

⑫ **EUROPEAN PATENT APPLICATION**

⑲ Application number: 83200999.7

⑮ Int. Cl.³: **B 67 B 7/04**

⑳ Date of filing: 05.07.83

⑳ Priority: 06.07.82 NL 8202709

㉑ Date of publication of application:
25.01.84 Bulletin 84/4

㉒ Designated Contracting States:
BE CH DE FR GB IT LI NL

㉓ Applicant: **Brabantia Leasing & Factoring AG**
Hodlerstrasse 233
Härkingen(CH)

㉔ Inventor: **Wieriks, Jacobus**
Kruisstraat 38
NL-5525 AX Duizel(NL)

㉕ Representative: **Stigter, Nicolaas Adriaan et al,**
Octrooibureau Los en Stigter B.V. P.O. Box 20052
Weteringschans 96
NL-1000 HB Amsterdam(NL)

㉖ **Corkscrew device.**

㉗ The device has a manually rotatable operating spindle (6) with handgrip (7) for driving two spaced parallel corkscrew members (17) each at its upper end rotatably mounted in a common supporting member (8,9) arranged at the lower end of the spindle, which supporting member contains gear means (18, 20) drivingly coupling the lower end of the spindle to the two corkscrew members for simultaneously rotating the same.

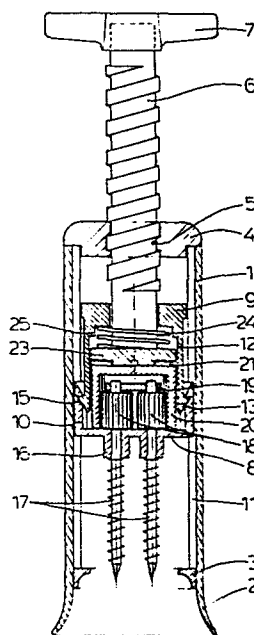


fig.2

Corkscrew device

The invention relates to a corkscrew device comprising a manually rotatable operating spindle for driving corkscrew means extending downwardly therebelow.

5 Corkscrew devices of widely different types and constructions are known which, however, have in common that the corkscrew means comprises a single centrally arranged corkscrew member in line with the operation spindle

10 The invention has for its object to present a corkscrew device of the above-mentioned kind which provides an improved engagement of the corkscrew means with the cork in which said means have been screwed.

Another object of the invention is to provide such a corkscrew device which is easy to operate.

15 The corkscrew device of the invention is characterized in that said corkscrew means comprise two spaced parallel corkscrew members, each at its upper end rotatably mounted in a common supporting member arranged at the lower end of the operating spindle, said supporting member containing transmission gear means drivingly coupling
20 the spindle lower end to both said cork screw members for simultaneously rotating the same.

By the use of two corkscrew members which are simultaneously screwed into the cork to be removed, a greater area of contact of the corkscrew means with the cork
25 is obtained and the cork is engaged in two spaced locations. This is of great advantage particularly in the case of dried-out old corks which are liable to crumble. In the case of a loosely fitting cork the latter can not rotate with the corkscrew means since the two corkscrew members engage the cork
30 eccentrically on opposite sides of the cork axis.

The corkscrew device may further comprise an elongate housing having an open lower end adapted to be placed on the neck of a bottle and having an upper wall with a central bore through which the spindle extends in a known
35 manner. In that case, according to the invention the supporting member is axially slidably but non-rotatably mounted in said housing. Furthermore, the operating spindle is preferably carried out as a screw spindle engaging in a threaded bore

0099153

in the upper housing wall. In this preferred embodiment when holding the housing with one hand and rotating the operating spindle with the other hand in the proper direction, the supporting member will be axially advanced while at the same
5 time the corkscrew members carried by the supporting member are rotated and driven into the cork. It is to be noted that the removal of a cork from the corkscrew device after the cork has been pulled out of the bottle is also greatly facilitated since to that effect it is merely necessary to
10 rotate the operating spindle in the opposite direction. The cork is held against rotation by the two eccentric corkscrew members and thus the cork need not be held with one hand to prevent such rotation.

According to a further preferred embodiment
15 the transmission gear means comprise two pinions, one secured on the upper end of each of said corkscrew members, an inwardly toothed ring rotatably mounted in said supporting member about and in mesh with said two pinions, and coupling means between said ring and the lower end of said
20 spindle. By rotating the operating spindle the corkscrew members will thus be rotated in the same direction through said toothed ring and pinions.

In a further preferred embodiment of the invention, the coupling means comprise two cooperating coupling
25 discs, one disc being integral with said toothed ring and the other disc being secured to the lower end of said spindle and being axially movable with respect to said supporting member, and spring means acting between said supporting member and said other disc biasing said two coupling discs
30 towards each other whereby said coupling discs can be disengaged by pulling said spindle away from said supporting member against the action of said spring means. In this arrangement the two coupling discs are normally interengaged whereby rotation of the spindle in the operating sense ad-
35 vances and rotates both corkscrew members to engage a cork to be pulled. However, when after screwing these members fully into the cork the spindle is rotated in the opposite direction the two coupling discs are disengaged whereby the corkscrew members are no longer rotated but only an outward-
40 ly directed force is exerted on the supporting member so as

0099153

to pull-out the cork. As soon as the cork is removed from the bottle the spring means again move the coupling discs into engagement so that continuous rotation of the spindle in the last-mentioned direction causes the cork to be re-
5 moved from the corkscrew members in a manner as above described. This arrangement thus further facilitates the operation of the device.

Further advantages and preferred structural features will appear from the appended claims and from the
10 following description of a preferred embodiment of the invention in conjunction with the accompanying drawings in which

Fig. 1 is a perspective exploded view of a preferred embodiment of the corkscrew device according to
15 the invention; and

Fig. 2 is an axial section of the assembled corkscrew device of Fig. 1.

The corkscrew device shown in the drawings has an elongate cylindrical outer housing 1 with a flared
20 lower rim portion 2 and a rounded stop ring 3 secured to its inner wall above said rim portion and adapted to rest on the neck of a bottle inserted into said rim portion 2. The housing is closed at its upper side by a cover plate 4 secured to the housing by means not shown or formed inte-
25 grally therewith. The cover plate has a centrally located screw bore 5 and a screw spindle or operating spindle 6 extends through the bore 5 into the housing 1 in engagement with the threads of the bore, said spindle 6 carrying a
handgrip 7 at its upper end.

30 A two part supporting member is axially slidably mounted in the housing 1 which member comprises a lower cup-shaped bottom part 8 and an upper cover disc 9. The bottom part 8 has two diametrically opposed radially projecting hollow guide cams 10 slidably received in axially
35 extending guide slots 11 formed in the inner wall of the housing 1 whereby the supporting member 8, 9 is non-rotatably but axially slidably mounted in the housing 1 and is contained therein between the cover plate 4 and the stop ring
3. The cover disc 9 has two downwardly projecting, slightly
40 resilient arms 12 integrally connected thereto which arms

0099153

carry at their lower ends radially outwardly projecting
latching teeth 13 of saw tooth shape formed thereon. The
teeth 13 on the arms 12 can be moved into the slots 14
formed by the hollow cams 10 until the teeth 13 resiliently
5 slip into recesses 15 of corresponding shape formed in the
bottom wall of these slots 14, thus securing the upper cover
disc 9 to the lower bottom part 8 of the supporting member
8, 9.

The bottom part 8 has on its lower side two
10 downwardly projecting bushing parts 16 integrally formed
thereon in which two corkscrew members 17 are rotatably
mounted and secured against axial movement by means as
shown. Each corkscrew member 17 projects with its upper end
into the bottom part 8 and has a pinion 18 secured thereon,
15 a spacing plate 19 connecting the two corkscrew members 17
above the pinions 18 in a position in which the pinions run
free of one another. The corkscrew members 17 have cylindri-
cal shanks of relatively small diameter and similar helixes
formed thereon both being right-handed just as the helix
20 of the screwed spindle 6. An inwardly toothed ring 20 is
mounted in the bottom part 10 of the supporting member 10
of the supporting member 8, 9, the ring 20 enclosing the
two pinions 18 and meshing therewith. The toothed ring 20
has a closed upper wall so as to form an inverted cup which
25 upper wall has a number of radially extending projections 21
formed on its upper face at equal angular distances from
each other. These coupling projections 21 cooperate with
a corresponding number of radially extending grooves 22
formed in the lower face of a coupling disc 23 secured to
30 the lower end of the spindle 6. A compression spring 24 is
mounted about the spindle 6 between the coupling disc 23 and
the cover disc 9 which spring in the rest position shown in
Fig. 2 presses the coupling disc 23 against the upper wall
of the toothed ring 20 thus keeping the coupling between
35 these parts formed by the interengaging projections 21 and
grooves 22 in the engaged position. The coupling disc 23
can, however, be moved rearwardly against the action of the
spring 24 until the disc 23 abuts a stop shoulder 25 formed
on the cover disc 9 in which position the coupling is re-
40 leased.

The above-described corkscrew device operates as follows. In the retracted position of the corkscrew members 17 the housing 1 is placed on the neck of a bottle from which the cork has to be removed. By a right-hand rotation of the operating spindle 6 by means of the handgrip 7 the corkscrew members 17 are driven with an increased rotational speed through the engaged coupling 21, 22 and the toothed gear transmission 20, 18, the corkscrew members 17 being at the same time axially advanced by the screwed spindle 6 moving through the screwed bore 5. The lead of the spindle 6 should be greater than the lead of the helixes of the corkscrew members 17 corresponding to the transmission ratio between the toothed ring 20 and the pinions 18. When the corkscrew members 17 have been screwed into the cork and the bottom part 8 of the supporting member abuts the stop ring 3, the spindle 6 is rotated in the left-hand sense in which at the start of this left rotation preferably a pulling force is exerted on the spindle 6 a short time in order to disengage the coupling disc 23 from the coupling projections 21 so as to allow the spindle to be screwed outwardly independently of the toothed ring 20. Continued left-hand rotation causes the coupling disc 23 to abut the stop shoulder 24 whereupon on further left-hand rotation the supporting member 8, 9 and thereby the corkscrew members 17 are pulled upwardly to remove the cork from the bottle. As soon as the cork is free from the bottle and thus is no longer frictionally held the spring 24 presses the cover disc 9 upwardly until the coupling parts 21, 22 are again engaged whereby on continued left-hand rotation of the spindle 6 the corkscrew members 7 are now also driven with a left-hand rotation to be screwed out of the cork. For this removal of the cork from the two eccentric corkscrew members 17 it is thus not necessary to hold the cork itself with one hand.

C L A I M S

1. Corkscrew device comprising a manually rotatable operating spindle (6) for driving corkscrew means extending downwardly therebelow, characterized in that said corkscrew means comprise two spaced parallel corkscrew members
5 (17), each at its upper end rotatably mounted in a common supporting member (8,9) arranged at the lower end of said operating spindle (6), said supporting member containing transmission gear means (18,20) drivingly coupling the spindle lower end to both said corkscrew members for simul-
10 taneously rotating the same.

2. Corkscrew device according to claim 1, further comprising an elongate housing (1) having an open lower end (2) adapted to be placed on the neck of a bottle and having an upper wall (4) with a central bore (5) through
15 which said spindle extends, characterized in that said supporting member (8,9) is axially slidably but non-rotatably mounted in said housing (1).

3. Corkscrew device according to claim 2, characterized in that said operating spindle is carried out
20 as a screwed spindle (6) engaging in a threaded bore (5) in said upper housing wall (4).

4. Corkscrew device according to claim 1, 2 or 3, characterized in that said transmission gear means comprise two pinions (18), one secured on the upper end of
25 each of said corkscrew members (17), an inwardly toothed ring (20) rotatably mounted in said supporting member (8,9) about and in mesh with said two pinions, and coupling means (21,22) between said ring and the lower end of said spindle (6).

5. Corkscrew device according to claim 4,
30 characterized in that said coupling means comprise two co-operating coupling discs, one disc being integral with said toothed ring (20) and the other disc (23) being secured to the lower end of said spindle (6) and being axially movable
35 with respect to said supporting member (8,9), and spring means (24) acting between said supporting member and said other disc (23) biasing said two coupling discs towards each

0099153

other whereby said coupling discs can be disengaged by pulling said spindle away from said supporting member against the action of said spring means.

6. Corkscrew device according to claim 5,
5 characterized in that said two coupling discs are provided with interengaging radially extending projections (21) and grooves.

7. Corkscrew device according to claim 5 or
6, characterized in that said supporting member comprises
10 an abutment surface (25) spaced from the rear side of said other coupling disc (23) so as to form an axial stop for the latter in the disengaged position thereof.

8. Corkscrew device according to anyone of
the claims 5-7, characterized in that said supporting member
15 comprises a generally cup-shaped lower part (8) receiving the upper ends of said two corkscrew members (17), said pinions (18) and said toothed ring (20), and an upper part (9) receiving the lower end of said spindle (6), said other coupling disc (23) and said spring means (24), said two
20 supporting member parts being connected by cooperating resilient latching means (12,13,15).

9. Corkscrew device according to claim 8,
characterized in that said upper supporting member part consists of a ring member (9) supporting said spring means (24)
25 and having downwardly extending resilient arms (12) carrying radially projecting latching teeth (13) received in corresponding recesses (15) in the inner wall of said lower supporting member part (8).

10. Corkscrew device according to claim 9,
30 characterized in that said lower supporting member part (8) comprises radially projecting guiding cams (10) which are slidably received in axially extending guide slots (11) formed in the inner wall of said housing (10).

11. Corkscrew device according to claims 9
35 and 10, characterized in that said radially projecting guiding cams (10) are formed on their inner side with open longitudinal slots (14) receiving said latching teeth (13), said recesses (15) for said latching teeth (13) being formed in the bottom walls of said slots (14).

1/2

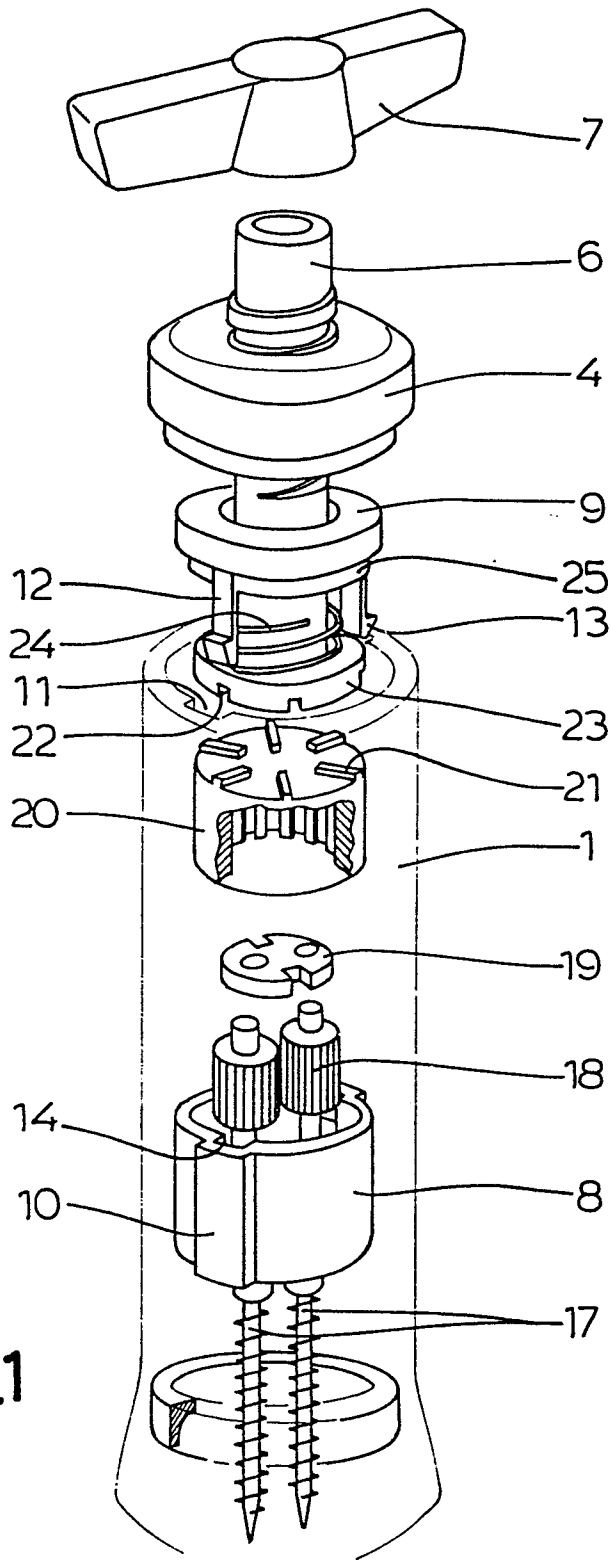


fig.1

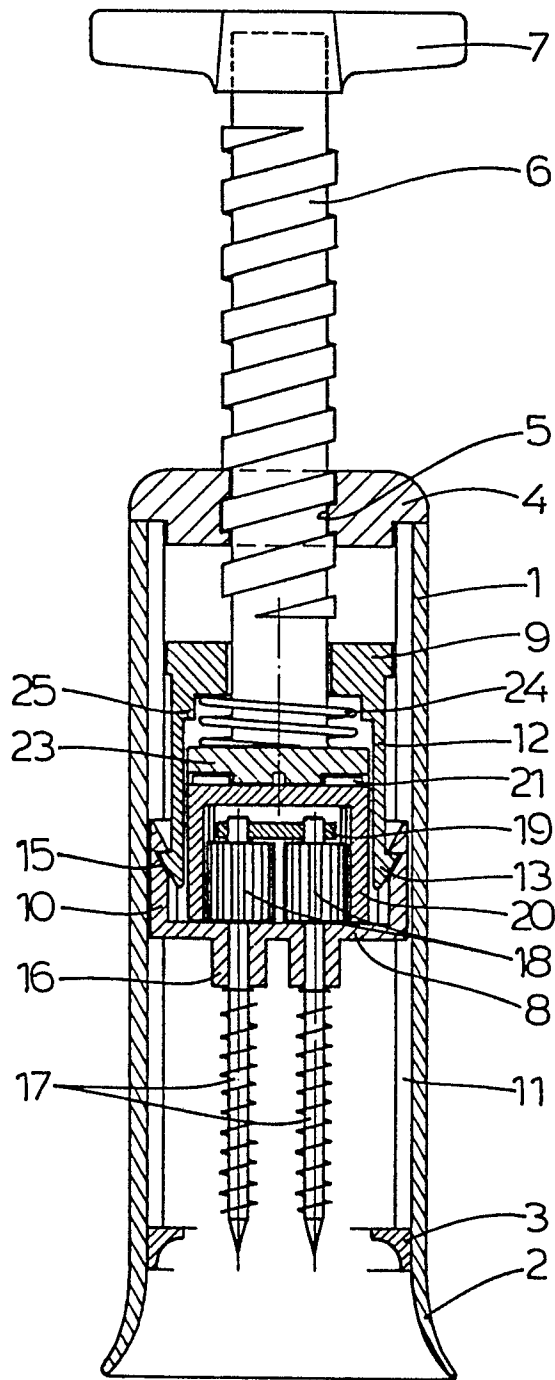


fig.2



European Patent
Office

EUROPEAN SEARCH REPORT

0099153

Application number

EP 83 20 0999

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int Cl. ³)
A	FR-A-2 340 898 (LEFEBVRE)	1	B 67 B 7/04
A	FR-A- 436 231 (THOMKE)	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int Cl. ³)
			B 67 B
Place of search THE HAGUE		Date of completion of the search 05-10-1983	Examiner VROMMAN L.E.S.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			