

PATENT SPECIFICATION

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DRAWINGS ATTACHED

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(54) CONNECTING COUPLING ARRANGEMENT

(71) We, DART INDUSTRIES INC., a Corporation organised and existing under the Laws of the State of Delaware, United States of America, of 8480, Beverly Boulevard, Los Angeles, State of California, 90054, 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:—

The invention relates generally to a connecting coupling arrangement between two members. More specifically the invention relates to a device having individual containers for storing and serving foodstuffs such as condiments and the like. The containers can be demountably attached to a support portion of the device by means of the connecting coupling arrangement.

According to the present invention there is provided a connecting coupling arrangement between two members fabricated of plastics material comprising a socket portion on one of said members and a plug portion on the other of said members, said socket portion being orientated below said plug portion in normal use; said socket portion comprising an outer wall terminating in a peripheral edge, a planar base portion connected to an edge of said outer wall opposite to said peripheral edge, an inner wall having portions inclined inwardly and upwardly toward the central perpendicular axis of said base portion, the axis being perpendicular to and through the central region of said planar base portion, an upper edge of said inner wall terminating below a plane defined by an upper edge of said outer wall, said inner wall having at least one elongated slot breaking its upper edge surface and extending generally parallel to the central perpendicular axis of said base portion; said plug portion having an outer wall dimensioned to engage the outer wall of said socket portion

when the plug and socket portions are urged together, and a height less than the height of said outer wall of said socket portion, a shoulder portion extending outwardly from the outer wall of said plug portion, a planar base portion connected to the outer wall of said plug portion adjacent said shoulder portion, an inner wall having at least one elongated slot extending from a lower edge thereof to a point adjacent said plug base portion, portions of said plug inner wall being inclined outwardly and downwardly away from the central perpendicular axis of said plug base portion, the axis being perpendicular to, and through the central region of said plug base portion, said inclined portions of the inner wall of said socket member being adapted to mate with the inner wall of said plug member in demountable interfitted relationship and the distance between parts of the inclined portions of the socket inner wall which are diametrically opposed across the central perpendicular axis of the socket portion, being less than the corresponding distance between diametrically opposed parts of the outer side of the inclined portions of the inner wall of the plug member, when the plug and socket portions are not engaged, whereby the shoulder portion of said plug member will be urged against the upper edge of the outer wall of said socket member when the plug and socket portions are engaged.

Preferably said inner wall of said socket has a smoothly rounded bead on the inside thereof adjacent the upper edge of said socket inner wall on which bead said upwardly inwardly inclined portions are formed and said inner wall of said plug portion has a smoothly rounded bead on the outside adjacent the lower edge of said plug inner wall, on which bead said downwardly outwardly inclined portions are formed, the distance between portions of said outside

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Price 33p

bead being greater than the corresponding distance between corresponding portions of said inside bead whereby continuous pressure will be exerted on said inclined portions on said beads when said plug and socket are forced together in interfitted demountable relationship.

The connecting coupling arrangement may be applied to a device having individual containers for storing and serving foodstuffs such as condiments and the like. In this aspect of the invention the device has a finger grip handle member and a plurality of container support arms disposed about a base part of said handle member, each container support arm having a container demountably attached thereto, there being provided a connective coupling arrangement according to the present invention between each container and its container support arm, the socket portion of the coupling arrangement being on the container support arm and the plug portion being on the container.

Each container generally has a side wall terminating in a peripheral edge. According to a feature of one embodiment of the invention the device includes a respective removable closure for each container, each closure having a peripheral edge formed as an inverted U-shaped groove adapted to form a moisture-tight seal with the peripheral edge of the respective container.

A specific embodiment of the invention will now be described by way of example with reference to the accompanying drawings, with reference to the accompanying drawings, of which:—

Figure 1 is a perspective view of a device for storing and serving foodstuffs according to the invention showing an individual container thereof in an exploded position with this container removed from the base of the carrying member and a cover removed from the upper portion of this container,

Figure 2 is a top view of the device shown in Figure 1.

Figure 3 is a bottom view of the device shown in Figure 1.

Figure 4 is a front elevation of the device shown in Figure 1.

Figure 5 is an elevational view similar to the view in Figure 4, with the device turned on its central axis through an angle of 60°.

Figure 6 is a view and cross-section taken on line 6-6 of Figure 2.

Figure 7 is an exploded cross-sectional view showing the relationship between a plug member on the lower portion of the container, and a socket member on the end of an arm of a carrying device in an unassembled relationship, and,

Figure 8 is a view similar to Figure 7 showing the plug and socket members in assembled relationship.

Referring now to the drawings, there is

shown a device 10 for storing and serving foodstuffs such as condiments or the like. The device includes containers 11, formed as individual cup members having covers 12, and carrying and serving member 13. The carrying and serving member has a finger grip handle 14, and container support arms 15 disposed about the base of said handle. The support arms extend outwardly and lie generally in a single plane which is perpendicular to the longitudinal axis of handle 14. As seen in Figure 6, handle 14 can be formed with an upper finger grip portion 16 and a lower extending column 17 which is connected with arms 15.

The individual containers are formed as individual cup members, each having a bottom 18, a sidewall 19 and a closure 12. The sidewall terminates in a peripheral edge 20. The closure 12 has a peripheral edge portion 21 formed as an inverted U-shaped groove adapted to form a moisture-tight seal with edge 20.

In the preferred embodiment of the invention, container 11 can be removed from carrying and serving member 13 for refrigerator storage. Accordingly there is a coupling between each container 11 and the carrying and serving member 13, which coupling is designed to permit the containers 11 to be mounted on the carrying and serving member 13 in demountable interfitted relationship.

As best seen in Figures 6, 7 and 8, the connecting coupling arrangement between a container 11 and the end portion of an arm 15 includes a socket portion, shown generally at 22, and a plug portion shown generally at 23. The socket portion includes an outer wall 24 that terminates in an upper edge 25. A base portion 26 is connected to the opposite edge of the outer wall of the socket member. An inner wall portion 27 is located within said outer wall. On the inside of the upper edge of the inner wall portion there is a smoothly rounded bead 28 having an upper inwardly inclined surface 29 and a lower outwardly inclined surface 30. At least one and preferably a plurality of elongated slots 31 extend from the upper edge of the inner wall to a point adjacent base portion 26. The elongated slots extend generally parallel to the central perpendicular axis of said base portion.

The plug portion 23 has an outer wall 32 with an outside diameter smaller than the inside diameter of the outer wall 24 of said socket member. The height from the base of outer wall 32 is substantially smaller than the height from the base of outer wall 24. A shoulder portion 33 extends outwardly from the outer wall 32 of said plug portion. In the embodiment shown, the shoulder portion 33 is of substantially the same width as the upper edge 25 of wall portion 24 of

the socket member 22. The plug member 23 has an inner wall 34 provided with at least one and preferably a plurality of elongated slots extending from the lower edge thereof to a point adjacent the plug base portion. The inner wall slants outwardly, and has a bead 35 having an outwardly slanted upper surface 37 and an inwardly slanted lower surface 36.

The outside diameter of bead 35 is larger than the normal inside diameter of bead 28. Moreover, the inclined surface 37 of bead 35 is normally of a greater diameter than inclined surface 30 of bead 28. Accordingly, when the plug 23 is inserted into socket 22, the slots of inner wall 34 and inner wall 27 respectively close and open to permit the bead 35 to pass the bead 28. Thereupon, the plug and socket member are joined in a demountable interfitted relationship (as shown in Figure 8), with the inclined surface 30 and inclined surface 37 in mating relationship. Due to the force caused by the differences in the normal diameters at that point, plug 23 is continuously urged downwardly into socket 22. The shoulder 33 is seated firmly on the upper edge 25 of the outer wall 24 of socket 22.

With the foregoing described structure of the socket and the plug, the containers 11 can easily be removed by simply applying a twisting and lifting motion.

The structure as described can be formed from a variety of plastics materials by the usual injection moulding processes. For example, the cup-shaped container members 11 and carrying and serving member 13 can be formed entirely of either linear polyethylene or polypropylene. To enhance sealing characteristics, it is preferred to have container closures 12 formed of low density polyethylene.

Among the advantages of the specific embodiment are the fact that the diameter of the outer walls 32 of a plug portion 23 of the container member 11 are of sufficient width to maintain the container in stable resting support when it is separated from the carrying and serving member 13 and placed in a refrigerator or other storage compartment.

As seen in Figure 3, the overall outline of the preferred configuration of the container provides a broad base whereby the container can be maintained in stable resting position on a circular edge. The individual containers are also sufficiently close to the axis of handle member 14 so that serious instability due to a greater weight in two or more of the containers will not result in imbalance when the containers are carried by the handle.

WHAT WE CLAIM IS:—

1. A connecting coupling arrangement

between two members fabricated of plastics material comprising a socket portion on one of said members and a plug portion on the other of said members, said socket portion being orientated below said plug portion in normal use, said socket portion comprising an outer wall terminating in a peripheral edge, a planar base portion connected to an edge of said outer wall opposite to said peripheral edge, an inner wall having portions inclined inwardly and upwardly toward the central perpendicular axis of said base portion; the axis being perpendicular to, and through the central region of said planar base portion an upper edge of said inner wall terminating below a plane defined by an upper edge of said outer wall, said inner wall having at least one elongated slot breaking its upper edge surface and extending generally parallel to the central perpendicular axis of said base portion; said plug portion having an outer wall dimensioned to engage the outer wall of said socket portion when the plug and socket portions are urged together, and a height less than the height of said outer wall of said socket portion, a shoulder portion extending outwardly from the outer wall of said plug portion, a planar base portion connected to the outer wall of said plug portion adjacent said shoulder portion, an inner wall having at least one elongated slot extending from a lower edge thereof to a point adjacent said plug base portion, portions of said plug inner wall being inclined outwardly and downwardly away from the central perpendicular axis of said plug base portion, the axis being perpendicular to, and through the central region of said plug base portion, said inclined portions of the inner wall of said socket member being adapted to mate with the inner wall of said plug member in demountable interfitted relationship and the distance between parts of the inclined portions of the socket inner wall which are diametrically opposed across the central perpendicular axis of the socket portion being less than the corresponding distance between diametrically opposed parts of the outer side of the inclined portions of the inner wall of the plug portion, when the plug and socket portions are not engaged, whereby the shoulder portion of said plug portion will be urged against the upper edge of the outer wall of said socket portion when the plug and socket portions are engaged.

2. A connecting coupling arrangement as claimed in claim 1, wherein said inner wall of said socket has a smoothly rounded bead on the inside thereof adjacent the upper edge of said socket inner wall on which bead said upwardly, inwardly inclined portions are formed and said inner wall of said plug portion has a smoothly rounded bead on the outside adjacent the lower edge of



the socket member 22. The plug member 23 has an inner wall 34 provided with at least one and preferably a plurality of elongated slots extending from the lower edge thereof to a point adjacent the plug base portion. The inner wall slants outwardly, and has a bead 35 having an outwardly slanted upper surface 37 and an inwardly slanted lower surface 36.

10 The outside diameter of bead 35 is larger than the normal inside diameter of bead 28. Moreover, the inclined surface 37 of bead 35 is normally of a greater diameter than inclined surface 30 of bead 28. Accordingly, 15 when the plug 23 is inserted into socket 22, the slots of inner wall 34 and inner wall 27 respectively close and open to permit the bead 35 to pass the bead 28. Thereupon, the plug and socket member are joined in 20 a demountable interfitted relationship (as shown in Figure 8), with the inclined surface 30 and inclined surface 37 in mating relationship. Due to the force caused by the differences in the normal diameters at that 25 point, plug 23 is continuously urged downwardly into socket 22. The shoulder 33 is seated firmly on the upper edge 25 of the outer wall 24 of socket 22.

With the foregoing described structure of 30 the socket and the plug, the containers 11 can easily be removed by simply applying a twisting and lifting motion.

The structure as described can be formed from a variety of plastics materials by the 35 usual injection moulding processes. For example, the cup-shaped container members 11 and carrying and serving member 13 can be formed entirely of either linear polyethylene or polypropylene. To enhance sealing characteristics, it is preferred to have 40 container closures 12 formed of low density polyethylene.

Among the advantages of the specific embodiment are the fact that the diameter of 45 the outer walls 32 of a plug portion 23 of the container member 11 are of sufficient width to maintain the container in stable resting support when it is separated from the carrying and serving member 13 and placed 50 in a refrigerator or other storage compartment.

As seen in Figure 3, the overall outline of the preferred configuration of the container provides a broad base whereby the container 55 can be maintained in stable resting position on a circular edge. The individual containers are also sufficiently close to the axis of handle member 14 so that serious instability due to a greater weight in two or 60 more of the containers will not result in imbalance when the containers are carried by the handle.

WHAT WE CLAIM IS:—

65 1. A connecting coupling arrangement

between two members fabricated of plastics material comprising a socket portion on one of said members and a plug portion on the other of said members, said socket portion being orientated below said plug portion in 70 normal use, said socket portion comprising an outer wall terminating in a peripheral edge, a planar base portion connected to an edge of said outer wall opposite to said peripheral edge, an inner wall having portions 75 inclined inwardly and upwardly toward the central perpendicular axis of said base portion; the axis being perpendicular to, and through the central region of said planar base portion an upper edge of said inner wall terminating below a plane defined by 80 an upper edge of said outer wall, said inner wall having at least one elongated slot breaking its upper edge surface and extending generally parallel to the central perpendicular axis of said base portion; said plug portion having an outer wall dimensioned to 85 engage the outer wall of said socket portion when the plug and socket portions are urged together, and a height less than the height of said outer wall of said socket portion, a shoulder portion extending outwardly from the outer wall of said plug portion, a planar 90 base portion connected to the outer wall of said plug portion adjacent said shoulder portion, an inner wall having at least one elongated slot extending from a lower edge thereof to a point adjacent said plug base 95 portion, portions of said inner wall being inclined outwardly and downwardly away from the central perpendicular axis of said plug base portion, the axis being perpendicular to, and through the central region of said plug base portion, said inclined portions of the inner wall of said socket member 100 being adapted to mate with the inner wall of said plug member in demountable interfitted relationship and the distance between parts of the inclined portions of the socket inner wall which are diametrically 105 opposed across the central perpendicular axis of the socket portion being less than the corresponding distance between diametrically opposed parts of the outer side of the inclined portions of the inner wall of the plug portion, when the plug and socket portions 110 are not engaged, whereby the shoulder portion of said plug portion will be urged against the upper edge of the outer wall of said socket portion when the plug and socket portions are engaged. 115 120

2. A connecting coupling arrangement as claimed in claim 1, wherein said inner wall of said socket has a smoothly rounded bead on the inside thereof adjacent the 125 upper edge of said socket inner wall on which bead said upwardly, inwardly inclined portions are formed and said inner wall of said plug portion has a smoothly rounded bead on the outside adjacent the lower edge of 130



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said plug inner wall, on which bead said downwardly outwardly inclined portions are formed, the distance between portion of said outside bead being greater than the corresponding portions of said inside bead whereby continuous pressure will be exerted on said inclined portions on said beads when said plug and socket are forced together in inter-fitted demountable relationship.

10 3. A device for storing and serving food-stuffs, said device being of plastics material and comprising a handle member and a plurality of container support arms disposed about a base part of said handle member,
15 each container support arm having a container demountably attached thereto, there being provided a connective coupling arrangement as claimed in claim 1 or claim 2 between each container and its container
20 support arm, the socket portion being on the container support arm and the plug portion being on the container.

4. A device as claimed in claim 3 where-

in each container has a side wall terminating in a peripheral edge, the device also including a respective removable closure for each container, each closure having a peripheral edge formed as an inverted U-shaped groove adapted to form a moisture-tight seal with the peripheral edge of the respective container. 25

5. A device as claimed in claim 3 substantially as hereinbefore described with reference to and as shown in the accompanying drawings. 35

6. A connecting coupling arrangement as claimed in claim 1 substantially as hereinbefore described with reference to and as shown in the accompanying drawings. 40

DART INDUSTRIES INC.

Per: BOULT, WADE & TENNENT
112 Hatton Garden, London EC1N 8 NA
Chartered Patent Agents.