

(19)



(11)

EP 3 375 752 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
13.10.2021 Bulletin 2021/41

(51) Int Cl.:
B67B 7/04 (2006.01)

(21) Application number: **17305289.5**

(22) Date of filing: **16.03.2017**

(54) CORKSCREW AND ASSOCIATED METHOD FOR EXTRACTING A CORK

KORKENZIEHER UND ZUGEHÖRIGES VERFAHREN ZUM HERAUSZIEHEN VON KORKEN
TIRE-BOUCHON ET PROCÉDÉ D'EXTRACTION D'UN BOUCHON

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

- **VAQUER HERREROS, Luis Jesus**
43983 ALTAFULLA (ES)
- **ZANGRANDE, Giovanni**
Hong Kong (CN)

(43) Date of publication of application:
19.09.2018 Bulletin 2018/38

(74) Representative: **Lavoix**
2, place d'Estienne d'Orves
75441 Paris Cedex 09 (FR)

(73) Proprietor: **LE CREUSET**
02230 Fresnoy-le-Grand (FR)

(56) References cited:
EP-A1- 0 562 174 EP-A1- 2 423 154
DE-U1-202004 018 118 ES-A1- 2 153 283

(72) Inventors:
• **XIANG BIN SU, Daniel**
SHENZHEN, 518000 (CN)

EP 3 375 752 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

[0001] The present invention concerns a corkscrew comprising a handle, a helical screw connected to the handle, a first lever connected to the handle through a first rotation pin, and a second lever connected to the first lever through a second rotation pin, the second lever having an engagement surface able to engage a neck of a bottle.

[0002] Such a corkscrew is used to extract a cork from the neck of a bottle, the helical screw penetrating and capturing the cork, allowing it to be pulled out of the bottle neck.

[0003] Extracting the cork requires progressively more force as the cork is pulled out of the bottle neck. Thus, the force required by an operator to completely extract the cork can be quite high and several mechanisms are known to provide mechanical advantage during the extraction of the cork.

[0004] DE 20 2004 0181 18 U discloses a cork screw with a first lever connected to a handle through a first rotation pin, and a second lever connected to the first lever through a second rotation pin and two fixing elements being abutment surfaces to allow a two-stage cork extraction.

[0005] EP 0 562 174, and EP 2 423 154 disclose further examples of corkscrews.

[0006] WO 2004/074161 discloses a corkscrew allowing removing a cork in a single movement of the handle while increasing the applied arm lever. During a first rotation stroke, a handle and a first lever are jointly lifted around a rotation pin, arranged through a second lever, until the first lever abuts against the second lever. Then, during a second rotation stroke, the handle is lifted around another rotation pin, arranged through the first lever.

[0007] However, in this corkscrew, the range of the first rotation stroke is limited.

[0008] One aim of the invention is to provide a corkscrew, with a simple design, allowing removing a cork in a single movement of the handle in an easy and reliable manner.

[0009] To this end, the invention concerns a corkscrew according to claim 1.

[0010] According to particular embodiments, the corkscrew includes one or more of the following features:

- the other of the first lever and the second lever defines a slot, the slot defining at its ends the first abutment and the second abutment, the stop rod being inserted in the slot;
- the slot is a curved slot, the center of which corresponds to the second rotation pin;
- in projection in a plane perpendicular to the first rotation axis and the second rotation axis, the slot crosses the axis passing through the first rotation pin and the second rotation pin;
- the stop rod is distinct from the first rotation pin and

from the second rotation pin;

- in projection in a plane perpendicular to the first rotation axis and the second rotation axis, when the handle is in its intermediate position, a projection of the intermediate abutment on the axis passing through the first rotation pin and the second rotation pin is located between the first rotation pin and the second rotation pin;
- when the handle is in its intermediate position, a region of the handle abuts against the intermediate abutment, this region of the handle being on a side of the handle opposite a side of the handle on which is connected the helical screw ;
- the helical screw is connected to the handle through a third rotation pin, and, in projection in a plane perpendicular to the first rotation axis and the second rotation axis, the third rotation pin and the first rotation pin are contained in an angular sector, facing the handle, defined between the axis passing by the second rotation pin and the first abutment and the axis passing by the second rotation pin and the second abutment;
- the helical screw is connected to the handle through a third rotation pin, and, in projection in a plane perpendicular to the first rotation axis and the second rotation axis, when the handle is in its intermediate position, the angle, opposite the helical screw, formed by the axis passing through the third rotation pin and the first rotation pin and the axis passing through the first rotation pin and the second rotation pin is greater than 145°;
- the helical screw is connected to the handle through a third rotation pin, and the ratio of the distance between the third rotation pin and the first rotation pin on the distance between the third rotation pin and the second rotation pin is comprised between 0.5 and 0.7;
- the second lever defines a shoulder configured to engage the neck of a bottle, the first lever being devoid of abutment surface against the neck of the bottle;
- the second lever defines a recess in the shape of a hook designed to form a cap lifter, the recess opening opposite of the handle in the start position;
- the corkscrew defines a first abutment configured to block the first lever against the second lever during the first rotation stroke of the handle, in a first direction of rotation and a second abutment configured to block the first lever against the second lever at the end of the second combined rotation stroke of the handle and the first lever, in a second direction of rotation, opposite to the first direction of rotation, and;
- the corkscrew comprises a cutting accessory pivotably connected to the handle.

[0011] The invention also relates to a method for extracting a cork from a neck of a bottle comprising the following steps:

- providing a corkscrew as described above;
- screwing the helical screw in the cork;
- engaging the engagement surface of the second lever on the neck of the bottle, the handle being in its start position;
- lifting the handle in a first rotation stroke until it reaches its intermediate position in abutment against the intermediate abutment, the handle rotating around the first rotation pin, the first abutment blocking the first lever against the second lever during the first rotation stroke; and
- jointly lifting the handle and the first lever in a second combined rotation stroke around the second rotation pin, the second abutment blocking the first lever against the second lever at the end of the second combined rotation stroke.

[0012] According to one particular embodiment, the method for extracting a cork from a neck of a bottle includes the following feature: the other of the first lever and the second lever defining a slot, the slot defining at its extremities the first abutment and the second abutment, the stop rod being inserted in the slot, and during the first rotation stroke, the stop rod is in abutment against the first abutment, and during the second combined rotation stroke, the stop rod slides from the first abutment to the second abutment.

[0013] Other aspects and advantages of the invention will appear upon reading the following description, given only by way of example and made in reference to the appended drawings, wherein:

- figures 1 and 2 are side views of a corkscrew according to an embodiment of the invention;
- figure 3 is a perspective view of the corkscrew of figures 1 and 2;
- figure 4 is a detailed view of the first lever of figure 3, and;
- figures 5 to 7 are side views of a method for extracting a cork from a neck of a bottle with the corkscrew of figures 1 and 2.

[0014] An embodiment of a corkscrew 10 according to the invention is depicted in figures 1 and 2. Figure 1 illustrates a fully retracted configuration of the corkscrew 10 and figure 2 illustrates a fully extended configuration of the corkscrew as detailed in the following.

[0015] The corkscrew 10 is intended to open a bottle 12 (partially visible in figures 5 to 7), by extracting a cork 14 from a neck 16 of the bottle 12.

[0016] The corkscrew 10 comprises a handle 18, a helical screw 20 connected to the handle 18, a first lever 22 pivotably connected to the handle 18 through a first rotation pin 24, and a second lever 26 pivotably connected to the first lever 22 through a second rotation pin 28.

[0017] The corkscrew 10 comprises for example a cutting accessory 30 pivotably connected to the handle 18.

[0018] The helical screw 20 is intended to be screwed

into the cork 14 of the bottle 12, as illustrated in figures 5 to 7. For clarity reasons, figures 5 to 7 only show a sectional view of the first lever 22 and of the second lever 26.

[0019] The helical screw 20 is connected to the handle 18 through a third rotation pin 32.

[0020] The helical screw 20 is rotatably mounted with respect to the handle 18 around the third rotation pin 32, between a retracted position, illustrated in figure 1, in which the helical screw 20 is close to the handle 18, and a remote position, illustrated in figure 7, in which a free end 33 of the helical screw 20 is remote from the handle 18.

[0021] The helical screw 20 is for example spring biased towards its retracted position.

[0022] The handle 18 is intended to be gripped by an operator during the extraction of the cork 14.

[0023] As illustrated in figure 3, the handle 18 comprises a main body 34.

[0024] The main body 34 comprises an elongated core 36 and two flat partitions 38 extending substantially parallel from core 36.

[0025] The two partitions 38 define between them a cavity 40 in which a portion of the helical screw 20 is engaged.

[0026] The third rotation pin 32 is inserted through both partitions 38 and a portion of the helical screw 20 engaged in the cavity 40.

[0027] The main body 34 is preferably made of metal.

[0028] In the example of the figures 1 to 7, the handle 18 further comprises two lateral shells 42 covering at least partially two lateral sides of the main body 34.

[0029] These shells 42 are preferably made of plastic, metal or wood.

[0030] These shells 42 are intended to provide a better grip comfort for the operator than the main body 34.

[0031] The handle 18 is rotatably movable with respect to the first lever 22 around the first rotation pin 24 between a rest position, illustrated in figure 1, in which the handle 18 abuts against the first lever 22 and the first lever 22 is close to the third rotation pin 32, and an intermediate position, illustrated in figures 2 and 6, in which the handle 18 abuts against the first lever 22 and the first lever is remote from the third rotation pin 32.

[0032] In use, the handle 18 is rotatably movable with respect to the first lever 22 around the first rotation pin 24 in a first rotation stroke between a start position, illustrated in figure 5, in which the handle 18 is close to the second lever 26 and the second lever 26 engages the neck 16 of the bottle 12, and the intermediate position.

[0033] The first rotation pin 24 defines a first rotation axis of the handle 18 with respect to the first lever 22.

[0034] When the handle 18 is in its intermediate position, a region 48 of the handle 18 abuts against the first lever 22. As illustrated in figure 6, the region 48 of the handle 18 is on a side 50 of the handle 18 opposite a side 52 of the handle 18 on which is connected the helical screw 20.

[0035] In reference to figure 6, when the handle 18 is in its intermediate position, in projection in a plane perpendicular to the first rotation axis, the angle α , opposite the helical screw 20, formed by the axis passing through the third rotation pin 32 and the first rotation pin 24 and the axis passing through the first rotation pin 24 and the second rotation pin 28 is greater than 145° . The angle α is opposite the helical screw 20 such that the angle α does not face the helical screw 20. The axes pass through the center of the rotation pins.

[0036] In the embodiment of figures 3 and 4, the first lever 22 comprises two lateral plates 54 extending substantially parallel to each other, a connecting plate 56 connecting the lateral plates 54 to each other, and a stop boss 57.

[0037] The first lever 22 comprises at least one cross section having a U-shape.

[0038] Each lateral plate 54 comprises a first protruding portion 58, visible in figure 4, and a second protruding portion 60, visible in figures 5 to 7, each protruding on both sides of the connecting plate 56.

[0039] The first protruding portion 58 of each lateral plate 54 is arranged around ends 62 of the partitions 38 of the handle 18, as illustrated in figure 4.

[0040] The first rotation pin 24 is inserted through both first protruding portions 58 and both partitions 38.

[0041] The length of the connecting plate 56 is smaller than the length of each lateral plate 54.

[0042] The connecting plate 56 comprises an outer edge 64 which defines an intermediate abutment 65 of the first lever 22, as illustrated in figure 4.

[0043] The intermediate abutment 65 is positioned parallel to the first rotation pin 24. In the intermediate position of the handle 18, the handle 18, in particular the region 48 of the handle 18, abuts against the intermediate abutment 65.

[0044] As illustrated in figure 6, in projection in a plane perpendicular to the first rotation axis and the second rotation axis, when the handle 18 is in its intermediate position, a projection of the intermediate abutment 65 on the axis passing through the first rotation pin 24 and the second rotation pin 28 is located between the first rotation pin 24 and the second rotation pin 28. The axes pass through the center of the rotation pins.

[0045] The stop boss 57 is for example a protrusion protruding from an inner surface 66 of a lateral plate 56.

[0046] In the rest position of the handle 18, the handle 18 abuts against the stop boss 57. The first lever 22 is preferably made of metal.

[0047] The first lever 22 is rotatably mounted with respect to the second lever 26 around the second rotation pin 28. When the handle 18 is in its intermediate position, the handle 18 and the first lever 22 are jointly rotatably movable from the intermediate position of the handle 18 around the second rotation pin 28 in a second combined rotation stroke.

[0048] The second rotation pin 28 defines a second rotation axis of the first lever 22 with respect to the second

lever 26. The first rotation axis and the second rotation axis are preferably parallel.

[0049] The first rotation axis and the second rotation axis are preferably parallel to a third rotation axis of the helical screw 20 with respect to the handle 18, the third rotation axis being defined by the third rotation pin 32.

[0050] The ratio of the distance between the third rotation pin 32 and the first rotation pin 24 on the distance between the third rotation pin 32 and the second rotation pin 28 is comprised between 0.5 and 0.7.

[0051] The corkscrew 10 defines a first abutment 68 configured to block the first lever 22 against the second lever 26 during the first rotation stroke of the handle 18 and a second abutment 70 configured to block the first lever 22 against the second lever 26 at the end of the second combined rotation stroke of the handle 18 and the first lever 22.

[0052] In the embodiment of the figures, the first lever 22 defines a slot 72, visible in figure 4, the slot 72 defining at its ends the first abutment 68 and the second abutment 70.

[0053] In figure 4, both lateral plates 54 of the first lever 22 define respectively a slot 72, both slots 72 being similar.

[0054] In this example, each slot 72 is a curved slot, the center of which corresponds to the second rotation pin 28.

[0055] In projection in a plane perpendicular to the first rotation axis and the second rotation axis, the first rotation pin 24 and the third rotation pin 32 are contained in an angular sector β (illustrated in figure 5 only), facing the handle 18, defined between the axis passing by the second rotation pin 28 and the first abutment 68 and the axis passing by the second rotation pin 28 and the second abutment 70. The angular extent of the angular sector β is comprised between 70° and 100° . The axis passes through the second rotation pin 28 in the sense that it passes through the center of the second rotation pin 28.

[0056] In the example of figures 1 to 7, in projection in a plane perpendicular to the first rotation axis and the second rotation axis, each slot 72 crosses the axis passing through the first rotation pin 24 and the second rotation pin 28.

[0057] In the embodiment of figure 4, the second lever 26 comprises two secondary lateral plates 74 extending substantially parallel to each other, a secondary connecting plate 76 connecting the lateral plates 74 to each other, and a stop rod 78.

[0058] The second lever 26 has an engagement surface 80 able to engage the neck 16 of the bottle 12. More specifically, the second lever 26 defines a shoulder 82 configured to engage the neck 16 of the bottle 12, the first lever 22 being devoid of abutment surface against the neck 16 of the bottle 12.

[0059] The length between the second rotation pin 28 and the engagement surface 80 is greater than the length between the second rotation pin 28 and the first rotation pin 24.

[0060] As illustrated in figures 1 to 7, the second lever 26 defines a recess 84 in the shape of a hook designed to form a cap lifter. For example, this recess emerges on a side of the second lever 22 opposite the engagement surface 80.

[0061] The second lever 26 comprises at least one cross section having a U-shape.

[0062] Each secondary lateral plate 74 comprises an end 86 arranged around the second protruding portions 60 of each lateral plate 54 of the first lever 22.

[0063] The second rotation pin 28 inserted through both second protruding portions 60 of the first lever 22 and both ends 86 of the secondary lateral plates 74.

[0064] In the embodiment of the figures 1 to 7, the stop rod 78 cooperates with the first abutment 68 to block the first lever 22 against the second lever 26 during the first rotation stroke of the handle 18, as illustrated in figures 5 and 6, and cooperates with the second abutment 70 to block the first lever 22 against the second lever 26 at the end of the second combined rotation stroke of the handle 18 and the first lever 22, as illustrated in figure 7.

[0065] The stop rod 78 is fixed to the second lever 26.

[0066] The stop rod 78 is inserted in the slot 72 defined by the first lever 22.

[0067] In the example of figure 4, the stop rod 78 is inserted in each slot 22 defined by each lateral plate 54 of the first lever 22 and extends through both the secondary lateral plates 74.

[0068] The stop rod 78 is movable in each slot 72 between the first abutment 68 and the second abutment 70, during the second combined rotation stroke of the handle 18 and the first lever 22.

[0069] The stop rod 78 is distinct from the first rotation pin 24 and from the second rotation pin 28.

[0070] In the fully retracted configuration of the corkscrew 10 of figure 1, the helical screw 20 is in its retracted position, the handle 18 is in its rest position and the second lever 26 contacts the handle 18, the stop rod 78 cooperating with the first abutment 68.

[0071] In the fully extended configuration of the corkscrew 10 of figure 2, the helical screw 20 is in a position between its retracted position and its remote position, the handle 18 is in its intermediate position and the stop rod 78 cooperates with the second abutment 70.

[0072] The second lever 26 is indirectly connected to the handle 18, exclusively through the first lever 22, without direct connection between the second lever 26 and the handle 18.

[0073] A method for extracting a cork 14 from a neck 16 of a bottle 12 with the corkscrew 10 described above will now be explained, in reference to figures 5 to 7.

[0074] Such a method comprises a step of providing the corkscrew 10 described above, in its fully retracted configuration.

[0075] An operator extends the corkscrew 10 from its fully retracted configuration to its fully extended configuration.

[0076] As shown in figure 2, the first lever 22 occupies

its fully retracted configuration, with the intermediate abutment 65 in contact with the handle 18. The second lever 26 protrudes from the first lever 22 such that the stop rod 78 is in contact with the second abutment 70, as shown in figure 4.

[0077] The helical screw 20 is screwed in the cork 14 of the bottle 12.

[0078] Then, the engagement surface 80 of the second lever 26 is engaged on the neck 16 of the bottle 12, by rotation of the second lever 26 around the second rotation pin 28. During this rotation of the second lever 26, the stop rod 78 slides from the second abutment 70 to the first abutment 68 in each slot 72, such that the stop rod 78 is in abutment against the first abutment 68 in each slot 72.

[0079] The intermediate abutment 65 moves apart from the handle 18.

[0080] The handle 18 is then positioned in its start position, as illustrated in figure 5, by rotation around the first rotation pin 24, such that the handle 18 is as close to the second lever 26 and to the neck 16 as possible.

[0081] The operator grasps and lifts the handle 18 in a first rotation stroke until it reaches its intermediate position in abutment against the intermediate abutment 65. The bold arched arrow in figure 5 illustrates the movement of the handle 18 during the first rotation stroke.

[0082] During the first rotation stroke, the handle 18 rotates around the first rotation pin 24 and the first abutment 68 blocks the first lever 22 against the second lever 24. The stop rod 78 is in abutment against the first abutment 68. The stop rod 78 prevents the first lever 22 from rotating around the first rotation pin 24 in a direction of rotation opposed to the first rotation stroke.

[0083] Thus, during the first rotation stroke, the extraction of the cork 14 is carried out with a first arm lever 88.

[0084] With the region 48 of the handle 18, which abuts against the intermediate abutment 65, being on the side 50 of the handle 18 opposite the side 52 of the handle 18 on which is connected the helical screw 20, the corkscrew 10 allows a significant extent of rotation in the first rotation stroke.

[0085] Then, the handle 18 and the first lever 22 are jointly lifted in a second combined rotation stroke around the second rotation pin 28. The bold arched arrows in figure 6 illustrate the movement of the handle 18 and of the first lever 22 during the second combined rotation stroke.

[0086] During the second combined rotation stroke, the stop rod 78 slides from the first abutment 68 to the second abutment 70 in each slot 72.

[0087] Thus, during the second combined rotation stroke the extraction of the cork 14 is carried out with a second arm lever 90 greater than the first arm lever 88.

[0088] This passage from a first arm lever 88 to a greater second arm lever 90 facilitates the extraction of the cork 14 to the operator. Indeed, it allows applying a greater extraction force to the cork 14, during the second combined rotation stroke, without requiring the operator to

apply a greater force to the handle 18.

[0089] Besides, the change of arm lever does not require a manual intervention of the operator other than the continuous lifting of the handle 18. This passage does not require the operator to stop the lifting of the handle 18.

[0090] At the end of the second combined rotation stroke, illustrated in figure 7, the second abutment 70 blocks the first lever 22 against the second lever 26.

[0091] The cork 14 is then fully extracted from the neck 16 of the bottle 12.

[0092] In a variant (not shown), the first lever 22 comprises the stop rod 78 and the second lever 26 defines the slot 72 in which the stop rod 78 is inserted.

[0093] The corkscrew 10 allows an automatic transition between two lever arms providing different intensities of mechanical action in different phases of the cork 14 extraction but does not require any manual intervention from the operator to adjust the intensity of mechanical action.

Claims

1. Corkscrew (10) comprising a handle (18), a helical screw (20) connected to the handle (18), a first lever (22) connected to the handle (18) through a first rotation pin (24), and a second lever (26) connected to the first lever (22) through a second rotation pin (28),

the second lever (26) having an engagement surface (80) able to engage a neck (16) of a bottle (12),

wherein the handle (18) is rotatably movable with respect to the first lever (22) around the first rotation pin (24) in a first rotation stroke between a start position, in which the handle (18) is close to the second lever (26), and an intermediate position, in which the handle (18) abuts against an intermediate abutment (65) of the first lever (22),

and the first lever (22) is rotatably mounted with respect to the second lever (26) around the second rotation pin (28), such that, when the handle (18) is in its intermediate position, the handle (18) and the first lever (22) are rotatably movable in one block from the intermediate position of the handle (18) around the second rotation pin (28) in a second combined rotation stroke, the first rotation pin (24) defining a first rotation axis of the handle (18) with respect to the first lever (22), and the second rotation pin (28) defining a second rotation axis of the first lever (22) with respect to the second lever (26),

wherein the corkscrew (10) defines a first abutment (68) configured to block the first lever (22) against the second lever (26) during the first rotation stroke of the handle (18) and a second

abutment (70) configured to block the first lever (22) against the second lever (26) at the end of the second combined rotation stroke of the handle (18) and the first lever (22), and;

wherein one of the first lever (22) and the second lever (26) comprises a stop rod (78) configured to cooperate with the first abutment (68) to block the first lever (22) against the second lever (26) during the first rotation stroke of the handle (18), and configured to cooperate with the second abutment (70) to block the first lever (22) against the second lever (26) at the end of the second combined rotation stroke of the handle (18) and the first lever (22).

2. Corkscrew (10) according to claim 1, wherein the other of the first lever (22) and the second lever (26) defines a slot (72), the slot (72) defining at its ends the first abutment (68) and the second abutment (70), the stop rod (78) being inserted in the slot (72).
3. Corkscrew (10) according to claim 2, wherein the slot (72) is a curved slot, the center of which corresponds to the second rotation pin (28).
4. Corkscrew (10) according to any one of claims 2 or 3, wherein, in projection in a plane perpendicular to the first rotation axis and the second rotation axis, the slot (72) crosses the axis passing through the first rotation pin (24) and the second rotation pin (28).
5. Corkscrew (10) according to any one of claims 1 to 4, wherein the stop rod (78) is distinct from the first rotation pin (24) and from the second rotation pin (28).
6. Corkscrew (10) according to any one of the preceding claims, wherein, in projection in a plane perpendicular to the first rotation axis and the second rotation axis, when the handle (18) is in its intermediate position, a projection of the intermediate abutment (65) on the axis passing through the first rotation pin (24) and the second rotation pin (28) is located between the first rotation pin (24) and the second rotation pin (28).
7. Corkscrew (10) according to any one of the preceding claims, wherein when the handle (18) is in its intermediate position, a region (48) of the handle (18) abuts against the intermediate abutment (65), this region (48) of the handle (18) being on a side (50) of the handle (18) opposite a side (52) of the handle (18) on which is connected the helical screw (20).
8. Corkscrew (10) according to any one of the preceding claims, wherein the helical screw (20) is connected to the handle (18) through a third rotation pin (32), and wherein, in projection in a plane perpendicular

to the first rotation axis and the second rotation axis, the third rotation pin (32) and the first rotation pin (24) are contained in an angular sector (β), facing the handle (18), defined between the axis passing by the second rotation pin (28) and the first abutment (68) and the axis passing by the second rotation pin (28) and the second abutment (70).

9. Corkscrew (10) according to any one of the preceding claims, wherein the helical screw (20) is connected to the handle (18) through a third rotation pin (32), and wherein, in projection in a plane perpendicular to the first rotation axis and the second rotation axis, when the handle (18) is in its intermediate position, the angle (α), opposite the helical screw (20), formed by the axis passing through the third rotation pin (32) and the first rotation pin (24) and the axis passing through the first rotation pin (24) and the second rotation pin (28) is greater than 145° .
10. Corkscrew (10) according to any one of the preceding claims, wherein the helical screw (20) is connected to the handle (18) through a third rotation pin (32), and wherein the ratio of the distance between the third rotation pin (32) and the first rotation pin (24) on the distance between the third rotation pin (32) and the second rotation pin (28) is comprised between 0.5 and 0.7.
11. Corkscrew (10) according to any one of the preceding claims, wherein the second lever (26) defines a shoulder (82) configured to engage the neck (16) of a bottle (12), the first lever (22) being devoid of abutment surface against the neck (16) of the bottle (12).
12. Corkscrew (10) according to any one of the preceding claims, wherein the second lever (26) defines a recess (84) in the shape of a hook designed to form a cap lifter, the recess (84) opening opposite of the handle (18) in the start position.
13. Method for extracting a cork (14) from a neck (16) of a bottle (12) comprising the following steps:
 - providing a corkscrew (10) according to any one of the preceding claims;
 - screwing the helical screw (20) in the cork (14);
 - engaging the engagement surface (80) of the second lever (26) on the neck (16) of the bottle (12), the handle (18) being in its start position;
 - lifting the handle (18) in a first rotation stroke until it reaches its intermediate position in abutment against the intermediate abutment (65), the handle (18) rotating around the first rotation pin (24), the first abutment (68) blocking the first lever (22) against the second lever (26) during the first rotation stroke;
 - jointly lifting the handle (18) and the first lever

(22) in a second combined rotation stroke around the second rotation pin (24), the second abutment (70) blocking the first lever (22) against the second lever (26) at the end of the second combined rotation stroke.

14. Method according to claim 13, wherein the other of the first lever (22) and the second lever (26) define a slot (72), the slot (72) defining at its extremities the first abutment (68) and the second abutment (70), the stop rod (78) being inserted in the slot (72), and wherein during the first rotation stroke, the stop rod (78) is in abutment against the first abutment (68), and during the second combined rotation stroke, the stop rod (78) slides from the first abutment (68) to the second abutment (70).

Patentansprüche

1. Korkenzieher (10), einen Griff (18), eine Korkenzieherspirale (20), die mit dem Griff (18) verbunden ist, einen ersten Hebel (22), der durch einen ersten Drehstift (24) mit dem Griff (18) verbunden ist, und einen zweiten Hebel (26), der durch einen zweiten Drehstift (28) mit dem ersten Hebel (22) verbunden ist, umfassend,

wobei der zweite Hebel (26) eine Eingriffsfläche (80) aufweist, die in der Lage ist, mit einem Hals (16) einer Flasche (12) in Eingriff zu gelangen, wobei der Griff (18) in einem ersten Drehhub zwischen einer Ausgangsposition, in der sich der Griff (18) nahe dem zweiten Hebel (26) befindet, und einer Zwischenposition, in der der Griff (18) an einem Zwischenaufleger (65) des ersten Hebels (22) anliegt, in Bezug auf den ersten Hebel (22) um den ersten Drehstift (24) beweglich ist, und der erste Hebel (22) in Bezug auf den zweiten Hebel (26) drehbar um den zweiten Drehstift (28) montiert ist, so dass der Griff (18) und der erste Hebel (22), wenn sich der Griff (18) in seiner Zwischenposition befindet, in einem zweiten kombinierten Drehhub in einem Block von der Zwischenposition des Griffs (18) um den zweiten Drehstift (28) drehbar beweglich sind, wobei der erste Drehstift (24) eine erste Drehachse des Griffs (18) in Bezug auf den ersten Hebel (22) definiert und der zweite Drehstift (28) eine zweite Drehachse des ersten Hebels (22) in Bezug auf den zweiten Hebel (26) definiert, wobei der Korkenzieher (10) ein erstes Auflager (68) definiert, das dafür gestaltet ist, während des ersten Drehhubs des Griffs (18) den ersten Hebel (22) gegen den zweiten Hebel (26) zu blockieren, und ein zweites Auflager (70), das dafür gestaltet ist, am Ende des zweiten kombinierten

- Drehhubs des Griffs (18) und des ersten Hebels (22) den ersten Hebel (22) gegen den zweiten Hebel (26) zu blockieren, und;
wobei entweder der erste Hebel (22) oder der zweite Hebel (26) einen Anschlagstange (78) umfasst, der dafür gestaltet ist, mit dem ersten Auflager (68) zusammenzuwirken, um während des ersten Drehhubs des Griffs (18) den ersten Hebel (22) gegen den zweiten Hebel (26) zu blockieren, und dafür gestaltet ist, mit dem zweiten Auflager (70) zusammenzuwirken, um am Ende des zweiten kombinierten Drehhubs des Griffs (18) und des ersten Hebels (22) den ersten Hebel (22) gegen den zweiten Hebel (26) zu blockieren.
2. Korkenzieher (10) nach Anspruch 1, wobei der entsprechend andere des ersten Hebels (22) und des zweiten Hebels (26) einen Schlitz (72) definiert, wobei der Schlitz (72) an seinen Enden das erste Auflager (68) und das zweite Auflager (70) definiert, wobei der Anschlagstange (78) in den Schlitz (72) eingefügt ist.
 3. Korkenzieher (10) nach Anspruch 2, wobei der Schlitz (72) ein gekrümmter Schlitz ist, dessen Mitte dem zweiten Drehstift (28) entspricht.
 4. Korkenzieher (10) nach einem der Ansprüche 2 oder 3, wobei der Schlitz (72) in einer Projektion in einer Ebene senkrecht zur ersten Drehachse und zur zweiten Drehachse die Achse kreuzt, die durch den ersten Drehstift (24) und den zweiten Drehstift (28) verläuft.
 5. Korkenzieher (10) nach einem der Ansprüche 1 bis 4, wobei sich der Anschlagstange (78) von dem ersten Drehstift (24) und dem zweiten Drehstift (28) unterscheidet.
 6. Korkenzieher (10) nach einem der vorhergehenden Ansprüche, wobei sich in der Projektion in einer Ebene senkrecht zur ersten Drehachse und zur zweiten Drehachse eine Projektion des Zwischenaufagers (65) auf der Achse, die durch den ersten Drehstift (24) und den zweiten Drehstift (28) verläuft, zwischen dem ersten Drehstift (24) und dem zweiten Drehstift (28) befindet, wenn sich der Griff (18) in seiner Zwischenposition befindet.
 7. Korkenzieher (10) nach einem der vorhergehenden Ansprüche, wobei ein Bereich (48) des Griffs (18) an dem Zwischenaufleger (65) aufliegt, wenn sich der Griff (18) in seiner Zwischenposition befindet, wobei sich dieser Bereich (48) des Griffs (18) an einer Seite (50) des Griffs (18) befindet, die gegenüber einer Seite (52) des Griffs (18) liegt, die mit der Korkenzieherspirale (20) verbunden ist.
 8. Korkenzieher (10) nach einem der vorhergehenden Ansprüche, wobei die Korkenzieherspirale (20) durch einen dritten Drehstift (32) mit dem Griff (18) verbunden ist, und wobei der dritte Drehstift (32) und der erste Drehstift (24) in der Projektion in einer Ebene senkrecht zur ersten Drehachse und zur zweiten Drehachse in einem Winkelsektor (β) enthalten sind, der zum Griff (18) weist und zwischen der Achse, die durch den zweiten Drehstift (28) und das erste Auflager (68) verläuft, und der Achse, die durch den zweiten Drehstift (28) und das zweite Auflager (70) verläuft, definiert ist.
 9. Korkenzieher (10) nach einem der vorhergehenden Ansprüche, wobei die Korkenzieherspirale (20) durch einen dritten Drehstift (32) mit dem Griff (18) verbunden ist, und wobei der Winkel (α) gegenüber der Korkenzieherspirale (20), der durch die Achse, die durch den dritten Drehstift (32) und den ersten Drehstift (24) verläuft, und die Achse, die durch den ersten Drehstift (24) und den zweiten Drehstift (28) verläuft, definiert ist, in der Projektion in einer Ebene senkrecht zur ersten Drehachse und zur zweiten Drehachse größer als 145° ist, wenn sich der Griff (18) in seiner Zwischenposition befindet.
 10. Korkenzieher (10) nach einem der vorhergehenden Ansprüche, wobei die Korkenzieherspirale (20) durch einen dritten Drehstift (32) mit dem Griff (18) verbunden ist, und wobei das Verhältnis des Abstandes zwischen dem dritten Drehstift (32) und dem ersten Drehstift (24) zu dem Abstand zwischen dem dritten Drehstift (32) und dem zweiten Drehstift (28) zwischen 0,5 und 0,7 beträgt.
 11. Korkenzieher (10) nach einem der vorhergehenden Ansprüche, wobei der zweite Hebel (26) einen Absatz (82) definiert, der dafür gestaltet ist, mit dem Hals (16) einer Flasche (12) in Eingriff zu gelangen, wobei der erste Hebel (22) frei von Auflagerfläche gegen den Hals (16) der Flasche (12) ist.
 12. Korkenzieher (10) nach einem der vorhergehenden Ansprüche, wobei der zweite Hebel (26) eine Vertiefung (84) in der Form eines Hakens definiert, der dafür ausgelegt ist, einen Kapselheber zu bilden, wobei sich die Vertiefung (84) in der Ausgangsposition gegenüber dem Griff (18) öffnet.
 13. Verfahren zum Herausziehen eines Korkens (14) aus einem Hals (16) einer Flasche (12), die folgenden Schritte umfassend:
 - Bereitstellen eines Korkenziehers (10) nach einem der vorhergehenden Ansprüche,

- Eindrehen der Korkenzieherspirale (20) in den Korken (14);
 - Ein-Eingriff-Bringen der Eingriffsfläche (80) des zweiten Hebels (26) mit dem Hals (16) der Flasche (12), wobei sich der Griff (18) in seiner Ausgangsposition befindet;
 - Heben des Griffs (18) in einem ersten Drehhub, bis er seine Zwischenposition mit dem Anliegen an dem Zwischenauflager (65) erreicht, wobei sich der Griff (18) um den ersten Drehstift (24) dreht, wobei das erste Auflager (68) während des ersten Drehhubs den ersten Hebel (22) gegen den zweiten Hebel (26) blockiert;
 - gemeinsames Heben des Griffs (18) und des ersten Hebels (22) in einem zweiten kombinierten Drehhub um den zweiten Drehstift (24), wobei das zweite Auflager (70) am Ende des zweiten kombinierten Drehhubs den ersten Hebel (22) gegen den zweiten Hebel (26) blockiert.

14. Verfahren nach Anspruch 13, wobei der entsprechend andere des ersten Hebels (22) und des zweiten Hebels (26) einen Schlitz (72) definiert, wobei der Schlitz (72) an seinen Endpunkten das erste Auflager (68) und das zweite Auflager (70) definiert, wobei der Anschlagstange (78) in den Schlitz (72) eingefügt ist, und wobei der Anschlagstange (78) während des ersten Drehhubs an dem ersten Auflager (68) anliegt und der Anschlagstange (78) während des zweiten kombinierten Drehhubs von dem ersten Auflager (68) zu dem zweiten Auflager (70) gleitet.

Revendications

1. Tire-bouchon (10) comprenant une poignée (18), une vis hélicoïdale (20) raccordée à la poignée (18), un premier levier (22) raccordé à la poignée (18) par le biais d'une première broche de rotation (24), et un second levier (26) raccordé au premier levier (22) par le biais d'une deuxième broche de rotation (28),
- le second levier (26) ayant une surface de prise (80) pouvant mettre en prise un goulot (16) d'une bouteille (12),
- dans lequel la poignée (18) est mobile en rotation par rapport au premier levier (22) autour de la première broche de rotation (24) dans une première course de rotation entre une position de départ dans laquelle la poignée (18) est à proximité du second levier (26) et une position intermédiaire dans laquelle la poignée (18) vient en butée contre une butée intermédiaire (65) du premier levier (22),
- et le premier levier (22) est monté en rotation par rapport au second levier (26) autour de la deuxième broche de rotation (28), de sorte que

lorsque la poignée (18) est dans sa position intermédiaire, la poignée (18) et le premier levier (22) sont mobiles en rotation d'un seul bloc à partir de la position intermédiaire de la poignée (18) autour de la deuxième broche de rotation (28) dans une seconde course de rotation combinée,

la première broche de rotation (24) définissant un premier axe de rotation (18) par rapport au premier levier (22), et la deuxième broche de rotation (28) définissant un second axe de rotation du premier levier (22) par rapport au second levier (26),

dans lequel le tire-bouchon (10) définit une première butée (68) configurée pour bloquer le premier levier (22) contre le second levier (26) pendant la première course de rotation de la poignée (18) et une seconde butée (70) configurée pour bloquer le premier levier (22) contre le second levier (26) à la fin de la seconde course de rotation combinée de la poignée (18) et du premier levier (22), et ;

dans lequel l'un parmi le premier levier (22) et le second levier (26) comprend une tige de butée (78) configurée pour coopérer avec la première butée (68) pour bloquer le premier levier (22) contre le second levier (26) pendant la première course de rotation de la poignée (18), et configurée pour coopérer avec la seconde butée (70) pour bloquer le premier levier (22) contre le second levier (26) à la fin de la seconde course de rotation combinée de la poignée (18) et du premier levier (22).

2. Tire-bouchon (10) selon la revendication 1, dans lequel l'autre parmi le premier levier (22) et le second levier (26) définit une fente (72), la fente (72) définissant, au niveau de ses extrémités, la première butée (68) et la seconde butée (70), la tige de butée (78) étant insérée dans la fente (72).
3. Tire-bouchon (10) selon la revendication 2, dans lequel la fente (72) est une fente incurvée, dont le centre correspond à la deuxième broche de rotation (28).
4. Tire-bouchon (10) selon l'une quelconque des revendications 2 ou 3, dans lequel, en saillie dans un plan perpendiculaire au premier axe de rotation et au second axe de rotation, la fente (72) traverse l'axe passant par la première broche de rotation (24) et la deuxième broche de rotation (28).
5. Tire-bouchon (10) selon l'une quelconque des revendications 1 à 4, dans lequel la tige de butée (78) est distincte de la première broche de rotation (24) et de la deuxième broche de rotation (28).
6. Tire-bouchon (10) selon l'une quelconque des re-

vendications précédentes, dans lequel, en saillie dans un plan perpendiculaire au premier axe de rotation et au second axe de rotation, lorsque la poignée (18) est dans sa position intermédiaire, une saillie de la butée intermédiaire (65) sur l'axe passant par la première broche de rotation (24) et la deuxième broche de rotation (28) est positionnée entre la première broche de rotation (24) et la deuxième broche de rotation (28).

7. Tire-bouchon (10) selon l'une quelconque des revendications précédentes, dans lequel lorsque la poignée (18) est dans sa position intermédiaire, une région (48) de la poignée (18) vient en butée contre la butée intermédiaire (65), cette région (48) de la poignée (18) étant d'un côté (50) de la poignée (18), opposé à un côté (52) de la poignée (18) sur lequel est raccordée la vis hélicoïdale (20).
8. Tire-bouchon (10) selon l'une quelconque des revendications précédentes, dans lequel la vis hélicoïdale (20) est raccordée à la poignée (18) par le biais d'une troisième broche de rotation (32), et dans lequel, en saillie dans un plan perpendiculaire au premier axe de rotation et au second axe de rotation, la troisième broche de rotation (32) et la première broche de rotation (24) sont contenues dans un secteur angulaire (β) faisant face à la poignée (18), défini entre l'axe passant par la deuxième broche de rotation (28) et la première butée (68) et l'axe passant par la deuxième broche de rotation (28) et la seconde butée (70).
9. Tire-bouchon (10) selon l'une quelconque des revendications précédentes, dans lequel la vis hélicoïdale (20) est raccordée à la poignée (18) par le biais d'une troisième broche de rotation (32), et dans lequel, en saillie dans un plan perpendiculaire au premier axe de rotation et au second axe de rotation, lorsque la poignée (18) est dans sa position intermédiaire, l'angle (α) opposé à la vis hélicoïdale (20), formé par l'axe passant par la troisième broche de rotation (32) et la première broche de rotation (24) et l'axe passant par la première broche de rotation (24) et la deuxième broche de rotation (28) est supérieur à 145°.
10. Tire-bouchon (10) selon l'une quelconque des revendications précédentes, dans lequel la vis hélicoïdale (20) est raccordée à la poignée (18) par le biais d'une troisième broche de rotation (32), et dans lequel le rapport de la distance entre la troisième broche de rotation (32) et la première broche de rotation (24) sur la distance entre la troisième broche de rotation (32) et la deuxième broche de rotation (28) est compris entre 0,5 et 0,7.

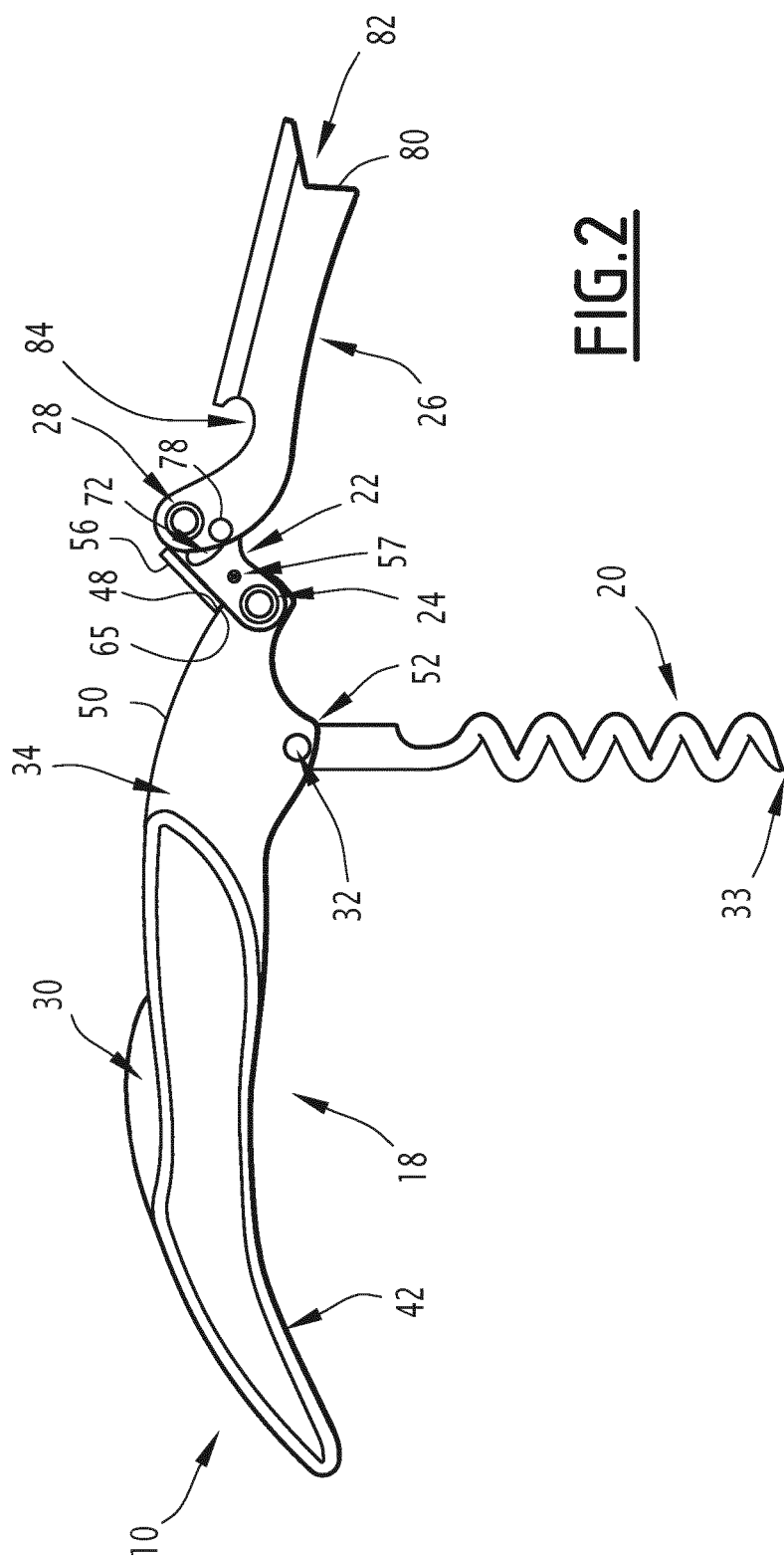
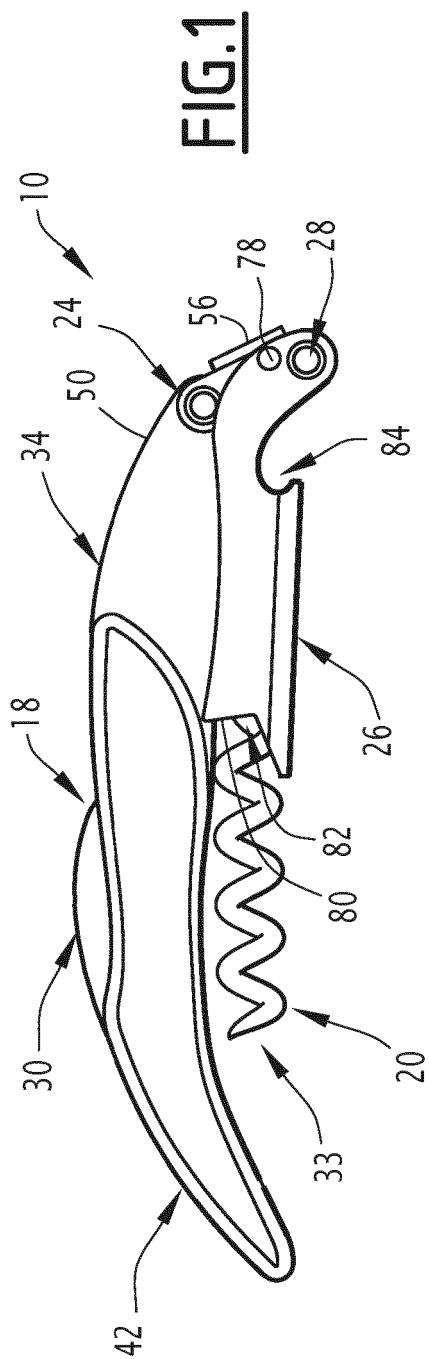
11. Tire-bouchon (10) selon l'une quelconque des re-

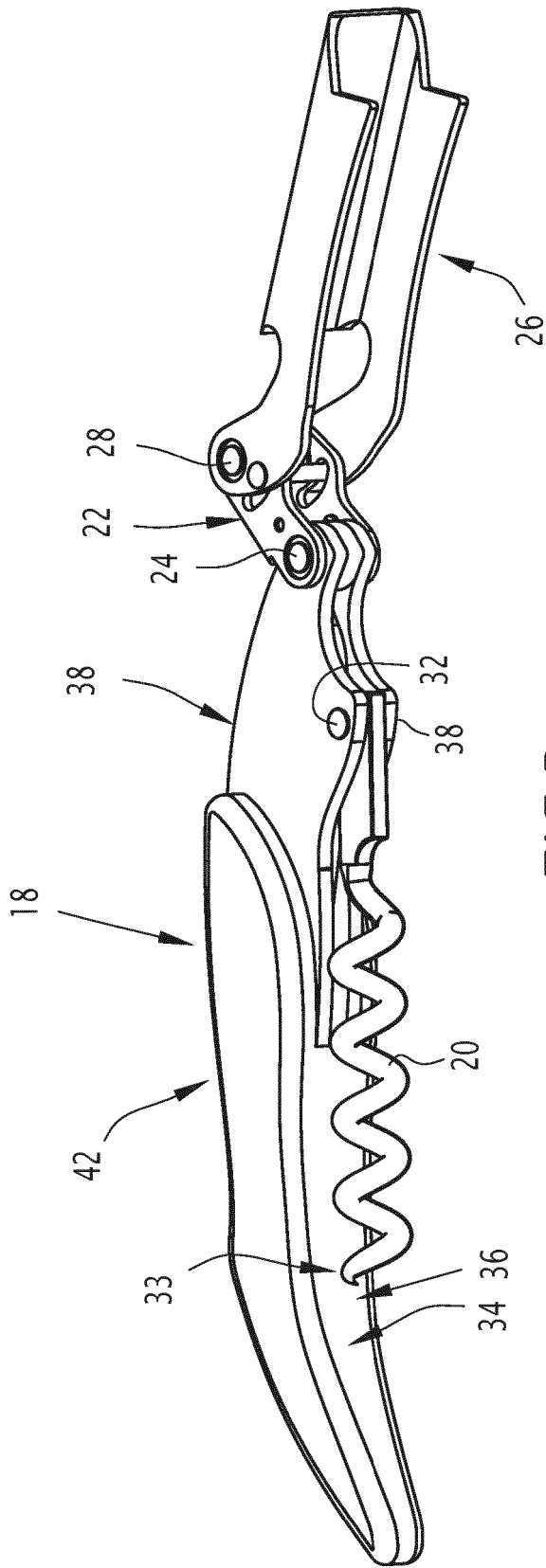
vendications précédentes, dans lequel le second levier (26) définit un épaulement (82) configuré pour mettre en prise le goulot (16) d'une bouteille (12), le premier levier (22) étant dépourvu de surface de butée contre le goulot (16) de la bouteille (12).

12. Tire-bouchon (10) selon l'une quelconque des revendications précédentes, dans lequel le second levier (26) définit un évidement (84) se présentant sous la forme d'un crochet conçu pour former un décapsuleur, l'évidement (84) s'ouvrant à l'opposé de la poignée (18) dans la position de départ.
13. Procédé pour extraire un bouchon (14) d'un goulot (16) d'une bouteille (12) comprenant les étapes suivantes consistant à :

- prévoir un tire-bouchon (10) selon l'une quelconque des revendications précédentes ;
- visser la vis hélicoïdale (20) dans le bouchon (14) ;
- mettre en prise la surface de prise (80) du second levier (26) sur le goulot (16) de la bouteille (12), la poignée (18) étant dans sa position de départ ;
- lever la poignée (18) dans une première course de rotation jusqu'à ce qu'elle atteigne sa position intermédiaire en butée contre la butée intermédiaire (65), la poignée (18) tournant autour de la première broche de rotation (24), la première butée (68) bloquant le premier levier (22) contre le second levier (26) pendant la première course de rotation ;
- lever conjointement la poignée (18) et le premier levier (22) dans une seconde course de rotation combinée autour de la deuxième broche de rotation (28), la seconde butée (70) bloquant le premier levier (22) contre le second levier (26) à la fin de la seconde course de rotation combinée.

14. Procédé selon la revendication 13, dans lequel l'autre parmi le premier levier (22) et le second levier (26) définit une fente (72), la fente (72) définissant, au niveau de ses extrémités, la première butée (68) et la seconde butée (70), la tige de butée (78) étant insérée dans la fente (72), et dans lequel pendant la première course de rotation, la tige de butée (78) est en butée contre la première butée (68) et pendant la seconde course de rotation combinée, la tige de butée (78) coulisse de la première butée (68) à la seconde butée (70).





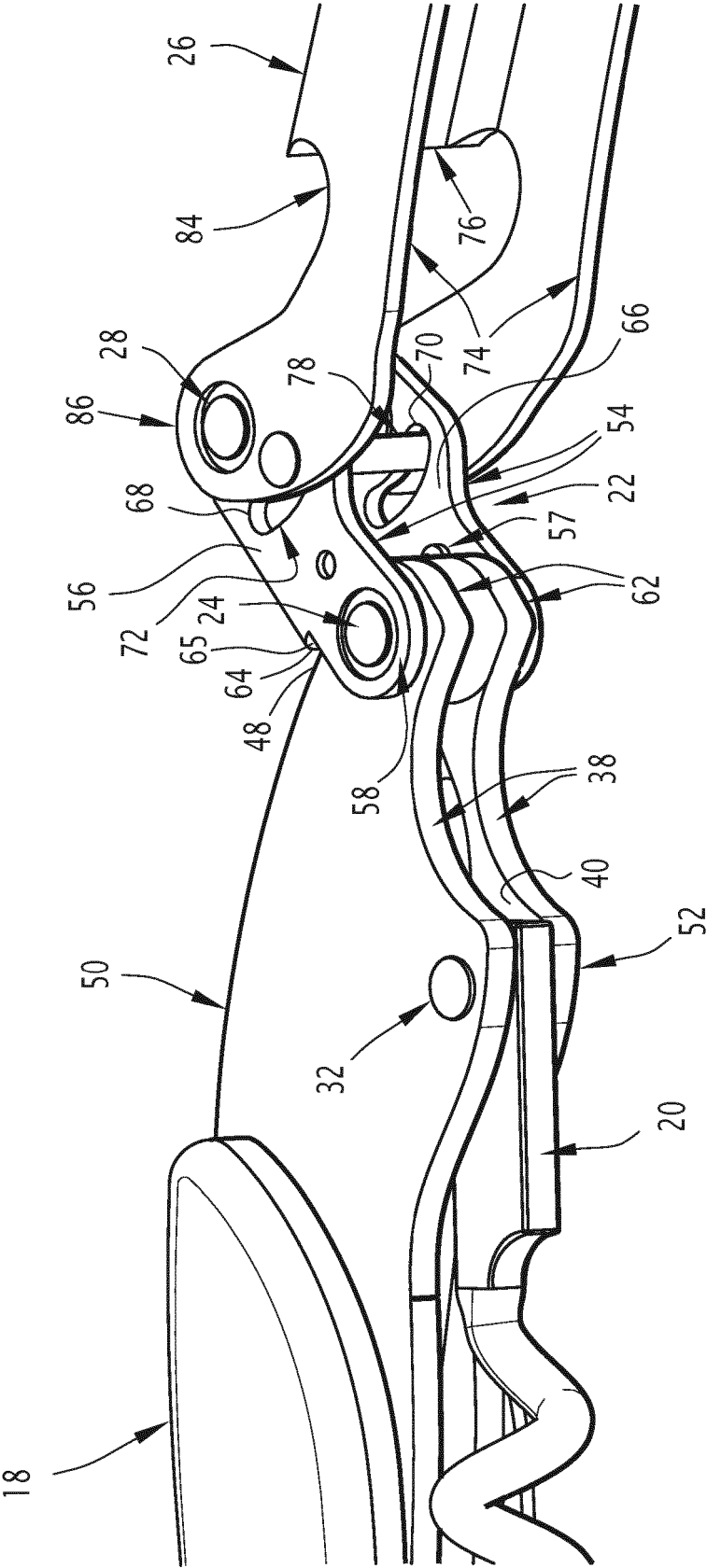
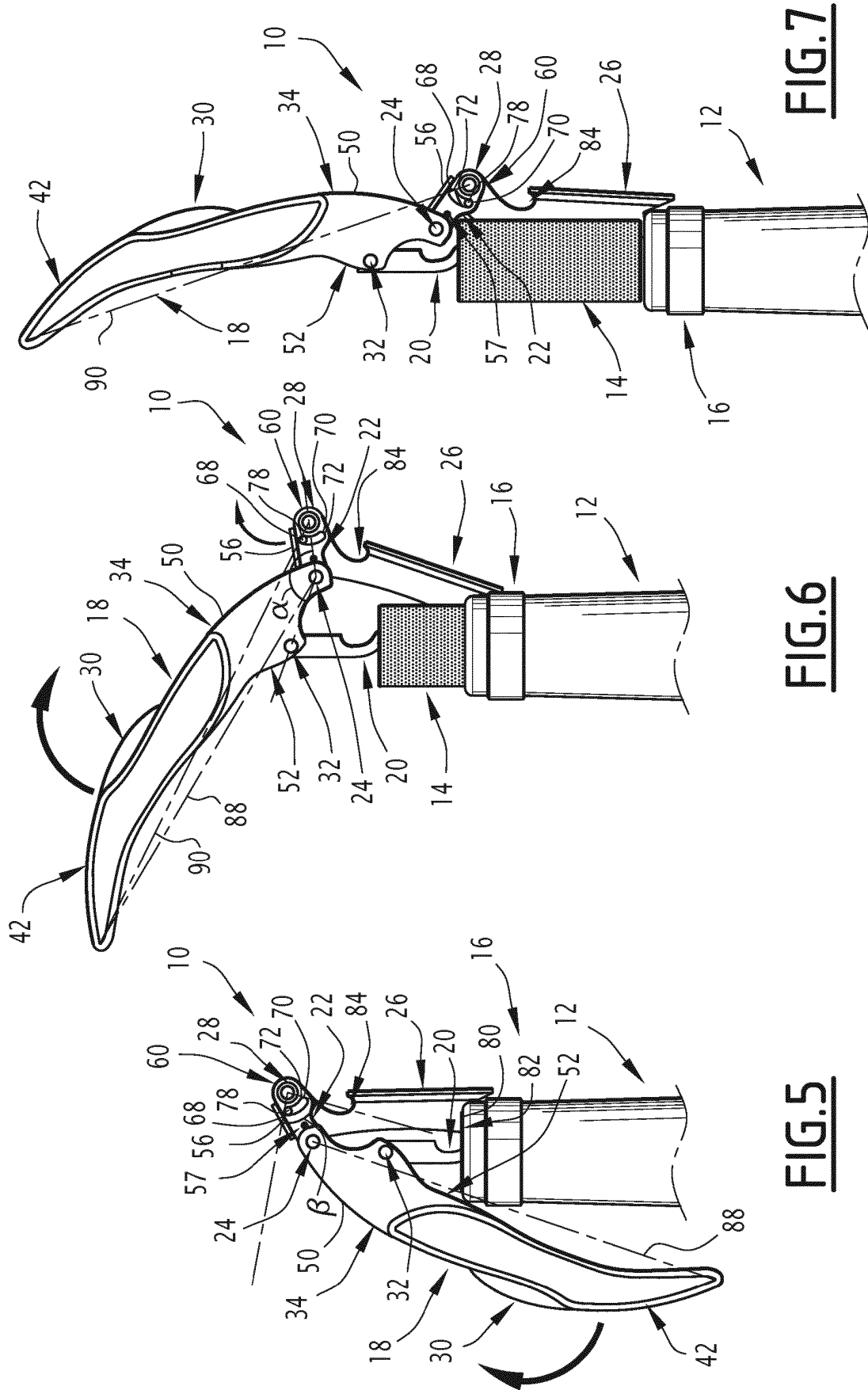


FIG.4



REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- DE 202004018118 U [0004]
- EP 0562174 A [0005]
- EP 2423154 A [0005]
- WO 2004074161 A [0006]