and having good shape memory characteristics, enabling it to expand and contract as necessary in response to changes in its environment without cracking or crazing, or suffering any other physical change that could obscure or otherwise contaminate the information which it carries.

25 The tag is preferably securely affixed by adhesive to the piece of luggage to which it is assigned; the adhesive being selected to withstand the environmental changes experienced by the tag and to respond compatibly to dimensional and other changes of the tag itself to ensure that the tag remains securely attached to the luggage.

30 Preferably also the tag and the adhesive are resistant to physical damage, such as that which may be inflicted when bags are manhandled and, for example, thrown

together or slid relative to one another, as happens in baggage handling areas. In one preferred example, the tag is provided with a laminated coating of scratch and impact resistant material.

5 In some circumstances it is preferred to securely locate (e.g. house) the tag in an envelope of plastics material securely sealed and attached to the piece of luggage as before, or in a secure windowed cavity built into the piece of luggage. It will be appreciated that the invention is in no way dependent upon or restricted by, the specific nature of the tag's attachment or presentation.

10

Preferably, the machine-readable form of the unique symbol carried by the tag comprises a bar code and/or a microchip, for example a radio frequency identification (RFID) chip, but any convenient form of presentation can be used.

15 In preferred embodiments of the invention, the unique symbol contains at least some alphanumeric characters derived algorithmically. This ensures that all symbols contain at least a segment of code unique to an individual tag.

It is preferred that the contact information for said agency, as carried by the tag,  
20 contains the contact details appropriate to more than one communications route. This recognises that certain communications routes are not readily available and/or effective in all areas of the world. In one example, details are presented to permit contact to be established with the agency by way of telephone, e-mail and the Internet (World Wide Web).

25

It is further preferred in some embodiments for the tag to present a central telex communication address used by the airlines as a preferred form of contact.

The tag also instructs a finder of the piece of luggage as to the steps to be taken  
30 when contacting the central agency.

The central agency needs to record the unique symbol in association with the piece of luggage to which it is affixed, its owner and various contact details for the owner, in order to fulfil its role as an intermediary in the retrieval of the piece of luggage, if lost. The owner thus has to supply appropriate data to the agency by way of a  
5 registration procedure which can be updated as necessary from time to time to reflect changes in the owner's circumstances. In some embodiments, it is preferred that the owner supply the agency with itineraries for individual trips, so that the agency may assist in the efficient reuniting of the owner with the piece of luggage if lost.

10

Preferably the tags are presented in conspicuous colours and/or forms that are readily noticeable, to reduce the risk that they will be overlooked against certain backgrounds. In this connection, they may be provided with shields or covers intended to be applied whilst the luggage is in the hands of its owner and removed  
15 only when it is checked in at an airport, or otherwise consigned to the care of a carrier.

If a shield or cover is utilised, it is preferable that it carries the central agency's company name and/or logo, against the possibility of its being inadvertently left in  
20 place when the luggage is checked in or otherwise relinquished to a carrier. By this means, it is possible to indicate, at least to the trained eye, the presence of a tag.

In preferred embodiments, the unique symbol may incorporate at least one identifier descriptive in some way of the piece of luggage, such as its manufacturer and/or  
25 certain visual characteristics thereof.

According to the invention from another aspect, there is provided a retrieval process for assisting travellers to reclaim lost luggage, comprising a luggage tracking system as described in any of the preceding paragraphs of this section of the specification,  
30 wherein the central recordal agency maintains a database associating the identification symbols unique to individual items of luggage bearing tags of the said

system with the owners thereof; and wherein the central recordal agency responds to contact from a finder of an item of luggage by utilising said database to identify the owner of the found item of luggage and alerting the owner to the whereabouts of the said item of luggage. By this means, lost luggage can be efficiently reunited with its  
5 owner.

The central recordal agency may also, in preferred embodiments, assist the owner to retrieve the item of luggage.

#### 10 Brief Description of the Drawings

Figure 1 shows a tag, for use in a system according to one example of the invention, including a unique symbol assigned to a specific piece of luggage;

15 Figure 2 shows a corresponding tag intended for mounting internally of the piece of luggage;

Figure 3 shows a further corresponding tag intended to be carried by the owner/user of the piece of luggage;

20

Figure 4 shows a set of tags for use in accord with the present invention;

Figure 5 shows, schematically, arrangements whereby an owner/user of a piece of luggage can register ownership details with a central recordal agency;

25

Figure 6 shows schematically certain elements of a system in accordance with one example of this invention; and illustrates how a finder of luggage can communicate with the central recordal agency; and

Figure 7 shows schematically how a barcode or other machine-readable component of a tag can be used in the tracking of luggage in a system according to an example of the invention.

5

#### Detailed Description of the Drawings

The example of the invention to be described in detail hereinafter, known as "i-TRAK", uses a uniquely coded tagging device, securely attached to luggage. The owner of the tagged luggage registers their contact and travel related details on to a central database operated by a central agency operating the i-TRAK system.

The tag, in the example to be described, displays four human readable communication links and a machine readable barcode. Alternatively, or in addition, to the barcode, an embedded microchip, such as an RFID chip, may be used. The four human readable communication links are, in this example: website, e-mail, telephone and airline telex.

When the luggage is misrouted or otherwise lost, a finder can communicate the unique code to the central agency via one of the four alternative communication links or, with the correct hardware links, using the barcode or RFID. The unique code is verified in the i-TRAK system to identify the registered owner. Once verified, the owner is passed information as to the whereabouts of the luggage, and offered advice and assistance in the retrieval of the luggage.

Referring now to Figure 1 of the drawings, a tag 10, issued by a central recordal agency (in this case i-TRAK) is intended to be securely attached to the outside surface of a piece of luggage. The tags can be attached or incorporated into the luggage at point of manufacture such as by adhesive fixing, moulding, hot stamping or any other suitable method; being supplied to the luggage (or indeed, direct to the owners/users of the luggage as an off-the-shelf pack) manufacturers, for example, in the form of press-out adhesive labels on sheets such as 13 (see Figure 4).

Alternatively, sheets such as 13 may be supplied to the owners of luggage in the

manner of an after sales pack. In either event, the sheet 13 preferably also contains a tag 11 (see also Figure 2), intended to be placed on the inside of the luggage. The tag 11 is similar to, though somewhat smaller than, the tag 10 and its content replicates that of the tag 10 except in that the barcode and/or RFID chip are omitted therefrom in this example. Sheet 13 preferably also contains a travel tag 12 (see also Figure 3) which again resembles the tags 10 and 11 but is smaller than either and omits much of the information displayed by the two larger tags. The tag 12 is intended to be kept readily to hand by the owner/user of the luggage as a reminder of the code, and contains instructions as to a contact point at which news about lost baggage may be provided by the central recordal agency.

Reverting to Figure 1, the externally visible tag 10 displays an identification symbol 4, including or consisting of a unique alphanumeric code, a matching barcode 1, instructions 8 to a finder and addresses 2, 6 and 7 for the central agency (i-TRAK) over various communication media. A telex address 3 used in common by a number of airlines, is also included. There may also be provision for a RFID or other electronic chip (not shown) to be embedded into the tag.

The logo 5 of the central recordal agency may also be prominently displayed on the tag 10. In alternative embodiments, the logo 5 is not that of the central record agency, but of another brand owner (e.g. luggage manufacturer) who provide a 'front-end' service to the luggage user whilst typically purchasing 'back end' services from the central record agency. In essence, the central record agency therefore provides the 'engine' that powers the service, whilst not directly presenting a brand identity to the customer.

The alphanumeric code is of variable length and can incorporate information details, such as luggage manufacturer identity codes, codes indicative of the appearance of the luggage, IATA baggage codes, company staff codes, date of issue etc. The unique symbol incorporates at least a portion of random code generated by an algorithm that also generates check digits, derived by a complex procedure, for

additional security. The overall code is also compatible for use in the airline WorldTracer luggage tracing system, and can be used in the "FQ" (frequent flyer) element of an AHL (loss report) and an OHD (On-Hand found bag report) to enhance the points match process of the WorldTracer system.

5

Every alphanumeric code is unique, making every tag, and thus every piece of tagged luggage unique. For every tag the displayed unique code is also held on a database operated by the central recordal agency, and is associated, on that database, with all of the information that an owner/user of the item of luggage bearing that tag has supplied to the agency. As mentioned below, this information may include not only identification and contact details for the owner but also may be up-dated to contain detailed itineraries for individual trips on which the owner/user takes the relevant piece of luggage.

15 Referring now to Figure 5, the system that utilises the tags such as 10 is shown in outline. The owner/user 21 of the tagged luggage registers contact and, optionally, travel details (such as itineraries for individual trips) with the central recordal agency. This can conveniently be done electronically via a website 22, or by way of a call centre 23 or by mail return 24. The owner/user 21 quotes the unique code 4 displayed on the tag and this is verified as a legitimate code by cross reference with a database 25 operated by the agency. The owner/user then supplies contact details, such as name, address, telephone number(s), e-mail, secondary contacts (i.e. friends, relatives) with the agency and this information is entered upon the agency's database and associated with the unique code applied to the piece of luggage in question.

The registration also allows for travel itinerary details to be registered, such as, flight details, destination information, local contact and other forms of travel details.

30 Referring now to Figure 6, the tag 10, as described earlier, contains instructions advising any finder 26 of the piece of luggage bearing it to contact the recordal

agency via the agency's website 27, e-mail 28, telephone 29 or via an airline telex system 30. The tag also advises the finder, in making any such contact, to quote the displayed unique code, their location and any relevant finder's reference number.

5 If the finder supplies information to the agency via telephone, it is converted into text by the call operator and sent to the agency's database 31. There, the information supplied by the finder is scanned by the database for a stream of text that matches one of the unique codes entered on the database. When the system recognises such a code, it is able to identify the registered user/owner 32, by virtue of the  
10 associated information initially supplied by the owner/user. Once recognised, the system automatically sends an e-mail 33 and/or SMS 34 message to the registered user/owner advising that there is information about their luggage. If the owner/user has not supplied data permitting messages such as 33 and 34 to be sent, alternative contact procedures are invoked. In one example, a telephone call may be made to  
15 the owner/user of the luggage by an operative 35 of the central recordal agency.

The information supplied by the finder is displayed on the website under the protection of a login identifier allocated to or selected by the owner/user, and thus can be accessed by the owner/user. The user/owner (32) is also called by a  
20 customer service agent (35) of the central recordal agency, to pass on the information supplied by the finder and advise or assist in the retrieval of the luggage.

Figure 7 illustrates in outline how the system of this example of the invention may be used to provide a link to separately operated baggage reconciliation systems.

25

Owners or users of tagged luggage registered with the agency operating the system can, as mentioned above, register their travel itinerary onto the agency's database 36. The information may include flight details, such as flight number, departure and arrival dates and departure and arrival city.

30



The barcode 1 and/or encoded chip, such as RFID, on the tag 10 can be read by Baggage Reconciliation Systems (BRS) scanners 38. Baggage Reconciliation Systems are currently used in airports to register loading details of checked in luggage. By reading the unique identification code on the tag, the BRS 39 can  
5 review the published flight details appropriate to the itinerary supplied by the owner/user of the luggage. The BRS 39 sends the unique code (UIC) scanned from a system tag to the database 36 operated by the central recordal agency via a structured query link 40. The agency's database 36 checks the travel itinerary supplied by the owner/user and send the details 41 back to the BRS system 39 to be  
10 displayed on the operator's hand scanner 38. Thus, in circumstances when the airline check-in tag becomes separated from the luggage, there is a back up, supplied by the passenger via the central recordal agency, to identify which flight the luggage is destined for.

15 In summary, it will be appreciated from the foregoing that the system tag displays information, including a symbol, issued by a central recordal agency, that is unique to an individual piece of luggage and is externally attached to that piece of luggage. The unique symbol comprises an identification code which is held on a database operated by the central recordal agency. When a tag is purchased, the customer,  
20 assumed to be the owner/user of the piece of luggage in question, must register with the agency and supply it with contact numbers and addresses. In the event that the piece of luggage, having gone missing, is found, human readable instructions contained on the tag advise the finder to contact the agency and notify it of the location of the piece of luggage. Upon receipt of this information, the agency will  
25 inform the relevant customer as to the location of the piece of luggage.

It is important to the system that the tag is secured to (or in embodiments, incorporated or otherwise associated with) the piece of luggage to which it has been assigned, and that it is readily visible from the exterior of the luggage. If a tag is  
30 assigned to a piece of luggage by the luggage manufacturer, it may be disposed in a purpose-designed pocket or pouch, or some other form of enclosure comprising a

recess formed in the luggage itself, the pocket, pouch or other enclosure having a window formed of transparent material to enable the tag to be viewed therethrough. The window is preferably formed of (or coated with) a tough, scratch-resistant material that does not unduly compromise the visibility of the tag. Alternatively, whether or not applied by the luggage manufacturer, the tag may be securely attached, in any convenient manner, to an external surface of luggage. In such circumstances, the tag is preferably made from a flexible plastics material that will withstand extreme temperatures, be able to expand and retract to its original shape and be compatible with any adhesive used to secure the tag to the luggage surface. The adhesive itself must, of course, also withstand extreme temperatures, expand and retract with the plastic and be able to bond the tag onto various types of materials.

The tag 10, as has been described, instructs a finder to contact the central recordal agency quoting the Unique Identification Code (UIC) carried by the tag and any contact reference. To reduce the risk that information on the tag might become unreadable, due to scratching or other erosive effects, the tag (or any window or envelope through which it is viewed) is preferably provided with a protective laminated coating.

The UIC has functional and security elements to make each one an individual locator. When attached to luggage at point of manufacture it can also include a descriptive coding that is recognisable within the airline industry. A specially written program automatically generates the codes, which use smart digits to reduce the risk that similar-looking alphabetical and numeric digits (such as 1 and l) might be misread.

A typical UIC will now be broken down and described, section-by-section, in order to facilitate an understanding of the powerful capabilities conferred upon the system by means of this unique symbol.

In accordance with this example, the UIC assigned to a particular piece of luggage is *DEBK01AAAAABQ*, and the significance of various portions of this symbol are indicated by the following:

| 5 Breakdown      | Explanation                                                                                                                                                              |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10<br><br>DE     | Stands for Delsey and confirms to an airline the brand (i.e. manufacturer) of the luggage. The brand name on luggage is an important tracing element within WorldTracer. |
| 15<br><br>BK01   | This is an IATA code that describes in detail the specific appearance of the luggage. This code is used by all airlines when tracing for luggage                         |
| 20<br><br>AAAAAA | Randomly generated part of the UIC.                                                                                                                                      |
| 25<br><br>BQ     | Security check digits generated by the UIC-generating program.                                                                                                           |

The system according to preferred examples of the invention is compatible with, and thus has the ability to form a working relationship with, the current WorldTracer baggage tracing system used by airlines. The inventive system does not compete with WorldTracer, due to the fact that it is intended for use by the general public, whereas the WorldTracer service is only for airline use.

WorldTracer uses individual matching elements to locate lost bags, and thus could usefully take advantage of the UIC as an additional and powerful tracing element to enhance its capabilities.

(

It will be clear from the foregoing that access to systems according to the invention is effected by purchasing either a new piece of luggage incorporating a tag 10 supplied by the manufacturer or tags such as 10 may be purchased separately, conveniently in the form of an adhesive label supplied, for example, on a sheet such as 13, to be  
5 firmly secured (e.g. stuck) to an existing piece of luggage. In either event, the owner/user of a tagged piece of luggage must supply personal contact details to the central recordal agency for registration (in association with the UIC incorporated in the tag) onto the agency's database. The required information can be supplied through various forms of communication, including: -

10

- Online registration via a website operated by or for the agency
- Postal registration
- Call centre registration
- When sold through insurance companies and travel services  
15 and third party agencies

15

Registration may be for the lifetime of the luggage or renewed annually, depending on a level of service purchased.

20

Customer contact information registered onto the agency's database includes: -

25

- Name
- Address
- Telephone numbers
- Fax numbers
- E-mail
- Secondary contacts (Family, Work etc.)
- Temporary Itinerary contacts (Hotels, Airlines etc.)

30

The preferred form of registration is via the website. This reduces handling costs and allows customers to update their own details when necessary. On-line registration may not always be convenient for, or acceptable to, individual customers, however, so other forms of registration are therefore required. A postal and call-handling centre is thus necessary to accept worldwide registrations.

The system described herein provides a stand-alone tracing facility for luggage and is reliant on a finder proactively wanting to reunite the luggage with the owner. Typical finders include airline lost luggage departments, lost property offices, police and helpful members of the general public. The instructions on current examples of the system tag usefully contain four forms of contact for found luggage, namely: Internet, E-mail, Telephone and Airline Telex, so that a finder wanting to assist in the process of re-uniting lost luggage with its owner will usually be provided with at least one convenient contact route.

15

Web Communication allows finders to inform the central recordal agency directly about a found item and guides them through a process of requested information required (i.e. their name, location and contact details, etc.). This is the preferred method of contact as the system is configured to automatically advise the owner of the information supplied. Web Communication, however, is still not widely used in many areas of the world where luggage may be found.

E-mail is often the preferred form of contact in the world today. Beneficially, this form of communication provides an instant return address which allows the agency to compile a database of finder contact information for further correspondence.

The third mode of communication, namely telephone, is still the preferred communications route for many people, and involves the establishment (by the agency, or on its behalf) of a call centre to handle registrations and enquiries, and as a point of contact for the finders.

Telex communication is the standard form of messaging used by airlines worldwide and is a cost effective and established form of communication. The benefit of using Telex is that it is an international communication system, is used at all airports and is compatible with the database used by the tag-issuing system operator.

5

When the luggage of a customer of the system-operating agency goes missing, the customer will usually file a report with an airline or who ever they are travelling with (i.e. car hire company or train/bus operator). There is no benefit for the customer contacting the system-operating agency directly at this point, except for statistical purposes. More than 90% of airline lost luggage is found within the first 24 hours, and the system provided by this invention thus serves, in essence, as a 'safety net' for the already effective tracing services. Costs are kept down and service improved by only receiving information about found items, which are then efficiently processed and passed on to the customer.

15

When advised that an item has been found the system-operating agency will take the following steps to inform the customer of the information: -

20

1. Verify that the quoted UIC has been registered in the agency's database.
2. Check the preferred contact arrangements set up by the customer.
3. Inform the customer of the location and contact details of the found item.

25 It is normally the responsibility of the owner to arrange retrieval of the item. In cases where an airline has lost the item, the customer will be able to inform their carrier, as it is their duty to arrange the return of the luggage. An additional service offered by the central recordal agency is that of arranging the collection and delivery of found items on the customer's behalf.

30

Additional technical facilities are incorporated in some examples of the invention; two of these being 2D bar-coding and the use of electronic microchips such as radio frequency identification (RFID) chips.

- 5 With the capability to forward encode additional data such as owner details, 2D bar-coding represents a significant advantage over existing technologies. It also features rugged design, error correction, data compression and encryption technology whilst maintaining compatibility as an international standard.
  
- 10 RFID technology is currently being introduced at airports for baggage check-in and sorting purposes. Systems in accordance with some examples of the invention utilise this technology to advise the customer in real time as to the location of their luggage.

## Claims

1. A luggage tracking system utilising respective tags issued by a central recordal agency; the tags being securely carried by individual pieces of luggage and  
5 visible externally therefrom; each said tag containing at least one identification symbol unique to that piece of luggage and presented in both human readable and machine readable form; the tag also containing human readable data presenting contact information sufficient to enable a finder of the piece of luggage to establish contact with said agency, thereby to promote the retrieval of lost luggage.  
10
2. A system according to claim 1 wherein the tag is securely attached to an external surface of the piece of luggage to which it is assigned, and is designed to be easily readable.
- 15 3. A system according to claim 1 or claim 2 wherein the tag is fabricated from a flexible plastics material capable of withstanding extremes of temperature and having good shape memory characteristics.
4. A system according to claim 3 wherein the tag is securely affixed by adhesive  
20 to the piece of luggage to which it is assigned; the adhesive being selected to withstand the environmental changes experienced by the tag and to respond compatibly to dimensional and other changes of the tag itself.
5. A system according to claim 4 wherein the tag and the adhesive are resistant  
25 to physical damage.
6. A system according to claim 5 wherein the tag is provided with a laminated coating of scratch and impact resistant material.



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7. A system according to any of claims 1 to 3 wherein the tag is securely housed in an envelope of plastics material securely sealed and attached to the piece of luggage.
  - 5 8. A system according to any of claims 1 to 3 wherein the tag is located in a secure windowed cavity built into the piece of luggage.
  9. A system according to any preceding claim wherein the machine-readable form of the unique symbol carried by the tag comprises a bar code.
  - 10 10. A system according to any preceding claim wherein the machine-readable form of the unique symbol carried by the tag comprises a microchip.
  11. A system according to claim 10 wherein the microchip comprises a radio  
15 frequency identification (RFID) chip.
  12. A system according to any preceding claim wherein the unique symbol contains at least some alphanumeric characters derived algorithmically.
  - 20 13. A system according to any preceding claim wherein the contact information for said agency, as carried by the tag, contains the contact details appropriate to more than one communications route.
  14. A system according to claim 13 wherein details are presented to permit  
25 contact to be established with the agency by way of telephone, e-mail and the Internet (World Wide Web).
  15. A system according to claim 13 or claim 14 wherein one of said  
communications routes comprises a central telex communication address used by  
30 the airlines.

16. A system according to any preceding claim wherein said human-readable information includes a portion which instructs a finder of the piece of luggage as to the steps to be taken when contacting the central agency.

5 17. A system according to any preceding claim wherein the central agency records the unique symbol in association with the piece of luggage to which it is affixed, its owner and various contact details for the owner.

10 18. A system according to claim 17 wherein the owner supplies appropriate data to the agency by way of a registration procedure which can be updated as necessary from time to time to reflect changes in the owner's circumstances.

19. A system according to claim 18 wherein the owner supplies the agency with itineraries for individual trips.

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20. A system according to any preceding claim wherein the tags are presented in conspicuous colours and/or forms that are readily noticeable, to reduce the risk that they will be overlooked against certain backgrounds.

20 21. A system according to any preceding claim wherein the tags are temporarily obscurable by means of shields or covers intended to be removed only when it is checked in at an airport, or otherwise consigned to the care of a carrier.

25 22. A system according to claim 21 wherein the shield or cover carries the central agency's company name and/or logo.

30 23. A system according to any preceding claim wherein the unique symbol incorporates at least one identifier descriptive in some way of the piece of luggage, such as the identity of its manufacturer and/or certain visual characteristics of the piece of luggage.

24. A luggage tracking system substantially as herein described and/or as shown in the accompanying drawings.

25. A retrieval process for assisting travellers to reclaim lost luggage, comprising  
5 a luggage tracking system according to any preceding claim, wherein the central  
recordal agency maintains a database associating the identification symbols unique  
to individual items of luggage bearing tags of the said system with the owners  
thereof; and wherein the central recordal agency responds to contact from a finder of  
an item of luggage by utilising said database to identify the owner of the found item  
10 of luggage and alerting the owner to the whereabouts of the said item of luggage.

26. A process according to claim 25 wherein the central recordal agency assists  
the owner to retrieve the item of luggage.



INVESTOR IN PEOPLE

Application No: GB 0214055.6  
Claims searched: 1-26

Examiner: Stephen Smith  
Date of search: 13 November 2002

### Patents Act 1977 Search Report under Section 17

#### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:  
UK CI (Ed.T): B8F(FBG, FBX)  
Int CI (Ed.7): A45C 13/42; G09F 3/02  
Other: ONLINE: EPODOC, PAJ, WPI

#### Documents considered to be relevant:

| Category | Identity of document and relevant passage                                   | Relevant to claims                |
|----------|-----------------------------------------------------------------------------|-----------------------------------|
| X        | GB 2365151 A (TRUELOVE) page 1                                              | 1, 2, 17, 18, 25                  |
| X        | US 6259367 B1 (KLEIN) line 60 of column 1 to line 19 of column 2            | 1, 2, 10, 11, 17, 18, 25, 26      |
| X        | <u>STUFFBAK.COM@http://www.stuffbak.com</u> (2000)                          | 1, 2, 13, 14, 17, 18, 25 at least |
| X        | <u>YELLOWTAG.COM@http://www.yellowtag.com</u> incorporated 22 November 1999 | 1, 2, 17, 18, 20, 25 at least     |

|   |                                                                                                           |   |                                                                                                                  |
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