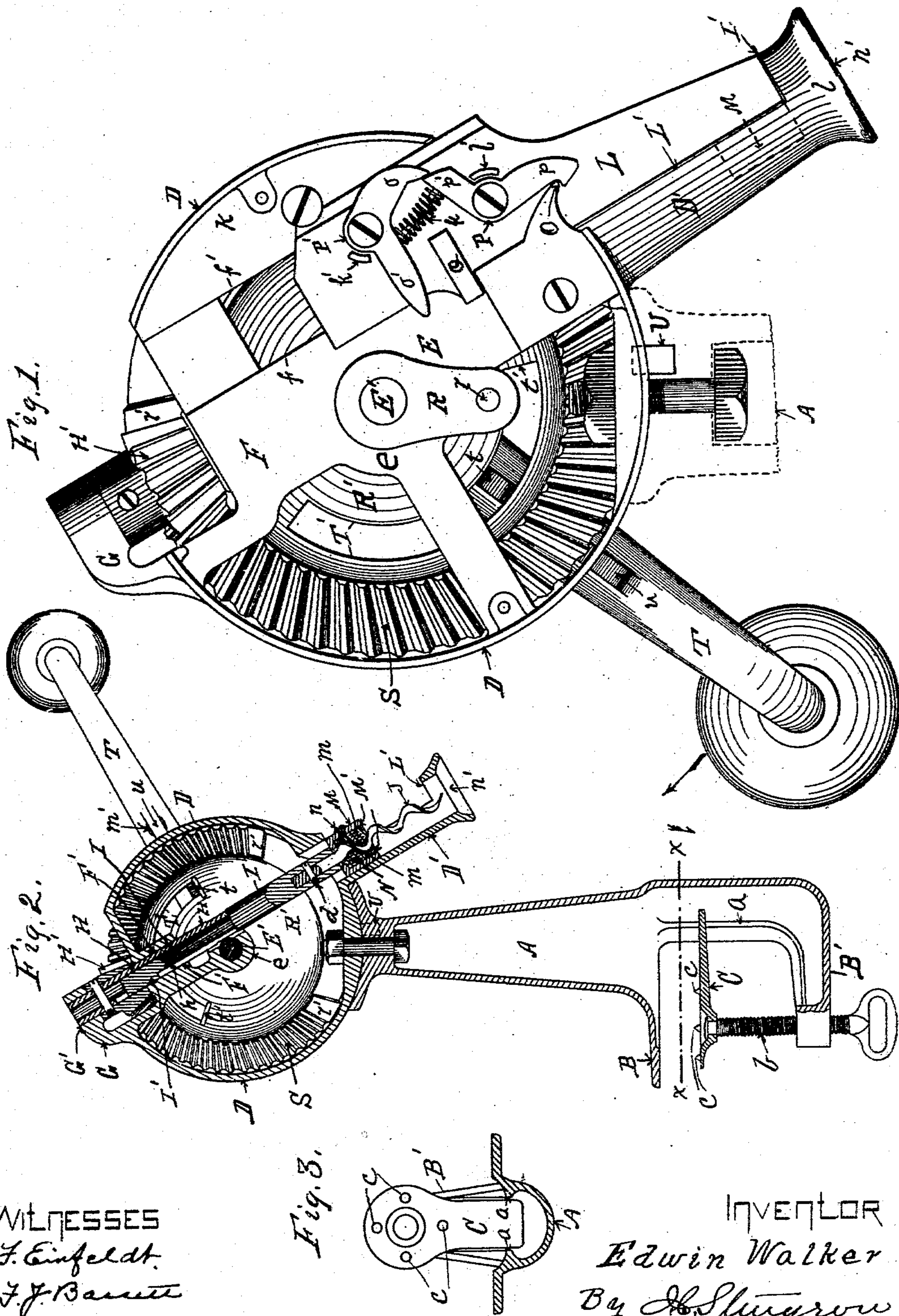


(No Model.)

E. WALKER.
AUTOMATIC CORK PULLER.

No. 515,411.

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WITNESSES
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UNITED STATES PATENT OFFICE.

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AUTOMATIC CORK-PULLER.

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To all whom it may concern:

Be it known that I, EDWIN WALKER, a citizen of the United States, residing at the city of Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Cork-Pullers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention consists in the improvements in automatic cork-pullers hereinafter set forth and explained and illustrated in the accompanying drawings in which—

Figure 1. is a side elevation of my improved automatic cork-puller, with the side plate removed therefrom, and the supporting standard thereof removed. Fig. 2. is a vertical central section of the same. Fig. 3. is a transverse section of the supporting standard of the cork-puller, on the line x, x , in Fig. 2, looking in the direction of the arrow.

In the construction of my improved automatic cork-puller illustrated in the accompanying drawings A is the supporting standard of the cork-puller, the lower end of this standard being provided with jaws B B'; in the jaw B' I place a thumb screw b which engages with a plate C, the inner end of which moves vertically between guides a, a on the standard A, the top of the plate C is also provided with conical studs c adapted to be forced into the underside of a shelf or counter, so as to hold the standard A firmly thereon.

To the upper end of the standard A, I secure a circular case D having a tubular projection D' extending downwardly from the periphery thereof at an angle preferably of about thirty degrees from a vertical line, and adapted to receive the mouth of a bottle, as hereinafter set forth. In line with this tubular projection D' a frame E extends across the case D, slightly at one side of the center of the circular case D, so that a shaft E' can be mounted in a bearing e on one side thereof, at a point coinciding with the center of the circular case D; in the upper portion F of the frame E, I bore out in line

with the center of the projection D' a long tubular bearing F' and to the periphery of the case D I secure an arm G having a bearing G' in line with the bearing F', and in these bearings F' and G' I mount a hollow tubular shaft H, having a groove h nearly the entire length thereof, and in the recess between the arm G and the upper end of the bearing F' I secure a bevel pinion H' to the hollow tubular shaft H, which pinion is operated by means of a bevel skew-gear wheel hereinafter described to rotate said hollow tubular shaft H and at the same time prevents any endwise movement thereof. Inside of the hollow tubular shaft H I place a cork-screw stem I provided with a spline I' which operates in the elongated groove h in the tubular shaft H, so that the cork-screw stem I will rotate with the tubular shaft H and at the same time slide longitudinally therein; in the lower end of the stem I is secured a cork-screw J by means of a pin d , so that the screw J can be removed when desired.

In guides f, f' formed between the upper edge of the frame E and a plate K secured to the inside of the case D, is a sliding plate L, and in one side of the projection D' is a recess L' cut away nearly to the lower end thereof, and on the lower end of the plate L is a circular boss M (see Fig. 2, and the dotted lines in Fig. 1.) which boss is adapted to fit and slide longitudinally freely in the tubular projection D'; in the center of the boss M is an opening M' adapted to receive a nut N through which the cork-screw J operates, this nut is preferably made by winding a cork-screw with tinned iron wire m and then casting the nut N around it of suitable composition of metal, for example of tin and zinc, the outside of the nut being formed in a mold of suitable shape to fit the opening M' in the boss M; this nut, I secure in place preferably by means of a set-screw n , so that it can be readily removed if desired. The mouth n' of the projection D' is also made flaring so as to conveniently fit the mouths of different sized bottles.

On the case D I secure a catch O and on the face of the plate L, I pivot a bell-crank lever dog P, one arm p of which is adapted to engage the catch O when the plate L has reached its extreme downward traverse, and the other arm p' of which is adapted to be

engaged by the arm *o* of another bell-crank lever *P'*, between the arms *p'* and *o'* of these levers is a spiral spring *k* which operates to actuate the dog *P*, to make it engage the catch *o*; stops *k'* and *l'* are secured on the plate *L* to limit the movement of the dog *P* and of the lever *P'*; upon the plate *L* below the arm *o'* of the lever *P'* is secured a transverse bar or stop *Q* as and for the purpose hereinafter set forth.

On the end of the shaft *E'* outside of the bearing *e* thereof in the frame *E*, I secure a crank *R* provided with an inwardly projecting stud *r* adapted to engage the arm *o'* of the lever *P'* and the bar or stop *Q*, as and for the purpose hereinafter set forth.

On the opposite side of the case *D*, I mount loosely a wheel *R'* which forms a cover closing that side of the circular case *D*; this wheel is provided, on the periphery of its inside face, with a segment of beveled skew-gearing *S* adapted to intermesh with and drive the pinion *H'*; at the ends of this segment of gearing, I provide stops *r'* to prevent the pinion *H'* from passing off of the segment *S*. The reason for the use of skew-gearing *S* on the wheel *R'* with which the pinion *H'* intermeshes, is to provide for the hollow tubular shaft *H* passing the bearing *e* of the transverse shaft *E'* without interfering therewith, which shaft *E'* is the bearing upon which the wheel *R'* is mounted and rotates.

On the end of the shaft *E'* outside of the wheel *R'*, I secure an operating crank *T* and in the wheel *R'* is cut a segmental recess *T'*, and on the crank *T* is a boss or stud *t* which enters said recess *T'* and operates when it contacts with the ends of said recess *T'* to rotate the wheel *R'*, and on the lower part of the case *D* is a boss or stop *U* with which a boss or stud *u* on the inside of the crank *T* engages, so that the movement of the crank in either direction is limited thereby; this stud *u* I preferably provide with a cushion *m'* of rubber or other resilient substance, which is adapted to contact with the stop *U* when the crank is moved around into contact therewith.

In operating my improved cork-puller, the plate *L* being at its lowermost point of traverse, as illustrated in Fig. 1, the operator places the mouth of a bottle to be uncorked in the flaring mouth *n'* of the tubular projection *D'* and holding it firmly therein, grasps the crank *T* secured to one end of the transverse shaft *E'* and turns it around toward himself until it engages with the stop *U* on the case, this operates to rotate the gear wheel *R'* which turns the pinion *H'* and the hollow shaft *H*, which operates to turn the cork-screw and cause it to pass down through the nut *N* secured in the boss *M* on the end of the plate *L* and into the cork to be removed from the bottle; this operation has also rotated the transverse shaft *E'* and brought the crank *R* secured to the opposite end thereof around, until the stud *r* therein has contacted with, depressed, and passed under the arm *o'*

of the lever *P'* on the plate *L*; the operator then reversing the movement of the crank *T*, the stud *r* operating on the under side of the arm *o'* of the lever *P'*, raises the plate *L* together with the cork-screw without rotating the cork-screw, until the extreme upward traverse of the plate *L* has been reached, which movement draws the cork from the bottle, at this instant the stud *r* on the crank *R* passes out from under the end of the lever *o'* and at the same time the stud *t* engages with the end *t'* of the segmental slot *T'* in the gear wheel *R'* and rotates the wheel *R'*, the pinion *H'*, shaft *H* and cork-screw stem *I* operated thereby in the opposite direction, so as to back the screw *J* up into the nut *N* thereby unscrewing it out of the cork just drawn and allowing it to fall out of the opening *L'* in the side of the tubular projection *D'*, the plate *L* at the same time moving down to its normal position, again ready for operation.

Having thus fully described my invention, so as to enable others to construct and operate the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In an automatic cork-puller, the combination of a cork-screw stem mounted in a hollow shaft, and connected therewith by a spline and groove, so as to move longitudinally therein, gearing and crank mechanism for rotating said shaft and cork-screw stem, a reciprocating plate moving in line with the cork-screw stem, a nut mounted on said reciprocating plate through which the cork-screw on said stem operates a transverse shaft, and lever and crank mechanism mounted thereon, engaging and operating said reciprocating plate, substantially as and for the purpose set forth.

2. The combination in an automatic cork-puller of a circular case or frame mounted on a standard, a tubular projection on said case adapted to receive the mouth of a bottle, a longitudinally grooved tubular shaft operating in bearings in said case in line with said tubular projection, a cork-screw stem having a spline thereon within said tubular shaft, a bevel gear pinion on said tubular shaft, a beveled gear wheel intermeshing with and driving said pinion, a central shaft in said case, passing loosely through said bevel gear wheel, an operating crank on said shaft, adapted to engage an elongated slot in said beveled gear wheel, a reciprocating plate moving in line with the cork-screw stem, a nut on said plate through which the cork-screw operates, catch and lever mechanism on said reciprocating plate, and a crank on said central shaft adapted to engage the lever and catch mechanism on said reciprocating plate, substantially as and for the purpose set forth.

3. The combination in an automatic cork-puller, of a reciprocating plate *L*, adapted to move in line with a hollow tubular shaft *H* in which the stem *I* of the cork-screw *J* is se-

cured, and bearing a nut N through which said cork-screw J operates, a transverse shaft E' having an operating crank T on one end, and a crank R on the opposite end thereof, and catch and lever mechanism P, P' on said reciprocating plate adapted to be engaged by the crank R, substantially as and for the purpose set forth.

4. The combination in an automatic cork-puller, of the hollow grooved shaft H, the splined cork-screw stem I within the said shaft, the pinion H' secured to said shaft, the gear wheel R' intermeshing with and operating said pinion H', and the crank T having a boss or stud t thereon engaging with the slot T' in said gear wheel R', substantially as and for the purpose set forth.

5. The combination in an automatic cork-puller, of a circular case D, an inclined tubular projection D' on said case, a frame E within said case in line with said tubular projection D', a shaft H supporting a cork-screw J operating longitudinally in said frame E and in said projection D', bevel gear and crank mechanism for rotating said hollow shaft, a reciprocating plate L mounted and

moving longitudinally on said frame E, and bearing a nut N through which the cork-screw J operates, a transverse shaft E' and crank mechanism thereon adapted to engage catch and lever mechanism on said reciprocating plate, substantially as and for the purpose set forth.

6. The combination in an automatic cork-puller, of a plate as L operating in guides ff' in line with the cork-screw stem of said cork-puller, a nut as N removably secured to said plate through which the cork-screw operates and a transverse shaft E' having an operating crank on one end, and a second crank R on the opposite end thereof, with a lever dog as P on said plate L engaging with the catch O on the case D, the lever P' on said plate L adapted to be engaged by the crank R and the stop Q, all substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDWIN WALKER.

Witnesses:

F. EINFELDT,
J. M. SHERWIN.