United States Patent [19]

Coster

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[54] **TOY ADAPTER ASSEMBLY**

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[30] **Foreign Application Priority Data**

Mar. 9, 1973 United Kingdom 6526/73

[52] **U.S. Cl.** **46/17;** 46/202; 46/218

[51] **Int. Cl.** **A63h 33/06**

[58] **Field of Search** 46/11, 17, 202, 216, 218

[56] **References Cited**

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Assistant Examiner—Robert F. Cutting
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[57] **ABSTRACT**

A toy adapter assembly capable of being affixed to a container to form therewith a toy, said assembly comprising an integrally formed unit comprising a support member and at least one bifurcated hub with resilient arms extending therefrom, and mobile means capable of being removably mounted on said hub means.

11 Claims, 12 Drawing Figures

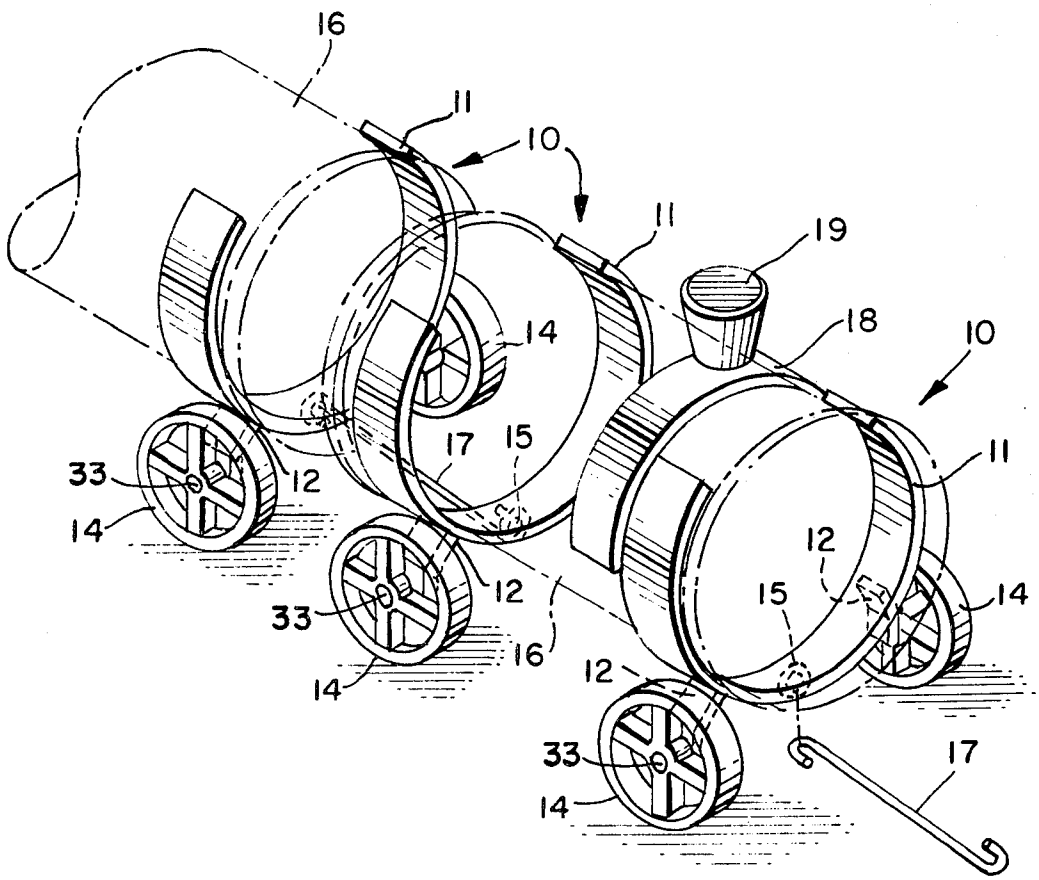


FIG. 1

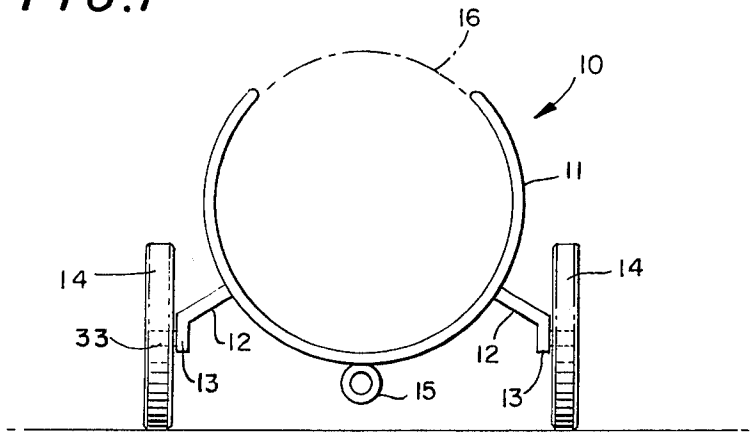


FIG. 2.

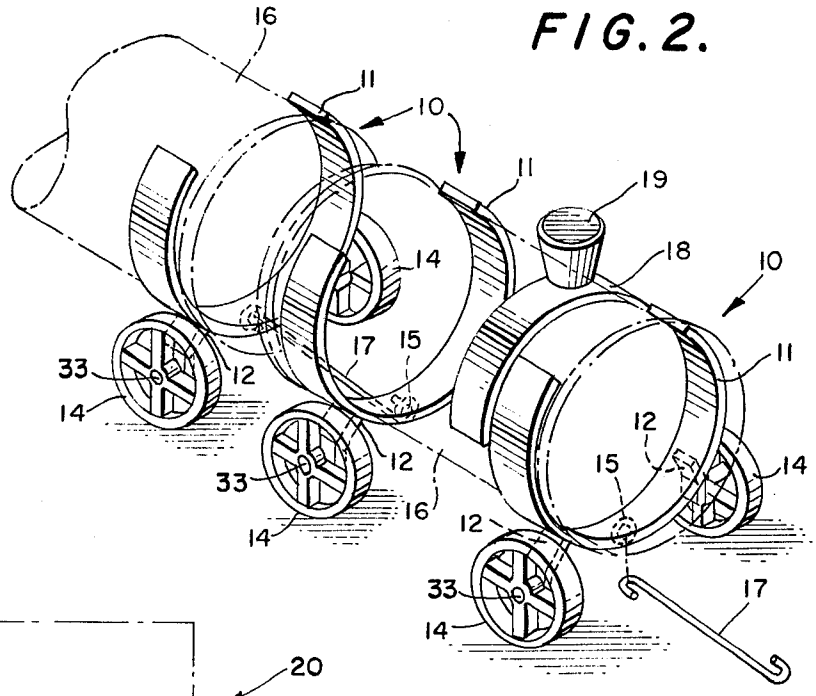


FIG. 3.

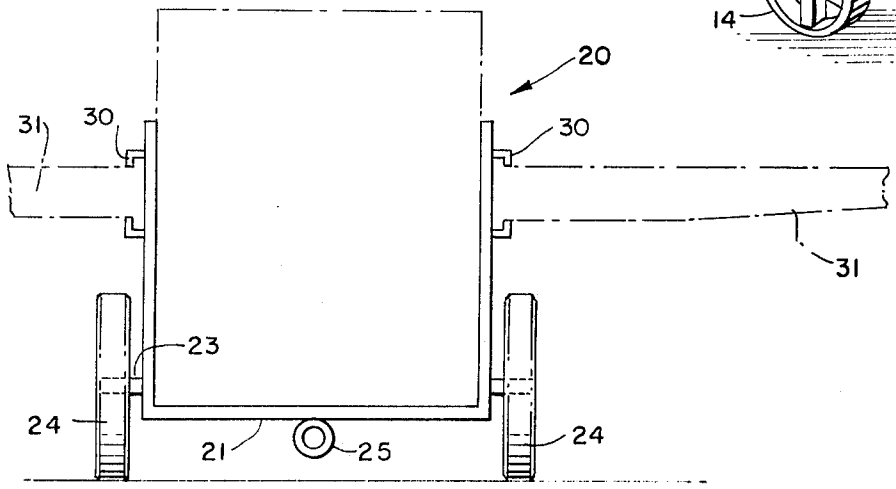


FIG. 4.

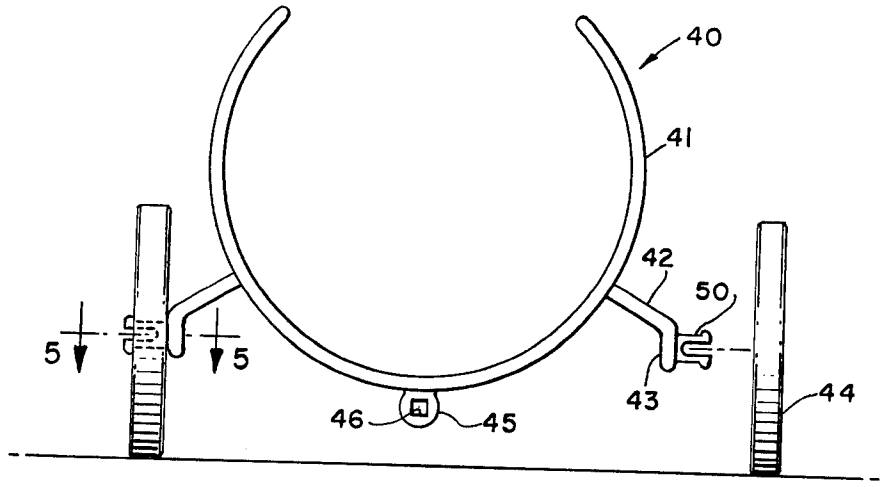


FIG. 5.

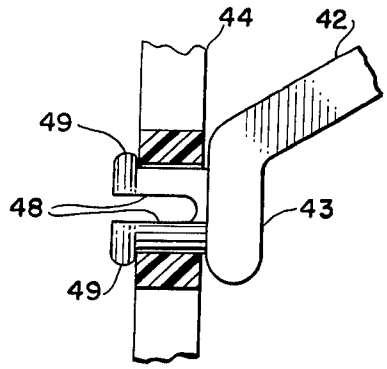


FIG. 6.

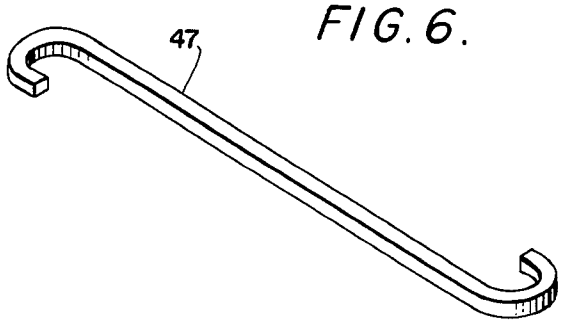


FIG. 7.

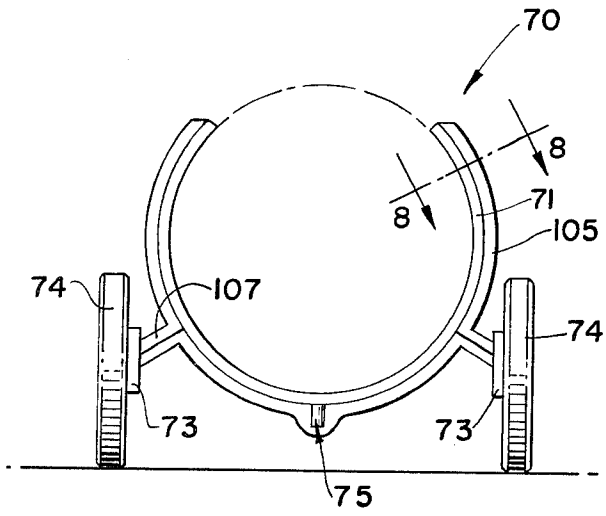


FIG. 8.

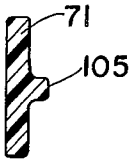


FIG. 10.

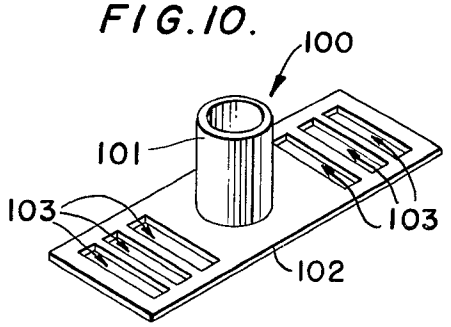


FIG. 9.

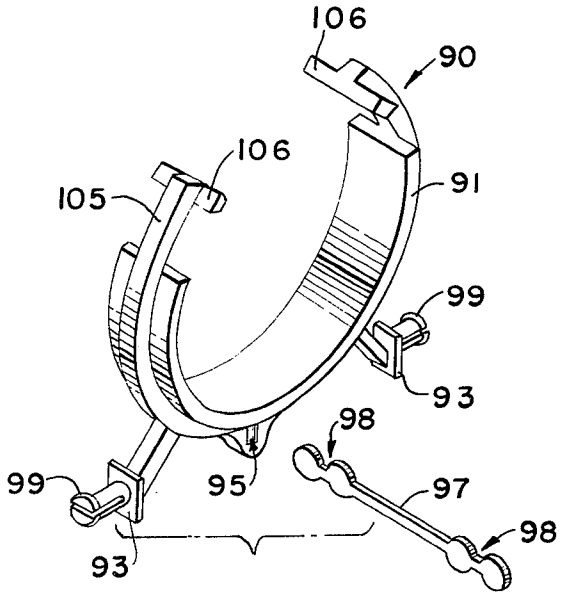


FIG. 11.

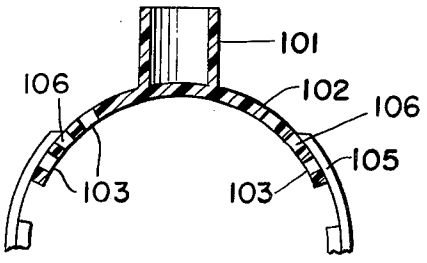
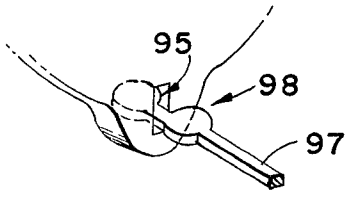


FIG. 12.



TOY ADAPTER ASSEMBLY

BACKGROUND OF THE INVENTION

Children, with their active imagination, are capable of and do utilize containers, such as tin cans and cardboard boxes, whether full or empty, as playthings, such as building blocks, to make toy houses, castles, or cities, or, when empty, as doll cradles, other toy receptacles and the like. However, they soon tire of these empty containers since they are stationary and immobile.

Attempts to make containers, particularly empty containers, suitable for repeated use as active toys have not proven successful since the means used to adapt the containers are either too difficult for children to operate or too expensive.

SUMMARY OF THE INVENTION

A toy adapter assembly has now been found which is inexpensive and which can be used by any child in conjunction with a container, whether full or empty, to form a variety of mobile toys.

Briefly stated, the present invention comprises a toy adapter assembly capable of being attached to a container to form therewith a toy, said assembly comprising an integrally formed unit comprising a support member, at least one axle bracket depending therefrom, and bifurcated axle hub means on said bracket and mobile means capable of being removably mounted on said axle hub means.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of a toy adapter assembly of the present invention;

FIG. 2 is a partial perspective view of a tin can train formed of a plurality of the adapter units of the present invention;

FIG. 3 is a front elevational view of an alternate embodiment of the invention in which the support member of the adapter unit is square-shaped;

FIG. 4 is a front elevational view of an alternate embodiment of the present invention with one of the wheels broken away to better disclose the axle;

FIG. 5 is a fragmentary enlarged vertical sectional view along line 5—5 of FIG. 4;

FIG. 6 is a perspective view of a modified bar of the invention;

FIG. 7 is a front elevational view of a further alternate embodiment of the instant invention having a reinforcing rib;

FIG. 8 is a sectional view taken along line 8—8 of FIG. 7;

FIG. 9 is a perspective view of an alternate embodiment of the invention showing clasping means at the outer ends of the arcuate support member and a modified bar;

FIG. 10 is a perspective view of an alternate smokestack assembly;

FIG. 11 is a partial sectional view of the arcuate support member of FIG. 9 and the smokestack assembly of FIG. 10 in an engaged position; and

FIG. 12 is a partial perspective view of the modified bar of FIG. 9 attached to the arcuate support member of FIG. 9.

DETAILED DESCRIPTION

The instant invention will be described in connection with a toy train which is a preferred embodiment, but it will be understood and evident that the invention can be utilized to form toy wagon trains, truck trains, and the like and, also, to form individual toy wagons, trucks, boats, airplanes, and the like.

Referring to the drawings, FIG. 1 shows an individual toy adapter assembly **10** which comprises an arcuate support member **11** having integrally formed therewith axle brackets **12** and axles **13**, and hubs **33** and mobile means (wheels) **14** attached to the axle hubs **33**. Also dependent from the arcuate support member **11** is attachment means **15**; a ring-shaped device to which a string or other means, as hereinafter described, can be attached.

The individual toy adapter units are preferably made of a resilient material, either a plastic, such as polyethylene, polypropylene, or rubber, or metal, so that a container can be snugly set thereinto and the arcuate member will act to clasp the container. It is preferred to form the adapter units of a plastic material as they then can be easily molded to form an integral unit of the arcuate support member **11**, axle brackets **12**, axles **13**, hubs **33**, and attachment means **15**. The separately formed wheels **14** then need only be mounted on the axles **13**.

FIG. 2 depicts a toy tin can train assembly comprising a series of empty tin cans **16**, shown in broken outline, which are in a horizontal position and have an adapter unit of FIG. 1 attached to the front and rear ends thereof. In a further embodiment of the present invention, an additional arcuate member **18** with a train smokestack **19** is placed on the top of the leading tin can to give the assembly a more train-like appearance. The individual tin cans **16** mounted on the adapter units **10** are detachably fastened together to form the train assembly by means of an elongated S-shaped bar **17** attached to the attachment means **15** of the adapter units facing each other between tin cans. The bar can be C-shaped if desired. This acts to link together the individual tin cans to form a plurality of train cars so that the child can have as many cars in his train as he desires. A string or other means can be attached to the attachment means **15** of the foremost adapter unit to permit the child to pull the tin can train.

An alternate embodiment is illustrated in FIG. **3**, wherein the unit **20** comprises a square-shaped support member **21** which can fit about cardboard boxes, such as those conventionally used in selling breakfast cereals. Wheels **24** are mounted on axles **23** attached to the support member **21**. Attachment means **25** depends from the member **21** and fastening means **30** are provided on each side of the support means **21** to which elements, such as wings **31** (shown partially in broken outline), can be inserted. Thus, the child can create a toy airplane.

Referring to FIGS. **4**, **5**, and **6**, there is shown an alternate embodiment of the invention **40** wherein the attachment means **45**, while of a generally ring-shaped outer appearance, has a square-shaped opening **46** therethrough. The S-shaped bar **47** used to connect two of the units **40** together can, consequently, be formed to have a rectangular cross-section permitting it to slide into the square opening in the attachment but not permitting it to turn. This makes a better lock between the attachment means and the bar. As with the previous embodiments, the support member **41**, axle brackets

42, axles 43, hubs 50, and attachment means 45 are preferably integrally formed of a resilient material.

The hub 50 extending from the axle 43 is also more clearly depicted in an enlarged view thereof in FIG. 5. The hub 50 is bifurcated having resilient arms 48 with each arm having a flange 49 at the outer end thereof. The two arms 48 of the hub 43, being resilient, move close together when a force is applied and then spring back to their original position when the force is removed. The wheels 44 can be mounted on the hub 43 simply by snapping them onto the hub 50 over the flanges 49. The hubs 50 are of a sufficient length so that the arms 48 extend through the wheel opening and spring back to their original position with the flanges 49 locking the wheel onto the hub. The diameter of the wheel opening is larger than the diameter of the hub permitting the wheel to freely rotate on the hub. However, as the flanges 49 extend outwardly from the arms 48 of the hub 50, this acts to retain the wheel on the hub. Pressure on the flanges, as by moving the wheel outwardly from the hub, is sufficient to cause the arms 48 to be deformed inwardly toward each other and thereby permit ready removal of the wheel 44 from the hub.

Further alternate embodiments of the invention are illustrated in FIGS. 7 and 9 wherein units 70 and 90, respectively, comprise arcuate support members 71 and 91 having a reinforcing rib 105 integrally formed therewith and extending along said support members. Integrally formed axle brackets 72 and 92 have a similar reinforcing rib 107. Such ribs 105 and 107 act to strengthen the unit and are structured so that rectangular-shaped openings 75 and 95 are located therein which functions as attachment means.

Such attachment functions as illustrated in FIGS. 9 and 12 in which bar 97 having figure-eight shaped ends 98 and dimensioned to be insertable in one plane in opening 95, is inserted into opening 95 up to the central portion of the figure-eight portion of one end thereof and rotated 90° along its long axis. This locks one end of bar 97 in the opening 95 and the other end of bar 97 can be inserted into a similar opening of a second unit to link the two units together.

The axles 73 and 93, hubs 99, and wheels 74 are the same as those used in the embodiments shown in FIGS. 1 and 4.

The embodiment of FIG. 9 differs from that of FIG. 7 in that the rib 105 extends beyond each end arcuate support member 91 and has attached at each extremity thereof a tooth 106.

The smokestack assembly 100 shown in FIG. 10, preferably integrally formed of a resilient plastic material, comprises a smokestack 101 and a support 102. The support has a plurality of slots 103 therein shaped to be engageable with the teeth 106 of arcuate support member 91. As best shown in FIG. 11, teeth 106 engage slots 103 in assembly 100 to firmly lock the assembly 100 about the can or other object (not shown) placed in the support member 91. The plurality of slots 103 permits varying sizes of containers to be snugly retained in the train assembly.

From the foregoing, it will be evident that the size and shape of the support members 11, 21, 41, 71, and 91 can vary widely so as to fit about any size cans, canisters, boxes, inflated balloon, or other containers whatever the shape thereof. However, it is preferred that the support members be omega-shaped and open at the top so as not to enclose the entire circumference of the container. This enables the supports to clasp various size cans and other containers. In like manner, the mobile means need not be wheels but can be skis, or other mobile structures which would permit the child to move the toy as by pushing and pulling. It is also possible to provide a variety of superstructure units in place of the train smokestack previously described so as to permit the child to make the toys more realistic as, for example, to have a truck cab assembly which can be mounted on an individual can to give it a more truck-like appearance. It is also possible to vary the fastening means on the support members of the individual adapter units to which can be affixed toy elements other than the wings depicted in order to make an individual box or tin can give a closer resemblance to the object the child is trying to depict.

From the foregoing description, the use of the toy adapter unit is largely evident. Since the support member is resilient in nature, the child need only place the tin can, box, inflated balloon, or other container into such support member which will open sufficiently to receive the container and then snugly clasp it. This resiliency also permits the container used to be readily removed and the toy adapter unit to be utilized with a different container of the same general dimensions.

It will be understood that it is intended to cover all changes and modifications of the disclosure of the invention herein chosen for the purpose of illustration which do not constitute departures from the spirit and scope of the invention.

What is claimed is:

1. A toy adapter assembly capable of being removably affixed to a container to form therewith a toy, said assembly comprising an integrally formed unit comprising a generally omega-shaped resilient support member with an open top for clasping the container, at least one axle bracket extending generally radially outwardly therefrom, and axle hub means on said bracket, and mobile means capable of being removably mounted on said axle hub means.

2. The toy adapter assembly of claim 1 wherein said support member is arcuate in shape and includes attachment means dependent therefrom.

3. A toy adapter assembly of claim 1 wherein said unit is integrally formed of a plastic material.

4. The toy adapter assembly of claim 2 wherein the attachment means has an opening therethrough and the assembly includes an elongated connecting bar, said connecting bar adapted to engage said opening.

5. The toy adapter assembly of claim 4 wherein said opening is rectangular in shape and said bar is S-shaped and has a rectangular cross-section so dimensioned to be able to enter said opening but not to be capable of being turned once so engaged.

6. The toy adapter assembly of claim 1 including integrally formed fastening means on the side of said support member to which toy elements can be fastened.

7. The toy adapter assembly of claim 1 wherein said hub means includes bifurcated hub means which comprises two resilient spaced apart arms, each having a flange at its outer end.

8. The toy adapter assembly of claim 2 including a reinforcing rib extending along said support member and integrally formed therewith.

9. The toy adapter assembly of claim 8 wherein said attachment means comprises a rectangular-shaped opening in said rib.

10. The toy adapter assembly of claim 9 including an elongated connecting bar adapted to engage said opening, said bar having figure-eight shaped elements at each end thereof.

11. A toy adapter assembly capable of being affixed to a container to form therewith a toy, said assembly

comprising an integrally formed unit comprising a support member, at least one axle bracket extending generally radially outwardly therefrom, and bifurcated axle hub means on said bracket including two resilient spaced apart arms each having a flange at its outer end, and mobile means capable of being removably mounted on said axle hub means.

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