

PATENT SPECIFICATION

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(54) CARRIERS AND PACKAGES FORMED THEREBY

(71) We, ILLINOIS TOOL WORKS INC., a corporation organized under the laws of the State of Delaware, United States of America, of 8501 West Higgins Road, Chicago, Illinois 60631, United States of America do hereby declare the invention, for which we pray that a patent may be granted to us and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to carriers, particularly for holding and carrying containers used for motor oil and the like, and the resulting packages formed thereby.

Various packaging techniques have been employed in the past to secure large containers, such as quart cans of motor oil. Generally 24 one quart cans are placed in a cardboard carton for bulk transport from place to place. However, when transporting smaller quantities of quart or less cans it is necessary to pick up each can individually from the carton. In the alternative, single containers carrying five or ten quarts are provided so that a specific quantity of motor oil is easily handled for pouring into motor vehicles. Many modern motor vehicles generally require four quarts of motor oil per oil change. Therefore, the five and ten quart size cans are inconvenient in that it is difficult to determine when the required quantity of motor oil is poured therefrom into the engine crankcase.

Also, when pouring motor oil from the large ten quart containers, the container is difficult to handle when full, and to minimize spillage and waste it may be necessary to transfer the oil from the large container to a smaller container for pouring into a motor vehicle engine. Therefore, the advantage of minimizing packaging cost by providing large containers of motor oil is counteracted by the increased difficulty in pouring the oil from the large container into the engine.

It is therefore most desirable, from a

convenience standpoint, to ship, store, and pour motor oil in smaller containers, for example containers holding one quart or one pint. At the same time the containers should be assembled into packages each containing enough oil to fill a crankcase. For example for engines which require four quarts of oil, each package may comprise four containers, each container holding one quart. The packaging can be achieved either by disposable paper carriers or by a plastics carrier. However, when forming plastics package carriers of the type having apertures struck out from a sheet of plastics material, there is substantial waste as a result of the large circular portions being removed.

Accordingly, it is an object of this invention to provide an improved carrier package structure wherein apertures of large circumference are formed in a sheet of plastics material and such apertures are formed in a configuration which gives rise to little waste.

Another object of this invention is to provide a package carrier having four apertures formed therein for carrying four container units.

Still another object of this invention is to provide a package carrier formed of a sheet of plastics material with struck out portions and with a convenient centrally located handle for carrying the package.

A carrier according to this invention comprises a resilient, elastic and deformable sheet of a plastics material, which is rectangular in configuration having a major central axis and a minor central axis, with four elongated apertures formed in opposing pairs on opposite sides of the major axis, each aperture being formed of spaced apart semicircles of different radii, joined together by straight line portions, one portion being substantially parallel to the marginal edge of the sheet of plastics material and the other portion extending diagonally between the semicircles, and

further including handle means defined by a pair of slots, this handle means being positioned at the intersection of the major and minor central axes.

5 The accompanying drawings show one example of a carrier and a package embodying the invention. In these drawings:—

Figure 1 is a perspective view showing the package, comprising a carrier and four containers such as one quart motor oil cans or the like; and

10 Figure 2 is a plan view showing in full one carrier and in fragmentary portions two contiguously formed carriers, such carriers being formed on a continuous strip and parted for individual use.

15 The carrier 10 includes four apertures for holding four one-quart can containers 12 in a side by side position as illustrated in Figure 1. The upper portions of the cans 12 have enlarged rim portions 14 which fit over the encircling portions 16 of the carrier 10 and cooperate therewith for firmly holding the cans until physically extracted from the carrier unit. To facilitate carrying of the four cans, a handle 18 is positioned at the intersection of the longitudinal and transverse axes so as to be centrally positioned in relation to the four cans. The handle provides sufficient hand room for comfortably carrying the heavy weight constituted by four one-quart containers.

20 Referring now to Figure 2, the carrier 10 is formed of a blank 20 which is severed from a continuous strip 22 of such blanks which can be formed in a continuous process, such as by stamping the blanks from a continuous roll of elastic and deformable sheet plastics material. The blank 20 is severed from the continuous strip 22 by fracture along lines of weakness indicated at 24 at opposite ends thereof.

25 Each of the blanks 20 is rectangular in configuration, with a major dimension approximately twice that of the minor dimension, as shown in Figure 2. The handle 18 is a strap defined by a pair of spaced-apart slots 26 and 28. The handle is positioned at the intersection of the central axes of the major and minor dimensions. This then allows the positioning of the handle 18 to be in the middle of the four cans for uniform weight distribution. The slots 26 and 28 have obtuse V-shaped side portions 26a and 28a respectively, to allow for freedom of insertion of the fingers to grip the handle uniformly.

30 To diminish scrap from the blank 20 when the carrier 10 is formed, the apertures 30 are elongated and arranged as shown in Figure 2. The peripheral measurement of the apertures 30 is less than the corresponding peripheral measurement of the cans 12, and the stretchable characteristic of the carrier 10 causes the material around the outline of

each aperture to assume an axial configuration, as seen in Figure 1, to circumscribe the respective can 12 tightly and hold the same in the package. To provide a more uniform embracing of the one-quart cans, the configuration of the elongated apertures 30 is such that a pair of spaced apart semicircular portions 32 and 34 are joined together by straight line portions 36 and 38 as shown. The semicircular portion 34 is of a lesser radius than the semicircular portion 32 of each of the elongated apertures, thus providing ample material space in the centre of the blank 20 for striking out the handle-forming slots 26 and 28. Score lines 40 and 42 are formed along the major and minor axes to facilitate bending of the plastics material around the upper portion of the one-quart cans.

Accordingly, by forming a carrier structure as illustrated herein for carrying heavy one-quart containers substantial increase in efficiency of use of material is obtained.

It should be noted also that a consequence of the initial elongated shape of the apertures 30 (Figure 2) is that, when the apertures are deformed to circular shape (Figure 1) then the distance between the ends of the handle 18 becomes substantially less than the length of the handle, and therefore the handle becomes bowed upwards into a configuration which facilitates gripping by a user's fingers.

Although the containers shown in Figure 1 are cans, the containers can be of any kind that the carrier is able to grip.

WHAT WE CLAIM IS:—

1. A carrier package comprising a plurality of containers and a resilient, elastic and deformable sheet of a plastics material, which is rectangular in configuration having a major central axis and a minor central axis, with four elongated apertures formed in opposing pairs on opposite sides of the major axis, each aperture being formed of spaced apart semicircles of different radii, joined together by straight line portions, one portion being substantially parallel to the marginal edge of the sheet of plastics material and the other portion extending diagonally between the semicircles, and further including handle means defined by a pair of slots, this handle means being positioned at the intersection of the major and minor central axes, the outline of each of the apertures having a peripheral measurement less than that of the corresponding container associated therewith, whereby upon insertion of the container axially into the socket, the material around the outline is caused to stretch and deform to the shape of the container for gripping and resiliently

further including handle means defined by a pair of slots, this handle means being positioned at the intersection of the major and minor central axes.

5 The accompanying drawings show one example of a carrier and a package embodying the invention. In these drawings:—

10 Figure 1 is a perspective view showing the package, comprising a carrier and four containers such as one quart motor oil cans or the like; and

15 Figure 2 is a plan view showing in full one carrier and in fragmentary portions two contiguously formed carriers, such carriers being formed on a continuous strip and parted for individual use.

20 The carrier 10 includes four apertures for holding four one-quart can containers 12 in a side by side position as illustrated in Figure 1. The upper portions of the cans 12 have enlarged rim portions 14 which fit over the encircling portions 16 of the carrier 10 and cooperate therewith for firmly holding the cans until physically extracted from the carrier unit. To facilitate carrying of the four cans, a handle 18 is positioned at the intersection of the longitudinal and transverse axes so as to be centrally positioned in relation to the four cans. The handle provides sufficient hand room for comfortably carrying the heavy weight constituted by four one-quart containers.

25 Referring now to Figure 2, the carrier 10 is formed of a blank 20 which is severed from a continuous strip 22 of such blanks which can be formed in a continuous process, such as by stamping the blanks from a continuous roll of elastic and deformable sheet plastics material. The blank 20 is severed from the continuous strip 22 by fracture along lines of weakness indicated at 24 at opposite ends thereof.

30 Each of the blanks 20 is rectangular in configuration, with a major dimension approximately twice that of the minor dimension, as shown in Figure 2. The handle 18 is a strap defined by a pair of spaced-apart slots 26 and 28. The handle is positioned at the intersection of the central axes of the major and minor dimensions. This then allows the positioning of the handle 18 to be in the middle of the four cans for uniform weight distribution. The slots 26 and 28 have obtuse V-shaped side portions 26a and 28a respectively, to allow for freedom of insertion of the fingers to grip the handle uniformly.

35 To diminish scrap from the blank 20 when the carrier 10 is formed, the apertures 30 are elongated and arranged as shown in Figure 2. The peripheral measurement of the apertures 30 is less than the corresponding peripheral measurement of the cans 12, and the stretchable characteristic of the carrier 10 causes the material around the outline of

each aperture to assume an axial configuration, as seen in Figure 1, to circumscribe the respective can 12 tightly and hold the same in the package. To provide a more uniform embracing of the one-quart cans, the configuration of the elongated apertures 30 is such that a pair of spaced apart semicircular portions 32 and 34 are joined together by straight line portions 36 and 38 as shown. The semicircular portion 34 is of a lesser radius than the semicircular portion 32 of each of the elongated apertures, thus providing ample material space in the centre of the blank 20 for striking out the handle-forming slots 26 and 28. Score lines 40 and 42 are formed along the major and minor axes to facilitate bending of the plastics material around the upper portion of the one-quart cans.

40 Accordingly, by forming a carrier structure as illustrated herein for carrying heavy one-quart containers substantial increase in efficiency of use of material is obtained.

45 It should be noted also that a consequence of the initial elongated shape of the apertures 30 (Figure 2) is that, when the apertures are deformed to circular shape (Figure 1) then the distance between the ends of the handle 18 becomes substantially less than the length of the handle, and therefore the handle becomes bowed upwards into a configuration which facilitates gripping by a user's fingers.

50 Although the containers shown in Figure 1 are cans, the containers can be of any kind that the carrier is able to grip.

WHAT WE CLAIM IS:—

55 1. A carrier package comprising a plurality of containers and a resilient, elastic and deformable sheet of a plastics material, which is rectangular in configuration having a major central axis and a minor central axis, with four elongated apertures formed in opposing pairs on opposite sides of the major axis, each aperture being formed of spaced apart semicircles of different radii, joined together by straight line portions, one portion being substantially parallel to the marginal edge of the sheet of plastics material and the other portion extending diagonally between the semicircles, and further including handle means defined by a pair of slots, this handle means being positioned at the intersection of the major and minor central axes, the outline of each of the apertures having a peripheral measurement less than that of the corresponding container associated therewith, whereby upon insertion of the container axially into the socket, the material around the outline is caused to stretch and deform to the shape of the container for gripping and resiliently



engaging the container to resist container withdrawal.

2. A carrier for a plurality of containers, the carrier comprising a resilient, elastic and deformable sheet of a plastics material, which is rectangular in configuration having a major central axis and a minor central axis, with four elongated apertures formed in opposing pairs on opposite sides of the major axis, each aperture being formed of spaced apart semicircles of different radii, joined together by straight line portions, one portion being substantially parallel to the marginal edge of the sheet of plastics material and the other portion extending diagonally between the semicircles, and

further including handle means defined by a pair of slots, this handle means being positioned at the intersection of the major and minor central axes.

3. A carrier package according to claim 1, substantially as described with reference to the accompanying drawings.

4. A carrier according to claim 2, substantially as described with reference to Figure 2 of the accompanying drawings.

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