

Oct. 9, 1951

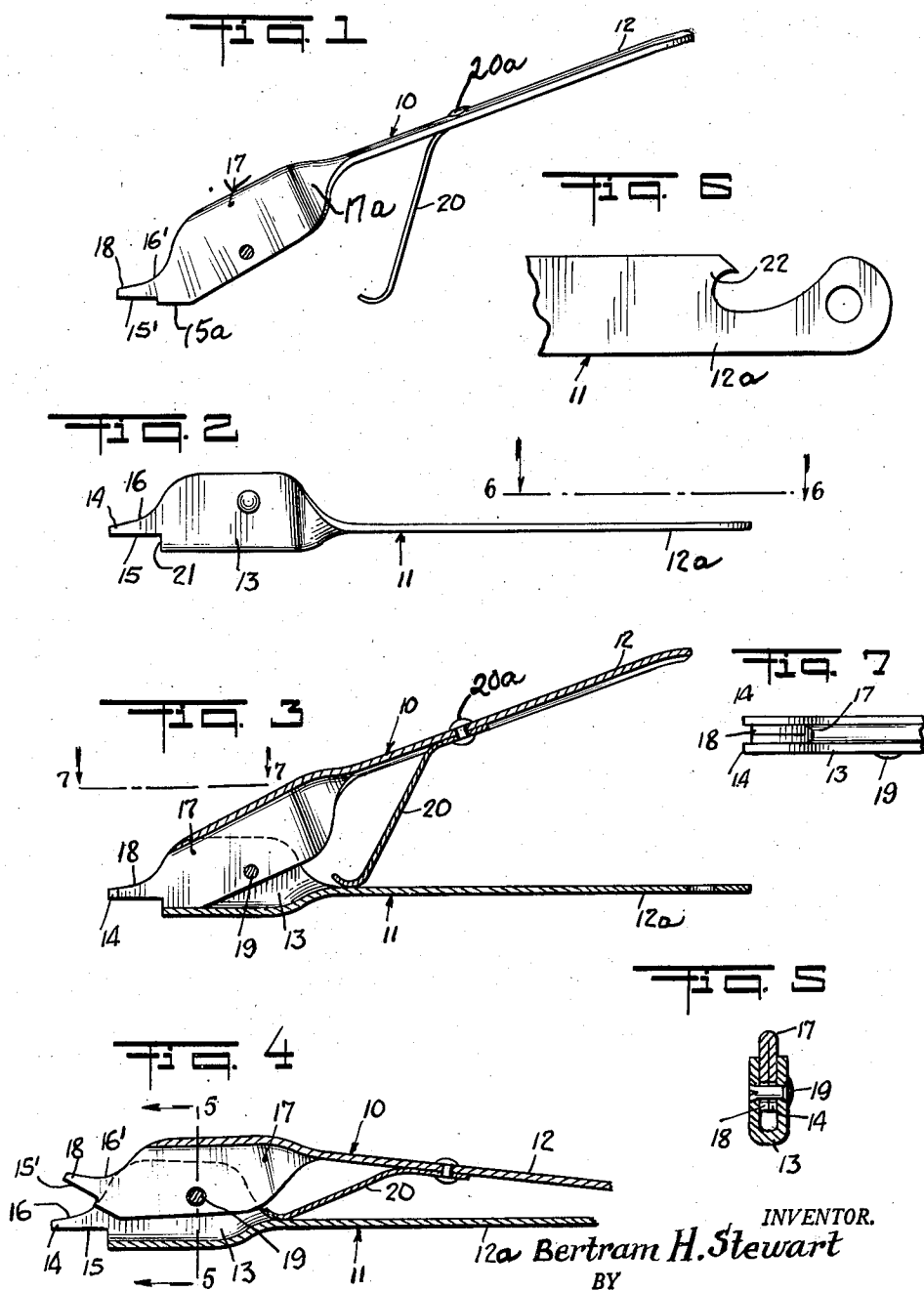
B. H. STEWART

2,570,881

PLIER TYPE FRICTION-CAP REMOVER

Filed Feb. 10, 1947

2 Sheets-Sheet 1



INVENTOR.

Bertram H. Stewart

BY

Mock & Blum

ATTORNEYS

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FIG. 8

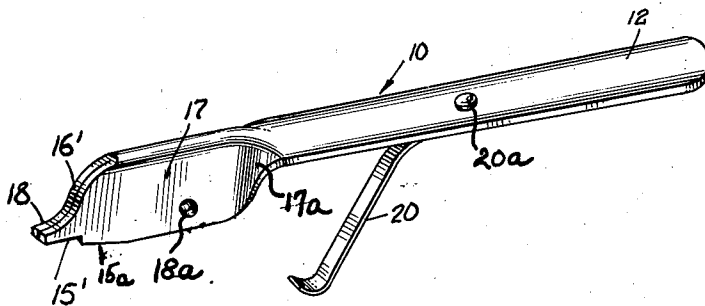
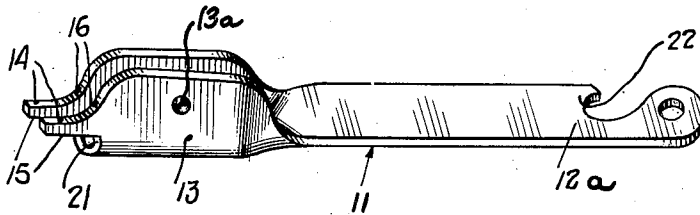


FIG. 9



INVENTOR.
Bertram H. Stewart
BY

Mocke Blum

ATTORNEYS

UNITED STATES PATENT OFFICE

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PLIER TYPE FRICTION-CAP REMOVER

Bertram H. Stewart, New York, N. Y.

Application February 10, 1947, Serial No. 727,711

1 Claim. (Cl. 81—3.46)

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My invention relates to a new and improved cap-removing device which is useful for removing closure caps from jars and bottles.

The improved device makes it possible to remove the cap without substantially distorting or mutilating said cap so that said cap can be replaced upon the jar or bottle for sealing the same.

Many jars have lateral outer beads at their rims, in addition to lateral outer shoulders below said beads. According to my invention, I provide a device which has an inner arm which is pivoted to an outer arm, and I locate the cap-removing tip of the inner arm, longitudinally rearwardly of the cap-removing tip of the outer arm, so that when either of said arms is actuated to force its tip upwardly against the cap, said upwardly moved tip will not strike said bead.

Another object of my invention is to provide a device in which the inner arm may be held either vertically above or vertically below the outer arm of the device, when the device is used.

This application is a continuation-in-part of my co-pending application Serial No. 635,248, filed December 15, 1945, now abandoned.

Other objects and advantages of my invention are disclosed in the annexed description and drawings which illustrate a preferred embodiment thereof.

Fig. 1 is a side elevation of the inner arm of the device.

Fig. 2 is a side elevation of the outer arm of the device.

Fig. 3 is a longitudinal section of the assembled device, showing the inner arm or lever of the device in normal relation relative to the outer arm of the device.

Fig. 4 is a longitudinal section of the assembled device, showing the inner arm turned away from its position of Fig. 3, thus illustrating the operation of the device in removing the closure cap.

Fig. 5 is a section view on the line 5—5 of Fig. 4.

Fig. 6 is a partial top plan view of the shank of the outer arm.

Fig. 7 is a partial top plan view of the device along the lines 7—7 of Fig. 3.

Fig. 8 is a perspective view of the inner arm of the device.

Fig. 9 is a perspective view of the outer arm of the device.

The device comprises an outer arm 11 and an inner arm 10, which have respective shanks 12a and 12. Each said arm is made by stamping an initial blank of flat metal into shape. The shank

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12 of the inner arm 10 is transversely arched, so that the top face thereof which is shown in Fig. 8, is transversely convex and its bottom face is transversely concave. The metal of the blank is bent transversely inwardly to form a front flange-head 17 which consists of two longitudinal flanges whose inner faces abut each other. These flanges are connected by a top jaw-web, and said flanges extend in front of said jaw-web. This front head 17 is joined to the shank 12 by means of a tapered neck 17a. The flange-tips 18 of the flanges of the head 17 have upper surfaces 16' whose front portions are concave and whose rear portions are convex. The lower surfaces of the tips 18 have straight longitudinal walls 15', and said walls 15' are offset vertically relative to the bottom flange-stop-walls 15a.

The drawings are substantially to scale and reference is made thereto for further disclosure.

A blade spring 20 is fixed at 20a to the shank 12.

The shank 12a of the outer arm or lever 11 is flat and it is provided with a cutout 22 so that said flat shank 12a can be used as an ordinary cap remover. As shown in Fig. 9, said outer arm 11 is provided with a front jaw-head which consists of two parallel jaws 13 which are formed by stamping the respective flat metal blank into shape. Said jaws 13 have respective tips 14 which are provided with top walls 16 which have the same shape as the walls 16'. Said tips 14 have respective longitudinal bottom walls 15 which are offset relative to the front end wall 21 of the jaw-web which connects jaws 13.

The flange-head 17 and the jaws 13 are provided with respective openings 18a and 13a so that the inner and outer arms 10 and 11 can be pivotally assembled at their front heads by means of a pivot pin 19 which extends through the aligned openings 18a and 13a.

When the device is thus assembled, and the arms are in the normal position of Fig. 3, the free end of the blade spring 20 abuts the shank 12a as shown in Fig. 3, so that the flange-stop-walls 15a of the inner arm 10 then abut the bottom connecting jaw-web of the jaws 13.

The front end-walls of the inner flange-tips 18 are spaced slightly rearwardly and longitudinally from the front end-walls of the outer jaw-tips 14 when the parts are in the normal position of Fig. 3. This is illustrated in Fig. 7. When the parts are in such relative normal position of Fig. 3, the front end-walls of flange-tips 18 may be spaced $\frac{1}{2}$ of an inch rearwardly of the front end-walls of the jaw-tips 14. This longitudinal spacing between the front end-walls

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of the jaw-tips 14 and the front end-walls of the flange-tips 14 makes it possible to use the device as a cap remover, when the device is applied to the bottle or jar in the position of Fig. 3, or in the reverse position in which the outer arm 11 is located vertically above the inner arm 10. In either position, when the shanks 12 and 12a are forced towards each other as illustrated in Fig. 4, the tips of the upper member effectively clear the bead which is located at the rim of the jar or bottle.

In order to use the device in the manner shown in Fig. 4, the tips 14 and 18 of the arms are inserted between the bottom flange of the cap and the shoulder which is provided in the jar or bottle below the bottom edge of the cap, so that the respective bottom walls 15 and 15' abut said shoulder. The shanks 12 and 12a are then moved towards each other against the force of the spring 20, thus lifting the skirt of the cap. This is done one or more times until the cap can be easily removed.

The width of the flange-head 17 is approximately $\frac{3}{8}$ of an inch.

By thus successively raising the cap at one or more respective narrow portions thereof, the cap can be removed easily without mutilating or distorting it, so that the cap can be easily replaced as an effective sealing device.

By means of the disclosed construction, the device can be easily manufactured and assembled at low cost.

As shown in Fig. 3, the pivot pin 19 is located above the concave top walls of the tips 14 and 18. When the device is reversed, so that the outer arm 11 is located vertically above the inner arm 10, said pivot pin 19 is below said concave walls. This position of the pivot pin 19 makes it possible to use the device either in the position of Fig. 3 or in the reverse position in which the outer arm 11 is located vertically above the inner arm 10.

For convenience, the device is defined in the claim with reference to its position of Fig. 3.

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I have described a preferred embodiment of my invention, but numerous changes and omissions and substitutions can be made without departing from its scope.

I claim:

A jar and bottle cap remover, comprising a pair of upper and lower pivotally connected members, each including a jaw portion at one end and a handle portion at the opposite end, the pivot intermediate said members being situated between their respective jaw and handle portions, a leaf-spring on one of said handle portions positioned to bear against the other of said handle portions to urge the two handle portions apart and thereby to urge the two jaw portions together, said jaw portions being adapted to be spread apart by forcing the two handle portions toward each other against the action of the spring, the jaw portion of the lower pivotally connected member being relatively longer than the jaw portion of the upper pivotally connected member, said lower jaw portion being bifurcated to receive the upper jaw portion between its two parts.

BERTRAM H. STEWART.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
D. 145,647	Stewart	Sept. 21, 1946
326,909	Kricker	Sept. 22, 1885
1,380,508	Wilson	June 7, 1921
2,059,736	Manarik	Nov. 3, 1936
2,473,870	Eastman	June 21, 1949

FOREIGN PATENTS

Number	Country	Date
435,830	Germany	Oct. 20, 1926
274,662	Italy	May 28, 1930