

A DOCUMENT STORAGE AND MANAGEMENT SYSTEM

FIELD OF INVENTION

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The present invention relates to a document storage and management system. More particularly, the present invention provides a storage and management system for documents, records, archives, files or folders in a warehouse using shipping containers, as well as an application of new or used shipping containers in a document storage and management warehouse.

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BACKGROUND OF THE INVENTION

15 A document storage and management warehouse can involve various types of systems and compartments. Conventionally, the document storage and management system configured in a warehouse merely contains a racking system and a file or folder labelling system. As the documents stored are large in number, difficulties may be encountered during the retrieval, rearrangement or restore of documents at the racks or shelves, which include the mixing up or loss of documents. Therefore, the racking system and the labelling system in a document storage warehouse must be well-organized, systematic and sufficiently efficient in order to overcome these drawbacks.

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Considering the inefficient configuration of the document management system in the storage warehouse of the existing technologies, an innovative racking system such as a specific storage unit to be assembled in the warehouse may be desirable in order to provide a more efficient and systematic document storage and management system.

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Shipping container is a container which is built into predetermined dimensions and strength suitable for withstanding shipment, storage and handling of products of a

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wide variety. The shipping containers, especially intermodal freight containers, are reusable transport and storage unit commonly used for the transportation of commercial goods. Generally, these shipping containers are made of steel and iron, they may be worn out, impaired or rusted over time, and eventually not suitable to be further used for shipping or transportation of goods. However, these used shipping containers can still be reused as stationary storage unit as they are spacious, having ventilation systems and high in tensile strength. Therefore, these shipping containers may be a good candidate to be reused and applied for storing files, folders, documents, records or archives.

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A racking system is vital to be assembled in a storage unit for efficient storage and management of the stored items. A modular rack system in a container, which includes framing elements and locking components, is disclosed in U.S. Patent No. US2008006596. It also includes modular array and rotatable member that engaged with the framing elements and locking components. This racking system is assembled in the shipping container in order for maximizing storage capacity within the container. The racking system introduced is made complicated as it is designed for shipping of various types of goods but not for stationary storage of documents.

20 Another complicated racking system assembled in shipping container is disclosed in U.S. Patent No. US2009198388. This racking system is assembled to obtain an operation ready transportable data centre in the shipping container, in which a data link, power supply link and cooling system are required. A computer system is also installed on a rack that is secured to the container with a shock absorbing mechanism.

25 There is no technical guidance provided by this technology for any innovative storage and management of documents using the shipping container.

U.S. Patent No. US6352157 discloses a shipping container which is reusable as a hanging file folder container. The container includes a base panel, a few side panels and spacers. However, the shipping container disclosed is a container used for

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packaging and to be transported, but not the freight container which is usually known as shipping container.

As revealed by the prior art, none of the patented technologies has disclosed a reliable
5 system for storing documents which is capable of maintaining their privacy and confidentiality by applying a simple and innovative individual storage unit for different sets of documents of different clients. There is also no existing technology disclosing a document storage and management system which applies shipping
10 containers as storage units, and assembled in a warehouse. Moreover, as the used or abandoned shipping containers are abundantly available in the industry and can be recycled and reused after minor repair or modification, it may be a good candidate to be applied in the present invention to provide a document storage and management system to overcome the drawbacks of the prior art.

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SUMMARY OF INVENTION

The primary object of the present invention is to provide an innovative and environmentally friendly document storage and management system assembled in a
20 warehouse which applies recycled shipping containers as storage unit.

Another object of the present invention is to provide a document storage and management system in a warehouse which is well-organized and systematic, thus easing the retrieving, rearranging and restoring of files and folders.

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Still another object of the present invention is to provide a document storage and management system which is capable of preventing the mistakes of mixing up files or folders of different clients as well as the loss of documents, thus able to maintain the privacy and confidentiality of the documents or archives stored therein.

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Yet another object of the present invention is to provide a pleasant environment for document storage and management which involves an effective pest control, clean and less-dusty, and able to keep the stored documents in good condition for a satisfactory period of time.

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Further object of the present invention is to provide a system for recycling and reusing the used shipping containers, thus providing another avenue for the commercialization of used or abandoned shipping containers.

10 At least one of the preceding objects is met, in whole or in part, by the present invention, in which one of the embodiments of the present invention describes a document storage and management system (100) installed in a warehouse (101), comprising a plurality of individual storage units (102) made of shipping containers, arranged in one or more stacks within the warehouse (101) in an order defined by a
15 labelling system, wherein the stacks of individual storage units (102) are spaced apart from each other by a transfer passage (111); and one or more storage racks (103) disposed within each of the individual storage units (102) for accomodating the stored items.

20 In accordance to one of the preferred embodiments of the present invention, the shipping containers applied are reused and recycled freight containers.

According to another preferred embodiment of the present invention, the storage racks (103) are customizably spaced apart from each other by at least an aisle (107) within
25 each of the individual storage units (102).

Still another preferred embodiment of the present invention discloses that the labelling system includes labelling on the individual storage units (102), the storage racks (111), storage box (108), individual folders and files. Preferably, the labelling
30 system is radio frequency identification (RFID)-, quick response (QR) code- or

barcode-enabled.

Yet another preferred embodiment of the present invention discloses that the stored items can be of documents, records, archives, folders or files.

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Further embodiment of the present invention describes a document storage and management system (100) which further comprises a crane (106) for lifting and shifting the individual storage units (102).

10 Another further embodiment of the present invention is a document storage and management system (100) which further comprises a warehouse lift allocated along the transfer passage (111) for retrieving, rearranging and restoring the stored items. Preferably, the warehouse lift is a scissor lift (105), a forklift (104) or a skylift.

15 Still another further embodiment of the present invention discloses a document storage and management system (100) which further comprises a locking means (112) located externally on each of the individual storage units (102).

Yet another further embodiment of the present invention discloses a document storage
20 and management system (100) which further comprises a ventilating means within the warehouse (101).

One skilled in the art will readily appreciate that the present invention is well adapted to carry out the objects and obtain the ends and advantages mentioned, as well as
25 those inherent therein. The embodiments described herein are not intended as limitations on the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

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For the purpose of facilitating an understanding of the invention, there is illustrated in the accompanying drawing the preferred embodiments from an inspection of which when considered in connection with the following description, the invention, its construction and operation and many of its advantages would be readily understood and appreciated.

Figure 1 is a cross sectional view of the document storage and management system (100) installed in a warehouse (101) as described in one of the preferred embodiments of the present invention, showing part of the systematic arrangement of the stacks of individual storage units (102) located therein, and customized arrangement of the storage racks (103) within each of the individual storage units (102).

Figure 2 is a plan view of the document storage and management system (100) in a warehouse (101) as described in one of the preferred embodiments of the present invention, showing one of the systematic arrangement designs of the stacks of individual storage units (102) located therein and the transfer passage (107) between the stacks of individual storage units (102).

Figure 3 is cross sectional view of one of the individual storage units (102) as described in one of the preferred embodiments of the present invention, showing a customized arrangement of storage racks (103) with an aisle (107).

Figure 4 is the external perspective view of one of the individual storage units (102) as described in one of the preferred embodiments of the present invention, showing the locking means (112) and the labelling system thereon.

DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to a document storage and management system. More particularly, the present invention provides a storage and management system for documents, records, archives, files or folders in a warehouse using shipping containers, as well as an application of new or used shipping containers in a document storage and management warehouse.

Hereinafter, the invention shall be described according to the preferred embodiments of the present invention and by referring to the accompanying description and drawings. However, it is to be understood that limiting the description to the preferred embodiments of the invention and to the drawings is merely to facilitate discussion of the present invention and it is envisioned that those skilled in the art may devise various modifications without departing from the scope of the appended claim.

The present invention discloses a document storage and management system (100) installed in a warehouse (101), comprising a plurality of individual storage units (102) made of shipping containers, arranged in one or more stacks within the warehouse (101) in an order defined by a labelling system, wherein the stacks of individual storage units (102) are spaced apart from each other by a transfer passage (111); and one or more storage racks (103) disposed within each of the individual storage units (102) for accomodating the stored items.

The present invention provides a well-organized, systematic and unique document storage and management system (100) which is installed in a warehouse (101) by incorporating the use of a plurality of individual storage units (102) in the storage warehouse (101), unlike the existing technologies where merely having the racking system and labelling system installed in a storage warehouse. According to the preferred embodiment of the present invention, the individual storage units (102) are

made of the freight containers, which is generally known as shipping containers.

In accordance with the more preferred embodiment, the shipping containers applied in the present invention are reused and recycled freight containers, which have been worn out, impaired or rusted over time. These condemned or abandoned shipping containers can undergo minor repair or modification, then repainted and reused as the individual storage units (102) in the document storage warehouse (101) of the present invention. Preferably, the shipping containers applied are those of 20-feet and 40-feet, which are commonly known as standard containers and easily available in the ocean freight industry. The 20-feet and 40-feet containers applied, respectively, have a length of 20 feet (approximately 6.058m) and 40 feet (approximately 12.192m). They share a common height of 8.5 feet, which is approximately 2.591m; and a width of 8 feet, which is approximately 2.438m. Therefore, these containers can be orderly arranged in the storage warehouse (101) as individual storage units (102).

The storage warehouse (101) of the present invention can be constructed into a predetermined dimension which is capable of accommodating a plurality of stacks of the individual storage units (102). As set forth in the preceding description, the stacks of individual storage units (102) can be arranged systematically in the warehouse in an order defined by a labelling system. Illustrated in Figure 1 is the document storage and management system (100) of the present invention which shows the systematic arrangement of the stacks of individual storage units (102) in the storage warehouse (101).

The design of the document storage and management system (100) of the present invention is especially suitable for a warehouse owner who leases out the storage spaces for a wide variety of clients. Through the utilization of these individual storage units (102) made by the shipping containers, the document storage and management system (100) of the present invention is capable of providing separated and personalized storage units for different clients. In other words, each of the individual

storage units (102) can be client-specific and only assigned to store the documents of one single company or organisation, which greatly enhances the efficiency of document management and maintains the privacy and confidentiality of the documents from different sources.

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According to the preferred embodiment of the present invention, the client-specific individual storage units (102) can possess customized racking designs according to different demands of different clients who rent the individual storage units (102). The designs of this racking system can also be decided by the warehouse owner depending
10 on the amount of the documents to be stored therein in order to provide a system which can maximize the storage capacity within the shipping container and facilitate the management of documents stored therein. The customized arrangement of the storage racks (103) within each of the individual storage units (102), which can possess different configurations of storage racks (103), is shown in Figure 1.

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On the other hand, some clients may have a smaller amount of items to be stored, thus the storage space in a single individual storage units (102) may be too large for them. Under such circumstances, the client may select another alternative of the document storage and management system, which is to rent only a part of the storage space in
20 the individual storage unit (102), which is also known as shared container or part container. The designs of the storage racks (103) and aisle (107) in the shared container or part container can also be customized to suit the sharing system.

Figure 1 also shows a crane (106) which is located at the top of the warehouse (101)
25 over the stacks of individual storage units (102) for lifting and shifting the individual storage units (102), and then arrange them in place according to the labelling system of the present invention. For the purpose of transferring and shifting the stored items, transfer passage (111) can also be formed in between the stacks of the individual storage units (102), as shown in Figure 1 and Figure 2.

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Figure 2 is a plan view of the warehouse (101) showing one of the systematic arrangement designs of the rows and columns of individual storage units (102) in stacks, and the transfer passage (111) formed between the rows and columns of the individual storage units (102). It is to be noted that, the number of stacks, as well as
5 the height of the stacks, of the individual storage units (102) in each of the rows and columns can be varied according to the desired labelling system as well as the dimensions and capacity of the warehouse (101).

In accordance with another preferred embodiment of the present invention, the
10 document storage and management system (100) further comprises a warehouse lift allocated along the transfer passage (111) for loading and unloading the stored items during the retrieval, rearrange and restore thereof, as illustrated in Figure 1 and Figure 2. Preferably, the warehouse lift is a scissor lift (105), a forklift (104) or a skylift. A scissor lift (105) is preferably used for retrieving, rearranging and restoring the stored
15 items from the individual storage units (102) located at a higher level; whereas the forklift (104) is preferably used for retrieving, rearranging, restoring and transferring the stored items from the individual storage units (102) located at a lower level.

As shown in Figure 2, a management unit (113) can be provided in the warehouse
20 (101) to perform the document management operations as well as the worker management tasks in the warehouse (101). Preferably, a computer program having the document storage and management database can also be installed in the management unit (113).

25 As set forth in the preceding description, the document storage and racking system in each of the individual storage units (102) can be customized according to client's needs. According to the preferred embodiment of the present invention, one or more storage racks (103) can be disposed within each of the individual storage units (102) for accomodating the stored items; and the storage racks (103) can be customizably
30 spaced apart from each other by at least an aisle (107). Figure 3 shows one of the

individual storage units (102) as described in one of the preferred embodiments of the present invention, having the customized arrangement of storage racks (103) with an aisle (107). As shown in Figure 3, the storage racks (103) can be removably fixed or secured onto the base (109) of the floor of the shipping containers. These storage
5 racks (103) can be made of steel plates, plywoods, or any other suitable steel, iron, aluminium or wooden materials having appropriate tensile strength. Preferably, varied layers of shelves can also be provided on different storage racks (103).

Storage box (108) is preferably applied for the accomodation of stored items in the
10 present system (100) as the storage box (108) can be systematically arranged on the storage racks (103) and can be conveniently shifted. In accordance with yet another preferred embodiment of the present invention, the stored items can be documents, records, archives, folders or files. It can also be used for storing stationery or miscellaneous items, depending on different clients' needs.

15 Besides the racking system in the individual storage units (102), the labelling system of the present invention also plays a significant role in the efficiency of the present document storage and management system (100). According to still another preferred embodiment of the present invention, the labelling system can include labelling on the
20 individual storage units (102), storage racks (111), storage box (108), individual folders and files. Labelling on the individual storage units (102) is known as container-labelling (110c), labelling on the storage racks (111) is known as rack-labelling (110b); whereas labelling on the storage box (108) is known as box-labelling (110a). The labelling system is shown in both Figure 3 and Figure 4.

25 As demonstrated in Figure 4, both alphabetical and numerical characters can be utilized in the labelling system. Whilst, the details of the clients for each of the individual storage units (102) or the contents of each individual file, folder or storage box (108) will not be disclosed on the container-labelling (110c) nor rack-labelling
30 (110b), in order to maintain the privacy and confidentiality of the documents as well

as the companies or institutions which rent the individual storage units (102) in the warehouse (101).

According to the preferred embodiment, the labelling system of the present invention, especially the rack-labelling (110b) and the box-labelling (110a), can be barcode-enabled. The barcode can be a location code corresponds to location of the storage box, a file code corresponds to the exact file or the combination thereof. The location code is preferably used as it eases the retrieval, arrangement and restore of the stored items. On the other hand, file code is applied to facilitate the management of files and client accounts in the document storage and management database of the present system (100). Besides barcode, RFID or QR code can also be applied as the labelling system of the present invention. It is to be noted that, the present invention does not intend to limit the type of labelling system or coding system applied, provided that the system effectively facilitates the document management process.

In order to enhance the security of the system (100), the document storage and management system (100) of the present invention further comprises a locking means (112) located externally on each of the individual storage units (102), according to another further embodiment of the present invention. Figure 4 illustrates an external view of one of the individual storage units (102) as described in the preferred embodiment of the present invention. Besides the container-labelling (110c), Figure 4 also shows the location of the locking means (112) on the front door of the shipping container. Preferably, the locking means (112) can be a key-actuated lock or a combination lock.

Yet another further embodiment of the present invention discloses a document storage and management system (100) which further comprises a ventilating means within the warehouse (101), in addition to the existing ventilating means which originally presents in each of the shipping containers. Therefore, the stored items can be kept dry. As the documents stored in the system (100) of the present invention are

generally archives of old documents which are seldom used but required to be kept as reference, the system (100) of the present invention shall be able to provide a clean and less-dusty environment to the stored items. Fumigation can also be done periodically to give an effective pest control within the shipping containers and the
5 warehouse, thus the stored documents can be kept in good condition for a satisfactory period of time.

Apart from that, a common lighting means can also be equipped within the storage warehouse (101). Closed-circuit television (CCTV) and alarm system which are
10 commonly used in a storage warehouse can also be installed within the warehouse (101) of the present invention to further enhance the security of the stored items. Preferably, a plurality of gates or doors are constructed in the warehouse (101) to facilitate the loading and unloading of storage box (108), as well as the individual storage units (102).

15 The present disclosure includes as contained in the appended claims, as well as that of the foregoing description. Although this invention has been described in its preferred form with a degree of particularity, it is understood that the present disclosure of the preferred form has been made only by way of example and that numerous changes in
20 the details of construction and the combination and arrangements of parts may be resorted to without departing from the scope of the invention.

CLAIMS

1. A document storage and management system (100) installed in a warehouse (101), comprising:
 - 5 a plurality of individual storage units (102) made of shipping containers, arranged in one or more stacks within the warehouse (101) in an order defined by a labelling system, wherein the stacks of individual storage units (102) are spaced apart from each other by a transfer passage (111); and
 - 10 one or more storage racks (103) disposed within each of the individual storage units (102) for accomodating the stored items.
2. A system (100) according to claim 1, wherein the shipping containers are reused and recycled freight containers.
- 15 3. A system (100) according to claim 1, wherein the storage racks (103) are customizably spaced apart from each other by at least an aisle (107) within each of the individual storage units (102).
- 20 4. A system (100) according to claim 1, wherein the labelling system includes labelling on the individual storage units (102), the storage racks (111), storage box (108), individual folders and files.
- 25 5. A system (100) according to claim 1, wherein the labelling system radio frequency identification (RFID)-, quick response (QR) code- or barcode-enabled.
6. A system (100) according to claim 1, wherein the stored items are documents, records, archives, folders or files.
- 30 7. A system (100) according to claim 1 further comprising a crane (106) for

lifting and shifting the individual storage units (102).

5 8. A system (100) according to claim 1 further comprising a warehouse lift allocated along the transfer passage (111) for retrieving, rearranging and restoring the stored items.

9. A system (100) according to claim 8, wherein the warehouse lift is a scissor lift (105), a forklift (104) or a skylift.

10 10. A system (100) according to claim 1 further comprising a locking means (112) located externally on each of the individual storage units (102).

11. A system (100) according to claim 1 further comprising a ventilating means within the warehouse (101).