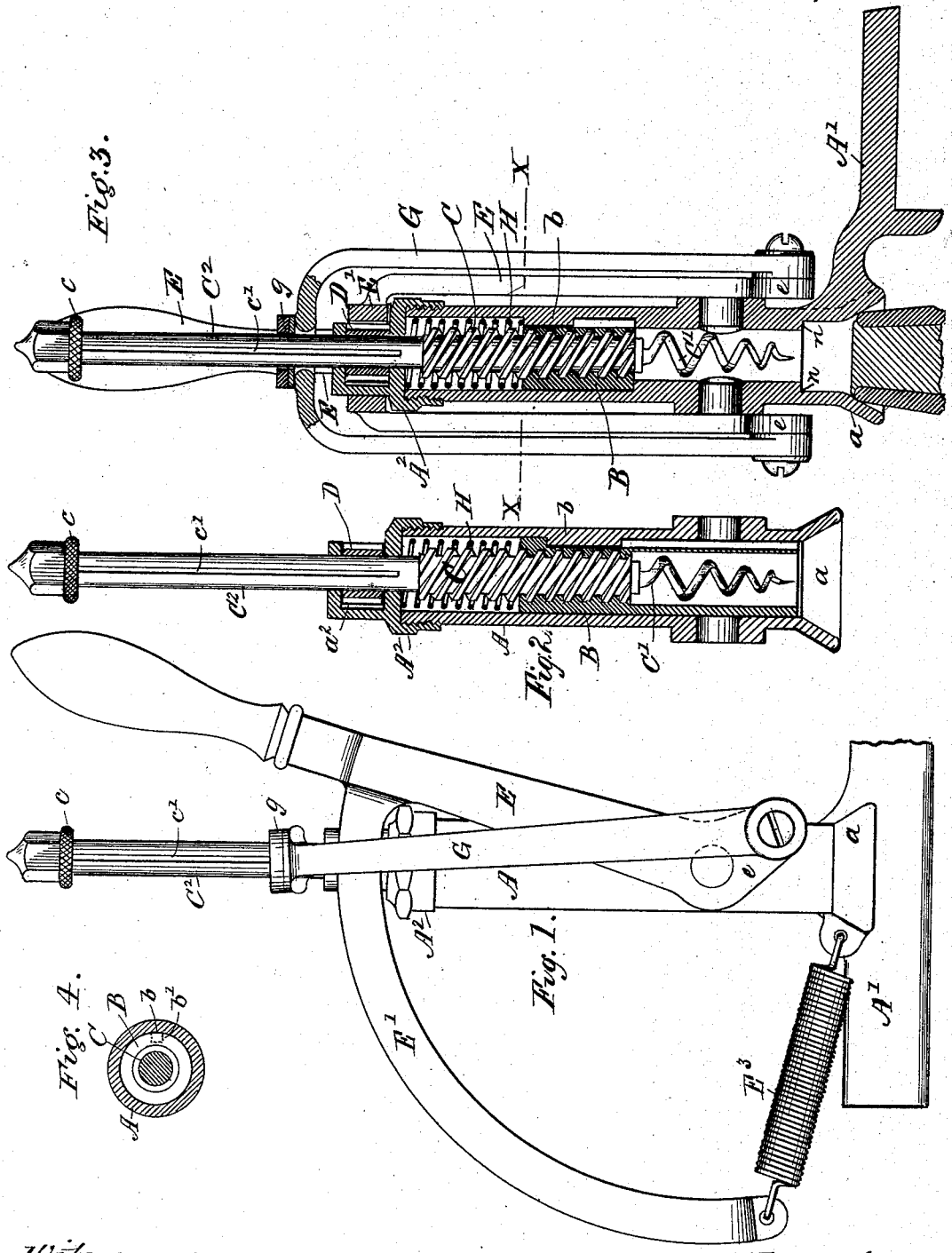
(No Model.)

2 Sheets—Sheet 1.

R. B. GILCHRIST.

CORK EXTRACTOR.

No. 384,839. Patented June 19, 1888.



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

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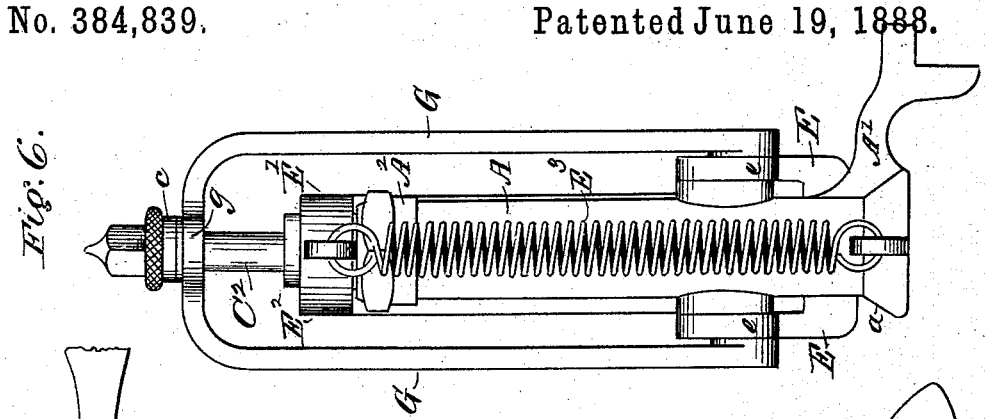

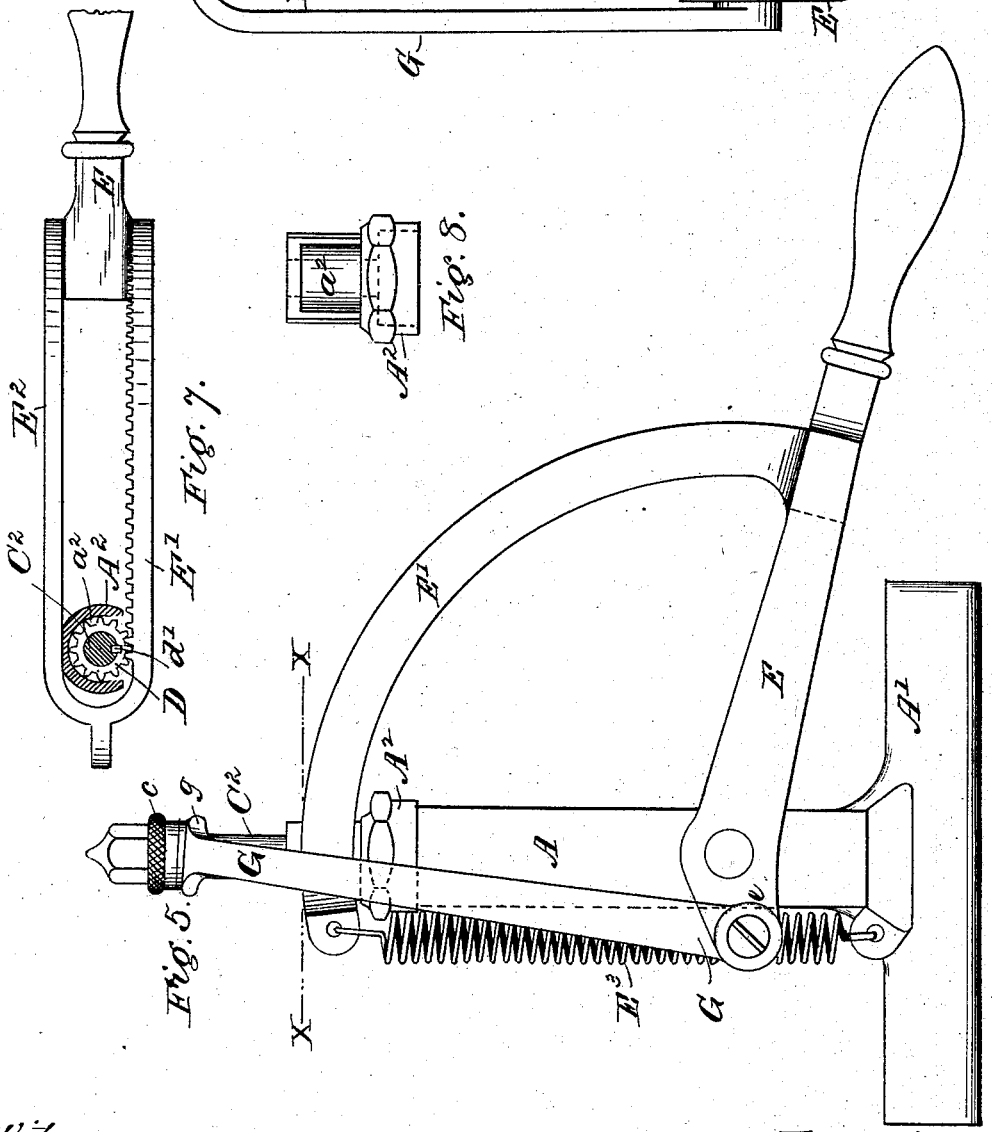

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UNITED STATES PATENT OFFICE.

RAYMOND B. GILCHRIST, OF PEORIA, ILLINOIS.

CORK-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 384,839, dated June 19, 1888.

Application filed January 5, 1888. Serial No. 259,829. (No model.)

To all whom it may concern:

Be it known that I, RAYMOND B. GILCHRIST, a citizen of the United States, and a resident of Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Cork-Extractors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

The purpose of the invention is to provide a cork-extractor simple in construction and convenient and effective in operation with which by one movement of an operating-lever the cork is extracted from the bottle, and by returning the lever to its normal position the cork is removed from the corkscrew without injury to the cork.

To these ends the invention consists in the matters hereinafter described, and pointed out in the appended claims.

In the drawings, Figure 1 represents in side elevation a cork-extractor embodying the features of my invention. Fig. 2 is a view, mainly in central vertical section, with certain of the operative parts removed, of the construction shown in said Fig. 1, said view being particularly intended to illustrate the construction and operative arrangement of the internal mechanism thereof. Fig. 3 is a view of the extractor, mainly in vertical section, showing an alternative or slightly-modified form of construction and operative arrangement thereof, hereinafter particularly referred to. Fig. 4 is a horizontal sectional detail of the extractor, taken on the line X X of said Figs. 2 and 3, showing the operative arrangement within the cylinder of the screw which forms part of the corkscrew-shaft and the nut operating therewith. Fig. 5 is a side elevation of the extractor, substantially illustrating the position of the operating-lever and certain of the parts coacting therewith when primarily in the act of removing the cork from a bottle. Fig. 6 is an end elevation of the extractor when the operating-lever and the other parts are in the position indicated in said Fig. 5. Fig. 7 is a top plan detail, in part in horizontal section, taken on the line X X of said Fig. 5. Fig. 8 is an elevation of the cap forming the upper termination of the cylinder A, through which the stem of the corkscrew passes, and which forms a chamber for perpendicularly retaining the pinion carried by said stem in operative position with relation to the segmental rack which imparts motion thereto.

Referring by letter to the several figures of the drawings, in which like letters denote like parts, A indicates a cylinder provided with a base portion, A′, for attaching it to a table or other suitable support. The lower end of said cylinder is provided integrally with a flaring portion, *a*, which forms a stop for the neck of the bottle from which a cork is to be extracted.

B represents an internally-threaded nut located within said cylinder and perpendicularly movable therein, desirably upon a guide lug or key, *b*, formed integral with or fixed to said cylinder, the said nut being provided with a corresponding keyway, *b*′.

C indicates an externally-threaded screw operatively set within said nut and provided, preferably integrally, with a corkscrew, C′, at its lower end and an extension or stem, C^2, at its other end, the said stem projecting from said cylinder through suitable openings formed in the cap A^2 thereof and passing through a pinion, D, carried by said cap. The relative operative arrangement of said pinion and stem is such that rotary motion is communicated to the stem through said pinion, and the stem is at the same time free to slide longitudinally therethrough and independently of the rotary movement thereof. The preferred construction of said parts, as shown in the drawings, is as follows: The pinion D is held perpendicularly in position within a horizontal recess, a^2, formed within said cap A^2. The stem is provided with a longitudinal slot or keyway, *c*′, within which works a spline, *d*′, carried by said pinion. A lever, E, pivotally held by its lower portion to said cylinder A, carries a segmental rack, E′, which meshes with said pinion and obviously imparts rotary motion thereto. By preference a strap-piece, E^2, formed integrally with said rack, and likewise carried by said lever, works against the rear face of said cap A^2 and forms a desirable guide for holding the rack in engagement with the pinion. A spiral spring, E^3, fixed by one end to the outer end of the rack-piece E′ and by its other end to the lower portion of the cylinder A, is employed for holding the lever

E in its normal position, as shown in Fig. 1, and for retracting or assisting in the retracting of the same from its downward position, as substantially shown in Fig. 5.

A lifting-arm, G, by preference in the shape of a yoke, as shown, pivotally held to an extension, *e*, of the lever E beyond the pivotal connection of said lever with the cylinder A, loosely embraces by its upper portion, *g*, the stem C^2, intermediate the cap A^2 of the cylinder and the cap-nut *c* of said stem.

Within the cylinder A a coiled spring, H, is interposed between the nut B and the cap A^2, the office of said spring being to exert a constant downward tensional strain upon said nut. The keyway in the nut terminating near the upper end thereof, a shoulder is thereby formed, which engages with the guide lug or key *b* when the nut reaches the limit of its downward motion, and thus prevents the nut from being driven out of the cylinder by the spring.

In operation a bottle is placed in position with its neck Y inserted in the flaring portion *a* of the cylinder. The lever E being carried downwardly, the rack E′ rotates the pinion D, which in turn imparts through the stem C^2 rotary motion to the corkscrew C′. The nut B being capable only of longitudinal movement and being held to the lowest limit of its downward movement by the spring H, the screw C, working therein, carries the corkscrew downwardly toward and into the cork in the neck of the bottle until the lever has described approximately about two-thirds of its downward travel, at which time the arm G and the downwardly-moving cap-nut *c* come in contact. Further downward movement of the lever causes the arm G to move upwardly, and to therefore move the corkscrew in the same direction, a twisting and pulling motion being simultaneously given thereto by means of the concurrent operation of the pinion and the arm, and the cork being readily drawn from the bottle. A reverse movement of the lever E carries the arm G downwardly. The pinion D, being driven in a reverse direction by the rack, causes the corkscrew to be withdrawn from the cork, the nut B, which was carried upwardly with the screw C as the action of the arm moved the same upwardly, being returned to its normal position by the tension of the spring H.

In Fig. 2 the nut B is shown to be provided with a counterbored lower extension, which terminates when in normal position at or about the lower end of the corkscrew C′ and the upper termination of the flaring portion *a* of the cylinder, occupying such position with relation to the cylinder through the downward and forward rotary movement of the corkscrew and materially assisting in the removal of the cork from the screw when the rotary motion thereof is reversed. In Fig. 3 the said nut is shown as not being provided with such extension, and as therefore being operative to simply guide the corkscrew by means of the screw C through its several described movements, the cork on being drawn from the bottle impinging against the annular shoulder *n*, formed at the upper termination of a counterbored chamber formed in the lower end of the cylinder contiguous to the flaring portion *a* as the rotary movement of the corkscrew is reversed.

Having thus sufficiently described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A cork-extractor comprising a corkscrew having a screw-threaded extension, a sliding nut engaging the threads on the extension, a rack gearing with a pinion on the corkscrew, and an operating-lever acting during a portion of its throw to raise the corkscrew, substantially as described.

2. A cork-extractor comprising a corkscrew having a screw-threaded extension having the slot, a sliding nut engaging the threads on the extension, a rack, a pinion interposed between the extension and the rack and having a spline entering the slot in the extension, and an operating-lever acting during a portion of its movement to raise the corkscrew, substantially as described.

3. A cork-extractor comprising a corkscrew having a screw-threaded extension, a nut engaging the threads on the extension, a rack operating upon the extension for imparting rotary motion to the corkscrew, an operating-lever having the projection, and the lifting-arm connected to the said projection and to the corkscrew, substantially as described.

4. A cork-extractor comprising a corkscrew having a screw-threaded extension, a screw-threaded portion engaging the extension, a rack operating upon the extension for imparting motion to the corkscrew, an operating-lever having the projection, the raising-arm connected to the said projection and to the extension of the corkscrew, and the spring connected to the rack and to the base of the extractor, substantially as described.

5. In cork-extractors, the combination of a suitable cylinder, a nut perpendicularly movable therein, an axially and perpendicularly movable screw operatively set within said nut, provided at one end with a corkscrew and at its other end with an extension or stem, a pinion located upon said stem, an operating-lever pivotally held to said cylinder, a rack carried by said lever, which meshes with said pinion, operative to impart rotary motion to said pinion and therethrough to actuate said corkscrew, and a lifting-arm connected with said lever and stem, adapted through the action of said lever to perpendicularly move said corkscrew, all arranged and adapted to be operated substantially as herein described.

6. In cork-extractors, the combination of a suitable cylinder, a nut perpendicularly movable therein, a corkscrew carried fixedly by a screw set in said nut and susceptible of longitudinal and rotary motion therein, a spring within said cylinder interposed between the cap thereof and said nut, operative

to exert a tensional strain perpendicularly upon said nut, a pinion carried by an extension or stem of said screw, which is free to move longitudinally therethrough and operative to be rotated thereby, a lever pivoted to said cylinder, a rack carried by said lever, which meshes with said pinion, adapted through the to and fro movements, respectively, of said lever to actuate said corkscrew through its forward and reverse longitudinal and rotary movements, and a lifting-arm connected with said lever and screw-stem, adapted through the action of said lever to move said corkscrew longitudinally, all arranged and adapted to be operated substantially as set forth.

RAYMOND B. GILCHRIST.

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