

PORTABLE BAGGAGE WRAPPER

FIELD OF INVENTION

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The invention relates generally to the protection of baggage. More specifically, the invention concerns a portable baggage wrapper which is easily used for wrapping the baggage with protection film.

10 BACKGROUND OF THE INVENTION

In recent years, the demand and requests for baggage protection have increased steadily in particularly in the air travel industry. The baggages are checked in and transported to the cabin before consumers board the aircraft. It is a common problem encountered by
15 consumers travelling by flight to experience receiving damaged baggage at the baggage handling counter at the airport.

In view of this growing demand, many airports have begun providing baggage protection facilities for consumers to make use of. Most, if not all of such facilities comprise a
20 big mechanical machine stationed in airports in which thin sheet films are dispensed to wrap the baggage to protect the surface of the baggage.

United States patent no. 5,365,723 discloses a baggage protection device wherein the device consists of a base carriage onto which is mounted a turntable with a securing device.
25 Also mounted on the base carriage is a roll of stretch-wrap plastic film, along with feeder posts and a vertical frame. As the plastic film is drawn from the roll, it passes around an idler roller and around a tensioning roller, the tensioning roller and idler roller being in contact with one another. The stretch-wrap plastic film then is placed on the baggage to be wrapped, tension being provided by the tensioning roller and idler roller combination, For controlling the overall
30 operation of the unit, a programmable controller may be provided. A piece of baggage is protected by securing it on the turntable and feeding one end of the plastic film between the feeder posts, or around the idler roller and tensioning roller, and attaching the film to the baggage. The turntable is then rotated and the baggage wrapped in stretch-wrap plastic film.

The film is then divisioned and the free end of the plastic film is secured to the wrapped piece of baggage to complete the process.

5 United States patent no. 5,890,345 discloses a method of improving security of a luggage wrapping system. Firstly, apply at least one band around a piece of luggage. Secondly, apply a polymer plastic wrap to the luggage. The luggage wrapping system includes an entry conveyor, an automated banding or strapping machine with built in conveyor, an automated wrapping machine with built in conveyor, a heat shrinking tunnel with built in conveyor, and an exit conveyor.

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The baggage protection devices as disclosed in United States patent no. 5,365,723 and United States patent no. 5,890,345 relate to a bulky and heavy machinery involving a base carriage and a conveyor system, respectively. The devices are not easily movable or mobile. The method as disclosed in United States patent no. 5,890,345, requires the luggage
15 wrapping system with a conveyor to be stationary. The bulky machinery is likely to be expensive due to its extensive mechanism. Therefore, in view of the heavy and bulky nature, such devices are generally limited to being in used in airports.

20 There is thus a need to explore the possibility of providing a portable and mobile alternative to providing protection for baggage. There is also an unfulfilled need for a simpler and cheaper alternative to the protection method or devices that are currently present in the market. The present invention was developed in consideration of these needs.

SUMMARY OF THE INVENTION

In a first aspect, the invention provides a portable baggage wrapper comprising:
a housing having an opening;
5 means for removably mounting a roll of wrapping film within the housing;
means for removably mounting a roll of branding film within the housing; and
a guide shaft mounted within the housing for guiding the dispensation of the wrapping
and branding films;
wherein, the mounting means are arranged to position the rolls of wrapping and
10 branding films for allowing the branding film to attach to the wrapping film when the wrapping
film is unwound and dispensed to the opening of the housing for wrapping the baggage.

In another aspect, the invention provides a portable baggage wrapper comprising:
a housing having an opening;
15 a roll of wrapping film disposed within the housing;
a roll of branding film disposed within the housing; and
a guide shaft mounted within the housing for guiding the dispensation of the wrapping
and branding films;
wherein, the rolls of wrapping and branding films are arranged and positioned within
20 the housing for allowing the branding film to attach to the wrapping film when the wrapping film
is unwound and dispensed to the opening of the housing for wrapping the baggage.

The present invention seeks to provide a portable baggage wrapper which offers
mobility and efficient mechanism to protect the surface and integrity of the baggage. The
25 overall size of the baggage wrapper provides an advantage in which the baggage wrapper is
easily movable and transported thus providing convenience to the user. In view of its mobility,
the portable baggage wrapper can be used in locations other than airports, such as in the
hotel lobbies. The present invention provides another feature which allows a brand to be
marketed and promoted through the branding film. For example, the branding film which is
30 attached to the baggage provides a marketing avenue for the name of the hotel which
provides the baggage wrapper facility, to be promoted to consumers.

The baggage wrapper provides a housing which allows a roll of wrapping and a roll of
branding film to be mounted in the inner compartment of the housing. The compartments

inside the housing are configured with clearance to receive the rolls of films. The rolls of film are easily insertable and removable from the housing when the films are in need of replacement with new rolls of film. A guide shaft is mounted within the housing for guiding the dispensation of the wrapping and branding films. The rolls of wrapping and branding films are arranged and positioned within the housing for allowing the branding film to attach to the wrapping film when the wrapping film is unwound and dispensed to the opening of the housing for wrapping the baggage.

The roll of wrapping film is inserted on a roller body which is mounted for rotation within the housing. The roll of branding film is mounted on a spindle means on a mounting frame. The roller body, the mounting frame and the guide shaft are mounted parallel with respect to each other within the housing. The wrapping film is unwound from the roller body in which the branding film is attached to the wrapping film to be dispensed together from the housing. The dispensation of the films is guided by the guide shaft to the opening of the housing to wrap the baggage.

The wrapping film has an adhesive layer portion formed on one side of its body. The branding film is a non-adhesive film. The branding film is of narrower width than the wrapping film. This serves to prevent the branding film from fully occupying the surface of the adhesive portion of the wrapping film which is used to attach to the surface of the baggage.

In another embodiment, the wrapping film is generally transparent and is made of polyethylene based materials such as high-density polyethylene (HDPE), linear low-density polyethylene (LLDPE) and low-density polyethylene (LDPE). The elastically deformable characteristic of the polyethylene based material allows flexibility for the protection film to be deformed according to the surface of the object to be protected. Polyethylene has excellent chemical resistance which prevents the protection film from being corroded or damaged by any acidic or alkaline source.

In another embodiment, a retractable cutting device is fixedly mounted on the housing for cutting excess films.

In another embodiment, a layer of fabric hook and loop fastener may be provided along the longitudinal length of the edge of the opening of the housing to prevent the adhesive

portion of the wrapping film from attaching to the opening during the wrapping process. This is desirable to ensure a smooth dispensation of the films to wrap the baggage.

5 In another embodiment, a turntable is mounted on the housing for supporting and rotating the baggage to be wrapped. The turntable may be stowable when it is not in use. The turntable may comprise folding arm which has one end thereof pivotably attached to the housing such that the folding arm can be swung between a locked position and an unlocked position. This is desirable to ensure baggage which does not have additional wheels can be easily wrapped by rotating the baggage using the turntable.

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In another embodiment, a rubber mat is placed on top of the rotatable platform to increase the grip of the baggage when the baggage is rotated during the wrapping process.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more clearly understood from the following description of the embodiment thereof, when taken in conjunction with the accompanying drawings. However, the embodiment and the drawings are given only for the purpose of illustration and explanation, and are not to be taken as limiting the scope of the present invention, the scope of which is to be determined by the appended claims.

In the accompanying drawings, like reference numerals are used to denote like parts throughout the several views.

Figure 1 is a perspective view of a portable baggage wrapper of a first embodiment;

Figure 2 is a right side view of the portable baggage wrapper of Figure 1;

Figure 3 is a top sectional view A-A of the portable baggage wrapper of Figure 1;

Figure 4 is a perspective view of the portable baggage wrapper of Figure 1 in use to wrap a baggage with wheels;

Figure 5 is a perspective view of a portable baggage wrapper of a second embodiment with a portable turntable; and

Figure 6 is a perspective view of Figure 5 in use to wrap a baggage with no wheels.

DETAILED DESCRIPTION OF THE EMBODIMENTS

Figure 1 illustrates in perspective view, the first embodiment of a portable baggage wrapper 10 which has a housing 1, a roll of wrapping film 2, a roller body 3, a roll of branding film 4, a guide shaft 5, a mounting frame 6 and a cutting device 7. The housing is mounted on a wheeled mobile chassis, enabling the machine to be easily moved to and from its place of use.

The housing 1 serves as an enclosure in which all the components of the film-dispensing mechanism are mounted or supported. In this embodiment, the housing 1 has a rectangular body which is made of iron or steel. The housing 1 has a width of 0.38 m, a length of 0.28 m and a height of 0.86 m. The housing 1 has an opening 8 in the form of a vertical elongated slot. A layer of fabric hook and loop fastener 8a is suitably used to prevent the wrapping film 2 from attaching to the housing 1 when it is dispensed from the opening 8. The layer of fabric hook and loop fastener 8a extends longitudinally along an edge of the opening 8. A suitable fabric hook and loop fastener is that sold under the trademark Velcro™.

A roll of wrapping film 2 is mounted on a roller body 3. The wrapping film 2 is made of high-density polyethylene (HDPE) and has a range of thickness of 9 µm to 70 µm. The wrapping film 2 has a width of 0.78 m. The wrapping film 2 has an adhesive layer portion formed on one side of its body. The roller body 3 has a cylindrical body with a diameter of 0.095 m and a length of 0.079 m. The roller body 3 has first and second ends 3a, 3b removably mounted for rotation within the housing 1. The first and second ends 3a, 3b engage the compartments within the housing 1 to mount the roller body 3 within the housing 1.

A roll of branding film 4 is removably mounted on a mounting frame 6. The branding film 4 is a non-adhesive film which is of narrower width than the wrapping film 2. The branding film 4 has a width of 0.059 m. The mounting frame 6 which has first and second spindles 6a, 6b and a lock 6c is mounted within the housing 1. The first and second spindles 6a, 6b are positioned in parallel with the roller body 3. The roll of branding film 4 is removably mounted on the first spindle 6a to position the branding film 4 in parallel with the wrapping film 2. An optional additional roll of branding film 4 may be removably mounted on the second spindle 6b. The mounting frame 6 is movable between a first unlocked position L1 and a second locked position L2 guided by the lock 6c. At the first unlocked position L1, the lock 6c is

released to allow the branding film 4 to be removed from the mounting frame 6. At the second locked position L2, the mounting frame 6 is locked by the lock 6c allowing the branding film 4 to be in used with the roll of wrapping film 2 for wrapping a baggage.

5 A guide shaft 5 is fixedly mounted within the housing 1 for guiding the dispensation of the wrapping and branding films 2, 4 to the opening 8 of the housing 1. The guide shaft 5 has a cylindrical body with a diameter of 0.065 m and a length of 0.82 m. The guide shaft 5 is positioned in parallel with the roller body 3 within the housing 1.

10 The wrapping film 2 is firstly unwound from the roller body 3. The branding film 4 is simultaneously unwound along the spindles 6a, 6b to attach to the adhesive portion of the wrapping film 2. The guide shaft 5 guides the dispensation of the wrapping and branding films 2, 4 to the opening 8 of the housing 1 for wrapping the baggage.

15 The portable baggage wrapper 1 of the first embodiment is suitably used with baggage which has wheels which can be easily rotated for the wrapping process to be completed.

 The retractable cutting device 7 is fixedly mounted on the outer body of the housing 1. The cutting device 7 comprises of a cutter 7a, a spring device 7b and a supporting rod 7c. The
20 cutter 7a is used to cut excess films 2, 4. The cutter 7a is movable along the supporting rod 7c positioned along the longitudinal length of the housing 1. The cutter 7a is connected to a spring device 7b which allows the cutter 7a to be automatically retracted and biased to a position at the top of the body of the housing 1 when the cutting device 7 is not in use.

25 Figure 2 illustrates a right side view of the portable baggage wrapper 1 of Figure 1. The cutting device 7 is mounted on the outer body of the housing 1 as illustrated in Figure 2.

Figure 3 illustrates a top sectional view A-A of the portable baggage wrapper 1 of Figure 1. The roll of wrapping film 2 wound on the roller body 3, the branding film 4 mounted on the mounting frame 6 and the guide shaft 5 are arranged within the housing 1 in the positions as illustrated in Figure 3 for allowing the films 2, 4 to be dispensed to the opening 8 of the housing 1. The mounting frame 6 is moved to its second locked position L2 for allowing the branding film 4 to be sufficiently close to the roll of wrapping film 2. When the wrapping film 2 is unwound from the roller body 3, the close proximity of the branding film 4 allows the branding film to be attached to the adhesive portion of the wrapping film 2. The guide shaft 5 guides the films 2, 4 to the opening 8 for wrapping the baggage. Any excess films 2, 4 unused are cut using the cutting device 7.

Figure 4 illustrates in perspective view of the portable baggage wrapper 1 of Figure 1 in use to wrap a baggage with wheels. The wrapping film 2 is first unwound from the roller body 3. The mounting frame 6 is moved to its second locked position L2 for allowing the branding film 4 to be attached to the adhesive portion of the wrapping film 2. The guide shaft 5 guides the films 2, 4 to the opening 8. The films 2, 4 are wrapped around the baggage by having the adhesive portion of the wrapping film 2 attached to the surface of the baggage. The films 2, 4 are continuously wrapped around the baggage by rotating the baggage in clockwise position, repeatedly until all the surfaces of the baggage are covered with the films 2, 4. The excess films 2, 4 are cut off from the baggage by the cutting device 7.

Figure 5 illustrates in perspective view of a second embodiment of a portable baggage wrapper 100. The features are the same as for the first embodiment, except as described hereafter. The portable baggage wrapper 100 has a housing 1, a roll of wrapping film 2, a roller body 3, a roll of branding film 4, a guide shaft 5, a mounting frame 6, a cutting device 7 and a portable turntable 9. The portable turntable 9 is mounted on the outer body of the housing 1. The portable turntable 9 has a platform 9a, a support arm 9b and a lock 9c. The platform 9a is a circular shaped disc with a diameter of 0.27 m which is mechanically rotatable in relation to a base plate 9d. The support arm 9b with a length of 0.73 m which is adjacent to the housing 1 is movable between a first locked position Ra and a second unlocked position Rb. At the first locked position Ra, the turntable 9 is stowable and locked by a lock 9c to the outer body of the housing 1. When in use, the turntable 9 is unlocked from the housing 1 for allowing the support arm 9b to be unfolded till the platform 9a is positioned and laid horizontally on the ground. The baggage is placed on top of the platform 9a and rotated

clockwise about the base plate 9d to allow the films 2, 4 to be wrapped on the surface of the baggage. Once the wrapping process is completed, the excess films 2, 4 are cut off from the baggage by the cutting device 7. Then, the turntable 9 is stowed by moving the support arm 9b to the first locked position Ra and keeping the turntable 9 locked at position Ra with the lock 9c.

The portable baggage wrapper 100 of the second embodiment is suitably used with baggage which has no wheels. The rotatable turntable 9 allows the baggage with no wheels to be rotated to complete the wrapping process.

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Figure 6 illustrates in perspective view of the portable baggage wrapper 10 of Figure 5 in use to wrap a baggage with no wheels. The turntable 9 at the first locked position Ra is unlocked and moved to the second unlocked position Rb. The turntable 9 is unlocked from the housing 1 for allowing the support arm 9b to be unfolded till the platform 9a is positioned and laid horizontally on the ground. The baggage is placed on top of the platform 9a of the turntable 9. The wrapping and branding films 2, 4 are dispensed from the opening 8 of the housing 1 to wrap the baggage positioned on the platform 9a. The films 2, 4 are continuously wrapped around the baggage by rotating the baggage positioned on the platform 9a in clockwise position, repeatedly until all the surfaces of the baggage are covered with the films 2, 4. Once the wrapping process is completed, the excess films 2, 4 are cut off from the baggage by the cutting device 7. Then, the turntable 9 is stowed by moving the support arm 9b to the first locked position Ra and keeping the turntable 9 locked at position Ra with the lock 9c.

25 A layer of rubber mat may be formed on top of the platform 9a to increase the grip of the baggage when the wrapping process is conducted by rotating the baggage to be wrapped by the films, 2, 4.

The invention may also be embodied in many ways other than those specifically described herein, without departing from the scope thereof.

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CLAIMS

1. A portable baggage wrapper (10) comprising:
 a housing (1) having an opening (8);
 5 a layer of fabric hook and loop fastener (8a) extending longitudinally along an edge
 of the opening of the housing;
 means for removably mounting a roll of wrapping film (2) within the housing;
 means for removably mounting a roll of branding film (4) within the housing; and
 a guide shaft (5) mounted within the housing for guiding the dispensation of the
 10 wrapping and branding films;
 wherein, the mounting means are arranged to position the rolls of wrapping and
 branding films for allowing the branding film to attach to the wrapping film when the
 wrapping film is unwound and dispensed to the opening of the housing for wrapping the
 baggage.

15 2. A portable baggage wrapper (10) according to Claim 1, wherein the branding
 film (4) is of narrower width than the wrapping film (2).

3. A portable baggage wrapper (10) according to Claim 1 or Claim 2, wherein said
 20 means for removably mounting the roll of wrapping film comprise a roller body (3) having
 first and second ends (3a, 3b) removably mounted for rotation within the housing (1).

4. A portable baggage wrapper (10) according to any of Claims 1 to 3, wherein
 said means for removably mounting the roll of branding film (4) comprise a mounting
 25 frame (6) with a spindle means (6a) for mounting the roll of branding film.

5. A portable baggage wrapper (10) according to Claim 4, further comprising a
 second spindle means (6b) for mounting a second roll of branding film (4).

30 6. A portable baggage wrapper (10) according to any of Claims 4 to 5, wherein the
 mounting frame (6) is movable relative to the said roller body (3) between a first position
 (La) for dispensation of the branding film (4) and a second position (Lb) for replacement of
 the branding film.

7. A portable baggage wrapper (10) according to any of Claims 4 to 6, wherein the spindle means (6a, 6b) is positioned in parallel with the roller body (3).

5 8. A portable baggage wrapper (10) according to any of Claims 1 to 7, wherein the guide shaft (5) is positioned in parallel with the roller body (3).

9. A portable baggage wrapper (100) comprising:
a housing (1) having an opening (8);
a layer of fabric hook and loop fastener (8a) extending longitudinally along an edge
10 of the opening of the housing;
a roll of wrapping film (2) disposed within the housing;
a roll of branding film (4) disposed within the housing; and
a guide shaft (5) mounted within the housing for guiding the dispensation of the wrapping and branding films;
15 wherein, the rolls of wrapping and branding films are arranged and positioned within the housing for allowing the branding film to attach to the wrapping film when the wrapping film is unwound and dispensed to the opening of the housing for wrapping the baggage.

20 10. A portable baggage wrapper (100) according to Claim 9, wherein the branding film (4) is of narrower width than the wrapping film (2).

11. A portable baggage wrapper (100) according to Claim 9 or Claim 10, wherein said wrapping film (2) has an adhesive layer portion formed on one side of its body.

25 12. A portable baggage wrapper (100) according to any of Claims 9 to 11, wherein said wrapping film (2) is a polyethylene protective tape.

30 13. A portable baggage wrapper (100) according to any of Claims 9 to 12, wherein said branding film (4) is a non-adhesive film.

14. A portable baggage wrapper (10, 100) according to any of Claims 1 to 13, further comprising a retractable cutting device (7) fixedly mounted on the housing (1) for cutting excess films (2, 4).

5 15. A portable baggage wrapper (10, 100) according to any of Claims 1 to 14, further comprising a turntable (9) mounted on the housing (1) to support and rotate the baggage to be wrapped, wherein the turntable is stowable when not in use.

10 16. A portable baggage wrapper (10, 100) according to Claim 15, further comprising a folding arm (9a) supporting said turntable (9) and having one end thereof pivotably attached to said housing (1) such that the arm can be swung between a stowed position (Ra) and a use position (Rb).