CONVENTION APPLICATION FOR A PATENT

We, N.B. MARKETING COMPANY (PROPRIETARY) LIMITED,

of 1st Floor, Bata Building, 23 Fountain Road, Fordsburg,
2092, Johannesburg, Republic of South Africa,

hereby apply for the grant of a Patent
for an invention entitled:—

"CARBONATING HEAD"

which is described in the accompanying complete specification.
This application is a Convention application and is based on
the application numbered 85/0640 for a patent or
similar protection made in South Africa

Our address for service is: T.G. AHEARN & CO. Patent
Attorneys, of 79 Eagle Street, Brisbane, in
the State of Queensland, Commonwealth of Australia.

Dated this 28th day of January, 1986.

N.B. MARKETING COMPANY (PROPRIETARY) LIMITED
By their Patent Attorneys

T.G. AHEARN & CO.

To: The Commissioner of Patents,
Commonwealth of Australia.

(T.G. Ahearn)
DECLARATION IN SUPPORT OF A CONVENTION APPLICATION FOR A PATENT OR PATENT OF ADDITION

In support of the Convention Application made by

N.B. MARKETING COMPANY (PROPRIETARY) LIMITED

for a patent...for an invention entitled "CARBONATING HEAD"

1. I am authorised by N.B. MARKETING COMPANY (PROPRIETARY) LIMITED...the applicant...to make this declaration on its behalf.

2. The basic application...as defined by Section 141 of the Act...was made in South Africa...

3. The actual inventor of the invention, and the facts upon which N.B. MARKETING COMPANY (PROPRIETARY) LIMITED is entitled to make the application, are as follows:

The said N.B. MARKETING COMPANY (PROPRIETARY) LIMITED is the assignee of the said BERTRAM PETER ROTHSCHILD...by Deed of Assignment dated 22 January, 1986.

4. The basic application referred to in paragraph 2 of this Declaration was the first application made in a Convention country in respect of the invention the subject of the application.

DECLARED at JOHANNESBURG

this 22nd day of JANUARY 1986.

Signature:

BERTRAM PETER ROTHSCHILD
Claim

1. A carbonating head having a passage therethrough and being adapted to accommodate a pressurised gas cylinder to introduce pressurised gas into the passage, characterised in that the passage leads into a socket, the socket having an internal screw thread conforming to and permitting the head to be screwed onto the thread surrounding the mouth of a blow moulded plastic bottle, thereby enabling such a bottle to serve as a vessel in which liquid can be carbonated.

12. A carbonating head having a passage therethrough and being adapted to accommodate a pressurised gas cylinder to introduce pressurised gas into the passage, the passage leading into a socket, the socket having an internal screw thread for.../2
threaded connection of the carbonating head to a bottle, the carbonating head including a pressure relief passage in communication with the socket for escape of gas from the socket when the carbonating head is unscrewed from the bottle or if the carbonating head is applied with insufficient torque to the bottle.
COMMONWEALTH OF AUSTRALIA

Patents Act 1952

Name of Applicant: N.B. MARKETING COMPANY (PROPRIETARY) LIMITED

Address of Applicant: 1st Floor,
Bata Building,
23 Fountain Road,
Fordsburg, 2092,
Johannesburg,
Republic of South Africa.

Actual Inventor: Bertram Peter Rothschild

Address for Service: T.G. AHEARN & CO.,
Patent and Trade Mark Attorneys,
79 Eagle St.,
Brisbane, Queensland.

COMPLETE SPECIFICATION FOR THE INVENTION ENTITLED:-

"CARBONATING HEAD"

The following statement is a full description of the invention including the best method of performing it known to us:-

- 1 -
THIS invention relates to a carbonating head for domestic use.

One form of conventional domestic carbonating apparatus comprises a carbonating head which screws onto a vessel. In use the vessel is filled with water to an indicated level and a cylinder containing pressurised CO₂ is applied to the head to permit release of the CO₂ into the vessel. Carbonated water, or soda water as it is commonly called, is released from the apparatus for consumption through a spout by operating a lever on the carbonating head.

Apparatus of this kind is well known and widely used. It does, however, suffer from the disadvantage that the quantity of soda water made available for immediate consumption is limited to the size of the vessel of the apparatus. In other words, once the contents of the vessel have been exhausted, the carbonating process has to be repeated before fresh soda water is available for consumption. This is obviously not ideal when large quantities of soda water may be required, for example at social functions.
It is accordingly an object of this invention to provide apparatus with which the abovementioned disadvantage can be overcome.

A carbonating head according to the invention has a passage therethrough and is adapted to accommodate a pressurised gas cylinder to introduce pressurised gas into the passage, characterised in that the passage leads into a socket, the socket having an internal screw thread conforming to and permitting the head to be screwed onto the thread surrounding the mouth of a blow moulded plastic bottle, thereby enabling such a bottle to serve as a vessel in which liquid can be carbonated.

The passage may be interrupted by a non-return valve permitting gas to flow only in a direction pressurising the plastic bottle. In one form the non-return valve may be provided at one end of a tubular member provided in the head. In this form the non-return valve may comprise a hollow needle formed integrally with the tubular member, the needle being surrounded by a sleeve of flexible material.
The tubular member at its end remote from the non-return valve may carry a pin arranged to pierce or open the pressurised gas cylinder when the latter is operatively connected to the carbonating head. The pin may be provided on an insert mounted in the tubular member.

The tubular member referred to above is preferably located within a spigot provided on the carbonating head, the spigot having an exterior screw thread and providing means for connecting a holder for the pressurised gas cylinder to the carbonating head. The outermost ends of the tubular member and the sleeve may define between them a channel housing an O-ring adapted to seal the connection between the carbonating head and the pressurised gas cylinder when the latter is operatively connected to the carbonating head.

In one form of the invention the socket of the carbonating head may be formed in a member moulded onto the assembly of the tubular member and the spigot. A rubber or plastic sealing ring may be provided in the base of the socket to seal the connection between the carbonating head and the
plastic bottle when the head is operatively connected thereto.

In a preferred form of the invention the socket of the carbonating head is defined by an annular wall and an aperture is provided in the wall, the aperture serving as a pressure relief passage for escape of gas when the carbonating head is unscrewed from the plastic bottle or if the carbonating head is applied with insufficient torque to the plastic bottle.

A preferred embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which;

Figure 1 is a cross-sectional elevation of a carbonating head according to the invention; and

Figure 2 illustrates the use of the head.

A carbonating head 1 comprises a generally cylindrical body having a passage 2 therethrough. At its upper end the head 1 has a threaded spigot 3 which provides connecting means for releasably
connecting a conventional holder 5 for a pressurised CO₂ cylinder 4 to the carbonating head. The cylinder 4 is used to introduce CO₂ into the passage 2 in conventional manner. This is achieved by introducing the cylinder 4 into the holder 5 and screwing the holder onto the spigot 3. When this is done, the seal (or valve) of the cylinder 4 is broken and CO₂ is released into the passage 2. In this embodiment of the invention, the seal (or valve) of the cylinder 4 is broken by a pin 6 mounted in a tubular member 8 located in the spigot 3. The tubular member 8 defines in part the passage 2 through the carbonating head. Conveniently the pin 6 forms part of an insert 9 mounted in the passage 2. At its upper end the insert 9 has an enlarged collar 10 preventing downstream displacement of the insert along the passage 2. In order to permit the flow of CO₂ past the insert 9, a recess 11 is formed in the wall of the tubular member 8.

At the end of the tubular member 8 remote from the insert 9, a non-return valve 12 is provided which interrupts the passage 2 through the carbonating head. The non-return valve 12 serves the normal function of preventing release of gas through the
The cylinder 4 is broken to permit the connection of the pressurised CO₂ cylinder 4 to the head 1 in an upstream direction. The non-return valve 12 comprises a hollow needle 14 formed integrally with the tubular member 8 and having a lateral opening 15 therein. The needle 14 is surrounded by a sleeve of flexible material 16.

The uppermost ends of the spigot 3 and the tubular member 8 define between them an annular channel which houses a rubber O-ring 18. The O-ring 18 is adapted to seal the connection between the carbonating head 1 and the pressurised CO₂ cylinder 4 when the latter is operatively connected to the carbonating head.

At its end remote from the spigot 3 the carbonating head has a socket 20 defined by annular wall 21, the arrangement being such that the passage 2 in the carbonating head leads through the non-return valve 12 into the socket 20. The wall 21 defining the socket 20 has an internal screw thread 22 which conforms to and permits the head to be screwed onto the thread 24 (also known as the finish) surrounding the mouth of a blow moulded plastic bottle 25 (Figure 2). Such a bottle is generally referred to as a PET
bottle. A rubber or plastic seal 26 is housed in the base of the socket 20 to ensure sealing contact between the head and the plastic bottle.

In use, the head 1 can be used to carbonate as many bottles 25 as may be required. In the case of a 2 litre bottle, it is filled with ice cold water to a level of approximately 1.7 litres. The head 1 is screwed onto the bottle which turned upside down. The holder 5 with a cylinder 4 is applied to the spigot 3 of the head and rotated until CO₂ bubbles through the water. The bottle is continuously and vigorously shaken whilst the CO₂ is released into it to ensure that a maximum amount of CO₂ is dissolved into the water. In the case of a standard 8 g cylinder 4 under a pressure of say 60 bar, two such cylinders can be exhausted (without removing the head 1 inbetween) to provide a high grade soda water.

Once the two cylinders have been exhausted, the head 1 is removed and a conventional screw closure is applied to the bottle 25 to prevent its contents from losing its carbonation. Any number of bottles 25 may thus be carbonated in advance of, for example, a social function.
As a safety precaution, an aperture 28 in the wall 21 defining the socket 20 serves as a pressure relief passage for escape of gas when the carbonating head 1 is unscrewed from the bottle 25 and thus prevents the carbonating head from becoming a projectile under the pressure of gas in the bottle 25. The aperture 28 also allows escape of gas if the carbonating head 1 is applied with insufficient torque to the bottle 25. This will become apparent to a user, who will be alerted to apply increased torque to the carbonating head.

Many other embodiments of the invention may be made differing in matters of detail only from that described above and without departing from the scope of the invention as defined in the appended claims.
in the wall 21
pressure relief
Carbonating head 1
thus prevents the
rocket under the
The aperture 28
Carbonating head 1
to the bottle
user, who will
torque to the

Any addition may be made
from that
coming from the scope
or suspended claims.
THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A carbonating head having a passage therethrough and being adapted to accommodate a pressurised gas cylinder to introduce pressurised gas into the passage, characterised in that the passage leads into a socket, the socket having an internal screw thread conforming to and permitting the head to be screwed onto the thread surrounding the mouth of a blow moulded plastic bottle, thereby enabling such a bottle to serve as a vessel in which liquid can be carbonated.

2. A carbonating head according to claim 1 in which the passage is interrupted by a non-return valve permitting gas to flow only in a direction pressurising the plastic bottle.

3. A carbonating head according to claim 2 in which the non-return valve is provided at one end of a tubular member provided in the head.

4. A carbonating head according to claim 3 in which the non-return valve comprises a hollow needle
formed integrally with the tubular member, the needle being surrounded by a sleeve of flexible material.

5. A carbonating head according to claim 3 or 4 in which the tubular member at its end remote from the non-return valve carries a pin arranged to pierce or open the pressurised gas cylinder when the latter is operatively connected to the carbonating head.

6. A carbonating head according to claim 5 in which the pin is provided on an insert mounted in the tubular member.

7. A carbonating head according to any one of claims 3 to 6 in which the tubular member is located within a spigot provided on the carbonating head, the spigot having an exterior screw thread and providing means for connecting a holder for the pressurised gas cylinder to the carbonating head.

8. A carbonating head according to claim 7 in which the outermost ends of the tubular member and the
spigot define between them a channel housing an
O-ring adapted to seal the connection between
the carbonating head and the pressurised gas
cylinder when the latter is operatively
connected to the carbonating head.

9. A carbonating head according to claim 7 or 8 in
which the socket is formed in a member moulded
onto the assembly of the tubular member and the
spigot.

10. A carbonating head according to any one of the
preceding claims including a sealing ring
provided in the base of the socket to seal the
connection between the carbonating head and the
plastic bottle when the head is operatively
connected thereto.

11. A carbonating head according to any one of the
preceding claims in which the socket is defined
by an annular wall and an aperture is provided
in the wall, the aperture serving as a pressure
relief passage for escape of gas when the
carbonating head is unscrewed from the plastic
bottle or if the carbonating head is applied with insufficient torque to the plastic bottle.

12. A carbonating head having a passage therethrough and being adapted to accommodate a pressurised gas cylinder to introduce pressurised gas into the passage, the passage leading into a socket, the socket having an internal screw thread for threaded connection of the carbonating head to a bottle, the carbonating head including a pressure relief passage in communication with the socket for escape of gas from the socket when the carbonating head is unscrewed from the bottle or if the carbonating head is applied with insufficient torque to the bottle.

13. A carbonating head according to claim 12 in which the socket is defined by an annular wall and in which the pressure relief passage is defined by an aperture in the annular wall.

14. A carbonating head substantially as herein described with reference to the accompanying drawings.

DATED this 28th day of January, 1986.

N.B. MARKETING COMPANY (PROPRIETARY) LIMITED
By their Patent Attorneys
T.G. AHEARN & CO.

- 13 -
is applied

herethrough

pressurised

and gas into

into a socket,

thread for

with a

including a

the socket

from the

is applied

Claim 12 in

annular wall

passage is

wall.

as herein

companying

1986.

proprietary

to neys

co.
END