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CORK EXTRACTOR WITH GAS PRESSURE GENERATING MEANS

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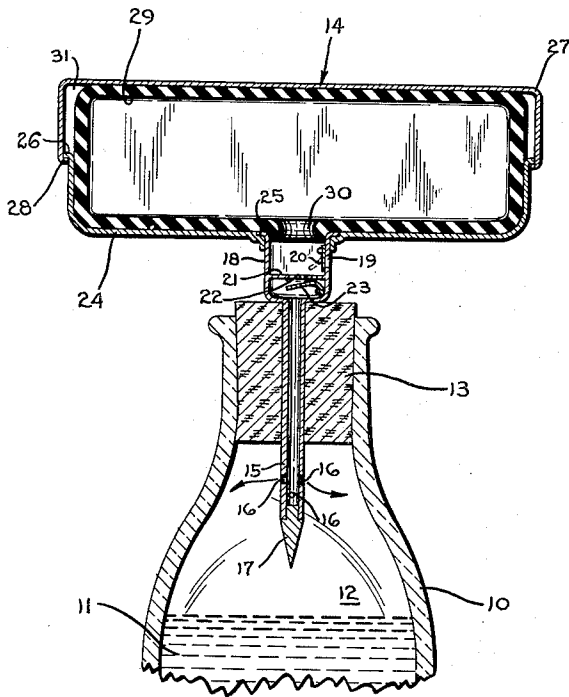


FIG. 1

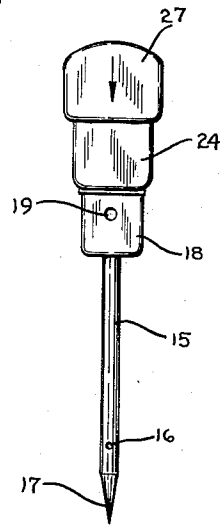


FIG. 2

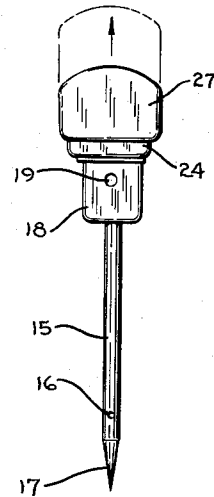


FIG. 3

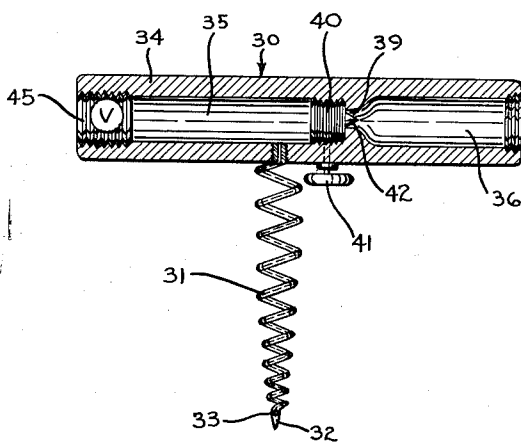


FIG. 4

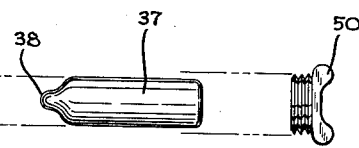


FIG. 5

FIG. 6

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CORK EXTRACTOR WITH GAS PRESSURE GENERATING MEANS

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7 Claims. (Cl. 81—3.2)

This invention relates to cork extractors, of which corkscrews are an example.

It is very difficult to extract a cork from a bottle in a whole state. Usually the cork is torn and fragments fall into the bottle. This is so common that it has led to the custom of pouring for the host first, so that he gets the cork crumbs, then for the guests. Frequently the screw rips out through the cork, which is then pried out bit by bit with a knife, leaving a macerated half that has to be thrust down into the bottle, improving neither the appearance nor the taste of the contents.

It is an object of this invention to provide a cork extractor that removes a cork in a substantially whole condition. Another object is to relieve the server of the usual struggle with refractory corks, which sometimes results in depositing splashes of bottle contents in the most unexpected places. Other objects will be obvious as the description is read.

The objects of the invention are accomplished, generally speaking, by a corkscrew having means in the handle for building up pneumatic pressure beneath the cork. The means may be a palm pump or a pneumatic pressure cylinder, one example of which is the CO₂ cylinder available on the market.

The invention is illustrated in the drawings wherein:

Fig. 1 is a vertical section through a pump type extraction in use;

Fig. 2 is an end view thereof;

Fig. 3 is an end view with the pump in a different operational position;

Fig. 4 is a vertical section through a compressed gas type extractor;

Fig. 5 is a side elevation of a CO₂ cylinder;

Fig. 6 is a side elevation of the cap for the handle of Fig. 4.

In Figs. 1-3 the numeral 10 indicates a bottle having liquid contents 11, and an airspace 12 between contents 11 and cork 13. The cork extractor 14 includes a tubular pin 15 having orifices 16 near its penetrating end, the point 17 of which comprises a conical metal plug for the end of the tube 15. The upper end of the tube is enlarged at 18 to provide for the reception of a valve connecting the tube with the air, and which, in the form illustrated is a simple pneumatic one-way or force valve having an opening 19, a flexible valve element 20 pivoted over said opening on the inside, a valve plate 21 having an opening 22 and a flexible check valve element 23 closing the opening 22 on the lower side thereof. A handle member 24 elongated, trough shaped form is brazed or otherwise secured to the upper flange 25 on valve case 18, and is provided with an outstanding flange 26 about its upper rim. The upper part of the handle is a cover or cap piece 27 which has a flange 28 engaged beneath the flange 26. Thus, the parts 24 and 27 are telescoped.

Within the enclosure provided by telescoping handle pieces 24-27 is a collapsible, resilient rubber bulb 29, which fits the lower shell 24 quite snugly, has an orifice 30 opening into valve chamber 18, and is of less size than

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the upper shell member 27, the gap 31 extending around the upper part of bulb 29 and giving it room to extend laterally during compression. The strength of expansion of the bulb 29 normally keeps the handle in extended position as shown in Figs. 1 and 2.

When a cork is to be extracted the pin 15 is thrust through the cork to an extent sufficient to bring the holes 16 below the cork. The cover 27 is then depressed, by squeezing, and the air in bulb 29 closes flapper valve 20, opens flapper valve 23, and flows through the pin 15 into space 12. When the member 27 is released the flapper valve 23 closes, flapper valve 20 opens, and air fills the bulb 29 again. This is repeated until the pressure within space 12 ejects the cork. Fig. 2 shows the handle extended, and Fig. 3 the handle compressed. The entire operation is accomplished by hand grips on the handle.

In Figs. 4, 5 and 6 is shown a corkscrew which is to a considerable extent preferred. In these figures 30 indicates a corkscrew having a tubular screw 31 of flattened section and wedge shaped end 32 with an opening 33 at the lower end of the tubular screw. The proportions of this figure are not exact, for purposes of bringing out the existence of small parts clearly. The upper end of tube 31 is screw threaded into handle 34, which is drilled from end to end, and the opening 33 is thus connected with space 35. One end 36 of the handle bore is enlarged and shaped to receive a typical CO₂ cylinder 37 of the type used in air pistols or the like, which has a soft metal nose 38 capable of being penetrated by a needle. A gasket 39 is seated at the end of the enlarged part 36 of the bore 35 and serves to seal the end of the cylinder 37 against leakage during operation.

Within the bore 35 is a reduction valve 40, operable manually from outside by trigger 41 which extends through handle 34, and provided at its outer end with a hollow needle 42 which serves to penetrate soft nose 38 of the cylinder 37 and admit the gaseous contents thereof to the valve 40. The screw cap piece 50 of Fig. 6 is used to force the cylinder 38 over the needle in the first instance, and to keep it there. This valve 40 performs two functions, to reduce the pressure, which may be quite high within the cylinder 37 and capable of damaging a glass bottle, and by operation of trigger 41 to admit gas from the cylinder 37 to the bore 35 and tube 31, from whence it passes beneath the cork. When thus used, the pressure in the bottle never exceeds that for which valve 40 is originally set, which is below that at which bottles burst. 45 is a plug which may be simple or may be equipped with a safety valve.

In a particular form of this invention valve 40 is simply a release valve which admits the full pressure of cylinder 37 to space 35, but a safety valve 45, provided in bore 35 releases the pressure when a selected value is reached, the trigger 41 being released as soon as the valve 45 discharges.

The screw 31 is used in the normal way to aid in the extraction. It can be used in the device of Fig. 1.

Needles of hypodermic type can be used and are advantageous because they do not materially increase the pressure of the cork on the bottle neck. The ordinary corkscrew materially increases that pressure, which is already considerable.

The device is highly useful, prevents the fragmentation of corks, removes them whole, keeps the bottle contents free of corks and cork crumbs, improves sanitation in such cases, and relieves the host of the common embarrassing struggle with the recalcitrant cork. The device is simple of manufacture and inexpensive as to materials and assembly.

What is claimed is:

1. In a cork extractor a tubular cork penetrating means, a hollow hand grip rigidly attached thereto, the total size

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of said grip being approximately the size of a gripping hand, said grip and said means being at right angles to each other, and cylindrical gas pressure generating means housed in the grip and opening into said penetrating means.

2. A cork extractor according to claim 1 in which cylindrical gas pressure generating means are housed in the grip and open into said penetrating means, said pressure generating means comprising a resilient hollow bulb connected to said penetrating means by a force valve.

3. A cork extractor according to claim 1 in which the gas pressure generating means is a hollow, flexible, rubber cylinder adapted to be manually compressed to force air into a bottle through said penetrating means.

4. A corkscrew having a handle with a bore extending in from a first end, a reduction valve obstructing the bore, a tubular cork penetrating member connected to the handle between the end and the valve, said bore being developed toward the other end of the handle for the reception of a gas cylinder, gas cylinder penetrating means associated with said valve, and means to drive a gas cylinder onto the cylinder penetrating means and hold it in the bore.

5. A corkscrew having a hollow handle, tubular cork penetrating member rigidly carried by the handle opening at one end into the hollow of the handle and having an orifice near the other end, means to mount a gas cylinder mounting means in the handle, valve means interposed between the gas cylinder and the tubular member, and means to release the gas from the gas cylinder.

6. A cork extractor including a handle having a bore extending inward from an end, a reduction valve defining

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two chambers in the bore, means on the valve to penetrate a gas cylinder of penetrable type, said bore on one side of said valve constituting a chamber for the reception of such gas cylinder, means to thrust the cylinder onto the said means whereby to tap the cylinder, means to open and close the reduction valve, and tubular cork extracting means connected to the bore and served by the valve.

7. A cork extractor including a handle bored from end to end, an internal shoulder intermediate the ends, the bore on one side of said shoulder being shaped to form a chamber for a compressed gas cylinder of penetrable nose type, a reduction valve separating the chamber from the remainder of the bore, said valve having a needle projecting toward the said chamber, means to force a gas cylinder upon the needle to tap the gas therein, means to open and close the valve, a safety valve closing the end of the bore remote from the forcing means, and tubular cork extracting means projecting from the side of said handle and connected to the part of the bore supplied by said valve.

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