Jan. 25, 1955 E. ANSPACHER 2,700,459

MATTRESS PACKAGE AND METHOD OF WRAPPING

Filed May 27, 1949

Fig. 1.

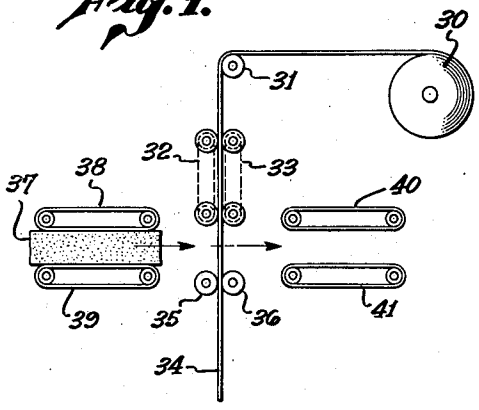


Fig. 2.

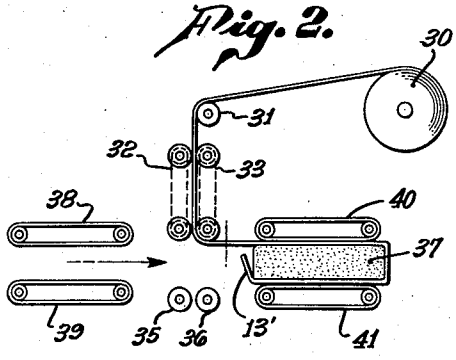


Fig. 3.

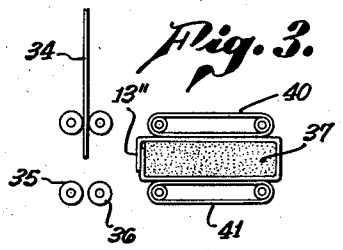


Fig. 4.

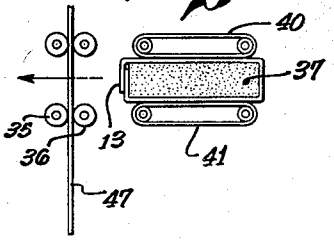


Fig. 5.

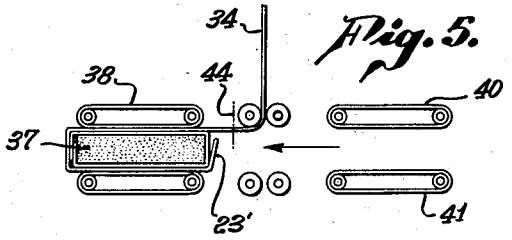


Fig. 6.

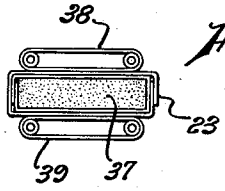
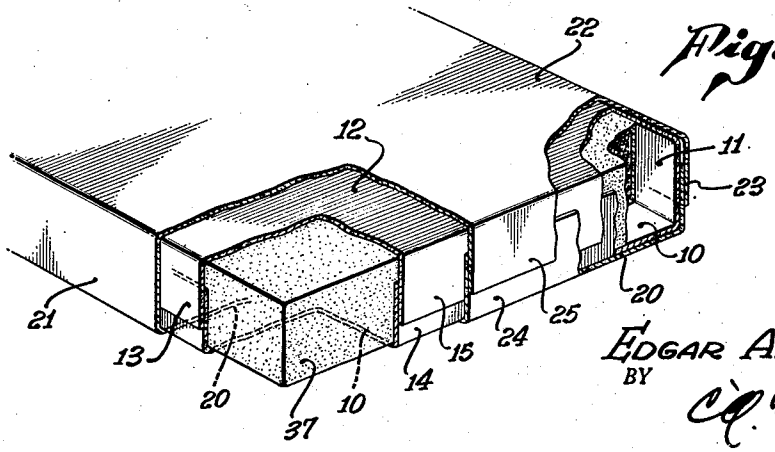


Fig. 7.



INVENTOR.
EDGAR ANSPACHER,
BY
ATTORNEY.

United States Patent Office 2,700,459 Patented Jan. 25, 1955

2,700,459

MATTRESS PACKAGE AND METHOD OF WRAPPING

Edgar Anspacher, Beverly Hills, Calif.

Application May 27, 1949, Serial No. 95,771

4 Claims. (Cl. 206—46)

This invention relates to a new and useful package and method of packaging. The invention is particularly directed to a method of packaging or wrapping large, bulky, compressible objects such as mattresses and to a wrapped or packaged mattress which can be shipped and maintained in a clean dust-free condition without the necessity of using bulky and heavy crates.

That a mattress is an article which is bulky and exceedingly awkward to handle is well known. The shipment of mattresses from one locale to another has presented numerous problems and no inexpensive, simple and economical way of packaging mattresses so as to protect them against damage, disfiguration or soiling during shipment has been evolved heretofore.

The present invention is particularly directed to a method of covering and wrapping large, yielding objects, such as mattresses, so that they may be shipped and adequately protected during shipment in the form of rigid, easily handled elements without increasing the weight or bulk of the package and mattress. Any increase in weight is objectionable from the standpoint of increased cost for transportation. Since mattresses are relatively light on a weight per cubic foot basis, it is desirable that the packages be as small as possible so that the largest number of mattresses can be caused to occupy a given space in the box car or van used for transportation.

Because of the rather delicate structure of the mattress, it is desirable to eliminate rigid elements provided with sharp edges or corners which may damage or tear the surfacing of an adjacent mattress. The present invention fulfills all of the necessary requirements and permits large, yielding objects, such as mattresses (whether of the inner spring or felted type) as well as other similar bulky materials such as felting, upholsterer's felt, etc., to be wrapped and pacakaged for shipment in a ready and economical manner.

Generally stated, the invention pertains to a securely wrapped mattress and the like, in a flattened and compressed condition, provided with not less than two separate enclosing coverings of sheet wrapping material, the wrapping material being under tension, edge portions or areas of each sheet of covering material being in overlapped and sealed relation to each other, the overlapping and sealed areas of one sheet wrapper being covered by the main body portion of an outer layer of wrapping material. In this manner the mattress is provided with a plurality of separate, external, superimposed, enclosing coverings, the sealed edges of each sheet of covering material being displaced, preferably diametrically, so that the tension in the various sheets is not localized but instead distributed, and failure of any one sealed edge does not immediately affect an adjacent sealed edge of another wrapper.

Moreover, this invention relates to a method of wrapping whereby the separate enclosing coverings may be rapidly completed about a mattress and the like, the overlapping edges or seams being suitably spaced or displaced about the periphery of the object being wrapped to the end that a multi-layer wrapper is formed about the object with the sealed edges of the different wrappings suitably distributed around the object.

An object of the invention, therefore, is to disclose and provide a light weight, strong, substantially dustproof wrapper for bulky objects such as mattresses.

Another object of the invention is to disclose a mattress and the like securely wrapped for shipment, the wrapper being of the multi-layer type having its sealing seams distributed around the periphery of the mattress.

An object of the invention also is to disclose and provide a method of wrapping large bulky objects, such as mattresses, so that the resulting wrapped package occupies a minimum amount of space and utilizes readily available sheet materials as protective coverings in the most advantageous manner.

These and various other objects and advantages of the invention will become apparent to those skilled in the art from the following detailed description wherein exemplary modes of operation, conditions, materials and steps shall be described. In order to facilitate understanding, reference will be made to the appended drawings which diagrammatically illustrate an arrangement of elements which may be employed as well as a succession of steps used in performing the wrapping operations.

In the drawings:

Fig. 1 is a diagrammatic representation of an arrangement or system, indicating an initial positioning.

Fig. 2 diagrammatically illustrates a step in the wrapping method immediately prior to the completion of the first enclosing operation.

Fig. 3 is a succeeding step showing the completion of the first enclosing operation and preparation for the second operation.

Fig. 4 illustrates the beginning of a second wrapping operation.

Fig. 5 illustrates a stage in the process immediately prior to the formation of a spaced seal in the second enclosing wrapper.

Fig. 6 diagrammatically illustrates a mattress at the completion of the second sealing operation.

Fig. 7 is a perspective view of one end of a mattress, parts being broken away, said mattress being provided with a wrapper of the character contemplated by this invention.

A mattress provided with a multi-layer wrapper in accordance with the present invention is shown in the fragmentary view, Fig. 7. One corner of the wrapper as well as the mattress itself has been removed from the view in order to more clearly indicate the arrangement of the wrappers. It will be noted that the innermost wrapper is composed of a single sheet of wrapping material, such as heavy kraft paper, such sheet covering the bottom, as indicated at **10**, the longitudinal side of the mattress as at **11**, and the top of the mattress, as indicated at **12**. This single sheet of wrapping material has its longitudinal edge portions in overlapped and sealed relation, such overlapped and sealed portions being indicated at **13**. The ends of the mattress are also enclosed by the overlapping end areas **14** and **15**.

In accordance with the method of this invention the contained mattress is under compression and the sheet of wrapping material is under tension.

Completely enclosing this once-wrapped mattress and overlying all of the areas thereof is a second wrapper, the bottom portion of which is indicated at **20**, the top indicated at **22**, that portion enclosing a longitudinal edge being indicated at **21**, and longitudinal overlapping and sealed portions indicated at **23**. Along each of the lateral ends of the mattress this second wrapping is covered by the portions **24** and **25**, such portions overlapping each other and being secured together as by means of an adhesive.

It may be noted at this point that the inner wrapper is sealed along one longitudinal edge, as indicated at **13**, whereas the outer separate wrapper is sealed to itself along the opposite longitudinal side, as indicated at **23**. The two wrappers are separate and distinct and virtually unconnected to each other. Each wrapper constitutes a complete entity, totally enclosing the mattress or the contents of such wrapper. As a result, the failure of an underlying sheet, such as for example the sheet portion **12**, will not affect the outer sheet **22** which is in contact therewith but which is a separate entity. Since both sheets are under tension, however, and enclose a single mattress, the two sheets cooperate to impart greater protection than a single wrapper having a weight or thickness equal to that of the two separate wrappers.

In order to facilitate understanding and description, Fig. 7 does not illustrate a third external and enfolding wrapper although in actual practice such third wrapper often would be used. When such third wrapper is employed, the longitudinally extending edges of such third wrapping sheet would be overlapped and sealed together by suitable adhesive on any point along the periphery of the mattress which is spaced from the last applied seal. For example, such third outer wrapping may have its longitudinal seam opposite the continuous imperforate and main body portion **21** of the underlying wrapper.

The conditions under which the wrapping operation may be carried out and the method of wrapping devised by me are illustrated in the diagrams, Figs. 1 to 6. The mechanism employed in carrying out the operations may vary greatly and it is to be understood that the present invention is not limited to an arrangement of units illustrated in the diagrams.

By referring to the diagrams it will be observed that a machine for carrying out the method may include a feed roll **30** carrying a continuous sheet of material, such as heavy kraft paper, over a movable guide roll **31** and then downwardy between a pair of opposing feed conveyors **32** and **33** which are yieldably pressed together. The sheet of paper, generally indicated at **34**, also passes downwardly between the guide rolls **35** and **36**.

A mattress, indicated at **37**, is shown positioned between a pair of conveyor belts **38** and **39** mounted upon suitable rollers, the opposing lays of said conveyors being yieldably urged toward each other so as to grasp, compress and feed the mattress **37** in the direction of the arrow and toward the sheet of paper while said paper is held between the feeding conveyors **32** and **33** and the guide rolls **35** and **36**. On the opposite side of the sheet of paper there is a similar pair of conveyors, indicated at **40** and **41**, the opposite lays of these conveyors also being yieldably urged toward each other so as to grasp, compress and move the mattress.

After a suitable length of paper **34** has been fed into the position indicated in Fig. 1, the mattress to be covered is inserted between the feeding conveyors **38** and **39** with a longitudinal side of the mattress parallel to the plane occupied by the paper **34**. The mattress is compressed and fed by the conveyors **38** and **39** toward the sheet of paper. As the mattress moves against the paper and beyond the plane originally occupied by the paper, the bottom or loose end of the sheet of paper **34** feeds upwardly while the upper portion of such sheet of paper moves downwardly, such downward move being facilitated by the spring-biased feed roller **31** which, as evident from a comparison of Figs. 1 and 2, moves downwardly toward the feeding conveyors **32** and **33**. The top and the bottom of the mattress **37** are thus covered by a sheet of wrapping material while such sheet material is under tension and while the mattress is compressed.

It is to be understood that the sheet of wrapping material **34** is of greater width than the total length of the mattress so that the wrapping material extends beyond the ends of the mattress. While the mattress **37** moves from the position indicated in Fig. 1 to the position indicated in Fig. 2, these overlapping end portions are folded over the ends of the mattress into the overlapping relation indicated at **14** and **15** in Fig. 7. Such overlapping relationship is attained by the use of plows of the character often used in paper bag making machines or of the character illustrated in Patent No. 1,304,760.

Immediately prior to complete overlapping of these ends portions **14** and **15** a suitable adhesive or sealing material, such as glue, silicate of soda, or the like, may be applied to the underlying edge portion, such as the edge section of portion **14**, so as to completely seal the overlapping portions **14** and **15** to each other.

When the mattress reaches the end of its travel (shown in Fig. 2) the bottom edge is bent upwardly, as indicated at **13'**, and the sheet is severed by a suitable knife, cutter, or other means, whereupon the longitudinal edge so produced is folded down, as indicated in Fig. 3 at **13''**, such longitudinal edge portion being then cemented or otherwise sealed to form a longitudinally extending seal, such as **13** at Fig. 7.

It will be noted that throughout this operation the mattress is under compression and both the top and bottom of the mattress have been simultaneously covered.

The severed edge of the sheet material **34** (indicated at **47**) is now fed downwardly into the guide rollers **35** and **36** until an adequate amount of paper extends therebelow. The direction of rotation of the feeding conveyors **40** and **41** is then reversed and the mattress moves toward this sheet of paper, as indicated in Fig. 4.

It will be noted that the longitudinally sealed edge **13** now moves into contact with the main body of the sheet material and as such once-wrapped mattress moves into position between conveyors **38** and **39**, one longitudinal side of the mattress as well as the top and bottom are again wrapped, the mattress finally reaching the position indicated in Fig. 5. The strip of wrapping paper is then severed at **44** and the opposing ends of such sheet of wrapping material folded toward each other into overlapping relation, a suitable glue or other adhesive being applied to the underlying area as at **23'** to form a longitudinally extending seal of the character shown at **23** in Fig. 7.

It is to be understood that during the movement of the mattress from the position indicated in Fig. 4 to that indicated in Fig. 5, the ends of the mattress have also been covered and the overlying portions of the sheet material adhesively secured together in the manner indicated at **24** and **25** in Fig. 7. In order to form a third enclosing wrapper, the operations indicated in Figs. 1, 2 and 3 are repeated and a completely dust-proof, securely wrapped mattress is discharged.

A mattress wrapped in accordance with the present invention is easily handled, occupies a minimum of space, and withstands all of the vicissitudes of shipment.

Specific attention is called to the fact that, by the use of my invention, a large, yielding, bendable, and awkwardly handled object such as a mattress is crowded into a virtually rigid, wrapped object which is easily stacked, handled or moved. These results are obtained without materially increasing the weight of the mattress, since the paper is of low weight in proportion to the weight of the mattress. Ordinarily, mattresses must be laid flat during shipment and cannot be caused to stand on edge to conserve space. Mattresses treated in accordance with my invention can be stored or shipped while standing on edge, the wrapping and the compressed condition of the mattress thereby giving rise to economies and facilities not attainable heretofore.

All changes and modifications coming within the appended claims are embraced thereby.

I claim:

1. A self-supporting, virtually rigid wrapped mattress free from structurally rigid reinforcing members comprising: a normally yieldable limp and flexible mattress having two large parallel surfaces and a peripheral edge face, said mattress being normally incapable of self-support on an edge face, said mattress being in a compressed, compacted condition and wrapped with not less than two separate enclosing coverings of normally flexible sheet wrapping material under tension, edge areas of each covering of wrapping material being in overlapped and adhesively sealed relation to each other along peripheral edge faces of the mattress, the overlapped and sealed portions of at least one pair of edge areas of one of said coverings being directly opposite the overlapped and sealed portions of at least one pair of edge areas of the other of said separate coverings whereby the overlapped and sealed edge areas peripherally reinforce said mattress with increased thickness of sheet wrapping material at the peripheral edge faces of the mattress, the mattress unit so wrapped being adapted to stand upon one of its edge faces without collapse and with its large surfaces parallel.

2. A method of imparting rigidity to a yieldable, flexible, limp flat object such as a mattress having two large parallel surface areas and a peripheral edge face relatively thin as compared to the large surfaces which includes the steps of: moving a horizontally disposed mattress in one direction along a path of travel in a horizontal plane while maintaining the mattress under compression; interposing a flexible sheet of wrapping material across said path of travel; wrapping said flexible sheet of material about said mattress during its movement in said one direction and then overlapping and sealing edge areas of said sheet along a longitudinal edge face of the mattress while maintaining the mattress under compression in an immobile position; moving said mattress along a reciprocal path of travel in the same plane in the opposite direction while maintaining the mattress under compression; interposing a second separate sheet of flex-

ible material across the reciprocal path of travel; wrapping said mattress during said latter movement in said second flexible sheet of material; overlapping and sealing edge areas of the second sheet along the opposite longitudinal peripheral edge face of the mattress while maintaining the mattress under pressure in a second immobile position; and overlapping and sealing the edge areas of each sheet of material.

3. A self-supporting, virtually rigid mattress and the like prepared for shipment, comprising: a normally yieldable, limp and flexible mattress having two large parallel surfaces and narrow peripheral edge faces, said mattress being normally incapable of self-support on an edge face, said mattress being in a compressed, compacted condition and completely wrapped with not less than two separate enclosing coverings of normally flexible sheet material under tension, edge areas of each separate covering material being in overlapped and adhesively sealed relation to each other along peripheral edge faces of the mattress, the overlapped and sealed portions of at least one pair of edge areas of one of said coverings being directly opposite the overlapped and sealed portions of at least one pair of edge areas of the other of said separate coverings, whereby the sealed and overlapped edge areas peripherally reinforce said mattress with increased thickness of sheet wrapping material, the mattress so wrapped being dust-proof, having the sheet material of the wrapping under tension and being adapted to stand upon one of its peripheral edge faces without collapsing.

4. A method of imparting rigidity to a yieldable, flexible, limp, flat object such as a mattress and the like having two large parallel surface areas and relatively narrow edge faces, which includes the steps of: moving a horizontally disposed mattress in one direction along a path of travel in a horizontal plane while maintaining the mattress under compression; interposing a flexible sheet of wrapping material across said path of travel; wrapping said flexible sheet of material about said mattress during its movement in said one direction and then overlapping and sealing edge areas of said sheet along an edge face of the mattress while maintaining the mattress under compression in an immobile position; moving said mattress along a reciprocal path of travel in the same plane in the opposite direction while maintaining the mattress under compression; interposing a second separate sheet of flexible material across the reciprocal path of travel; wrapping said mattress during said lateral movement in said second flexible sheet of material; overlapping and sealing edge areas of the second sheet along the opposite peripheral edge face of the mattress while maintaining the mattress under pressure in a second immobile position; and overlapping and sealing the remaining edge areas of each of said sheets of material along peripheral edge faces of the mattress while said mattress is under compression, whereby the overlapped and sealed portions of sheet material extend along all peripheral surfaces of the mattress to reinforce the same, the wrapped mattress being adapted to stand upon one of its edge faces without collapsing.

References Cited in the file of this patent

UNITED STATES PATENTS

622,841	Crowell	Apr. 11, 1899
1,304,760	Frohn	May 27, 1919
1,583,395	Davidson et al.	May 4, 1926
1,599,993	Duplay	Sept. 14, 1926
1,883,449	Andrews	Oct. 18, 1932
2,008,167	Bergstein	July 16, 1935
2,114,008	Wunderlich	Apr. 12, 1938
2,155,057	Moore	Apr. 18, 1939
2,177,773	Heft et al.	Oct. 31, 1939
2,354,186	Donahue	July 25, 1944
2,568,260	Spagnoli	Sept. 18, 1951