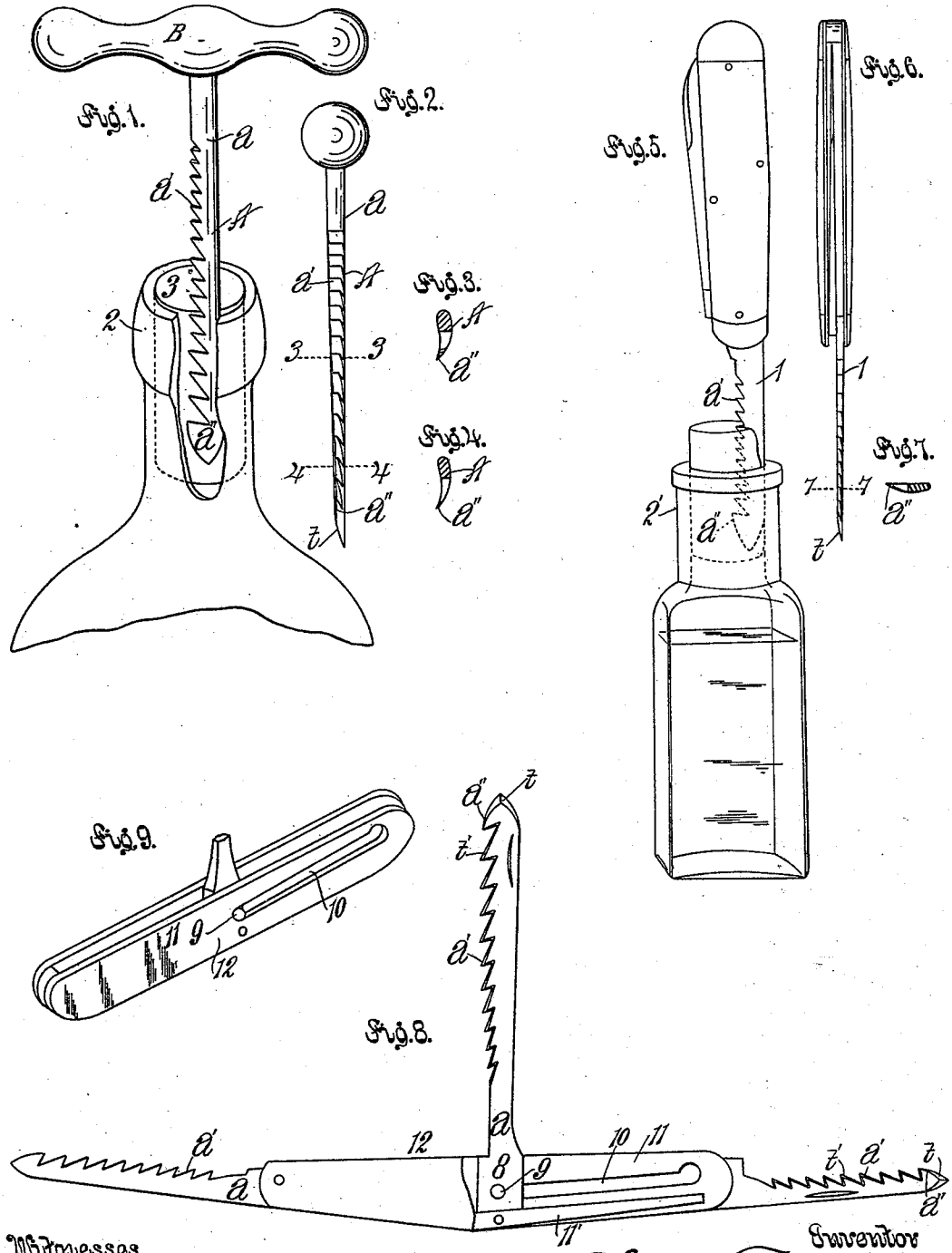
(No Model.)

# C. F. PHILLIPS.

## CORK EXTRACTOR.

No. 601,380. Patented Mar. 29, 1898.




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# UNITED STATES PATENT OFFICE.

CHARLES F. PHILLIPS, OF LOS ANGELES, CALIFORNIA.

## CORK-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 601,380, dated March 29, 1898.

Application filed July 26, 1897. Serial No. 646,031. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. PHILLIPS, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Improvement in Cork-Extractors, of which the following is a specification.

My invention relates to cork-extractors adapted for extracting corks uninjured from the necks of bottles, &c.

The object of my invention is to provide an improved cork-extractor of superior efficiency and of that class which is adapted to be applied to pocket-knives in the nature of an ordinary knife-blade and to so construct such extractor that it may be applied to withdraw a cork from the neck of a bottle without injury to the cork and without allowing gas or liquid to escape from the bottle before the complete withdrawal of the cork from the bottle.

This invention relates to that class of cork extractors or pullers which are provided with a blade adapted to be inserted between the neck of the bottle and the cork therein and which are provided with teeth or other means for engaging the cork to withdraw it from the bottle and which are adapted to be turned after being inserted, so that in being withdrawn the teeth do not return along the path through which they entered, and in which appliance the inserted teeth when being withdrawn engage portions of the cork which have not been pressed out of the way when the blade is inserted.

One object of my invention is to provide an improved cork-extractor of the specified class which will be easier to use, will require less skill to use, and will be more positive in action than those heretofore known.

It is an object of my invention to provide a cork-extractor which is adapted to be very easily and conveniently inserted between the neck of the bottle and the cork therein and then be operated to withdraw the cork from the neck of the bottle without injuring the cork and without allowing gas or liquids to escape from the bottle before the complete withdrawal of the cork; also, to provide an extractor of the specified class which is not liable to break the neck of the bottle.

The blade of my cork-extractor is adapted to be applied to either a rigid handle or to pocket-knives in the nature of an ordinary blade.

One of the difficulties to be overcome with cork-extractors of the named class is the liability of breaking the neck of the bottle by reason of the sudden strain or leverage exerted when the blade is turned to catch the cork. The cork usually presses tightly in the neck of the bottle, near the top thereof, and when the blade of the former cork-extractors of the named class is turned to force the cork-engaging devices into the cork or to bring them into position to engage the cork the outward pressure thus exerted against the neck of the bottle is often such as to break the neck near the mouth of the bottle. One object of my invention is to avoid this difficulty and yet provide large cork-engaging devices for engaging the side of the cork, as distinguished from its bottom, which will enter the cork sufficiently when the instrument is turned for that purpose to cause the cork to be readily withdrawn with the instrument without any liability of tearing the cork.

My invention includes a cork-extractor comprising a blade which is smooth upon one edge and provided upon the other edge with coarse cork-engaging teeth which project in the extended plane of the blade, and which blade is convex on one side and has its opposite side beveled toward such convex side at the point. In the larger cork-extractors the blade is preferably concavo-convex in cross-section, so as to conform to the cork and to be inside of the bottle-neck, and the coarse ratchet-shaped cork-engaging teeth project in the extended plane of the blade and are arranged along its length and adapted to be forced into the cork by partial rotation of the blade after the blade has been inserted between the cork and the neck of the bottle, and the blade is beveled at its point from the concavo side toward the convex side thereof; but with the smaller size blades the convex and concave forms may be dispensed with, the teeth increasing in length from shank to point of the blade.

My invention includes the features herein described and claimed.

The accompanying drawings illustrate my invention.

Figure 1 is a perspective view of one form of my improved cork-extractor inserted into the neck of a bottle and ready to be turned to force the teeth into the cork which is in the bottle. The cork and a fragment of the bottle are shown. Fig. 2 is an edge elevation of the cork-extractor shown in Fig. 1. Fig. 3 is a cross-section on line 3 3, Fig. 2, and shows the concavo-convex form. Fig. 4 is a cross-section on line 4 4, Fig. 2. Fig. 5 is a view of another form in which my invention is applied as a blade of a pocket-knife. This is shown in the act of withdrawing a cork from a bottle. In this form the blade is convex on one side and the end of the blade is beveled toward the convex side at the point below the upper face of the last tooth. Said last tooth is one with the point of the blade Fig. 6 is an edge view of the form shown in Fig. 5. Fig. 7 is a cross-section on line 7 7, Fig. 6. Fig. 8 is an elevation of a cork-extractor composed of three blades in a knife-handle, a portion of which is broken away to show the blades thereof arranged as cork extractors or pullers and one of said blades as being adjustable. Fig. 9 is a detail perspective view of a portion of the knife-frame, showing the manner of mounting the adjustable blade therein.

Similar characters of reference are employed to indicate corresponding parts in the several views.

My improved cork-extractor, as shown in Figs. 1 to 4, inclusive, comprises a blade A, provided along one edge from its shank *a* to its end with a series of teeth *a' a''*, having their points in a straight line, substantially, and the last of which teeth *a''* forms the end of the blade, said blade tapering in width uniformly from the point of said last tooth *a''* to the shank *a* and increasing in thickness uniformly from the point of said last tooth *a''* to the shank *a*. The last tooth *a''* is tapered, as at *t*, to form a pointed end for the blade, so that the blade in its general contour tapers in width in both directions from the cork-engaging point of said end tooth *a''*. The shank *a* is preferably approximately cylindrical in form and the back edge of the blade is rounded and devoid of projections from the shank to the end of the blade, and the unnotched portion of the blade between the shank and the end tooth *a''*—that is to say, that portion or body of the blade from which the teeth project—is approximately of one width throughout its length, and the teeth taper in size from the end tooth *a''* to the shank. It is to be observed that the teeth gradually decrease in thickness and increase in width and length from the shank to the end tooth *a''* and that the end tooth decreases in both width and thickness from its cork-engaging point to the pointed end of such tooth that terminates the blade.

My improved cork-extractor blade is by the above-mentioned features adapted to be inserted between the wall 2 of the neck of the bottle and the side of the cork 3 with great ease and is adapted when thus inserted to be easily turned to cause the teeth to enter the cork, the longer teeth entering the less compressed portion of the cork and the shorter teeth the more compressed portion, as hereinafter specified. Preferably the blade is to be turned by the operator before the end of the blade has penetrated beyond the inner end of the cork, but it is to be observed that the sides of the toothed blade converge toward the point of the blade in the shape of a wedge and that in the other direction the unnotched portion from which the teeth project is of uniform width, so that if the blade should be inserted past the cork by accident it could still be turned with but little danger of allowing the escape of the effervescing liquid, because the part of such unnotched portion of the blade which has last entered between the neck and the cork is so thick that it practically closes the opening which might otherwise be made between the cork and the blade when the blade is turned. By this wedge-shaped construction, in which the wedge extends along the whole row of teeth, a superior operation is obtained, the blade gradually forcing its entrance and compressing the cork by degrees away from the neck of the bottle. The straight rounded back or edge of the blade opposite the teeth forms a superior fulcrum or pivot for the blade while it is being turned.

As shown in Fig. 1, a cross-handle B is attached to the blade; but it will be understood that any desired form of handle may be used.

As shown in Figs. 5, 6, 8, and 9, the improved cork extractor or puller may be easily and readily applied to a knife-handle in form of a knife-blade, and in this instance one or more of the said blades may be employed, and where a series are used they may be arranged in different sizes and proportionate dimensions to adapt them for use for different sizes of corks and insertion in varying sizes of bottle-necks. The teeth of the blade or shank may have the same construction in this instance as in the form previously set forth. A head of the said blade or shank, as at 8, is extended on opposite sides to give sufficient purchase in the adjustable form of the extractor or puller and is supplied with trunnions 9, which are fitted to slide in opposite inclined longitudinal slots 10, provided in the interior frame or sides 11 of the knife-handle 12. The back spring 11' of this frame is arranged between the slotted sides of the frame in the same manner in which the back spring in an ordinary knife is arranged, so that its outer end is free to yield. Near the inner end of the slots 10 this back spring is rigidly secured to said sides in the customary manner and serves the purpose which will be explained later. The outer end of each slot 10 is enlarged to form a trunnion-seat, in which seat the trunnions may freely turn when the blade is opened from or closed into the handle. The

blade is provided with a square end adapted to seat against the back spring 11′ when the blade is opened, as shown in Fig. 8, and when the blade is at the end of the handle and the trunnions are in the trunnion-seats the blade may be readily closed, the back spring yielding to permit this; but when the blade is brought toward the center of the handle, as shown in Fig. 8, the square end of the blade, which is seated upon the back spring, is thus brought near to the point at which said back spring is rigidly secured between the slotted sides, and the blade is thereby rigidly held in its opened position. It is impossible to close the blade until it is moved to bring the trunnions near to the outer end of the slots, where leverage upon the spring is sufficient to allow the blade to be closed against the action of the spring. In closing the device after use when the trunnions reach the enlarged end of the slots the back spring 11′ will cause the trunnions to enter the trunnion-seats with a snap, which will disclose that the blade is in proper position to be closed into the handle. The device is also in this instance pivoted and mounted similar to an ordinary knife-blade, as shown at the opposite ends of the handle 12, and thereby a number of the extractors or pullers can be carried in one device which will be adapted for light or heavy work, it being understood that when the adjustable blade is employed it will be moved to a point at or about the center of the handle, thus to provide a cross-handle for the device. The adjustment of the blade relative to the handle will be regulated by the length of the slots 10.

In either of the constructions shown one side of the blade may be made convex and the other side concave, conforming, respectively, to the contour of the neck of the bottle as well as that of the cork. In Figs. 5, 6, and 7 one side is flat and the other convex.

The blade is easily forced down between the neck of the bottle and the cork, and after being inserted in place the blade is turned so that the teeth are brought to bear against the cork. Where the concavo-convex construction is employed, the blade is caused to slip easily upon the wall of the neck of the bottle and gives a cam-like motion to the same to force the teeth against or slightly into the cork with very slight exertion on the part of the operator.

It will be found that in using the extractor or puller it is usual and convenient for the operator to hold the bottle in the left hand and insert the blade between the cork and neck of the bottle upon the left-hand side of the bottle with the teeth of the blade turned from the operator, and then bring the teeth to bear upon or in the cork by turning the blade toward the right. In order to adapt the extractor for convenient use, the point of the blade may be slightly beveled, as at *t*, from that side which is upon the right when the blade is held in an ordinary position with the point downward and its teeth turned from the eye of the operator, and by the said arrangement the beveled side is naturally turned next to the cork, and when the extractor is used the point is brought close to the wall of the neck of the bottle and enters therebetween without engaging with the cork. When the blade is turned to bring the teeth into or against the cork, the said teeth engage the full length of the cork and thereby insure the removal of the cork when the extractor is withdrawn, and there is no breaking of the neck of the bottle. The long teeth near the point enter fully into the less compressed portion of the cork and the short teeth enter the more densely compressed portion of the cork and a perfect hold upon the cork is secured by which it is drawn out without injury to it. It will also be found in practice that when the cork is forced down into the bottle until it is nearly released from the neck, so that it cannot be withdrawn by means of an ordinary corkscrew, my improved extractor or puller can be inserted without difficulty and the cork withdrawn intact.

In devices of this class as heretofore used an enlarged flattened portion or projection at or near the point has been employed and arranged to be turned by the blade and brought beneath the cork to engage with the bottom of the said cork to thereby withdraw the latter from the bottle. With such a device it is necessary in extracting a cork to insert the blade far enough in the neck of the bottle to free the enlarged portion of the blade below the cork, and it is impossible to turn the blade to cause it to engage the cork to withdraw it until the point of the blade enters the bottle below the cork, and then when the blade is turned to cause the enlarged portion to engage with the bottom of the cork an opening is made alongside the blade between the cork and the neck of the bottle, and if the bottle contains liquid of an effervescent nature—such as champagne, soda, &c.—the gas and liquid will escape through such opening, which is highly objectionable. In the present device this objection is overcome, and although the cork-engaging teeth are ample the blade may be turned to cause the teeth to engage the cork when the blade is only partially inserted, so as to leave a portion of the stopper below the point of the blade to avoid forming a passage through said cork which would allow the escape of the gas or liquid from the bottle before the cork is fully withdrawn, and thereby the pressure of the gas is thus retained and caused to assist in the withdrawal of the cork.

The point of the blade or shank is arranged in the center and in line with the median plane or vertical axis of the said shank or blade. By this means injury to the cork by penetrating the latter is avoided and an easy

and gradual entrance of the said point of the blade between the cork and the neck of the bottle is insured.

Each tooth above the end tooth is preferably beveled, as at *t'*, along its lower edge on the cork-engaging face, so that the teeth will not roughen the cork when the blade is being inserted.

It is obviously apparent that many minor changes in the proportion, position, and construction of the several parts might be made and substituted for those shown and described without in the least departing from the nature or spirit of the invention.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The cork-extractor set forth comprising a blade which is smooth upon one edge and provided upon the other edge with coarse cork-engaging teeth which project in the extended plane of the blade, and which blade is convex on one side and has its opposite side beveled toward such convex side at the point.

2. The cork-extractor set forth comprising a blade concavo-convex in cross-section adapted to be inserted between the neck of the bottle and the cork therein, and having one edge provided with coarse ratchet-shaped cork-engaging teeth which project in the extended plane of the blade and are arranged along its length and adapted to be forced into the cork by partial rotation of the blade after the blade has been inserted between the cork and the neck of the bottle; such blade being beveled at its point from the concave side toward the convex side thereof.

3. A cork-extractor comprising a blade pointed at the end and having one edge straight from shank to point and having its other edge provided from the shank to the end of the blade with a series of teeth having their points in a straight line, substantially, and the last of which teeth forms the end of the blade, said blade tapering in width uniformly from said last tooth to the shank.

4. A cork-extractor comprising a blade having one edge straight from shank to point and having the other edge provided from the shank to its end with a series of teeth the last of which forms the end of the blade, and which teeth increase in size uniformly from said shank to the end tooth and have their points arranged, substantially, in a straight line, said blade tapering in width from said last tooth to said shank.

5. A cork-extractor comprising a blade having one edge straight from shank to point and having the other edge provided from the shank to its end with a series of teeth having their points in a straight line substantially, and the last of which teeth forms the end of the blade, said blade tapering in width and increasing in thickness uniformly from said last tooth to the shank.

6. A cork-extractor comprising a blade one edge of which is rounded and devoid of projections and which blade is provided along its other edge from its shank to its end with a series of teeth having their points in a straight line, substantially, and the last of which teeth forms the end of the blade, said blade tapering in width uniformly from the point of said last tooth to the shank.

7. A cork-extractor comprising a blade having an approximately cylindrical shank and having one edge of the blade rounded and devoid of projections and having the other edge of the blade provided from the shank to the end of the blade with a series of teeth having their points in a straight line, substantially, and the last of which teeth forms the end of the blade, said blade tapering in width and increasing in thickness uniformly from the point of said last tooth to the cylindrical shank.

8. A cork-extractor comprising a blade having an approximately cylindrical shank and having one edge of the blade rounded and devoid of projections and having the other edge of the blade provided from its shank to its end with a series of teeth having their points in a straight line, substantially, and the last of which teeth is tapered to form a pointed end for the blade, said blade tapering in width and increasing in thickness uniformly from the point of said last tooth to the cylindrical shank.

9. A cork-extractor comprising a handle having a back spring, and sides provided with longitudinal slots which are enlarged at one end, and a blade tapering in width and thickness in an inverse order having teeth on one edge which gradually increase in length from the handle to the penetrating point and having trunnions which travel in the said slots and spring into the enlarged portions of the said slot, substantially as and for the purpose described.

10. The combination of the sides of the handle provided with the longitudinal slots; the back spring rigidly secured between the sides at a point near the inner end of such slots and having its outer end free, and the blade provided with the square end arranged to seat against the back spring, and also provided with the trunnions arranged to slide in the slots in the sides of the handle.

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