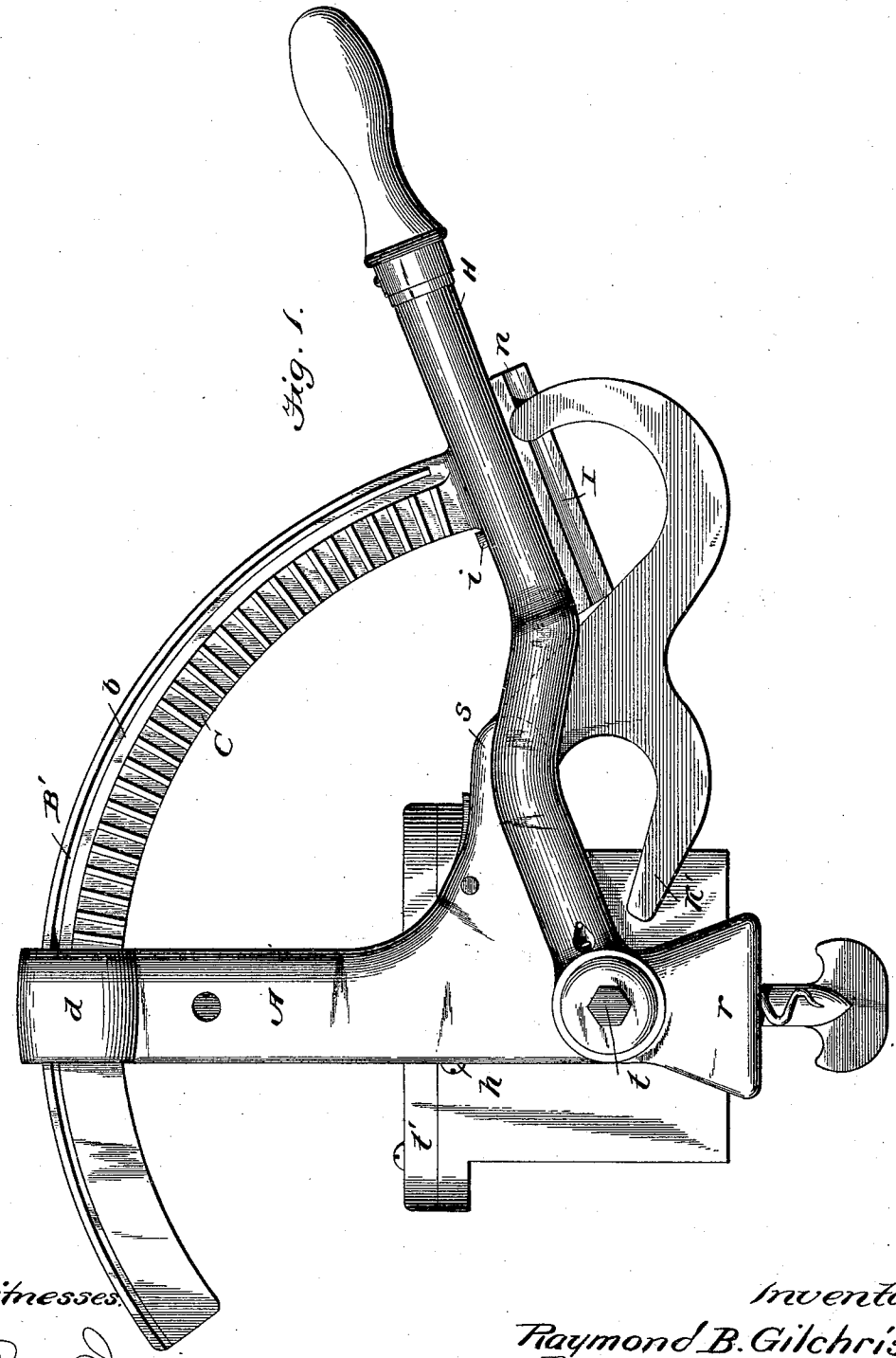
(No Model.) 2 Sheets—Sheet 1.

R. B. GILCHRIST.

CORK EXTRACTOR.

No. 478,545. Patented July 5, 1892.



Witnesses:
John D. Morris
Bruce L. Elliott.

Inventor:
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(No Model.) 2 Sheets—Sheet 2.

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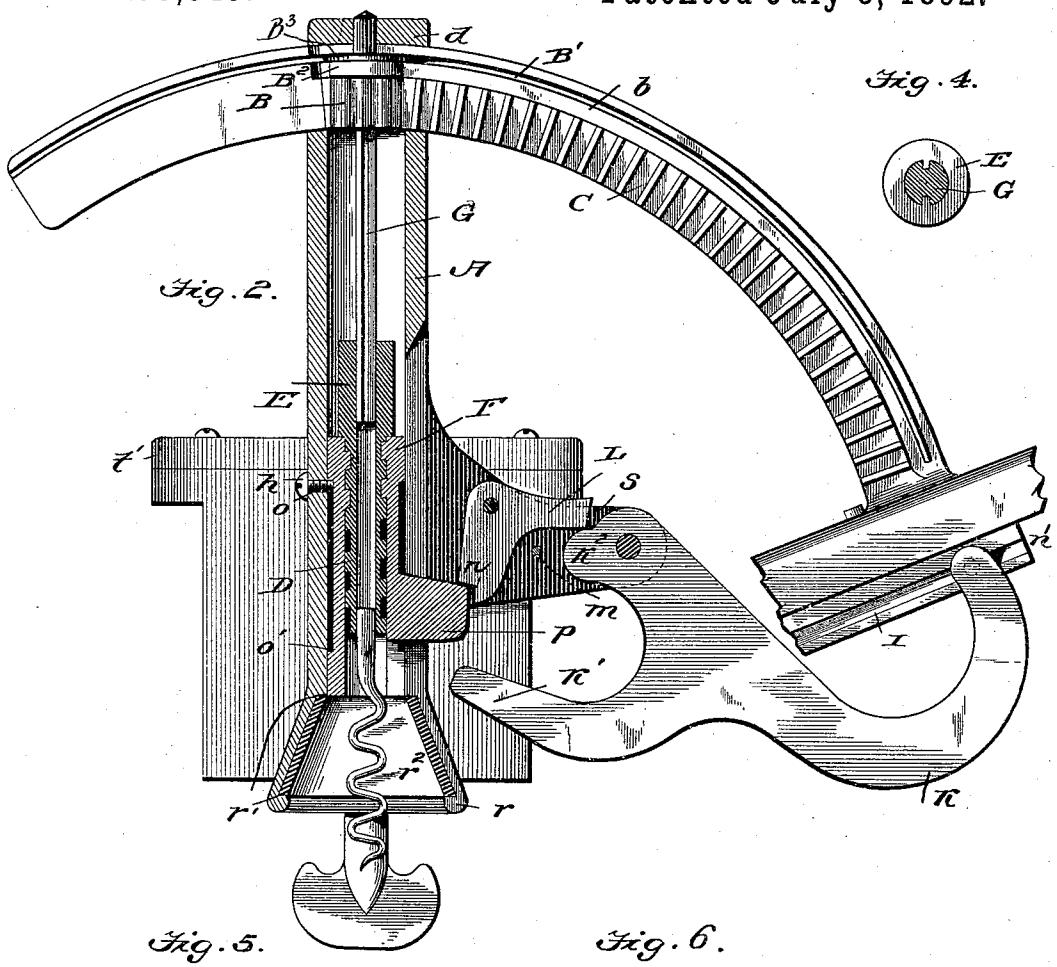


Fig. 2.

Fig. 4.

Fig. 5.

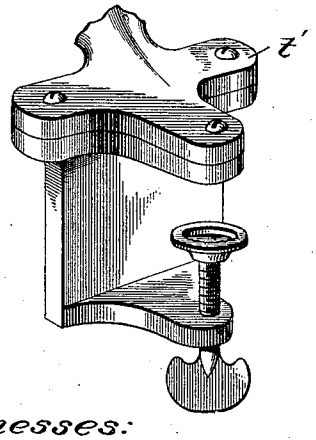
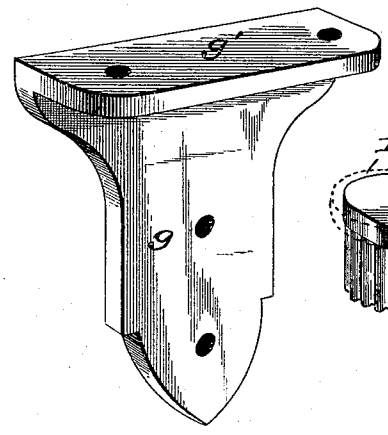


Fig. 6.



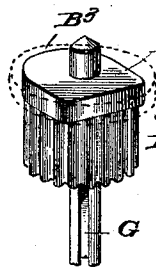


Fig. 3.

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UNITED STATES PATENT OFFICE.

RAYMOND B. GILCHRIST, OF CHICAGO, ILLINOIS, ASSIGNOR TO RUPERT WHITEHEAD, OF SAME PLACE.

CORK-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 478,545, dated July 5, 1892.

Application filed March 25, 1891. Serial No. 386,300. (No model.)

To all whom it may concern:

Be it known that I, RAYMOND B. GILCHRIST, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cork-Extractors; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to an improvement in the class of cork-extractors sometimes termed "power cork-extractors," which are characterized by such an arrangement of operating parts that the driving of the corkscrew into the cork, the extraction from the bottle, and the removal of the cork from the corkscrew are accomplished by the movement of a lever or levers.

The object of my invention is to produce a cork-extractor more simple in operation and of greater strength and greater effectiveness than those heretofore produced; and to this end it consists in the general and special construction and arrangement of parts, all as hereinafter more fully described.

Referring to the drawings, Figure 1 is a view of my device in front elevation. Fig. 2 is a central vertical section showing the internal arrangement of parts. Figs. 3 and 4 are illustrations of certain details of construction. Figs. 5 and 6 are detailed views of two forms of brackets for the attachment of the cork-extractor to a bar or to the wall.

A represents a hollow standard, which receives the corkscrew and its immediate operating parts and carries on one side the pin t, to which the operating-lever H is journaled, the shelf t' on the opposite side for attachment to a table or to the wall, and projecting ears s for a purpose presently described. Between the ears s the wall of the standard is slotted. The lower part of the standard is made flaring, as shown, to afford a bottle-neck receiver r, the interior of which is provided with the shoulders r', between which is inserted the rubber flaring ring r^2. The purpose of the ring is to afford a yielding receptacle for the neck of the bottle. At the upper end the standard is surmounted by a frame d, which incloses the corkscrew-operating pinion B, said frame furnishing, also, a guide for the curved rack-bar C, which operates the pinion. The special advantage of the arrangement of standard, shelf, pivot-pin, bottle-neck receiver, ears, and frame is that they may all be cast in a single casting.

The corkscrew is provided with a screw-threaded extension D, surmounted by a short cylinder E. Surrounding the corkscrew and extension is a sliding sleeve or nut F, having the laterally-projecting ear p. In its upper part the sleeve F is internally screw-threaded to receive the male screw of the extension, while the lower part of the interior of the sleeve is of increased diameter. The sleeve F is slotted in its lower part immediately below the ear p, and on its exterior the sleeve is provided with the shoulders o o', both for a purpose to be presently described.

The upper end of the standard A where it forms the base of the frame d is closed, except for a small aperture sufficient to receive the depending rod G. This rod projects through the top of the standard into the frame and carries at its upper end the pinion B, which should by preference be made slightly broader at the top than at the bottom to afford a slight bevel, and in its lower part has a spline to engage the spline formed on the interior of the short cylinder E. The pinion B is surmounted with a cam-shaped projecting blank washer B^2, and may furthermore be surmounted by an additional guide-washer, circular in form, as indicated at B^3.

The lever H carries projecting from one side and preferably cast in a single piece with it the curved rack-bar C, which is of peculiar construction—that is to say, the toothed section thereon extends from a point some distance from the end to the lever, and above the rack portion the bar is cut away to form a recess, as shown at b, and this cut-away portion may, reduced in diameter, extend upon the plane or blank part of the rack-bar to the end. The curved rack-bar is also provided with a groove B′, in which slides the supplemental washer B^3. The purpose of this arrangement will be apparent from the description of the operation hereinafter given. On the side of the lever opposite to that from which the curved rack-bar projects is provided the extension I, having the slot n' to receive the pin projecting from the outer end of the

curved lifting-bar K. The lifting-bar K is in the form of a crank-arm pivoted, as shown, at the outer end of the ears *s*. The inner end K′ of the lifting-arm enters and moves in the slot formed in the wall of the standard between the ears *s*, the pivot being so arranged that as the outer end of the crank-arm is moved downward the inner end will move upward sufficiently far to raise the corkscrew under the operation presently described to its highest position. Adjacent to the pivot-point of the lifting-arm and between the ears *s* is located the swinging catch L, the displacement of which is controlled by the pin *m*, passing through the ears substantially in the position shown. The swinging catch has a shoulder or a square recess *n* formed at its lower end for a purpose hereinafter described.

The parts are adjusted together as follows: The rod G and pinion are inserted and the lever H applied to its pin, with the curved rack-bar extending forward through the frame and in engagement with the pinion, blank washer, and supplemental washer. The corkscrew carrying the sliding sleeve by reason of the engagement of the screw-threads is thereupon introduced in such a manner that the spline upon the short cylinder E shall enter the spline in the depending rod G, while the projecting ear *p* enters the slot formed in the wall of the standard. The lever in the meantime is kept at a raised position, and the lifting-arm is thus kept out of the slot in the standard. The revolution of the pinion under the movement of the rack-bar causes the revolution of the screw-threaded extension of the corkscrew, and thus by its engagement with the female screw-threads of the sleeve, the latter being prevented from rotating, causes the corkscrew to be revolved and lowered or raised, according to the direction of rotation. It should be stated that the extension is bored, so as to receive the depending rod G when the corkscrew is raised to its uppermost position. While the rack engages the pinion the ear *p* is engaged by the recess *n* of the catch L, and the sleeve is thus prevented from rising. A cam projection K^2, formed at the pivotal part of the lifting-arm, engages the catch L at about the same moment that the inner end K′ engages the projecting ear *p*. At this point the blank part of the curved rack-bar engages the pinion B and prevents its rotation by sliding upon the cam-shaped washer B^2. In the further movement of the lever downward the corkscrew is prevented from rotating and is lifted upward by the lifting of the sleeve. I prefer to provide the screw *h*, passing through the wall of the standard, to prevent by engagement with the upper of the shoulders *o o′* upon the sleeve the falling out of the latter.

The supplemental washer B^3 maintains the rack-bar at a uniform distance from the pinion, and thus prevents noise in the operation of the device. I also provide a rubber stop *i* on the handle to prevent noise and jar when the handle is lifted suddenly to its uppermost position by impinging against the standard.

In Figs. 5 and 6 I have illustrated two forms of bracket by which my improved cork-extractor may be sustained in position for use. The form illustrated in Fig. 5 is intended for use when the corkscrew is mounted on a bar or table, and comprises a bracket, preferably of metal, the upper jaw of which may have the outline of the shelf provided on the standard and is intended to receive said shelf, while the lower jaw has a screw-threaded aperture for the reception of a set-screw. In practice the bracket is secured to the shelf *t′*, and thereupon secured to any convenient part of the bar or table through the medium of the set-screw. In the form illustrated in Fig. 6, which is adapted for the support of the cork-extractor upon the wall, the bracket comprises the vertical part *g*, which may be screwed to the wall, and a horizontal part *g′*, to which the shelf *t′* is bolted. The horizontal part may be made large enough to receive a shelf of the configuration shown in the shelf *t′*, or the latter may be made smaller and provided with two bolt-holes, which are found, usually, sufficient for perfect security.

The device being put together and supported in the manner above described, the operation of extracting and discharging the cork is as follows: The lever being in its raised position the corked bottle is inserted in the bottle-neck receiver and held firmly therein. The lever is then brought downward, causing the rack to engage and revolve the pinion and depending rod. By reason of the recess formed in the rack-bar above the rack the cam-shaped blank washer B^2 is permitted to revolve. The revolution of the pinion and rod revolves the corkscrew and drives it downward into the cork, the sleeve being in the meantime prevented from rising by the catch L. When the corkscrew has reached its lowermost position, the cam K^2 on the lifting-arm engages the catch and releases the sleeve, the pinion is prevented from further revolution by the engagement of the blank washer with the blank part of the rack-bar, and the inner end K′ of the lever K lifts the sleeve, and with it the corkscrew, extracting the cork from the bottle. The return movement of the lever first permits the sleeve and corkscrew to fall to their lowest position without revolving and then by causing the reverse revolution of the pinion and corkscrew withdraws the latter from the cork, which falls out of the standard.

The advantages of my construction are manifold. It will be readily apparent that the highest strength possible is afforded to the device by the possibility of casting the standard and supporting parts for the lever and lifting-arm and the lever and curved rack in a single casting. The device is compact and no part of its internal and more delicate op-

erating mechanism is at any time exposed. The parts are more readily adjusted together and when adjusted operate with greater smoothness, and it is practically impossible for the device to get out of order. A further advantage is found in the arrangement by which concussion between the lever and lifting-arm is prevented and in the supplemental washer, by which noise in the operation is avoided. The smoothness of operation and the absence of concussion reduce the danger of breaking the bottle to a minimum, and this is assisted by the presence of the rubber cushion in the mouthpiece. The parts E and F are also readily removed, so that a corkscrew of greater or lesser pitch and diameter may readily be substituted for the one in use, the operation involving merely the removal of the rubber cushion and loosening of the screw *h*, whereupon the corkscrew, with its extension, will fall out of the device.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a cork-extractor, the combination, with the corkscrew and a device for lifting the same, of an internally-bored and externally-screw-threaded extension to the corkscrew, and a rod entering and splined in the extension, and mechanism to revolve the rod, substantially as described.

2. In a cork-extractor, the combination, with the corkscrew and its revolving mechanism, of a sliding sleeve prevented from rotating, a lifting-arm to engage the sliding sleeve, and a catch engaging the sliding sleeve to prevent its elevation and engaged by the lifting-arm to release the sleeve, substantially as described.

3. In a cork-extractor, the combination, with the corkscrew having the internally-bored and externally-screw-threaded extension, of a depending rod entering and splined in the extension, a pinion revolving said rod, and a lever revolving the pinion, substantially as described.

4. In a cork-extractor, the combination, with the corkscrew and a device for revolving the same, of a sliding sleeve surrounding and engaging the corkscrew, a catch to prevent the elevation of the sleeve, a lifting crank-arm engaging the sleeve to lift the same and having a cam projection engaging and releasing the catch, and a lever operating the lifting-arm, substantially as described.

5. In a cork-extractor, in combination with the corkscrew and mechanism for lifting the same, the pinion connected with and driving the corkscrew and the rack-bar operated by a lever and engaging and driving the pinion and having the blank surface, substantially as described.

6. In a cork-extractor, in combination with the corkscrew and mechanism for lifting the same, the pinion connected with and driving the corkscrew, the blank-surfaced washer on and moving with the pinion, and the rack-bar operated by a lever and engaging the pinion and having the longitudinal recess and blank surface, substantially as described.

7. In a cork-extractor, in combination with the corkscrew and mechanism for lifting the same, the pinion connected with and driving the corkscrew, the blank-surfaced washer on and moving with the pinion, the guide-washer, and the rack-bar operated by a lever and engaging the pinion and having the longitudinal recesses for the blank and guide washers and the terminal blank surface, substantially as described.

8. In a cork-extractor, in combination with the corkscrew provided with a laterally-projecting ear for lifting it, the hollow slotted standard, the lifting-arm pivoted to enter the slot and engaging the ear, and the lever pivoted on one side of the standard and having a sliding connection with the lifting-arm, substantially as described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

RAYMOND B. GILCHRIST.

Witnesses:
EDWARD A. MORSE,
R. WHITEHEAD.