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Paper II – Practical

(Exploitation of Patents – Drafting, Specification & Patent Writing)

Time: 2 ½ hours.

TOTAL MARKS: 90

INSTRUCTIONS TO CANDIDATES

- 1. The questions to be interpreted as given and no clarification can be sought from the invigilator.**
- 2. Do not draw or attach figures**
- 3. Do not write detailed description or figure no.s**
- 4. The claim drafting will carry 40 marks**
- 5. The rest of the specification will carry 50 marks**
- 6. Attempt only one choice – either A or B**

Draft a Patent based on the information given by the inventor as below:

Option A

Mr. Pratap Mohan is a frequent traveler to various National and International destinations. He normally carries a check in baggage and a hand suitcase for his travels to have his personal items like clothing documents, and other sundries. While travelling there are periods during which it is desirable to sit down, e.g., at an airport or train station, but no convenient seat is available. He searched in the market to find out any convenient suitcase, which can also have, a seating facility attached to it. He found few patented inventions on this subject.

For instance, International Patent Publication Nos. WO03/099056 and WO98/03096 describe suitcases with foldable chairs that can be unfolded when a user desires to sit. Unfortunately, these foldable chairs are relatively complex and expensive to manufacture, and they are also fairly bulky and cumbersome when in use. German Patent No. DE4221215 more simply proposes to affix a seat having a smooth sitting surface onto the top surface of a suitcase. The seat is formed from a separate molded part that is riveted and/or screwed to the suitcase. However, the seat in DE4221215 is likely to undesirably detract from the aesthetic look, quality and design of the suit case, and it may further impair the suitcase's ability to fit into constrained spaces like luggage racks and/or to comply with carry-on luggage size restriction guides.

In a similar vein, solutions for altering a suitcase to act as a tram or stroller for a child have also been proposed. For example, International Patent Publication No. WO99/60882 discloses a travel case mounted on a collapsible trolley that includes a seat for seating an infant. The seat may include a vertical wall support of flexible sheet material for supporting the infant, the support having a pair of openings through which the legs of the infant can pass. This seat support is suspended from an inverted U-shaped safety bar. A backrest of stiff, apertured sheet material is fixed to and extends between two longitudinal members that are slidably displaceable (via a

handle) along the back of the case. In a first embodiment of WO99/60882, no separate seat rest or platform other than the case's top surface is provided to support the rear end of the infant. This may degrade the structural reliability of the case and/or provide insufficient support, particularly if a heavier load such as an adult or larger child would occupy the seat. Furthermore, the use of a top suitcase surface as a seat may be uncomfortable for a user as that surface typically lies above parts of the suitcase frame and/or is not entirely flat.

Not satisfied with the existing products, he felt one needs to customize a suitcase with a seating facility, which will be convenient, and aesthetic. He approaches his best friend Mr. Ajit who helps his business affairs to find a solution for a suitcase, which can have a seat for an adult to sit, designed in the suitcase and also will be compact and aesthetic. Ajit comes out with a suitcase with a seat, which is as follows;

A suitcase with a connected seat where there is channel and the channel is provided near or along a surface of the case, and the seat is movable between a first stowed position in which the seat is held within the channel and a second seating position in which at least part of the seat lies substantially flat along the top surface of the case. The surface near or along which the seat is stowed is preferably the rear surface of the case, but may also be another surface of the case such as a side surface. The seat is stowed within a pocket along the stowing surface of the case, and in this case the channel is housed inside the pocket. The surface of the seat also acts as the corresponding surface for the case when the seat is in the stowed position. The channel has first and second channel guide sections, with each channel guide section having a slot formed. The seat has also a pair of lugs at one end and is slidably engageable within the channel guide slots. The suitcase case also has a retractable handle having two vertically extendible members, each vertically extendible member having a slot formed and the lugs of the seat also being slidably and pivotally engageable within the handle member slots.

Impressed with the invention Mr. Pratap advised Mr. Ajit to patent the same and he prepares an inventor disclosure with the following drawings and detailed description:

BRIEF DESCRIPTION OF THE DRAWINGS

The objects and advantages of the present invention will be better understood and more readily apparent when the following description is considered in conjunction with the accompanying drawings which illustrate, by way of example, preferred embodiments of the invention and in which:

FIG. 1 is a back perspective view of a case with a seat in accordance with one embodiment of the present invention;

FIG. 2 is a front perspective view of the case in FIG. 1; and

FIG. 3 is a side view of a case with a seat in accordance with another embodiment of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

In accordance with an exemplary embodiment of the present invention, FIGS. 1 and 2 are back and front perspective views respectively of a case 1 with a seat 6 connected to the case. Case 1 is preferably a suitcase (the terms suitcase, trolley case, travelling case, cabin case, and carry-on case are used interchangeably herein), but it may generally comprise any other type of case such as a case for carrying shopping or other goods.

Case 1 may have a frame covered with a flexible material such as fabric or leather; however case 1 may also comprise a rigid material such as plastic or aluminium (in which case a frame may not be necessary). In the illustrated embodiment of FIGS. 1 and 2, case 1 has a body 2 defined by an internal case frame 3 that is generally in the form of a rectangular box. Case frame 3 is partly indicated in broken lines in FIG. 1. Case body 2 has a front surface 4A, a rear surface 4B, a top surface 4C, a lower surface 4D, and two side surfaces 4E and 4F. In a preferred embodiment, seat 6 is stowed in or along rear surface 4B of case 1.

In accordance with this preferred embodiment and as shown in FIG. 1, when the seat is not in use, seat 6 is stowed in a pocket 5 along rear surface 4B. In the stowed position, seat 6 is at least predominantly covered by pocket 5 and therefore the aesthetic look and design of case 1 is not significantly altered when the seat is in this position. Furthermore, since seat 6 lies along the surface 4B when stowed and since the seat has a similar (or smaller) area to that of the rear case surface, the compactness of case 1 is also not significantly affected when the seat is not in use.

When a user desires to use seat 6, the seat is withdrawn from pocket 5 and placed in a seating position (shown in solid line in FIG. 2) in which seat 6 lies substantially flat upon top surface 4C of case 1. Like a conventional firm seat base, seat 6 may be formed from plastics or from a fabric-covered metal frame. Seat 6 serves to spread the force of a sitting user over substantially the entire frame 3 of case 1, and in this manner is better able to support heavier loads than many prior art case/seat combinations--in particular those that are only suitable for supporting infants or small children. As shown, seat 6 may also have a recess 6A near one end thereof to facilitate the removal of the seat from pocket 5.

In a preferred embodiment, case 1 further includes a retractable U-shaped handle 10. U-shaped handle 10 comprises two telescoping (i.e., vertically extendible) members 10A and 10B coupled together at their top ends by a horizontal bar 10C. Members 10A and 10B and bar 10C may be formed as a single piece, as illustrated, or as separate pieces that are subsequently connected together. Horizontal bar 10C may also comprise a grip (not shown) to facilitate its manipulation by a user.

As best seen in FIG. 2, at or near the sides of rear surface 4B, case frame 3 includes a channel formed from two channel guide sections 7A and 7B each having a slot 8A and 8B (respectively) formed therein. The channel is generally housed inside of pocket 5, and seat 6 includes a pair of lugs 9A and 9B at one end that engage slidably within slots 8A and 8B while seat 6 is in pocket 5. In the illustrated embodiment, telescoping members 10A and 10B of handle 10 further include slots 10D and 10E (respectively) in which lugs 9A and 9B are also slidably and pivotably engageable. The top ends of slots 8A and 8B are open-ended and the width of slots 10D and 10E is similar to that of slots 8A and 8B. In this manner, as seat 6 is stowed in pocket 5, lugs 9A and 9B slide down slots 8A/10D and 8B/10E until they reach a bottom end (not shown) of one or both pairs of those slots. At this point, seat 6 reaches the fully stowed position. As seat 6 is pulled into the seating position, lugs 9A and 9B are slid up slots 8A/10D and 8B/10E eventually leaving slots 8A and 8B as shown in FIG. 2. Thus, in this embodiment, when seat 6 has been removed from pocket 5 and is in or near its seating position, lugs 9A and 9B are held only in slots 10D and 10E and seat 6 can then be pivoted so that it lies substantially flat upon top surface 4C.

Case 1, seat 6, and the length of slots 8A, 8B and/or 10D, 10E are preferably dimensioned so that seat 6 is fully covered by pocket 5 when in the stowed position. Furthermore, the length of slots 10D and 10E may be dimensioned so that when handle 10 is partly or fully extended, the bottom ends of slots 10D and 10E are brought into contact with lugs 9A and 9B to partially lift seat 6 so that the end of seat 6 with recess 6A protrudes from pocket 5. In this manner, by extending handle 10, recess 6A becomes more easily accessible to a user. Conversely, when handle 10 is returned to its fully retracted position, the top ends of slots 10D and 10E may serve to force lugs 9A and 9B downward, returning seat 6 to the fully stowed position.

In another embodiment, illustrated in the side view of FIG. 3, seat 6 moves only within slots 8A and 8B (in channel guides 7A and 7B), and slots 8A and 8B are closed at both their top and bottom ends. The retractable handle 10 (not shown in FIG. 3) is independent of the mechanism for moving seat 6 between the seating and stowed positions, and therefore handle 10 can be dispensed with in this embodiment. Referring to FIG. 3, seat 6 comprises a main seat portion 6B and a base seat portion 6C pivotably connected to one another at 6D by a hinge or the like. This enables main seat portion 6B to lie substantially flat on top surface 4C of case 1 even though lug 9B can only climb to a lower height at the top of slot 8B within channel guide 7B. In this embodiment, to ensure ready access to seat 6, recess 6A (not shown in FIG. 3) preferably protrudes slightly from pocket 5 even when seat 6 is in the fully stowed position.

Referring back to FIGS. 1 and 2, case frame 3 may optionally include a retractable ground support member 11 that extends from the bottom end of front surface 4A when in use and retracts into a recess within case 1 when not. When extracted from frame 3, support member 11 helps to further stabilise case 1, preventing the case from toppling over when a person sits on seat 6. A mechanical linkage (not shown) may be provided to extract support member 11 automatically when seat 6 is placed in the seating position. Additionally or alternatively, a retractable ground support member (not shown) that extends from the bottom end of rear surface 4B may also be used for added stability.

Like a conventional suitcase, case 1 may further include a carrying handle 12 and wheels 13A and 13B, as shown. Wheels 13A and 13B may lock when seat 6 is in the seating position and/or when a significant load is placed on seat 6.

In an alternative embodiment (not shown), no pocket 5 is provided, and instead the surface of seat 6 comprises all or part of the rear surface 4B of case 1. In this case, rear surface 4B is slidable along a channel (similar to the one formed by channel guides 7A and 7B above) so that all or part of rear surface 4B can be slid upward and then pivoted forward to lie substantially flat on the top surface 4C of the case. This embodiment may be particularly suitable for cases made of a rigid material. The internal surface of case 1 that is exposed at the back of the case (when the rear surface 4B is moved into the seating position) may comprise a flexible or a rigid material, although preferably the appearance of this internal surface is the same as or similar to that of rear surface 4B.

While the invention has been described in conjunction with specific embodiments, it is evident that numerous alternatives, modifications, and variations will be apparent to those skilled in the art in light of the foregoing description. For example, seat 6 could be stowed along (or could comprise) other surfaces of the case such as front surface 4A or side surfaces 4E or 4F.

Mr.Ajit approaches you to draft a complete specification based on the above details to file a Patent. You are required to draft a complete specification to help Mr.Ajit to get the patent.

FIGURES – Option A

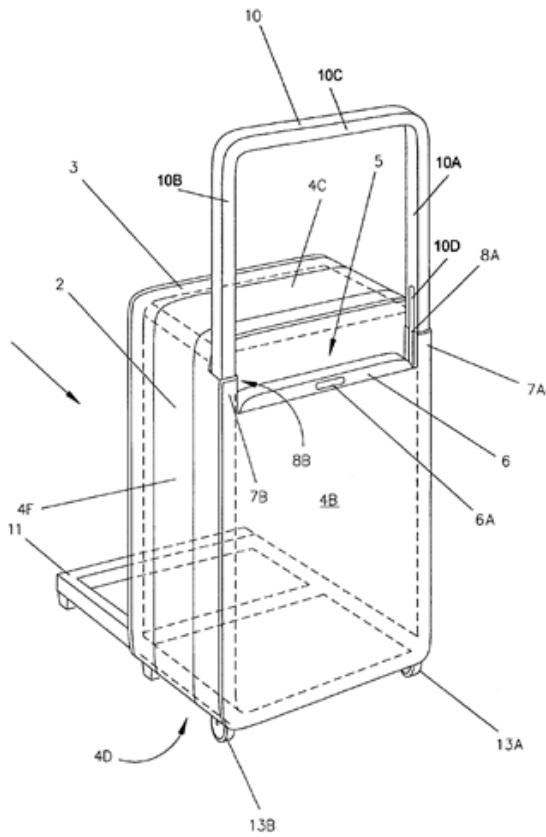


Figure 1

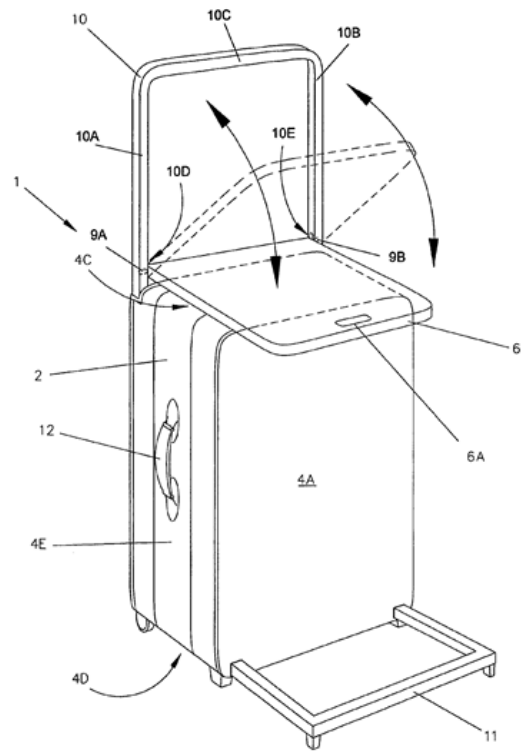


Figure 2

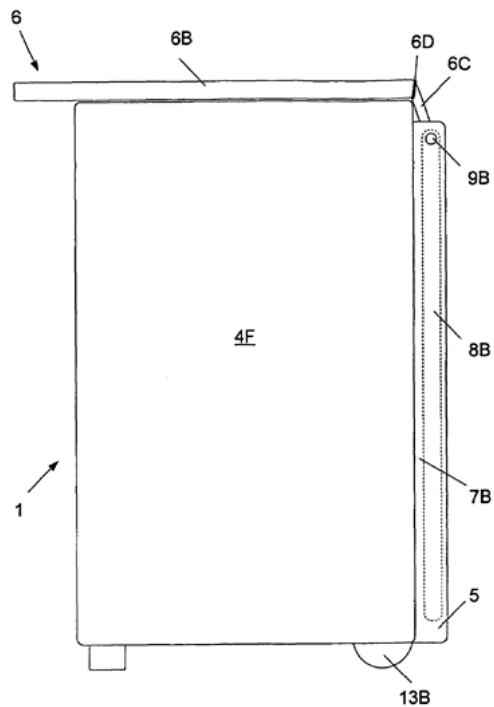


Figure 3

Option B

Ms.Sonia Katyal a biotechnologist also a cooking enthusiast often faced the problem of deterioration of the freshness of fruits and vegetables tried several available solutions in the market but in vain. She decided to work on a solution, which is economical and simpler and comes out with the present invention to prolong the shelf life of fruits and vegetables and makes an inventor disclosure:

The freshness of produce is typically defined by the qualities of taste, texture and appearance. Due to certain physiological effects fruits and vegetables generally begin to deteriorate and lose their freshness at the time of harvest. Once harvested from the parent plant, the fruit or vegetable no longer has the immune-like system of the plant to combat bacteria, fungus and viruses, which deteriorate the produce. A substantial percentage of fruit and vegetable harvests is thus lost due to such deterioration. Because of the immense size of the produce industry, it would be highly advantageous from an economic standpoint to preserve harvested produce in a savory, fresh condition for a longer period of time. Hence, many different methods for prolonging produce shelf life have been employed, with varying degrees of success.

Refrigeration has been the most popular method of increasing the useful life of fresh fruits and vegetables. By storing produce at a low temperature, it is possible to extend the freshness by retarding ripening, softening, textural changes and color changes. Lower temperatures also reduce undesirable metabolic changes, reduce moisture losses, and prevent undesirable growth on the produce. However, depending on the length of time the produce is chilled, refrigeration generally adversely affects taste and quality, and in the case of excessive or extreme chilling, may actually damage the produce due to chilling stresses,

Other methods of prolonging shelf life include coating the fruit or vegetable with a protective material, such as wax. However, the success of the coating is related not only to how well the coating protects the fruit or vegetable, but also how well it maintains a desirable appearance of the fruit or vegetable, without affecting its taste. Consequently, the success of this method has been limited. It has also been attempted to lengthen the shelf life of produce through heating to reduce the microorganism population, then refrigerating it at a desirable temperature. The success of this process has been limited in that shelf life has not been significantly increased. It has also been a common practice to harvest produce prior to ripening, then treating it with ethylene gas to effect ripening. This process has generally provided a low quality, unflavorful product, particularly in the case of tomatoes. Furthermore, the effects of deterioration begin at the time of harvest regardless of ripeness of the fruit or vegetable.

A more recent approach to increasing the shelf life of produce, and tomatoes in particular, has been the employment of genetic engineering techniques to decrease the rate in which tomatoes are affected by microorganisms. Such a process can be viewed as overly complicated to accomplish the goals of extended freshness, and has also enjoyed only limited success.

What is needed is a simple procedure for significantly increasing the shelf life of produce at a reasonable cost. It is therefore an object of the present invention to provide such a procedure.

BRIEF DESCRIPTION OF THE FIGURE

The FIGURE is a flow chart block diagram of the produce shelf life extension process according to one preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The following description of the preferred embodiment of extending the shelf life of produce is

merely exemplary in nature and is in no way intended to limit the scope of the invention or its application or uses.

Disclosed below is a process for preserving the shelf life of produce which includes as an important step, a procedure of nucleation or the microscopic formation of natural ice crystals in the micron range on the outer surface of the fruit or vegetable. Although this process will be discussed with particular reference to tomatoes primarily due to the formidable challenges of extending their limited shelf life, it will be understood that this process is also applicable to other fruits and vegetables including, but not limited to, strawberries, bananas and cantaloupes. The FIGURE is a block diagram flow chart showing the different stages of the shelf life extension process according to one preferred embodiment. The layout and equipment used is not a vital concern to the discussion of the process itself. It is proposed, however, that the equipment required to perform the immediate steps after harvest of this process be included as a single system. In this manner, each of the steps of the process may be performed at one harvest site and subsequently the system moved to another harvest site.

Returning to the FIGURE, harvested tomatoes typically, after being sorted, are first introduced into a heated preconditioning or wash bath represented by the first box. The tomatoes are generally introduced into the wash bath immediately after their harvest to minimize the effects of microorganisms on the ripening fruit. The equipment for performing the step of washing the tomatoes generally includes a series of conveyor fed tanks which are filled with water in which the water is maintained at a temperature of approximately 90.degree. F., in one preferred embodiment, to impart a uniform heat or enthalpy to the individual mass or piece. The exact temperature is not crucial so long as the wash bath is heated. It will of course be appreciated that excessive heating will damage the produce. The tomatoes are preferably continuously being moved through the wash tanks at a rate such that the produce is in the wash bath for a brief period of time, generally within a range of about 5 seconds to about 30 seconds. This time frame is by way of example as other times may also be applicable. The tomatoes are then moved from the wash tanks and generally set on a conveyor to be transported to the next step.

In addition to the wash bath being maintained at an elevated temperature, the wash bath is subjected to ultrasonic sound waves to promote the cleaning of the tomatoes. In some applications sub-sonic frequencies will also be applicable. It is believed that the combination of elevated temperature and ultrasonic vibration makes active and exposes the different microorganisms which may exist on the tomato. The vibrating bath further removes dirt which may be clinging to the fruit. The desirable frequency of the ultrasonic waves vibrating the wash bath is within the range of about 20 to about 2000 KHz to provide the necessary harmonics to allow the cleansing. By enabling the ultrasonic vibration of the wash bath to be variable, it is possible to activate a wide range of different microorganisms which may occur on a single type of fruit or vegetable, or on different types of fruits and vegetables, thus extending the process to other types of fruits and vegetables besides tomatoes. The temperature of the wash bath, as well as the ultrasonic vibration frequency, are generally monitored and controlled by some applicable process.

The next step involves a "snap freeze" nucleation step represented by the second box in the FIGURE. The "snap freeze" step, as defined in this embodiment, generally utilizes a series of tanks filled and maintained with a natural slurry held at a temperature below the freezing point of water in order to cool or chill the fruit. In one preferred embodiment, the natural slurry for snap freezing the tomatoes includes byproducts of tomatoes, low solute concentrations of sucrose, sugars, fruit and/or acetic acids and a water solvent carrier. Different predetermined combinations and concentrations of these and other products can form the slurry with the emphasis on the slurry being formed from natural ingredients. Those skilled in the art can determine appropriate combinations and concentrations of the slurry. It has been found that the better results are achieved if the slurry does indeed include byproducts of the fruit or vegetable, or byproducts from those fruits of a related species being processed. Therefore, for produce other than tomatoes, the applicable byproduct would be from that produce or similar hybrid form.

In addition, it has been found desirable to maintain the slurry at a temperature within the range of about 27.degree. F. to about 32.degree. F., however, other temperatures may be applicable. This range offers effective freezing temperatures without being excessively low, thus reducing chill stresses. Consequently, the tomatoes moved through the wash bath are immediately transferred at this elevated temperature to the snap freeze tanks to be quickly reduced to a temperature of approximately 28.degree. F. The tomatoes are maintained in the snap freeze slurry for a brief period of time, generally from about 10 seconds to about 15 seconds. In the snap freeze step, the tomatoes themselves are not frozen but are coated with a layer of frozen slurry material. Therefore, any chill damage to the tomatoes is significantly reduced or eliminated. It is stressed that the combination of other exposure times and slurry temperatures may be applicable to achieve the desired results.

The final step in this shelf life extension process includes transferring the tomatoes immediately from the snap freeze tanks to a storage or incubation chamber as represented by the last box of the FIGURE. The incubation chamber stabilizes and dries the tomatoes forming a crystalline film of the slurry on the outer surface of the tomato. In this manner the slurry is maintained within the pores on the outer surface of the tomatoes. It has been found effective to maintain the tomatoes at a substantially constant temperature within an approximate range of about 60.degree. F. to about 70.degree. F. for a time of about 48 hours. However, other storage temperatures and drying times, from a few minutes to a few hours, could be equally effective. Typically, the incubation chamber will be held in an ambient environment, i.e., normal humidity, pressure, natural air composition, etc. After this incubation time the tomatoes are fully dried and crystallized with a thin film of the slurry on their outer surface and ready for shipping. For long term shipping, special carrier units can be used to minimize the adverse effects of weather on the tomatoes. The process discussed above can extend the shelf life of tomatoes, as well as other fruits or vegetables, extended up to a surprising median shelf life of 10 weeks.

The "snap freeze" procedure provides the most important step in the shelf life extension process discussed above. It is therefore important that the concentration of the slurry and exposure time of the fruit in the slurry be accurately controlled. In this step the outer volumetric size of the tomato is increased in the hot bath and decreased in the cold slurry and nucleation crystals of the slurry are formed within the pores on the outer surface of the tomatoes which it is believed, in turn, tends to drive out microorganisms which contribute to the deterioration of the tomato. From microscopic investigation in the aging cycle of the fruit, it is believed that micron pore geometries and dynamics alter the penetration of bacteria, fungi and pathogens. The nucleation crystals disrupt the life-cycle of fungi and bacterial spores responsible for accelerated aging of the fruit. In other words, the fruits immune-like structure changes along with the lipid, stoma activity, gas exchange and glucose levels within the fruit in such a manner that the bacterial, fungal and viral activity on the fruit is affected such that the natural aging process is significantly reduced.

Ms.Sonia Katyal approaches you to draft a patent specification to file a patent. You are required to draft a complete specification to help her to get the patent.

FIGURE- Option B

