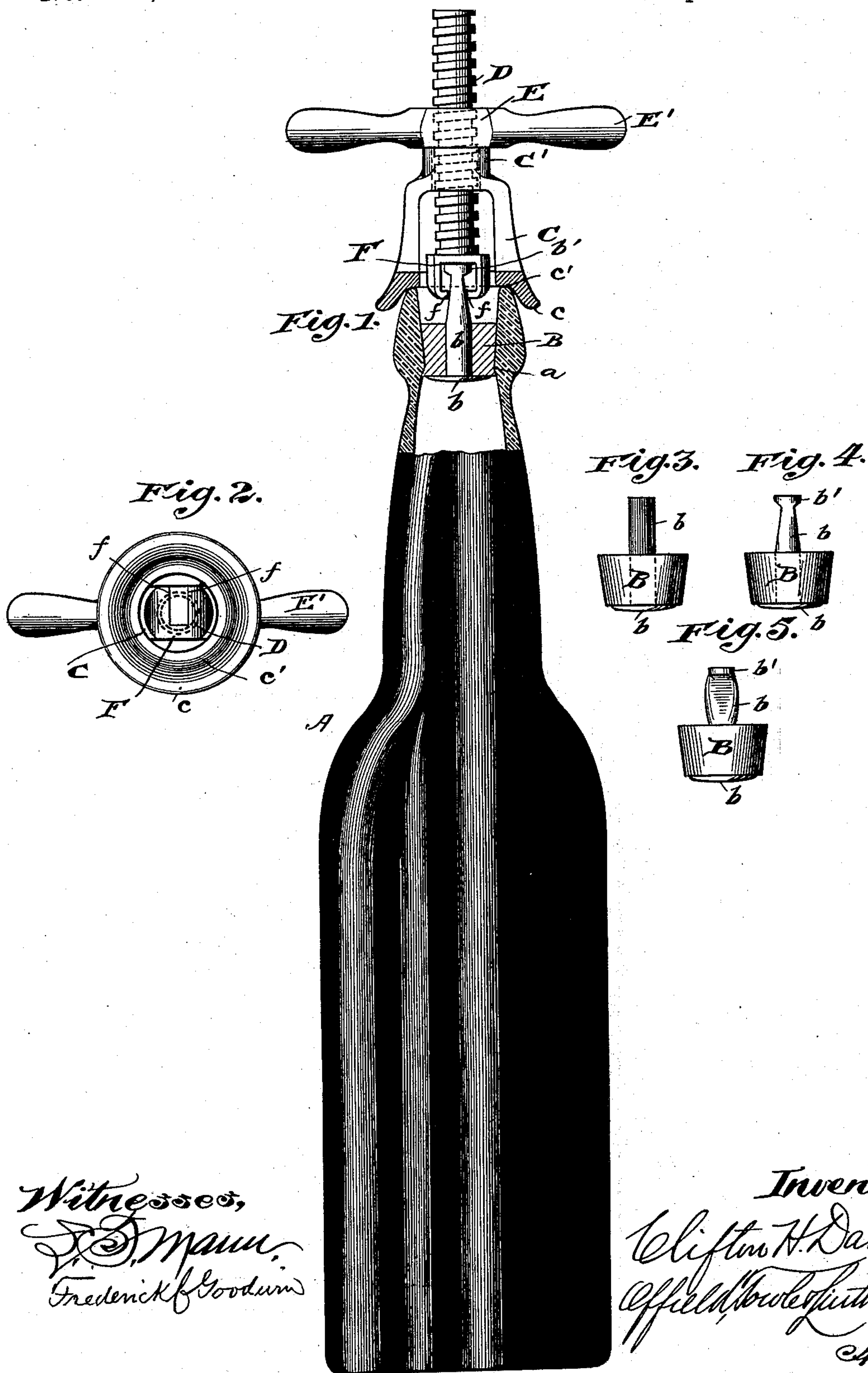


(No Model.)

C. H. DAVIS.
STOPPER EXTRACTOR.

No. 580,639.

Patented Apr. 13, 1897.



Witnesses,
J. D. Mann,
Frederick Goodwin

Inventor,
Clifton H. Davis
Offield Brothers, Lithuanian
Mfgs.

UNITED STATES PATENT OFFICE.

CLIFTON H. DAVIS, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF THREE-FOURTHS TO LEON A. RENAUD AND ARCHIBALD McNEILL, OF SAME PLACE.

STOPPER-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 580,639, dated April 13, 1897.

Application filed August 24, 1896. Serial No. 603,821. (No model.)

To all whom it may concern:

Be it known that I, CLIFTON H. DAVIS, of Chicago, Illinois, have invented certain new and useful Improvements in Stopper-Extractors, of which the following is a specification.

This invention relates to means for extracting bottle-stoppers which are applied under pressure or which from the nature of the material of which the stopper is composed adhere with such tenacity as to require considerable force for their withdrawal.

My invention is particularly applicable for stoppers having bodies composed of some elastic material with a metallic lifting-pin projected through the body of the stopper, to which pin the extracting implement is applied for unseating the stopper. A stopper of this class is found in my prior patent, No. 554,389, dated February 11, 1896. In said patent I have described and claimed a stopper composed of a rubber body with a metal pin inserted through said body, the body of the pin being cylindrical through that portion embraced by the rubber body and the protruding end of the pin being circumferentially reduced, so as to provide a head or shoulder to be engaged by the extracting implement. A lever instrument is also shown in said patent as the means for extracting the stopper. A stopper of that character, owing to its particular construction and conformation to the bottle-neck, can only be withdrawn by the application of considerable force, and I have found in practice that the lever implement there shown sometimes fractures the mouth of the bottle.

It is the purpose of my present improvement to make a stopper and extractor of such form that the stopper may be withdrawn by a direct or straight pull and without injury to the stopper or bottle.

To this end my invention comprises an extractor having a body portion adapted to rest upon the bottle-mouth, a screw having a beak or claw to engage the head of the pin, and a rotating nut for raising the screw with relation to the bottle and the body of the extractor, whereby the stopper is lifted by a direct pull.

A feature of my invention consists in the particular construction of the stopper-pin whereby the body of the implement is prevented from turning with the stopper and screw.

In the accompanying drawings, Figure 1 is an elevation, partly in section, showing the implement in position for use. Fig. 2 is a plan view of the extractor; Figs. 3, 4, and 5, views of the stopper detached, Fig. 3 showing the pin previous to the formation of the lifting-head thereon.

In the drawings, A represents the body of the bottle of usual form, having the contracted neck, technically known as the "choke," at *a*.

B represents the body of the stopper, which body may be composed of what is known as "commercial soft rubber," although the material of which the body of the stopper is composed is not essential to this invention. Through this body is inserted a metallic pin having a flat head *b*, which may be produced by upsetting one end of the pin, or the head may be separately attached. The pin is preferably made of a piece of wire rod having the head portion *b* upset thereon and the body of the pin being inserted through the body of the stopper, which is provided with a central aperture to permit the passage of the pin. The pin is provided with shoulders *b'*, which are conveniently produced by flattening the sides of the pin at opposite points by means of dies or in any other convenient method, the result being that the pin is compressed at opposite sides, the metal swelling out to accommodate the flattened portions, as shown in Fig. 5, while the head of the pin remains of the same size. This particular method of construction enables the pin to be inserted through the body of the stopper, as the head is not enlarged. Instead of this construction, however, the shoulders, which are the essential features, may be produced by upsetting the head of the pin, although it is preferred not to increase the diameter of the head of the pin over that of the body.

The extractor itself is composed of a body portion C, which may be a skeleton casting having the bell-shaped bottom *c* and the an-

nular shoulder *c'* to rest upon the bottle-mouth. The upper end *C'* of the body portion is apertured, through which a screw *D* may slide freely. The threaded nut *E* engages the threads of the screw and when turned down into contact with the body *C* will cause the screw to move with relation to said body. The nut *E* preferably has an extended handle portion *E'*. The screw carries at its lower end a beak or claw *F*, said claw having an open body with inwardly-turned hooked or flanged portions *f*, separated to receive the flattened portion of the pin and adapted to engage with the shoulders *b'* of the head thereof, whereby to pull upon the pin and withdraw the stopper when the screw is operated. It will be seen that the screw operates in line with the pin, that the body of the extractor forms a rest for the flanged end, and that the flattened sides of the pin embraced by the claw prevent the rotation of the stopper with reference to the screw, or, in other words, prevent the screw from simply being turned around on the stopper-pin instead of lifting it.

While I prefer to employ the described construction of the claw and pin to prevent their relative rotation, such rotation may be prevented in other ways, as, for example, the screw may carry a stop adapted to engage with the body *C* to prevent such rotation. The construction of the pin is important for another reason, viz: That it can be made much cheaper than the pin found in my said prior patent, as it may be formed by reciprocating dies, which can be operated much more rapidly than it is possible to operate a cutting-tool to remove a portion of the metal of the pin.

Obviously the extractor shown might be slightly modified in its structural features and it might be employed for the extraction of stoppers of different construction or stoppers having pins of different construction than those described or referred to above, and hence I do not intend to limit my claim to a joint use of the particular form of stopper and the particular form of extractor shown.

Obviously the particular claw shown may be modified to adapt it to the form of lifting-pin with which it is used. For example, a looped wire is sometimes used instead of a pin, and in such case the claw would be of such form as to enter the eye of the loop. Therefore I do not limit my invention to the particular form of the claw. I am aware, of course, that cork-extractors have been made to engage a corkscrew operated by a nut, but my invention is intended for use with that

class of stoppers having an elastic body with a rigid lifting-pin connected thereto.

By means of my present improvement stoppers which are capable of holding heavily-charged liquids during the operation of processing and without the aid of clamps may be withdrawn easily and without injury to the stopper or liability of fracture of the bottle.

I claim—

1. An extractor of the class described having a body portion adapted to seat upon the bottle-mouth and apertured for the passage of a screw, a screw adapted to slide through said aperture and having a claw at its end adapted to engage with the rigid portion of a bottle-stopper and a nut having a threaded engagement with the screw and adapted to bear upon the body whereby the stopper may be withdrawn by a direct pull, substantially as described.

2. An extractor of the class described comprising in combination a body adapted to seat upon the bottle-neck, a screw slidably supported upon said body and having a rigid claw at one end thereof adapted to engage a stopper-pin and a threaded nut working upon the screw, substantially as described.

3. A stopper having an elastic body and a metallic pin secured thereto and projecting beyond the elastic body, the projected portion being flattened on opposite sides thereof and providing shoulders to facilitate extraction, substantially as described.

4. A stopper comprising in combination an elastic body and a metallic pin projecting through a central aperture of said body and having one of its ends upset or enlarged to prevent its withdrawal and the other end of said pin projecting beyond the elastic body and being flattened on opposite sides whereby to provide a shouldered head, substantially as described.

5. The combination with a stopper having a lifting-pin with flattened sides projected therethrough, the projected end of the pin being provided with a shouldered head of an extractor comprising a body portion adapted to seat upon the bottle-mouth, a screw slidably supported by said body and having a claw constructed to embrace the flattened sides of the pin and to engage the shouldered head thereof, and a nut engaged with the screw whereby to move the same relatively to the bottle, substantially as described.

CLIFTON H. DAVIS.

Witnesses:

FREDERICK C. GOODWIN,
A. J. PRATT.