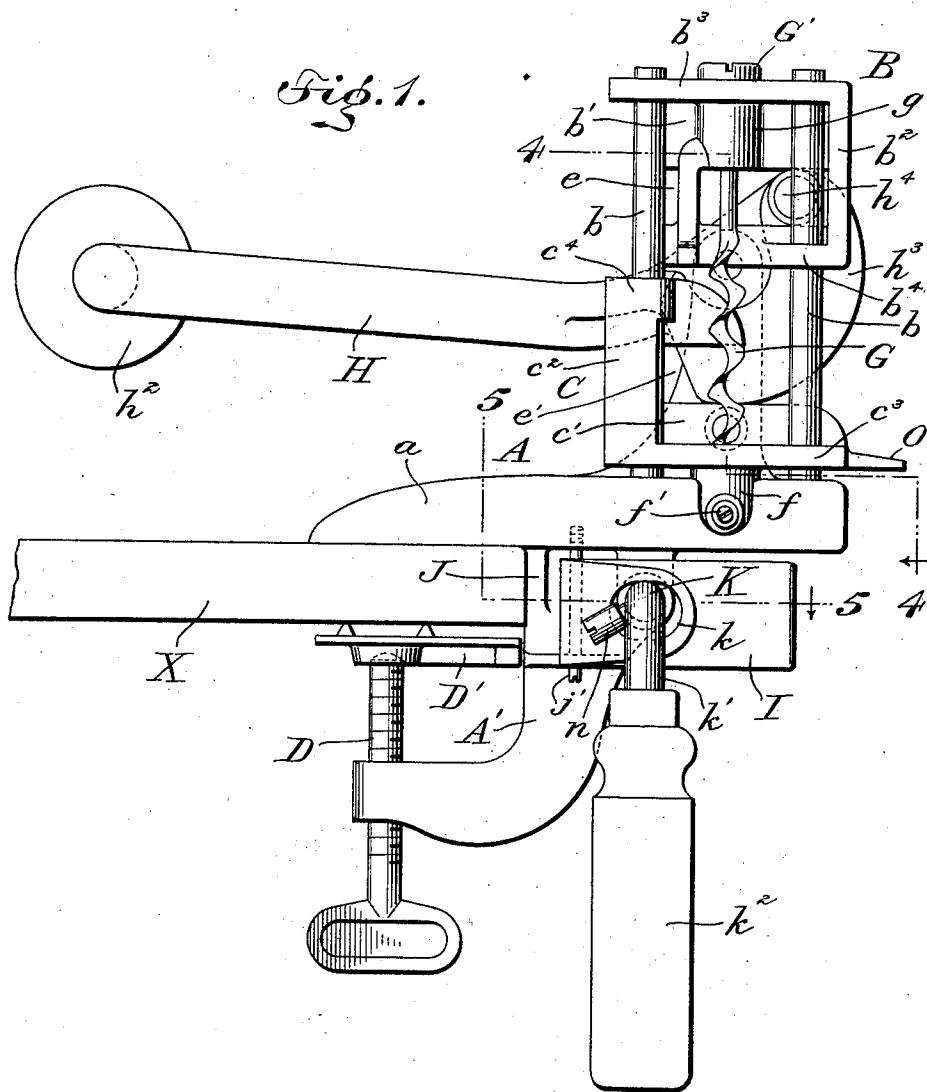


1,057,021.

E. WALKER.
AUTOMATIC CORK PULLER.
APPLICATION FILED FEB. 20, 1907.

Patented Mar. 25, 1913.

4 SHEETS—SHEET 1.



WITNESSES

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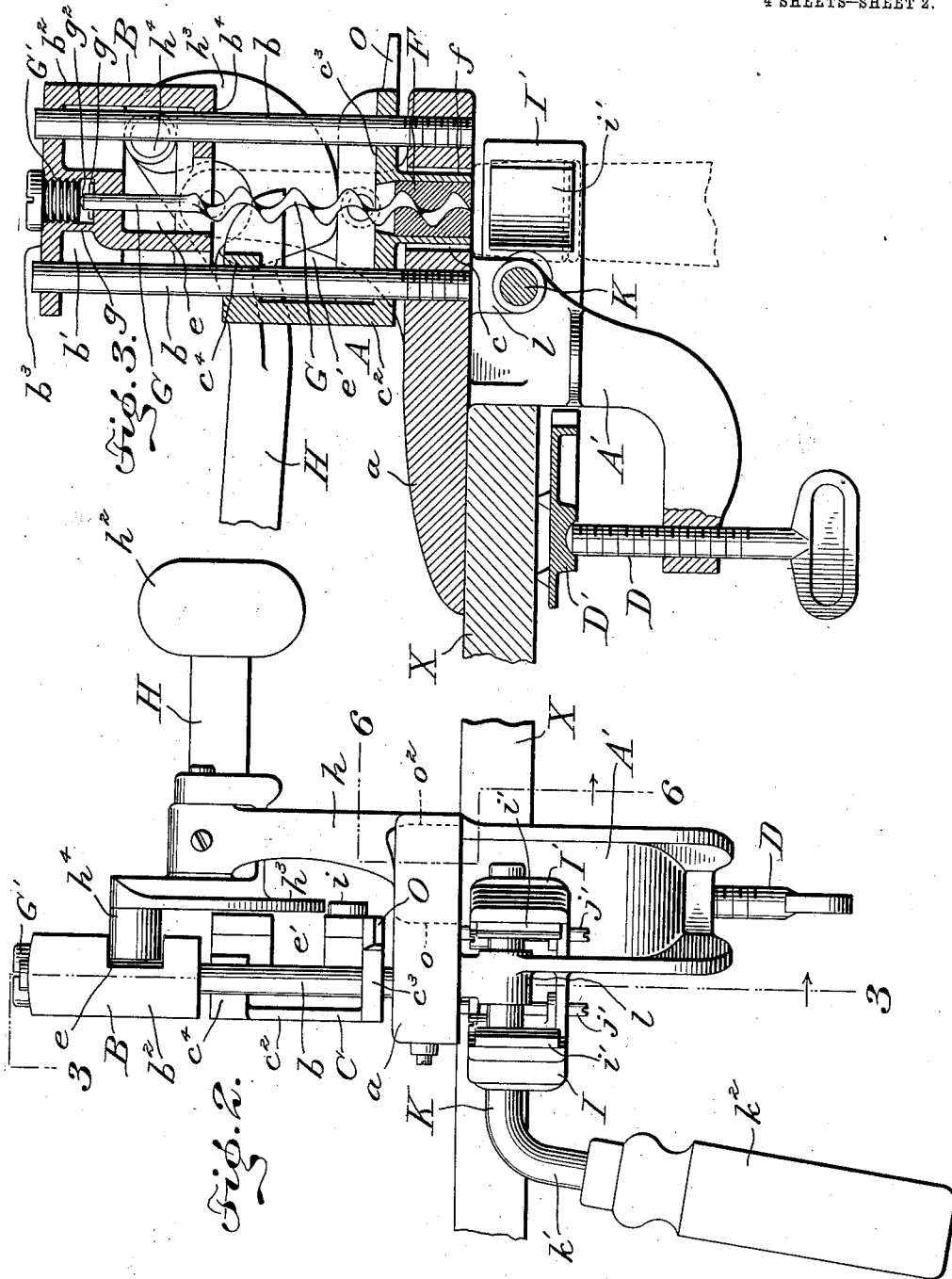
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4 SHEETS—SHEET 2.



WITNESSES
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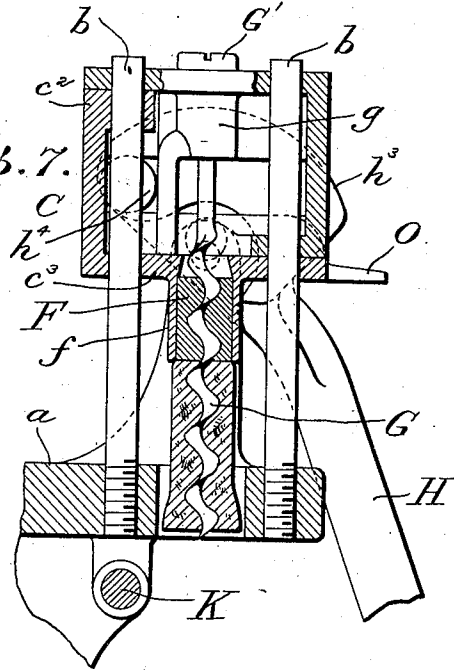
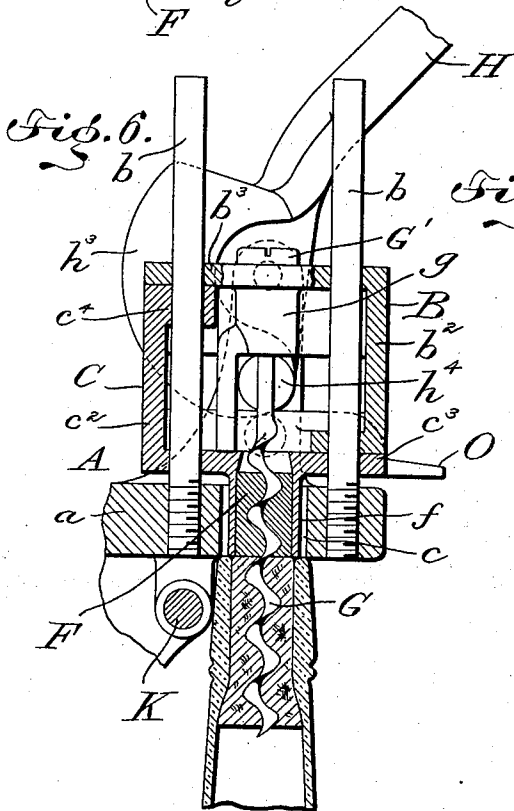
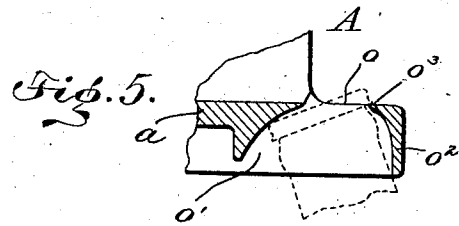
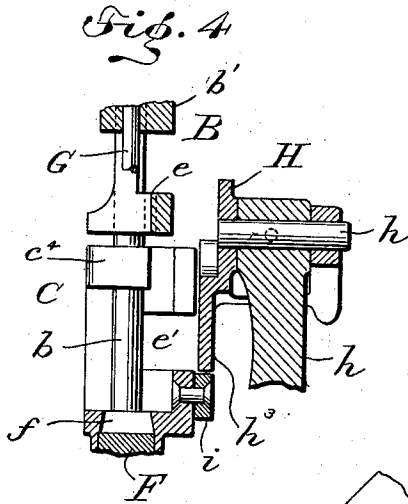
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

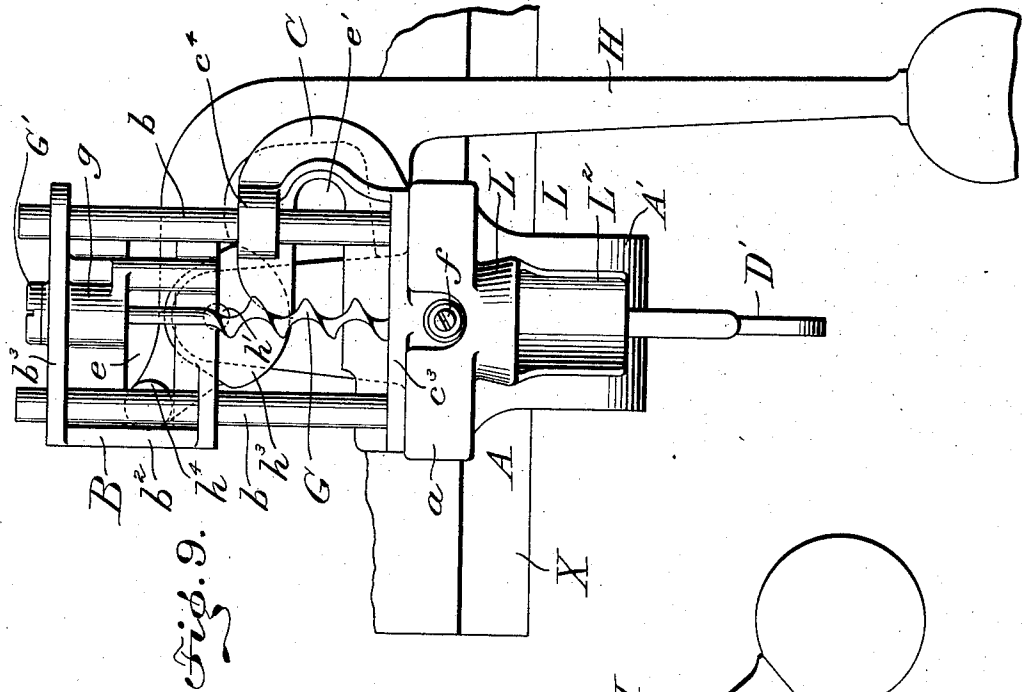


Fig. 9.

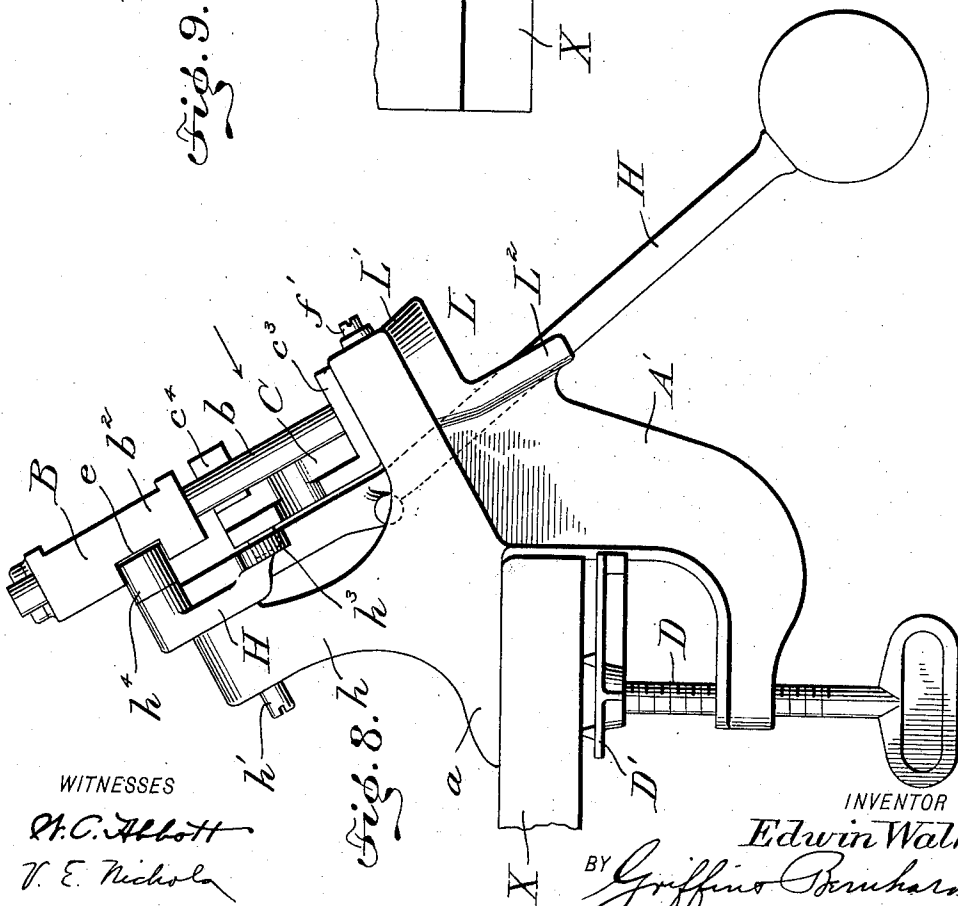


Fig. 8.

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UNITED STATES PATENT OFFICE.

EDWIN WALKER, OF ERIE, PENNSYLVANIA.

AUTOMATIC CORK-PULLER.

1,057,021.

Specification of Letters Patent.

Patented Mar. 25, 1913.

Application filed February 20, 1907. Serial No. 358,470.

To all whom it may concern:

Be it known that I, EDWIN WALKER, a citizen of the United States, residing at Erie, State of Pennsylvania, have invented a certain new and useful Automatic Cork-Puller, of which the following is a specification.

This invention is a machine for pulling corks, or other closures, from bottles and other containers.

The object of the invention is to extract a cork from a container and eject the cork from the machine by a continuous operation of a suitable lever.

A further object is to hold a bottle or container securely in position during the operation of thrusting an extracting screw into the cork, and of pulling the cork from said container, said bottle-holding means being actuated positively during both the opening and closing movements of its jaws or members.

A further object is to simplify and improve the construction, secure efficiency in operation, and render the machine economical to manufacture.

In the accompanying drawings, I have illustrated one practical embodiment of the invention, but the construction shown therein is to be understood as illustrative only, and not as defining the limits of the invention.

Figure 1 is a front elevation of one embodiment of my automatic cork puller showing the parts in a position to begin the operation of extracting the cork. Fig. 2 is a side elevation of the machine with the parts in the position of Fig. 1. Fig. 3 is a vertical cross section on the line 3—3 of Fig. 2 looking in the direction of the arrow. Fig. 4 is a detail vertical section on the line 4—4 of Fig. 1 looking in the direction of the arrow. Fig. 5 is a detail fragmentary view of the part of the machine on the line 6—6 of Fig. 2 illustrating one means for removing the bottle closure of the type known as a "crown seal." Figs. 6 and 7 are vertical sectional views illustrating different positions of the parts during the operations of thrusting an extractor screw into a cork and withdrawing said cork and screw from the bottle. Figs. 8 and 9 are views in side elevation and front elevation, respectively, illustrating another embodiment of my invention of the automatic cork puller.

In the embodiment of the invention shown

in Figs. 1 to 7 inclusive, of the drawings the machine is adapted to be mounted on a counter, shelf, or other suitable support, the operating lever of said machine being movable in a path parallel to the length of the counter. The machine shown in Figs. 8 and 9, however, which figures represent another embodiment of this invention, has the operating lever arranged to swing in a direction at right angles to the length of a counter, said machine is equipped with a stationary or rigid mouth-piece adapted for the reception of a bottle from which the cork is to be extracted. The mode of operation of the two forms of the invention shown by the drawings is practically the same, and for the purpose of enabling others to understand the invention I will now proceed to describe the machine in detail shown in Figs. 1 to 7, and will thereafter describe the machine shown in Figs. 8 and 9. It is to be observed at this point that the particular means for mounting the machine does not constitute an essential part of the invention, for the reason that the machine may be provided with means for securing the same to a wall or other surface. Various other expedients may be resorted to for supporting the operating parts of the machine on any suitable surface.

As shown, the several working parts of the machine are supported on a frame or stand indicated in its entirety at A, said frame or stand having a base plate or bed *a*, and parallel upright guides *b*, the latter being preferably in the form of smooth rods which are screwed into the base so as to be attached rigidly thereto for the purpose of guiding the cooperating crossheads B C. In Fig. 3, the guide rods or posts *b* are shown as being screwed into the bed *a*, but it is evident that this detail may be varied as desired for the purpose of attaching the posts or rods to said bed, and further, other forms of guides may be substituted for the particular posts herein shown. The base *a* is provided with an opening *c* preferably at a point between the post *b*, and said base is, furthermore, provided with a depending hanger A', the latter supporting a clamping screw D, which operates to press the clamping member D' against the counter or shelf indicated at X, whereby the machine may be mounted on said counter by clamping the machine thereto between the bed *a* and the clamping member D'.

Each crosshead B C is cast in a single piece, and said crossheads are individually fitted to guide posts b for slidable movement thereon, said crossheads being adapted for movement individually although the crossheads are under certain conditions operated conjointly by a single operating member to be presently described. The crosshead B is fitted to the guide b above the crosshead C, but the construction of the two crossheads B C is such that they are adapted to have overlapping relation under certain movements thereof, whereby the crossheads B C may be brought into compact relation to each other, as shown in Figs. 6 and 7, wherein the crossheads are represented as being adapted for conjoint movement. The crosshead B consists of a plate b' having an end flange b^2 and a top flange b^3 . The crosshead is provided also with a lug b^4 , the latter having a vertical opening in alignment with one of two vertical openings which are provided in the top flange b^3 , whereby the crosshead B is adapted to be fitted on the two guide posts b in a manner to slide freely up and down thereon. The other crosshead C consists of a plate c' , an end flange c^2 and a bottom flange c^3 . The bottom flange of said crosshead C is provided with two openings to receive the posts b , and the end flange c^2 of said crosshead has a lug c^4 , which is provided with an opening for the reception of one of said posts b . Each crosshead is mounted on the guide posts in a manner to be guided or directed thereby in a rectilinear path so as to be free from any tendency to vibrate sidewise, thus obviating lost motion, and furthermore, the crossheads are offset or recessed so that they may be brought into the overlapping relation to each other shown in Figs. 7 and 8. The crosshead B is provided in its plate b' with a transverse horizontal slot e , and similarly, the crosshead C is provided in its plate c' with another slot e' , the slot e' of the crosshead C being shorter than the slot e of the other crosshead B. Further, each slot is open at one end, the slot e' of the crosshead C being open at the right-hand end thereof, while the slot e of the crosshead B is open at the left-hand end thereof, whereby the slots of the crossheads may be brought in a registered or alined relation when said crossheads assume the overlapping relation of Figs. 6 and 7.

The crosshead C is shown as having a depending sleeve f which serves as a socket for the nut F. Said nut is made, preferably, of a piece of a suitable alloy, which is fitted in the sleeve and is held securely therein by a binding screw f' , said nut being provided with a spiral passage or female thread. The other crosshead B is provided in its plate b' with a chambered boss g , the

lower part of which is solid, except for a vertical opening which is provided for the reception of the shank forming a part of the extractor screw G. Said screw is fitted loosely in the boss g to rotate freely therein, and the screw ranges vertically and lengthwise of the machine in order that the screw may work in the nut F, which is carried by the crosshead C. Any suitable means may be provided for loosely connecting the screw G and the crosshead B, but as shown, the shank of said screw has a cross pin g' which holds the screw against displacement in a downward direction, and the pointed upper end g^2 of the screw has engagement with the bottom face of a plug or closure G' , the latter being screwed into the chamber of the boss g and affording a bearing for the upward thrust of the screw G so as to preclude an upward movement of said screw in the chambered boss, all as will be readily understood by reference to Fig. 3.

The frame or stand A is provided with an upwardly extending fulcrum post h , which is integral with the bed a , and is arranged in rear of the guide posts b and the crossheads B C. This post supports a pivotal shaft or arbor h' on which is mounted an operating lever H, the latter being provided at its outer end with a suitable operating knob h^2 . Said lever H is provided with an enlarged head h^3 which constitutes a locking cam for the crosshead C in certain positions of the lever, and the said crosshead, and furthermore, the lever is provided with an operating member for the crossheads B C, which operating member is in the form of a stud or roller h^4 . The operating member is provided on the enlarged head of the lever at the high point of the locking cam h^3 , so that the member h^4 is at one side of the pivot shaft h' which affords the axis of movement of the lever H. Said member h^4 and the locking cam h^3 are movable with the lever when it is shifted in the operation of the machine, and the member h^4 is adapted to ride in the slots e of the respective crossheads B C. The crosshead C is provided in its rear side with a stud or lug z , which is in the plane of the locking cam h^3 in order that said stud may engage with said cam for the purpose of depressing the crosshead C and of locking the same in such depressed position when the member operates the crosshead B independently of the crosshead C, whereby the nut F is held in a stationary position during the reciprocating movement of the screw G when thrusting said screw into a cork, or when withdrawing said screw from the cork after the latter shall have been extracted from a bottle.

The cork puller shown in Figs. 1, 2 and 3 of the drawings is provided with a bottle

holder or clamp having movable jaws, I, I', which are provided with linings i', adapted to engage frictionally with the neck of a bottle. Said jaws are pivotally supported by pins or screws j', in a slotted bracket, J, which depends from the bed, a. Said jaws are provided with longitudinal slots, k, through which passes a single operating shaft, K, the latter having a bent portion, k', which is provided with an operating handle, k². Said shaft, K, is mounted in a fixed bearing, l. The shaft, K, is provided with cam studs or rollers, one of which is shown at n, said rollers being adapted to engage with the outer faces of the jaws for the purpose of closing them.

The bottle holder or clamp shown in Figs. 1, 2 and 3 is constructed and operated substantially as disclosed in a divisional application filed by me on the 16th of April, 1907, Serial No. 368,532.

The base a of the supporting frame or stand is shown in Fig. 5 as having an opening o and with the cavity o', the latter being in the underside of the base. The outer side of the cavity o' is closed by a wall o² which terminates in a lip o³. This construction is provided for the purpose of removing a metal bottle closure of the type known as a "crown" seal. The closed end of a bottle is adapted to be thrust into the cavity o' so that the bottle will take the inclined position shown by dotted lines in said Fig. 5, whereby the seal may be thrust through the opening o in a manner for the lip o³ to fit below the edge of said seal, whereupon the bottle may be pressed down and the lip o³ will lift the seal from the bottle.

The machine is provided, also, with means for removing the metallic bottle closure of the type known as an "aluminum stopper." This device in one form of the invention is embodied as a horn O which is shown as integral with a part of the machine, preferably the crosshead C. The horn extends outwardly from the crosshead and it is adapted to receive the aluminum stopper in a way to engage firmly with said stopper, while the bottle is pressed downwardly, whereby the stopper may be easily and quickly withdrawn from the bottle.

The machine represented in Figs. 8 and 9 is similar in all substantial particulars to the cork puller described, except that it is not equipped with a movable clamp, the operating lever being adapted to swing back and forth in a direction across the counter or shelf to which the machine is secured. The machine is provided with a base a and with guide posts b, and from said base depends the hanger A' which supports the clamping screw D, adapted to operate the clamping member D'. The base is equipped with the back post h to which is pivoted the enlarged end of an operating lever H by

a shaft or arbor h', said enlarged end of the operating lever forming a locking cam h³ and being provided with a stud or roller h⁴, the latter being arranged to work in slots e e' of the respective crossheads B C. The crosshead C carries a nut adapted to be held in place by a binding screw f, and to the crosshead B is connected the extractor screw G. The crossheads B C are separately mounted on the guide posts b, so as to have slidable travel thereon, and said crossheads are adapted to have overlapping relation at one period of their operation. In the present embodiment of the invention, the guide posts b are inclined upwardly and rearwardly in order that the crossheads may move in inclined paths, and for the further purpose of making the bottle rest L assume an inclined position, as shown in Fig. 8, whereby a bottle may be easily and quickly inserted in said rest or withdrawn therefrom. The rest L consists of a tubular portion L' and a lip L² extending in an inclined direction from the lower or rear side of the mouth portion L'. The bottle rest is in line with the extractor screw in order that the latter may be forced into a cork which is adapted to be held against the rest L. The mouth portion L' is hollow, whereas the lip L² is curved in cross section, whereby the top edge of the bottle may be inserted in the mouth L' and the neck portion of the bottle is adapted to rest on the lip L², thus affording a secure support for the neck of the bottle from which a cork is to be extracted.

The operation of the machine is as follows: Assuming that the lever is moved to a position where the crossheads B C are at the top and bottom respectively, of the guide posts b, see Figs. 1, 2, 3 and 9, the locking cam h³ of said lever engages with a shoulder or lug i of the crosshead C for holding the nut F in a stationary position. The operator thrusts the mouth portion of the bottle into the bottle clamp or the bottle rest, and holds said bottle in position while operating the lever H. The first movement of the lever causes the member h⁴ to travel in the slot e of the crosshead B, thereby depressing said crosshead and imparting reciprocating movement to the extractor screw, the latter being rotated by working in the nut F. By the time the lever has been moved substantially for one half of its distance, the crosshead B and the screw G are depressed so that the screw is forced into the cork of the bottle and the crosshead B is brought into overlapping relation to the crosshead C, see Fig. 6. At this time the member h⁴ of the lever enters into the slot e' of the crosshead C, and the lever is now moved for the balance of its stroke in order to complete the movement in one direction, during which movement the mem-

ber h^4 of the lever operates to lift the crosshead C which acts to also lift the crosshead B substantially as shown in Fig. 7. It will be seen that the crossheads move upwardly in unison, and that the nut F and the screw G are carried with said crossheads, the screw G being stationary so far as any rotary movement is concerned. During this upward travel of the crossheads and their parts, the cork is pulled out of the bottle, as shown in Fig. 7, the bottle being held firmly by the clamp or the rest heretofore described. With the parts in the position shown in Fig. 7, the operator reverses the lever in order to bring the parts back to their normal positions and for the purpose of ejecting the cork from the extractor screw. When the lever begins its backward movement, the member h^4 continues to travel in the slot e' of the crosshead C so that the two crossheads, the nut, the screw and the cork thereof are lowered by the time the lever is moved one half its distance. Now, when the lever approaches the limit of this movement back to normal position, the cam h^3 engages with the stud of the crosshead C and the member h^4 moves out of the slot e' of the crosshead C, whereby the crosshead C and the nut F are locked in their normal positions, whereas the lever and the member h^4 operate on the crosshead B so as to lift the latter, at which time the screw G moving with the crosshead B is rotated in the stationary nut F for the purpose of withdrawing the extractor screw from the cork, the latter being held below the sleeve of the crosshead C. It will be observed that the screw G may be easily thrust into the cork and said cork withdrawn from the bottle when the lever is moved in one direction, whereas the return movement of lever to its normal position operates to eject the cork from the extractor, these operations being easily and quickly performed by the simple movement of a single lever.

Having thus fully described the invention, what I claim as new, and desire to secure by Letters Patent is:

1. In a cork puller, a plurality of parallel guides, an upper cross head slidably fitted to said guides, a lower crosshead slidably fitted to said guides independently of the upper crosshead, a nut on the lower crosshead, an extractor screw connected to the upper crosshead and fitted in said nut for free rotation therein, an operating lever, each of said crossheads being provided with a longitudinal way, a device movable with the lever and operable by engagement with the longitudinal way of one crosshead for imparting movement to the nut carrying crosshead separately from the screw carrying crosshead and by engagement with the longitudinal way of the other crosshead to impart movement to the two crossheads si-

multaneously, and means for restraining the nut carrying crosshead from movement when reciprocating movement is imparted to the screw carrying crosshead by the operation of said lever.

2. In a cork puller, upright guides, a crosshead slidably fitted to said guides, a nut carried by said crosshead, a second crosshead separate from said nut carrying crosshead, said second crosshead being fitted slidably to said guides independently of the first crosshead, said crossheads being positioned for overlapping contacting engagement, an extractor screw carried by the second crosshead and positioned for co-operation with the nut, a hand lever provided with a stud, and a groove on each crosshead, said groove extending between the upright guides and coöperating with the stud of the lever, said lever operating the stud to impart movement to one crosshead independently of the other crosshead and operating, upon the grooves of the two crossheads coming into alinement with each other, to impart movement simultaneously to the two crossheads.

3. In a cork puller, a plurality of upright guides, a crosshead positioned transversely with relation to the guides and fitted slidably thereto, a second crosshead separate from the first crosshead, said second crosshead being positioned transversely with relation to the guides and fitted thereto for slidable movement independently of the first crosshead, a nut on the first crosshead, an extractor screw on the second crosshead, a transverse guide on each crosshead, a lever having a single operating member positioned to travel in the transverse guides on said crossheads, and means operated by the lever for restraining the nut carrying crosshead from movement when an independent movement is given to the screw carrying crosshead by said lever operated member.

4. In a cork puller, a plurality of upright guides, two separate crossheads fitted upon said guides independently of each other, one of said crossheads having a depending member and an opposite cut away portion, and the other crosshead provided with an arm slidably fitting said cut away portion, a transverse guide on each crosshead, a lever, means operated by the lever for locking one crosshead from movement during an independent movement of the other crosshead, an operating member carried by the lever and coöperating with the transverse guides of the two crossheads, a nut on the crosshead which is adapted to be locked in position, and an extractor screw carried by the crosshead which is adapted to be lifted independently of the nut carrying crosshead.

5. In a cork puller, guiding means, two separate crossheads fitted externally to the

guiding means for independent sliding movement thereon, said crossheads being recessed for overlapping engagement with each other, a nut on one crosshead, an extractor screw on the other crosshead, a transverse guide on each crosshead, and a lever having a single operating member positioned for separate engagement with the transverse guides of the crossheads.

6. In a cork puller, a plurality of upright guides, an upper crosshead and a lower crosshead fitted independently of each other on said guides for sliding movement thereon, each crosshead being provided between the guides with a transverse slot, a nut on one crosshead, an extractor screw connected to the other crosshead, a lever, and a single stud carried by the lever and positioned for coöperation with the transverse slots of the crossheads.

7. In a cork puller, a plurality of upright guides, an upper crosshead and a lower crosshead fitted independently of each other upon said guides for sliding movement thereon, each crosshead having a transverse slot positioned between the guides, a nut on one crosshead, an extractor screw on the other crosshead, a lever, a locking cam operated by the lever for restraining the nut carrying crosshead from sliding movement, and a single stud carried by the lever and positioned for coöperation alternately with the transverse slots of the respective crossheads.

8. In a cork puller, a plurality of upright guides, separate crossheads positioned one above the other and fitted independently of each other upon said guides for sliding movement thereon, the upper crosshead having a depending member and an opposite cut away portion, and the lower crosshead provided with an upstanding member slidably fitting in said cut away portion of the upper crosshead, a nut on one crosshead, an extractor screw on the other crosshead, a lever, means for restraining the nut carrying crosshead from movement, and means operated by the lever for operating the crossheads simultaneously and independently.

9. In a cork puller, a plurality of upright guides, an upper crosshead and a lower crosshead fitted independently of each other

upon said guides for sliding movement thereon, each crosshead having a slot, said upper crosshead having a depending portion and an opposite cut away portion and the lower crosshead provided with an upright guide arm, the two crossheads overlapping each other when in contacting engagement and the slots of said crossheads are brought into alinement, a nut carried by one crosshead, a screw rotatably connected to the other crosshead, a lever, means operated by the lever for restraining the nut carrying crosshead from movement, and a stud carried by the lever and positioned to ride alternately in the slots of the respective crossheads.

10. In a cork puller, a plurality of upright guides, an upper crosshead provided with a depending portion and an opposite cut away portion, a lower crosshead having an upstanding arm slidably fitting said cut away portion, said crossheads being fitted independently of each other upon said guides, and said crossheads being positioned for overlapping engagement, a nut carried by one crosshead, a screw carried by the other crosshead, a lever, a cam operated by the lever for locking the nut carrying crosshead, and a stud movable with the lever and positioned for separate engagement with respective crossheads.

11. In a cork puller, a plurality of parallel guide posts, a crosshead fitted slidably at one end upon one post and having at its other end a depending member slidably engaging the other post, a separate crosshead fitted at one end on one post and provided at its other end with an upstanding member slidably engaging the other post, said crossheads being positioned for overlapping engagement, a nut on one crosshead, an extractor screw carried by the other crosshead, and operating means for imparting movement to said crossheads and operating to reciprocate and to rotate the screw.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWIN WALKER.

Witnesses:

JAS. H. GRIFFIN,
H. I. BERNHARD.