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# United States Patent [19]

Handlin

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[54] **QUICK COOL DEVICE**

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[51] **Int. Cl.**[6] ..... **F25D 3/08**; F25D 25/02

[52] **U.S. Cl.** ..... **62/457.3**; 62/381

[58] **Field of Search** ..... 62/457.1, 457.3, 62/457.8, 371, 62, 63, 381

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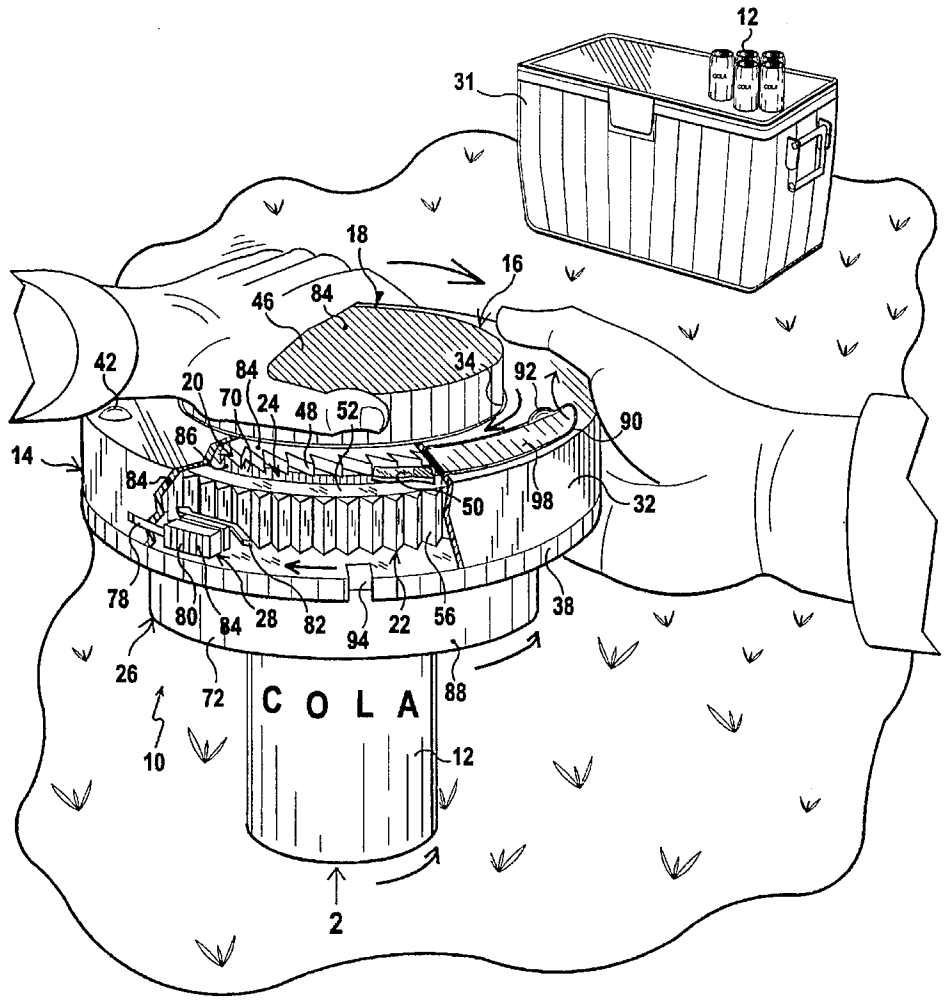
[57] **ABSTRACT**

A quick cool device (**10**) for a beverage can (**12**) comprising a housing (**14**). A twist member (**16**) is rotatively carried in the housing (**14**). The twist member (**16**) has a handle (**18**) extending up through a top of the housing A facility (**20**) is for allowing rotation of the twist member (**16**) in one direction within the housing (**14**). A gear assembly (**22**) is in the housing (**14**). A component (**24**) is connected between the twist member (**16**) and the gear assembly (**22**) in the housing (**14**), for storing energy when the handle (**18**) of the twist member (**16**) is manually turned. A holder (**26**) for the beverage can (**12**) is connected to the gear assembly (**22**) on bottom of the housing (**14**). An assemblage (**28**) is for locking and unlocking the gear assembly (**22**). When the gear assembly (**22**) is locked the energy storing component (**24**) will store energy. When the gear assembly (**22**) is unlocked, the energy storing component (**24**) will release the stored energy to cause the gear assembly (**22**) to rotate the holder (**26**), thereby allowing the beverage can (**12**) to rotate within pieces of ice (**30**) in an ice chest (**31**) to cool off the beverage can (**12**) quickly.

**23 Claims, 3 Drawing Sheets**



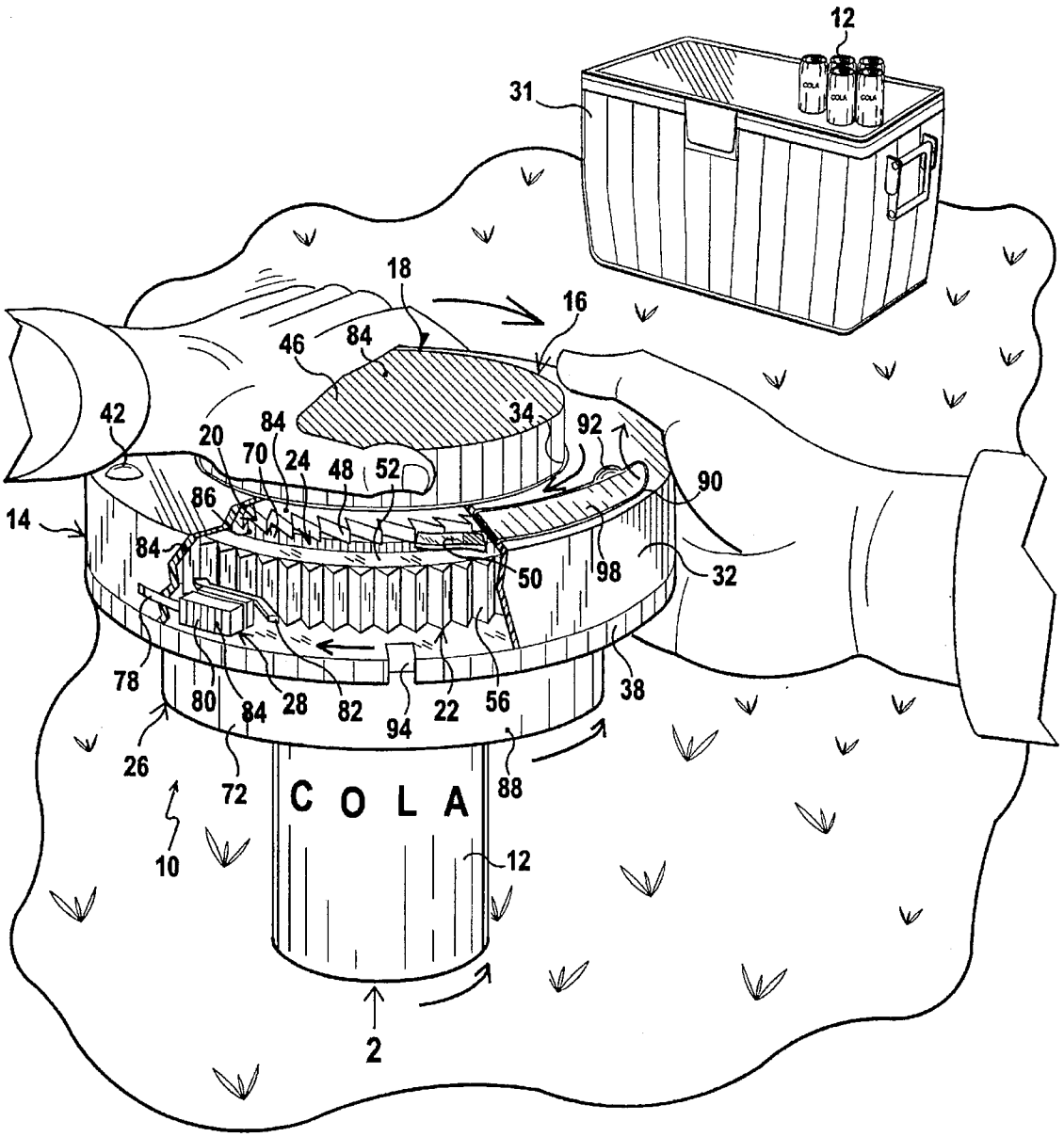

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FIG 1

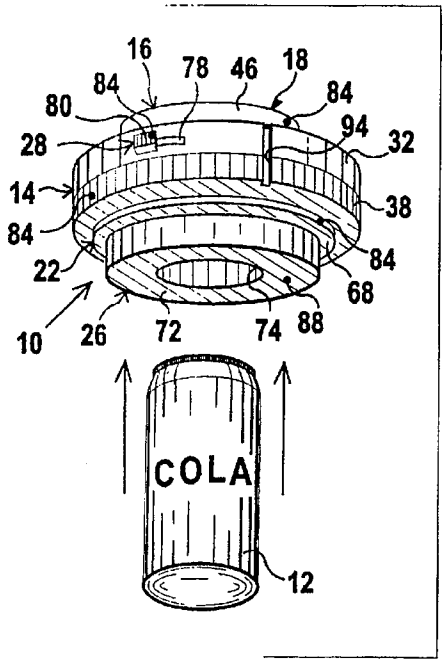
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FIG 2

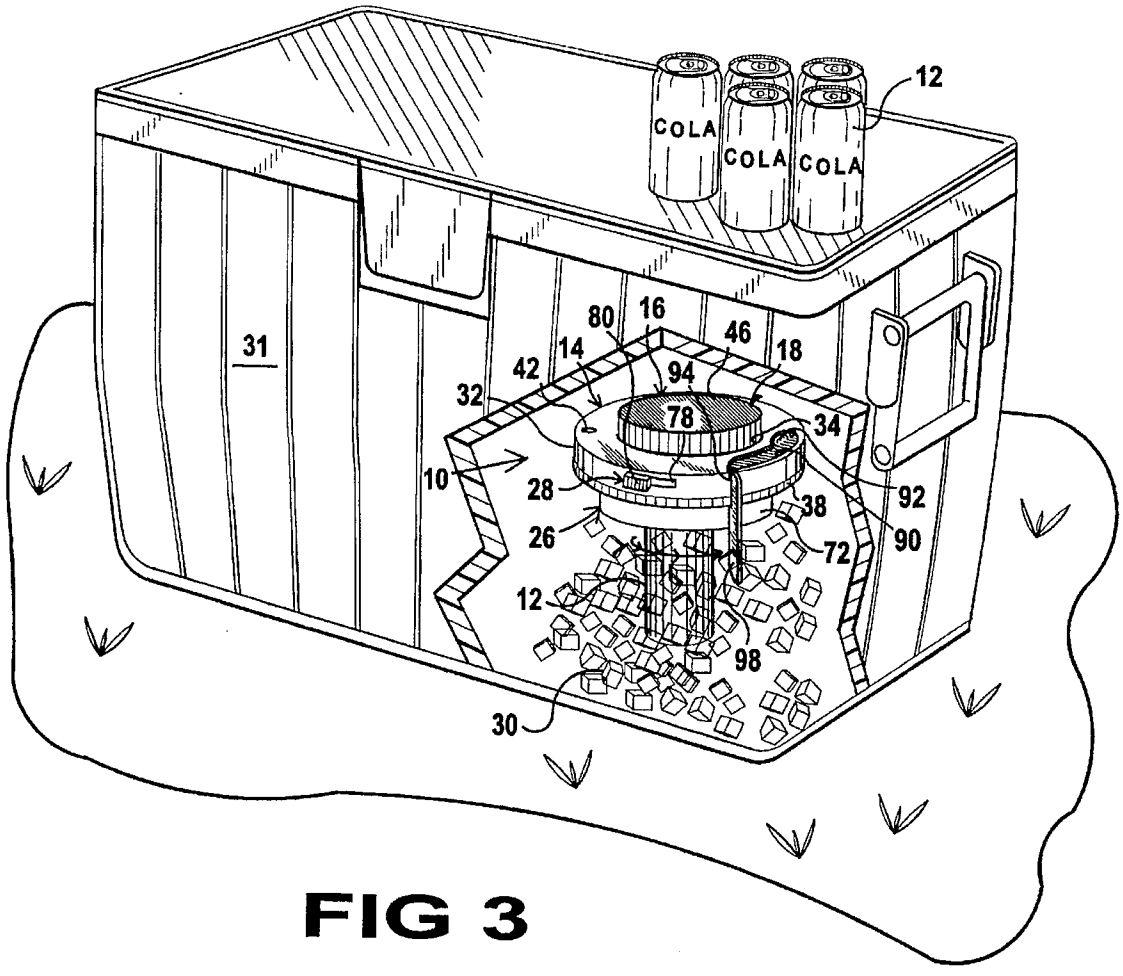
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FIG 3

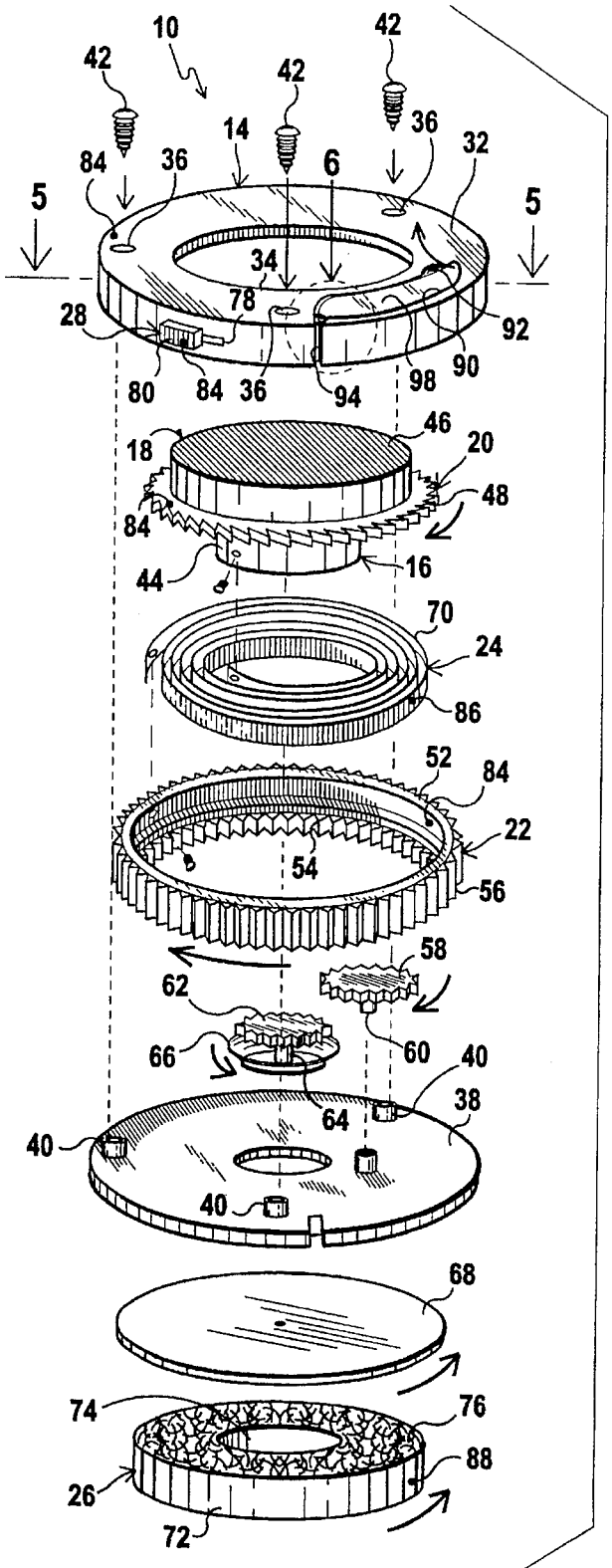


FIG 4

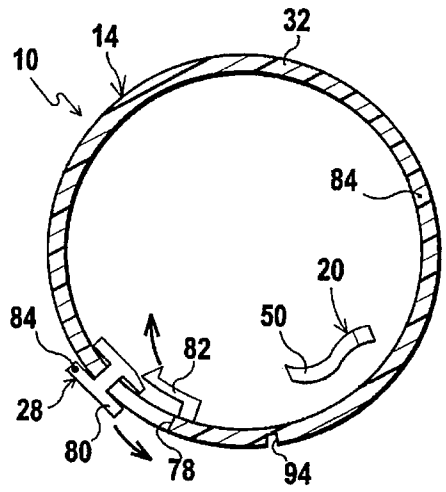


FIG 5

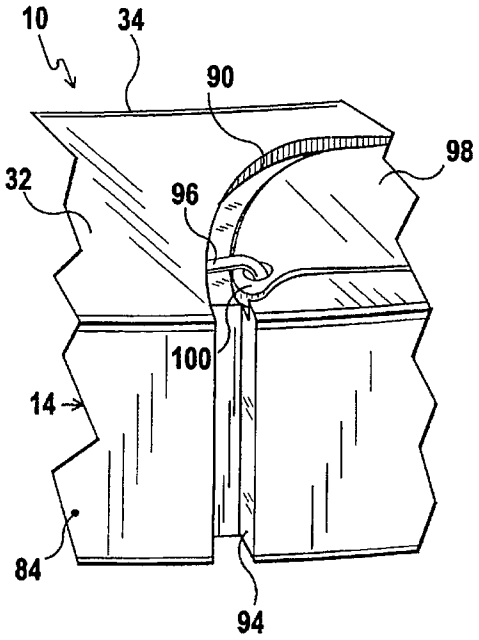


FIG 6

# QUICK COOL DEVICE

## BACKGROUND OF THE INVENTION

1. Field of the Invention

The instant invention relates generally to cooling apparatuses and more specifically it relates to a quick cool device.

2. Description of the Prior Art

Numerous cooling apparatuses have been provided in prior art that are adapted to reduce the temperatures of various articles over a long period of time. While these units may be suitable for the particular purpose to which they address, they would not be as suitable for the purposes of the present invention as heretofore described.

## SUMMARY OF THE INVENTION

A primary object of the present invention is to provide a quick cool device that will overcome the shortcomings of the prior art devices.

Another object is to provide a quick cool device that will cool off a beverage can at room temperature to around freezing in a short amount of time, by covering the beverage can in pieces of ice within an ice chest and letting the beverage can spin about in the ice.

An additional object is to provide a quick cool device that will cool off the beverage can quickly, thereby saving room in the ice chest for food items that must stay cold all the time, such as mayonnaise, meat, etc.

A further object is to provide a quick cool device that is simple and easy to use.

A still further object is to provide a quick cool device that is economical in cost to manufacture.

Further objects of the invention will appear as the description proceeds.

To the accomplishment of the above and related objects, this invention may be embodied in the form illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that changes may be made in the specific construction illustrated and described within the scope of the appended claims.

## BRIEF DESCRIPTION OF THE DRAWING FIGURES

Various other objects, features and attendant advantages of the present invention will become more fully appreciated as the same becomes better understood when considered in conjunction with the accompanying drawings, in which like reference characters designate the same or similar parts throughout the several views, and wherein;

FIG. **1** is a top perspective view of the instant invention with parts broken away, showing two hands of a person winding it up adjacent an ice chest.

FIG. **2** is a bottom perspective view of the instant invention taken in the direction of arrow **1** in FIG. **2**, showing a beverage can ready to be inserted into the holder.

FIG. **3** is a top perspective view of the ice chest with parts broken away, showing the instant invention spinning the beverage can about ice within the ice chest.

FIG. **4** is an exploded top perspective view of the instant invention, showing the internal elements in greater detail.

FIG. **5** is a cross sectional view taken along line **5**—**5** in FIG. **4** through the upper cylindrical shell of the housing, showing the pawl, slide button and flexible arm therein.



FIG. **6** is an enlarged perspective view of the area in FIG. **4** indicated by arrow **6**.

Similar reference characters denote corresponding features consistently throughout the attached drawings.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Turning now descriptively to the drawings, in which similar reference characters denote similar elements throughout the several views, FIGS. **1** through **6** illustrate a quick cool device **10** for a beverage can **12** comprising a housing **14**. A twist member **16** is rotatively carried in the housing **14**. The twist member **16** has a handle **18** extending up through a top of the housing **14**. A facility **20** is for allowing rotation of the twist member **16** in one direction within the housing **14**. A gear assembly **22** is in the housing **14**. A component **24** is connected between the twist member **16** and the gear assembly **22** in the housing **14**, for storing energy when the handle **18** of the twist member **16** is manually turned.

A holder **26** for the beverage can **12** is connected to the gear assembly **22** on the bottom of the housing **14**. An assemblage **28** is for locking and unlocking the gear assembly **22**. When the gear assembly **22** is locked, the energy storing component **24** will store energy. When the gear assembly **22** is unlocked, the energy storing component **24** will release the stored energy to cause the gear assembly **22** to rotate the holder **26**, thereby allowing the beverage can **12** to rotate within pieces of ice **30** in an ice chest **31**, to cool off the beverage can **12** quickly.

The housing **14** includes an upper cylindrical shell **32** having a central aperture **34** therethrough and a plurality of holes **36** radially positioned about the central aperture **34**. A lower cylindrical base **38** has a plurality of threaded bosses **40** radially positioned thereon. A plurality of mounting screws **42** are provided. Each mounting screw **42** fits through one hole **36** in the upper cylindrical shell **32** and threads into one threaded boss **40** on the lower cylindrical base **38**. The upper cylindrical shell **32** can also be fastened to the lower cylindrical base **38** by heat treatment.

The twist member **16** is a cylindrical body **44**, while the handle **18** is an enlarged head **46**. The rotation allowing facility **20** consists of a ratchet ring **48** integral with the twist member **16**. A pawl **50** is affixed to the housing **14**, to engage with the ratchet ring **48**, so that the ratchet ring **48** will only turn in one direction.

The gear assembly **22**, as best seen in FIG. **4**, comprises a spur gear ring **52** having internal teeth **54** and external teeth **56**. An offset pinion gear **58** has a shaft **60** rotatively mounted in the housing **14**. The offset pinion gear **58** is in engagement with the internal teeth **54** of the spur gear ring **52**. A central pinion gear **62** has a shaft **64** in a dish **66** mounted centrally in the bottom of housing **14**. The central pinion gear **62** is in engagement with the offset pinion gear **58**. A cylindrical plate **68** is centrally connected to the shaft **64** of the central pinion gear **62** below the bottom of housing **14**.

The energy storing component **24** is a flat spiral spring **70**. An inner end of the flat spiral spring **70** is connected to the twist member **16**. The outer end of the flat spiral spring **70** is connected to the spur gear ring **52** of the gear assembly **22**.

The holder **26** is a flexible disc **72** having a central opening **74** to receive a top end of the beverage can **12**. The flexible disc **72** is connected to the cylindrical plate **68** of the gear assembly **22** by adhesive **76** or heat treatment. The locking and unlocking means assemblage **28** includes the

housing **14** having a side slot **78** therethrough. A slide button **80** is carried in the side slot **78** of the housing **14**.

A flexible arm **82** is affixed to the interior of the housing **14** adjacent the slide button **80**. When the slide button **80** is manually moved in the side slot **78** in a first direction, it will push the flexible arm **82** inwardly to engage with the external teeth **56** of the spur gear ring **52** of the gear assembly **22**, to prevent rotation of the spur gear ring **22**. When the slide button **80** is manually moved in the side slot **78** in an opposite direction, it will allow the flexible arm **82** to disengage from the external teeth **56** of the spur gear ring **52** of the gear assembly **22**, to allow rotation of the spur gear ring **22**.

The housing **14**, the twist member **16**, the rotation allowing facility **20**, the gear assembly **22** and the locking and unlocking assemblage **28** are all fabricated out of durable strong plastic material **84**, such as plastic, thin metal or composite matter. The energy storing component **24** is fabricated out of a strong flexible material **86**, such as stainless steel or plastic. The holder **26** is fabricated out of a compressible material **88**, such as rubber, foam or composite matter.

The housing **14** has a top recessed area **90**, with a finger grip opening **92** and a cooperating vertical side slot **94**. A hinge rod **96**, as best seen in FIG. **6**, is at the intersection of the top recessed area **90** and the vertical side slot **94**. A flat projection member **98** is provided, having a lug **100** to engage with the hinge rod **96**. When the flat projection member **98** is not used, it will rest in the top recessed area **90**. When the flat projection member is used, it will be lifted out of the top recessed area **90** at the finger grip opening **92**, placed within the vertical slide slot **94** in the housing **14** and held in position thereto by the hinge rod **96**, to keep the device **10** stationary when the beverage can **12** rotates within the pieces of ice **30** in the ice chest **31**.

## LIST OF REFERENCE NUMBERS

10 quick cool device
12 beverage can
14 housing of **10**
16 twist member of **10**
18 handle on **16**
20 rotation allowing facility of **10**
22 gear assembly of **10**
24 energy storing component of **10**
26 holder of **10** for **12**
28 locking and unlocking assemblage of **10**
30 piece of ice
31 ice chest
32 upper cylindrical shell of **14**
34 central aperture in **32**
36 hole in **32**
38 lower cylindrical base of **14**
40 threaded boss on **38**
42 mounting screw
44 cylindrical body for **16**
46 enlarged head for **18**
48 ratchet ring of **20** on **16**
50 pawl of **20** on **14**
52 spur gear ring of **22**
54 internal teeth of **52**
56 external teeth of **52**
58 offset pinion gear of **22**
60 shaft of **58**
62 central pinion gear of **22**
64 shaft of **62**
66 dish of **62**
68 cylindrical plate of **22**
70 flat spiral spring for **24**
72 flexible disc for **26**
74 central opening in **72**
76 adhesive between **72** and **68**
78 side slot in **14** of **28**
80 slide button of **28**
82 flexible arm of **28**
84 durable strong material for **14**, **16**, **20**, **22** and **28**
86 strong flexible material for **24**
88 compressible material for **26**
90 top recessed area in **14**
92 finger grip opening at **90**
94 vertical side slot in **14**
96 hinge rod at **90** and **94**
98 flat projection member
100 lug on **98**

It will be understood that each of the elements described above, or two or more together may also find a useful application in other types of methods differing from the type described above.

While certain novel features of this invention have been shown and described are pointed out in the annexed claims, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention.

What is claimed is new and desired to be protected by Letters Patent is set forth in the appended claims:

**1.** A quick cool device for a beverage can comprising:

a) a housing;

b) a twist member rotatively carried in said housing, said twist member having a handle extending up through a top of said housing;

c) means for allowing rotation of said twist member in one direction within said housing;

d) a gear assembly in said housing;

e) means connected between said twist member and said gear assembly in said housing, for storing energy when said handle of said twist member is manually turned;

f) a holder for the beverage can connected to said gear assembly on bottom of said housing; and

g) means for locking and unlocking said gear assembly, so that when said gear assembly is locked said energy storing means will store energy and when said gear assembly is unlocked said energy storing means will release the stored energy to cause said gear assembly to rotate said holder, thereby allowing the beverage can to rotate within pieces of ice to cool off the beverage can quickly.

**2.** A quick cool device as recited in claim **1**, wherein said housing includes:

a) an upper cylindrical shell having a central aperture therethrough and a plurality of holes radially positioned about said central aperture;

b) a lower cylindrical base having a plurality of threaded bosses radially positioned thereon; and

c) a plurality of mounting screws, in which each said mounting screw fits through one said hole in said upper cylindrical shell and threads into one said threaded boss on said lower cylindrical base.

**3.** A quick cool device as recited in claim **1**, wherein said twist member is a cylindrical body, while said handle is an enlarged head.

**4.** A quick cool device as recited in claim **1**, wherein said rotation allowing means includes:

a) a ratchet ring integral with said twist member; and

b) a pawl affixed to said housing to engage with said ratchet ring, so that said ratchet ring will only turn in one direction.

**5.** A quick cool device as recited in claim **1**, wherein said gear assembly includes:

a) a spur gear ring having internal teeth and external teeth;

b) an offset pinion gear having a shaft rotatively mounted in said housing, with said offset pinion gear in engagement with said internal teeth of said spur gear ring;

c) a central pinion gear having a shaft in a dish mounted centrally in bottom of said housing, with said central pinion gear in engagement with said offset pinion gear; and

d) a cylindrical plate centrally connected to said shaft of said central pinion gear below bottom of said housing.

**6.** A quick cool device as recited in claim **1**, wherein said energy storing means is a flat spiral spring, in which an inner end of said flat spiral spring is connected to said twist member, while said outer end of said flat spiral spring is connected to a spur gear ring of said gear assembly.

**7.** A quick cool device as recited in claim **1**, wherein said holder is a flexible disc having a central opening to receive a top end of the beverage can, whereby said flexible disc is connected to a cylindrical plate of said gear assembly.

**8.** A quick cool device as recited in claim **1**, wherein said locking and unlocking means includes:

a) said housing having a side slot therethrough;

b) a slide button carried in said side slot of said housing; and

c) a flexible arm affixed to the interior of said housing adjacent said slide button, so that when said slide button is manually moved in said side slot in a first direction, it will push said flexible arm inwardly to engage with external teeth of a spur gear ring of said gear assembly, to prevent rotation of said spur gear ring and when said slide button is manually moved in said side slot in an opposite direction, it will allow said flexible arm to disengage from said external teeth of said spur gear ring of said gear assembly, to allow rotation of said spur gear ring.

**9.** A quick cool device as recited in claim **1**, wherein said housing, said twist member, said rotation allowing means, said gear assembly and said locking and unlocking means are all fabricated out of durable strong material.

**10.** A quick cool device as recited in claim **1**, wherein said energy storing means is fabricated out of a strong flexible material.

**11.** A quick cool device as recited in claim **1**, wherein said holder is fabricated out of compressible material.

**12.** A quick cool device as recited in claim **1**, further including:

a) said housing having a top recessed area with a finger grip opening and a cooperating vertical side slot;

b) a hinge rod at intersection of said top recessed area and said vertical side slot;

c) a flat projection member having a lug to engage with said hinge rod, so that when said flat projection member is not used it will rest in said top recessed area and when said flat projection member is used it will be lifted out of said top recessed area at said finger grip opening, placed within said vertical side slot in said housing and held in position thereto by said hinge rod, to keep said device stationary while the beverage can rotates within the pieces of ice.

**13.** A quick cool device for a beverage can comprising:

a) a housing including an upper cylindrical shell having a central aperture therethrough and a plurality of holes radially positioned about said central aperture, a lower cylindrical base having a plurality of threaded bosses radially positioned thereon and a plurality of mounting screws, in which each said mounting screw fits through one said hole in said upper cylindrical shell and threads into one said threaded boss on said lower cylindrical base;

b) a twist member rotatively carried in said housing, said twist member having a handle extending up through a top of said housing;

c) means for allowing rotation of said twist member in one direction within said housing;

d) a gear assembly in said housing;

e) means connected between said twist member and said gear assembly in said housing, for storing energy when said handle of said twist member is manually turned;

f) a holder for the beverage can connected to said gear assembly on bottom of said housing; and

g) means for locking and unlocking said gear assembly, so that when said gear assembly is locked said energy storing means will store energy and when said gear assembly is unlocked said energy storing means will release the stored energy to cause said gear assembly to rotate said holder, thereby allowing the beverage can to rotate within pieces of ice to cool off the beverage can quickly.

**14.** A quick cool device as recited in claim **13**, wherein said twist member is a cylindrical body, while said knob is an enlarged cylindrical head.

**15.** A quick cool device as recited in claim **14**, wherein said rotation allowing means includes:

a) a ratchet ring integral with said twist member; and

b) a pawl affixed to said housing to engage with said ratchet ring, so that said ratchet ring will only turn in one direction.

**16.** A quick cool device as recited in claim **15**, wherein said gear assembly includes:

a) a spur gear ring having internal teeth and external teeth;

b) an offset pinion gear having a shaft rotatively mounted in said housing, with said offset pinion gear in engagement with said internal teeth of said spur gear ring;

c) a central pinion gear having a shaft in a dish mounted centrally in bottom of said housing, with said central pinion gear in engagement with said offset pinion gear; and

d) a cylindrical plate centrally connected to said shaft of said central pinion gear below bottom of said housing.

**17.** A quick cool device as recited in claim **16**, wherein said energy storing means is a flat spiral spring, in which an inner end of said flat spiral spring is connected to said twist member, while said outer end of said flat spiral spring is connected to a spur gear ring of said gear assembly.

**18.** A quick cool device as recited in claim **17**, wherein said holder is a flexible disc having a central opening to

receive a top end of the beverage can, whereby said flexible disc is connected to said cylindrical plate of said gear assembly.

**19**. A quick cool device as recited in claim **18**, wherein said locking and unlocking means includes:

a) said housing having a side slot therethrough;

b) a slide button carried in said side slot of said housing; and

c) a flexible arm affixed to the interior of said housing adjacent said slide button, so that when said slide button is manually moved in said side slot in a first direction, it will push said flexible arm inwardly to engage with said external teeth of said spur gear ring of said gear assembly, to prevent rotation of said spur gear ring and when said slide button is manually moved in said side slot in an opposite direction, it will allow said flexible arm to disengage from said external teeth of said spur gear ring of said gear assembly, to allow rotation of said spur gear ring.

**20**. A quick cool device as recited in claim **19**, wherein said housing, said twist member, said rotation allowing means, said gear assembly and said locking and unlocking means are all fabricated out of durable strong material.

**21**. A quick cool device as recited in claim **20**, wherein said energy storing means is fabricated out of a strong flexible material.

**22**. A quick cool device as recited in claim **21**, wherein said holder is fabricated out of a compressible material.

**23**. A quick cool device as recited in claim **22**, further including:

a) said housing having a top recessed area with a finger grip opening and a cooperating vertical side slot;

b) a hinge rod at intersection of said top recessed area and said vertical side slot;

c) a flat projection member having a lug to engage with said hinge rod, so that when said flat projection member is not used it will rest in said top recessed area and when said flat projection member is used it will be lifted out of said top recessed area at said finger grip opening, placed within said vertical side slot in said housing and held in position thereto by said hinge rod, to keep said device stationary while the beverage can rotates within the pieces of ice.

* * * * *