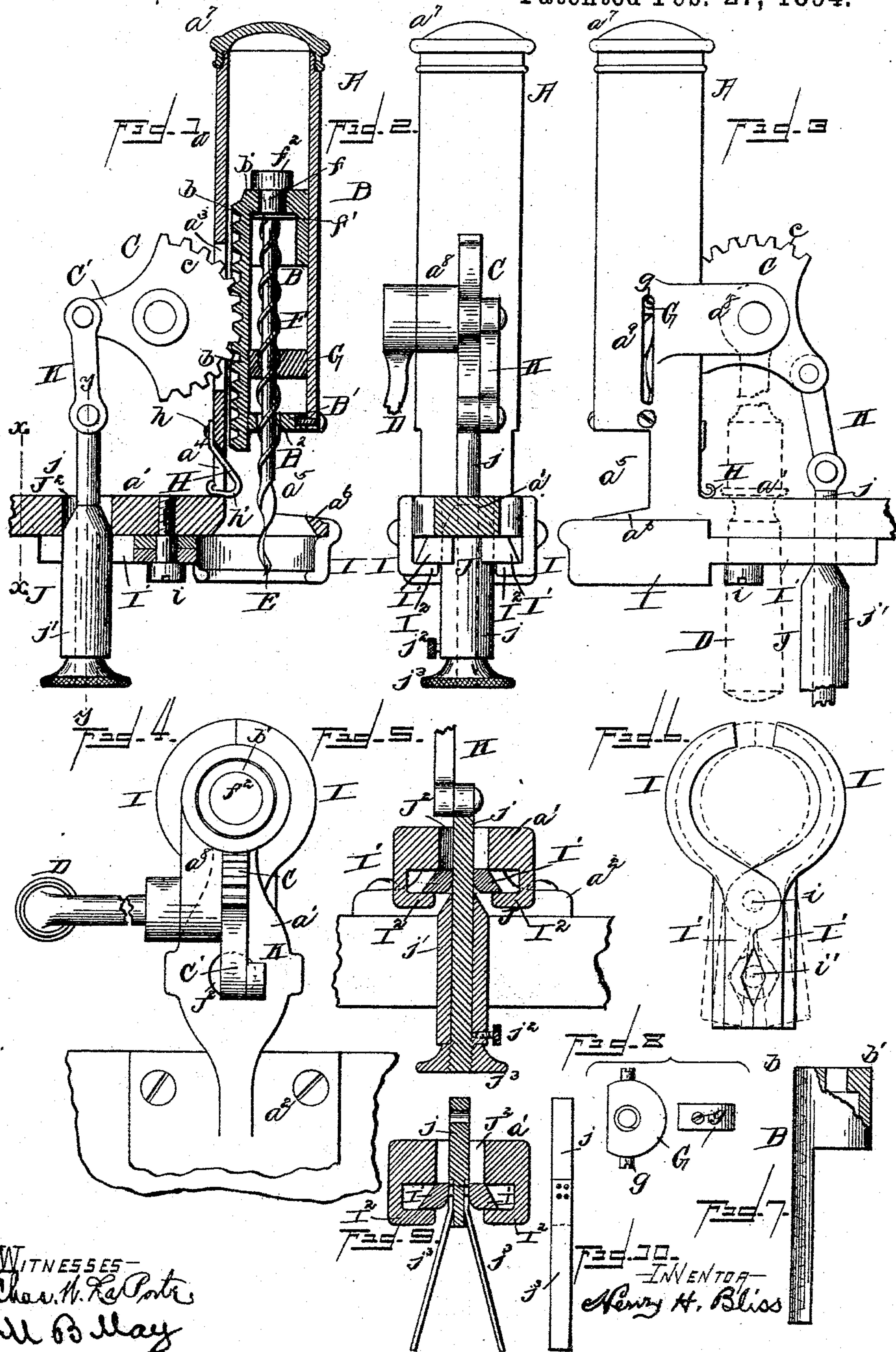


(No Model.)

H. H. BLISS.  
CORK EXTRACTOR.

No. 515,646.

Patented Feb. 27, 1894.



WITNESSES  
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HENRY H. BLISS, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO  
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## CORK-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 515,646, dated February 27, 1894.

Application filed March 10, 1893. Serial No. 465,478. (No model.)

*To all whom it may concern.*

Be it known that I, HENRY H. BLISS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Cork-Extractors, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is the vertical section of a device embodying my improvements. Fig. 2 is a section on the line  $x-x$ , Fig. 1 showing the forward portions in rear elevation. Fig. 3 is a side elevation. Fig. 4 is a top plan view. Fig. 5 is a vertical section on the line  $y-y$ , Fig. 1. Fig. 6 is a plan view of the neck-clamping-jaws. Fig. 7 shows the gear-rack detached, partly in side elevation, partly in section. Fig. 8 shows the nut in plan, and in edge elevation. Fig. 9 is a vertical section showing spring wedges, modified with respect to the one in Fig. 5; and Fig. 10 is an edge view of the same.

In the drawings a casing is shown which is, as a whole, illustrated by A. Preferably it is cylindrical in general form, and at the bottom is formed with or secured to a base piece  $a'$ , which extends backward, and is adapted to be fastened, in the usual way, to a table, or other holder, as is indicated at  $a^2$ .

On the rear side of the vertical part  $a$ , of the casing there is a slot  $a^3$ , for the insertion of the toothed wheel or power device; and, at the bottom portion of the casing there is an aperture or slot,  $a^4$ , to permit the application of an expelling spring; and, on the front side there is an opening at  $a^5$ , through which the cork can be expelled. By preference there is a ring  $a^6$ , at the lower end of the casing and integral therewith, it being adapted to have the upper end of the bottle, or the cork, pressed against it. The upper end of the casing may be left open, or closed by any suitable device, as at  $a^7$ , and in either case it may be ornamented in any way, and to any extent, desired.

$a^8$  is an arm or bracket cast with and extending backward from the casing for supporting the gear wheel or operating mechanism.  $a^9$ ,  $a^9$ , are vertical slots in the sides of the casing, for a purpose to be described.

In the interior chamber of the casing A, there is placed a screw-carrier B, which is adapted to support the cork-worm, and the operating screw which rotates it, and also adapted to have applied to it the power which effects the vertical movements of the active parts. By preference this is accomplished by forming a rack  $b$ , upon one side of the screw-carrier, the teeth of which are adapted to fit the teeth  $c$ , of a wheel or segment C, the latter being mounted upon the above described arm or bracket  $a^8$ , and having a part of its peripheral portion inserted through the slot  $a^3$ . When the wheel or segment C is, by means of the handle D, moved in one direction or the other, the rack  $b$ , and the screw carrier B will be correspondingly moved.

E represents the cork-screw, which is adapted to be moved down toward the cork which is in place in the bottle, and then rotated so as to enter into the body of the cork, and then be drawn without rotation upward a limited distance bringing with it the cork, and finally to be rotated during the upper part of its upward travel in such way as to draw it out of the cork. It is shown as being formed upon the lower end of a threaded rod or screw, but instead of that, it may be made separately, and subsequently secured to the lower end of the screw. The latter is indicated by F. At the upper end it has a journal portion  $f$ , mounted in a bearing in the cross piece or upper part  $b'$  of the screw-carrier, and also retaining ears, flanges, nuts, or equivalents at  $f'$ ,  $f^2$ . At the proper place, vertically, there is a cross plate, bar, or diaphragm,  $B'$ , formed with or secured to the casing A, and having an aperture  $b^2$ , through which the screw F can freely pass, but which shall act to some extent to brace and laterally support it.

In the space between the upper end of screw-carrier B and the stop bar or plate  $B'$  there is placed a nut G. It is so constructed and arranged as to be prevented from rotating, and yet can slide to a limited extent vertically. It is provided with a threaded aperture, whereby it can engage with the screw F. It has guide-stops  $g$  projecting laterally from it through the slots  $a^9$ , they being preferred.



erably screws, as shown. The intended positions of the several parts, in relation to each other, are such that when wheel C and rack frame or carrier B, has been moved down far enough to bring the point of cork-worm E to the top surface of the cork, the nut G will be at the bottom of slots  $\alpha^9$  whereupon, a further downward movement of the part B will compel the nut G to impart rotation to the screw F and worm E until the latter has perforated the cork; and, further, such that when the movement of parts C and B are reversed the nut G will move bodily upward with the screw threads of screw F without rotating the latter, such bodily movement of the nut continuing until stops  $g$  reach the upper end of slots  $\alpha^9$ , or in other words, until the nut has traveled a distance equal to the length of the cork, and the worm E has, consequently, drawn the cork from the mouth of the bottle and brought its upper surface into contact with stop bar or plate B'. And, as a somewhat further upward movement of the rack or carrier B is possible (that is after nut G has become stationary), the screw F will be rotated so as to draw the worm E out of the cork. During the next downward movement of the parts the cork worm will move down without rotation, because of the nut G being able to slide in the slots  $\alpha^9$ , but the rotation of the screw and worm begin immediately on the point of the worm reaching the top of the cork.

H represents a spring, preferably formed by bending properly a piece of flat spring steel. It is fastened at  $h$  to the casing wall and has the elbow  $h'$  projecting somewhat through the casing wall, into the path of the cork. When the cork is drawn up by the worm it impinges upon this spring and presses it backward somewhat, or in other words, the spring exerts an outward pressure upon the cork. This pressure is adjusted to be such that at the instant the worm is twisted out of the cork, the latter will be pushed forward by the spring and expelled through the passage at  $\alpha^5$ . More or less trouble and inconvenience have been experienced when using extractors of some of the sorts heretofore made, because of the liability for the corks to expand to such an extent as to lodge in and choke the throat way or entrance at the bottom of the casing.

In order to grasp the neck of the bottle, and hold it firmly, during the operation of pulling the cork, I employ the following devices. I, I, are jaws shaped to inclose more or less of the mouth of the bottle, and preferably flanged so as to pass under a part of the flanged portion of the mouth. These jaws are pivoted at  $i$ , and are placed below the base plate  $\alpha'$ , being adapted to swing toward and from each other sufficiently to permit the easy introduction and withdrawal of a bottle neck. Forks, or jaws have been heretofore used or proposed, and situated below the casing for the worm, screw, and nut.

But they have not been fully successful, one reason being that there is considerable upward strain exerted by the pulling mechanism at the time the cork is being drawn, and much of this strain is unavoidably imparted to the jaws, as it is impossible to so construct their concave parts as to insure that all bottles shall be similarly inclosed and engaged, the outside diameters of some varying from those of others, and if the diameter of that part of the bottle is a little greater than the normal, the entire upward draft of the worm and cork will be taken by the jaws. And the base support of the jaws around the hinge or pivot was so limited, as heretofore constructed, that when the pulling draft is being exerted by the worm and the rack, the jaws are loosened or sprung, and frequently broken. Even when made with flanges which interlock with flanges on the base of the casing, there is trouble from this cause, as it is practically impossible to provide and maintain such a tight fitting of the flanges as to entirely overcome it. Then, the downward pressure upon the bottle and cork tends to the same result, as the pivot at  $i$ , and the adjacent eye parts of the jaws must take all the strain. Such downward pressure is practically necessarily incident to the device, because of the liability that the pitch of the worm E will vary from the pitch of the screw F, both at the time of original manufacture, and, subsequently, by reason of the worm being more or less altered in its pitch when in use. I obviate these difficulties by combining with the cork worm and the jaws I, I, abutments which relieve the jaws of vertical strain and displacement in either direction. At  $I^2, I^2$ , there are supporting lugs which may be cast with or secured to the base part  $\alpha'$ , and the jaws I have backward extending brace arms  $I', I'$ , which are fitted between the parts  $\alpha'$  and  $I^2$ , and the latter act to prevent any upward or downward springing of the jaws. The braces  $I'$  are utilized for another purpose, viz: to effect the movement of the jaws in one or both directions. They are engaged by cam-like device represented by J, and having the part  $j$  and the expanded cam portion  $j'$ , terminating at its upward end in a beveled or flared surface. The rod  $j$  is pivoted to a link K, which is, in turn, pivoted to the wheel or segment C, preferably to an arm C' on the latter.

There are several ways for making and arranging the parts  $j, j'$ . In Figs 1 to 6 the part  $j'$  is tubular and is fitted to the rod  $j$  in such way that it can be adjusted thereon by a nut  $j^3$ , and clamped by the screw  $j^2$ . The brace arms  $I'$  are preferably recessed at  $i'$  to provide a passage for the rod  $j$ , and the edges of the recesses are so shaped as to make the aperture elongated and insure that the tapered upper end of the part  $j'$  shall readily pass upward between and force apart the arms  $I', I'$ .  $J^2$  indicates an aperture in the base plate  $\alpha'$  coinciding with the passage at  $i'$ . The adjusting devices at  $j^2, j^3$  permit the part  $j'$  to



be placed where it will cause the jaws to commence moving at exactly the right instant for grasping the bottle.

I am aware of the fact that forks or jaws for grasping the narrow part or recessed parts of the necks of bottles have been heretofore used, and that they have had backwardly extending arms for applying to them their actuating mechanism. But in the earlier constructions referred to the jaws were held by their pivot only, there being no braces or abutments at the rear ends of their lever arms. They were placed above and rested upon the base or support and were used only in connection with devices for pushing down a ball or internal stopper. As above described, the jaws I, I, in my device are of the other class, viz: those which fully inclose the upper edge or end of the bottle neck and are placed below the base plate, so that use can be made of an upward acting cork worm and which exerts a strong upward draft during from one-third to one-half of its travel.

In the drawings I have shown how some of the details in the earlier construction can be combined with the essential parts of the present device, if desired. Thus in Figs. 9 and 10, the parts  $j^3$  consist of springs secured to the side of the rod  $j$ . In the early mechanisms above referred to the parts were so arranged that it was necessary to have the base plate largely overlap the counter or table to which it was secured, and the latter had to be chambered out, and seriously marred in order to apply it and allow for the movements of the several parts. In the present case the jaws and their levers are so related to the base plate that while they are at all times concealed from view they are yet accessible for purposes of cleaning or repair, and do not require the cutting out or recessing of the counter or table.

What I claim is—

1. The combination with the cork-worm E, the screw F, the nut G, the slotted casing, the screw-carrying rack B, arranged substantially as set forth, whereby upward draft can be applied to a cork when the worm is not rotating of the jaws I, I, the brace-arms I', I' for the

jaws, extending backward from their pivot a holder or abutment for said braces to prevent the springing of the jaws, the wedge engaging with the brace arms, and the wheel C connected both to the rack B and to the wedge substantially as set forth.

2. The combination of the casing, the screw, the cork worm, the nut, the toothed rack which carries the screw, the movable jaws I, the wedge or cam for actuating said jaws, the toothed wheel engaging said rack, and the means for pivotally connecting the wedge or cam to said wheel behind its axis, whereby the wheel lifts the screw and simultaneously depresses the wedge, substantially as set forth.

3. The combination of the casing, the cork worm, the screw, the screw-carrier, the nut, the base plate for the casing, the pivoted jaws placed below the base plate, the brace arms extending backward from the jaws, the vertically moving cam or wedge, the toothed wheel engaging with the screw-carrier, and means connected to said wheel and to said cam or wedge, whereby the said wheel directly both positively lifts the cork worm and depresses the wedge substantially as set forth.

4. The combination with the cork-worm, the casing, and the toothed wheel C, of the toothed screw-carrier, the screw mounted therein, the fixed stop-plate B', and the rising and falling nut situated between the top and the bottom ends of the screw-carrier, and above the fixed stop-plate B', substantially as set forth.

5. The combination of the cork-worm, the screw, the vertically reciprocating screw-carrier, the casing, the nut, the wheel for moving the screw-carrier, the jaws for grasping the upper edge of the bottle neck, said jaws having a common pivot  $i$ , and having arms I' extending backward therefrom, which bear upward against the base plate  $a'$ , and an abutment or holder, as at I<sup>2</sup>, substantially as set forth.

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

HENRY H. BLISS.

Witnesses:

M. B. MAY,

CHAS. W. LA PORTE.