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(54) **CORKSCREW AND ASSOCIATED METHOD FOR EXTRACTING A CORK**

(57) This corkscrew comprises a handle (18), a first lever (22) connected to the handle (18), and a second lever (26) connected to the first lever (22).

The handle (18) is rotatably movable with respect to the first lever (22) in a first rotation stroke until it abuts against the first lever (22), and the first lever (22) is rotatably mounted with respect to the second lever (26), such that the handle (18) and the first lever (22) are ro-

tatably movable in one block in a second combined rotation stroke.

The corkscrew defines a first abutment (68) configured to block the first lever (22) against the second lever (26) during the first rotation stroke 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.

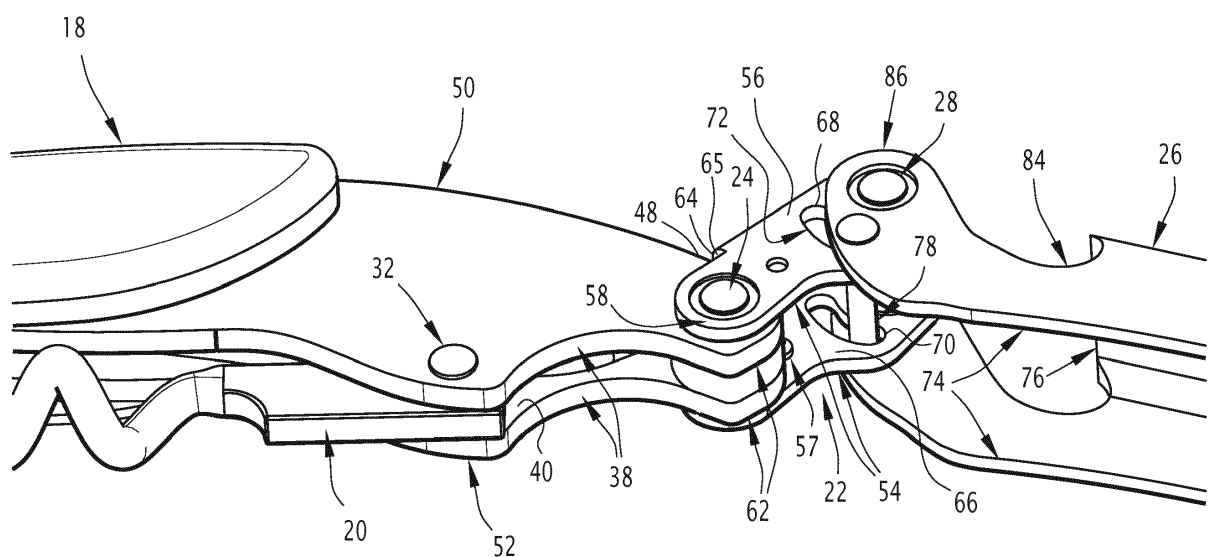


FIG.4

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] 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.

[0005] However, in this corkscrew, the range of the first rotation stroke is limited.

[0006] 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.

[0007] To this end, the invention concerns a corkscrew of the type wherein the handle is rotatably movable with respect to the first lever around the first rotation pin in a first rotation stroke between a start position, in which the handle is close to the second lever, and an intermediate position, in which the handle abuts against an intermediate abutment of the first lever, and the first lever is rotatably mounted with respect to the second lever around the second rotation pin, such that, when the handle is in its intermediate position, the handle and the first lever are rotatably movable in one block from the intermediate position of the handle around the second rotation pin in a second combined rotation stroke, the first rotation pin defining a first rotation axis of the handle with respect to the first lever, and the second rotation pin defining a second rotation axis of the first lever with respect to the second lever, and, wherein the corkscrew defines a first abutment configured to block the first lever against the second lever during the first rotation stroke of the handle 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.

[0008] According to particular embodiments, the corkscrew includes one or more of the following features,

according to any technically possible combinations:

- one of the first lever and the second lever comprises a stop rod configured to cooperate with the first abutment to block the first lever against the second lever during the first rotation stroke of the handle, and configured to cooperate with the second abutment 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;
- 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.

[0009] 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.

[0010] According to one particular embodiment, the method for extracting a cork from a neck of a bottle includes the following feature: one of the first lever and the second lever comprises a stop rod configured to cooperate with the first abutment to block the first lever against the second lever during the first rotation stroke of the handle, and configured to cooperate with the second abutment 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, 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.

[0011] 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.

[0012] 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.

[0013] 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.

[0014] 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.

[0015] The corkscrew 10 comprises for example a cutting accessory 30 pivotably connected to the handle 18.

[0016] 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.

[0017] The helical screw 20 is connected to the handle 18 through a third rotation pin 32.

[0018] 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.

[0019] The helical screw 20 is for example spring biased towards its retracted position.

[0020] The handle 18 is intended to be gripped by an operator during the extraction of the cork 14.

[0021] As illustrated in figure 3, the handle 18 comprises a main body 34.

[0022] The main body 34 comprises an elongated core 36 and two flat partitions 38 extending substantially parallel from core 36.

[0023] The two partitions 38 define between them a cavity 40 in which a portion of the helical screw 20 is engaged.

[0024] The third rotation pin 32 is inserted through both partitions 38 and a portion of the helical screw 20 engaged in the cavity 40.

[0025] The main body 34 is preferably made of metal.

[0026] 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.

[0027] These shells 42 are preferably made of plastic, metal or wood.

[0028] These shells 42 are intended to provide a better grip comfort for the operator than the main body 34.

[0029] 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.

[0030] 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.

[0031] The first rotation pin 24 defines a first rotation axis of the handle 18 with respect to the first lever 22.

[0032] 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.

[0033] 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.

[0034] 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.

[0035] The first lever 22 comprises at least one cross section having a U-shape.

[0036] 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.

[0037] 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.

[0038] The first rotation pin 24 is inserted through both first protruding portions 58 and both partitions 38.

[0039] The length of the connecting plate 56 is smaller than the length of each lateral plate 54.

[0040] 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.

[0041] 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.

[0042] 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.

[0043] The stop boss 57 is for example a protrusion protruding from an inner surface 66 of a lateral plate 56.

[0044] 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.

[0045] 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.

[0046] 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.

[0047] 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.

[0048] 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.

[0049] 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.

[0050] 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.

[0051] In figure 4, both lateral plates 54 of the first lever 22 define respectively a slot 72, both slots 72 being similar.

[0052] In this example, each slot 72 is a curved slot, the center of which corresponds to the second rotation pin 28.

[0053] 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.

[0054] 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.

[0055] 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.

[0056] 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.

[0057] 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.

[0058] 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.

[0059] The second lever 26 comprises at least one cross section having a U-shape.

[0060] 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.

[0061] 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.

[0062] 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.

[0063] The stop rod 78 is fixed to the second lever 26.

[0064] The stop rod 78 is inserted in the slot 72 defined by the first lever 22.

[0065] 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.

[0066] The stop rod 78 is movable in each slot 72 be-

tween the first abutment 68 and the second abutment 70, during the second combined rotation stroke of the handle 18 and the first lever 22.

[0067] The stop rod 78 is distinct from the first rotation pin 24 and from the second rotation pin 28.

[0068] 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.

[0069] 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.

[0070] 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.

[0071] 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.

[0072] Such a method comprises a step of providing the corkscrew 10 described above, in its fully retracted configuration.

[0073] An operator extends the corkscrew 10 from its fully retracted configuration to its fully extended configuration.

[0074] 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.

[0075] The helical screw 20 is screwed in the cork 14 of the bottle 12.

[0076] 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.

[0077] The intermediate abutment 65 moves apart from the handle 18.

[0078] 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.

[0079] 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.

[0080] 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.

[0081] Thus, during the first rotation stroke, the extraction of the cork 14 is carried out with a first arm lever 88.

[0082] 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.

[0083] 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.

[0084] 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.

[0085] 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.

[0086] 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.

[0087] 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.

[0088] 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.

[0089] The cork 14 is then fully extracted from the neck 16 of the bottle 12.

[0090] 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.

[0091] 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),

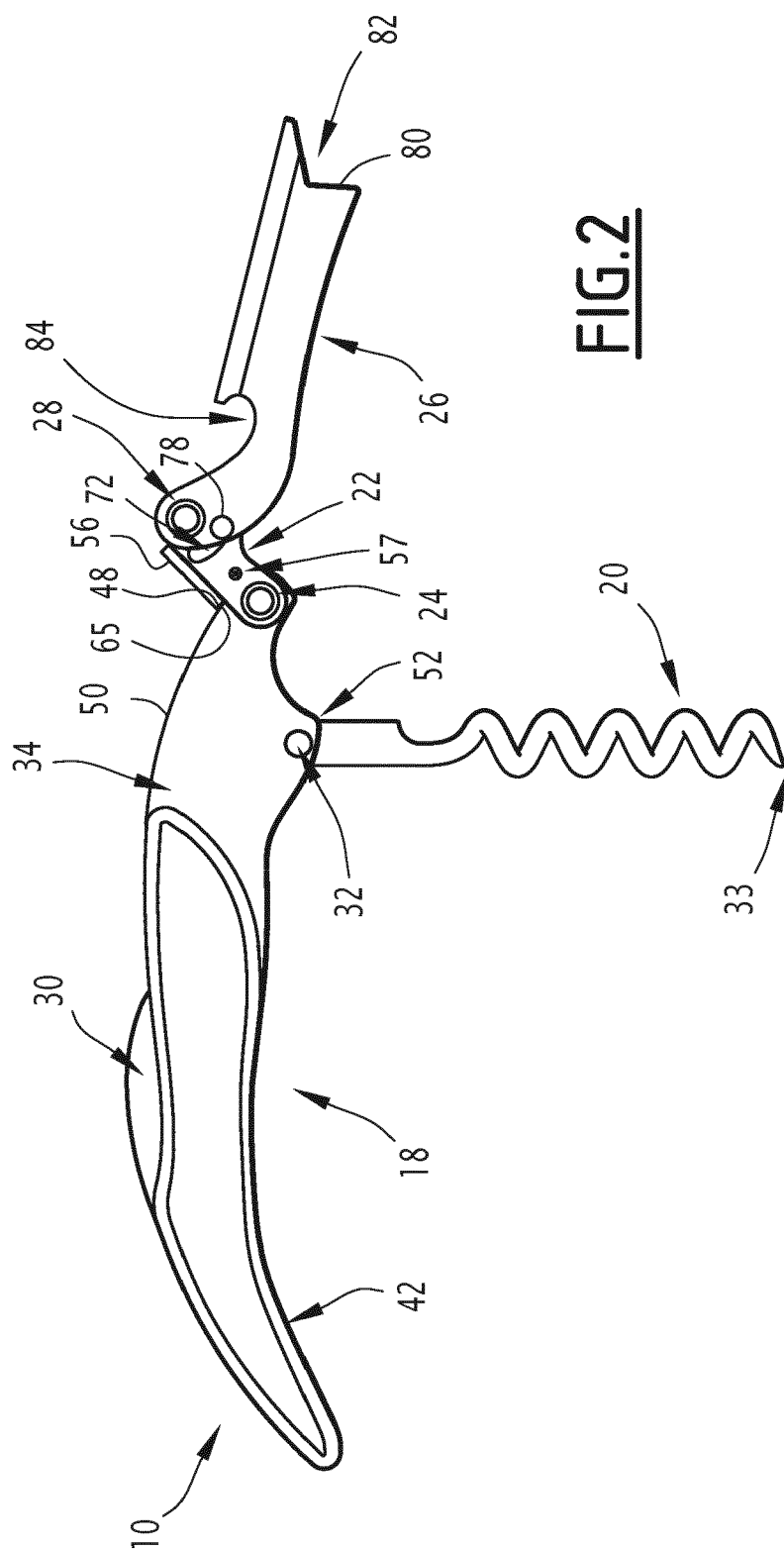
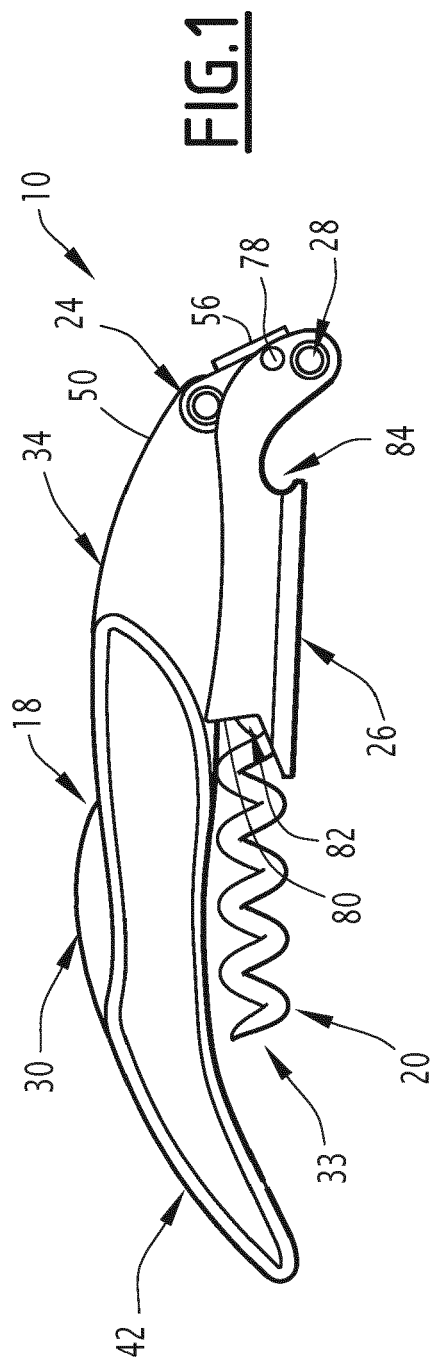
and the first lever (22) is rotatably mounted with respect to the second lever (26) around the second rotation pin (28), such that, when the handle (18) is in its intermediate position, the handle (18) and the first lever (22) are rotatably movable in one block from the intermediate position of the handle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

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).

2. Corkscrew (10) according to claim 1, 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).
3. Corkscrew (10) according to claim 2, 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).
4. Corkscrew (10) according to claim 3, wherein the slot (72) is a curved slot, the center of which corresponds to the second rotation pin (28).
5. Corkscrew (10) according to any one of claims 3 or 4, 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).
6. Corkscrew (10) according to any one of claims 2 to

- 5, wherein the stop rod (78) is distinct from the first rotation pin (24) and from the second rotation pin (28).
7. 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).
 8. 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).
 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, 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).
 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, 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° .
 11. 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.
 12. 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).
 13. 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.
 14. 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.
 15. Method according to claim 14, wherein one of the first lever (22) and the second lever (24) 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), the other of the first lever (22) and the second lever (26) defining 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).



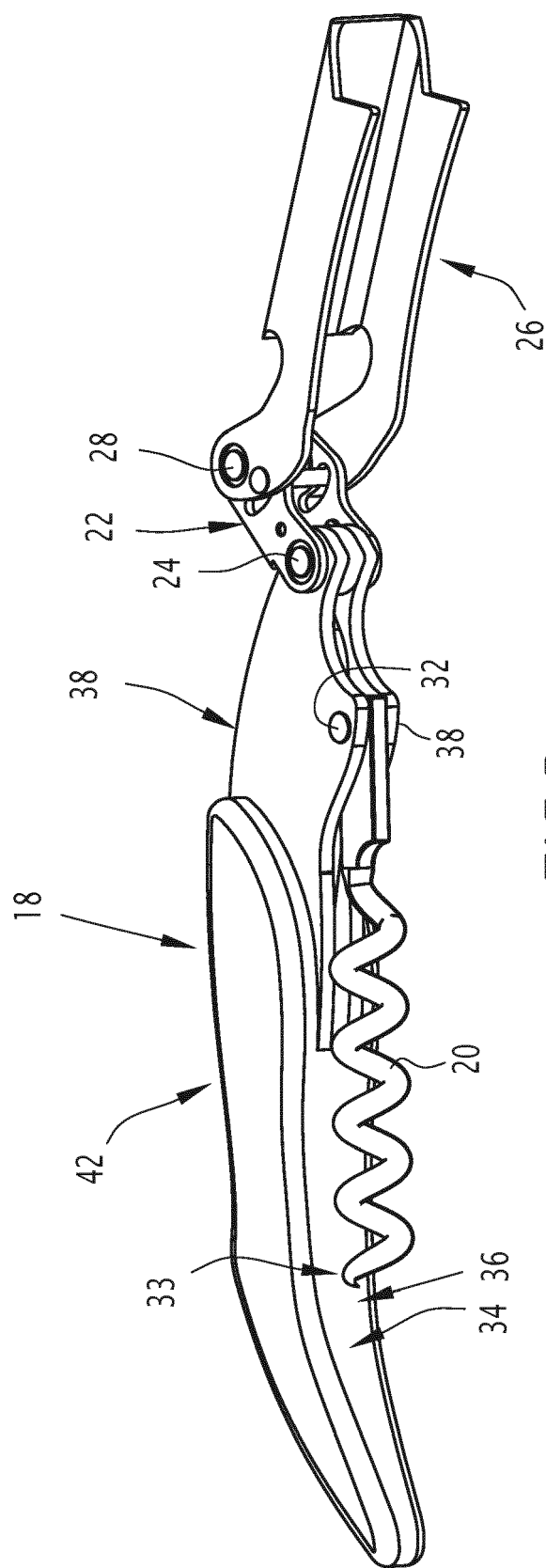


FIG. 3

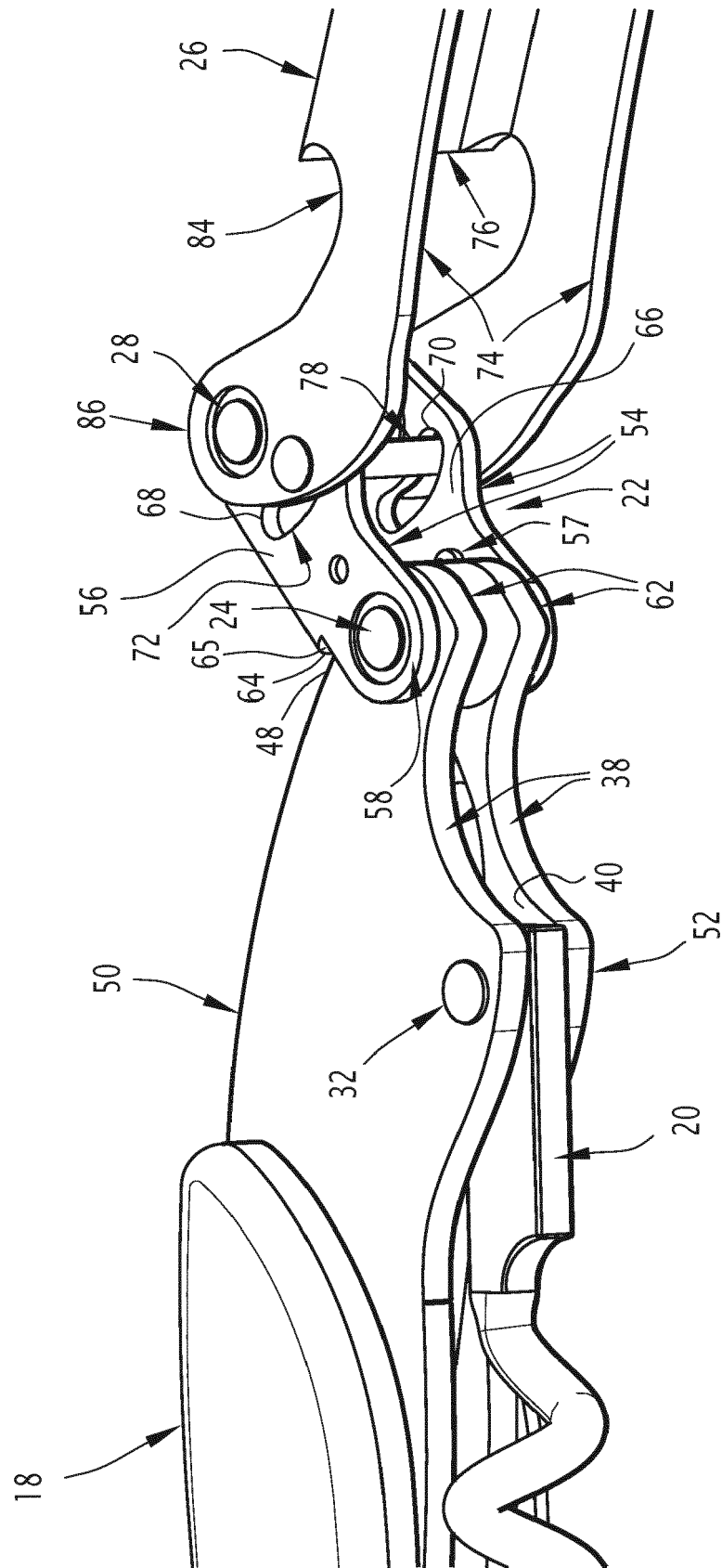
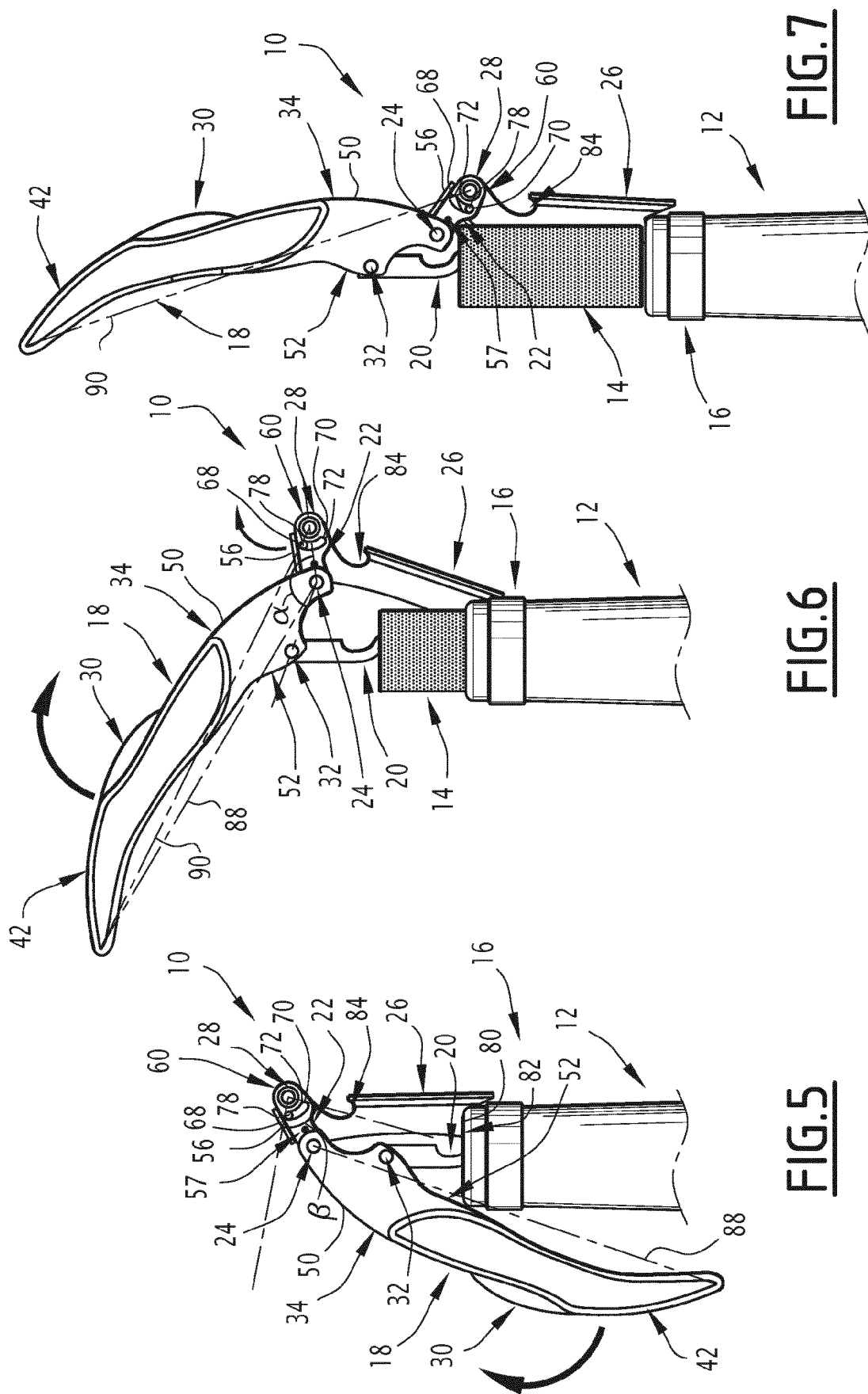


FIG. 4





EUROPEAN SEARCH REPORT

 Application Number
 EP 17 30 5289

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 30 August 2017	Examiner Luepke, Erik
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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30-08-2017

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