March 30, 1937. B. H. URSCHEL 2,075,243

CLOSURE FASTENER

Filed April 30, 1936 2 Sheets-Sheet 1

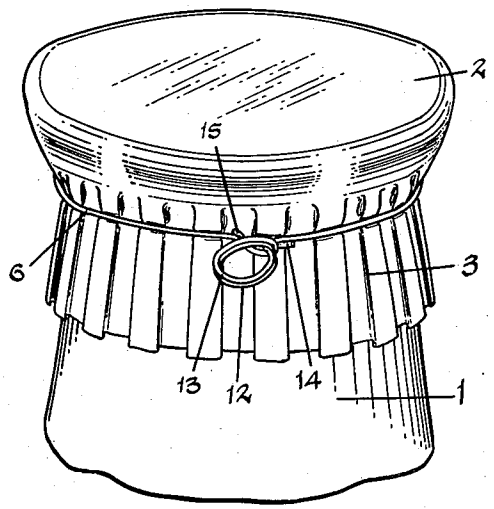


Fig 1

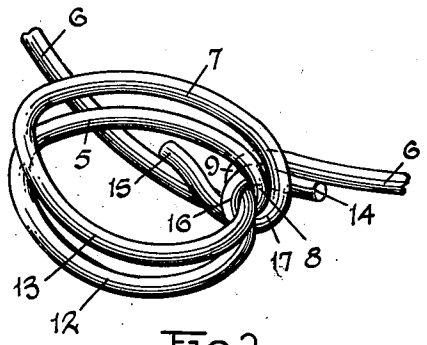


Fig 2

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CLOSURE FASTENER

Filed April 30, 1936 2 Sheets-Sheet 2

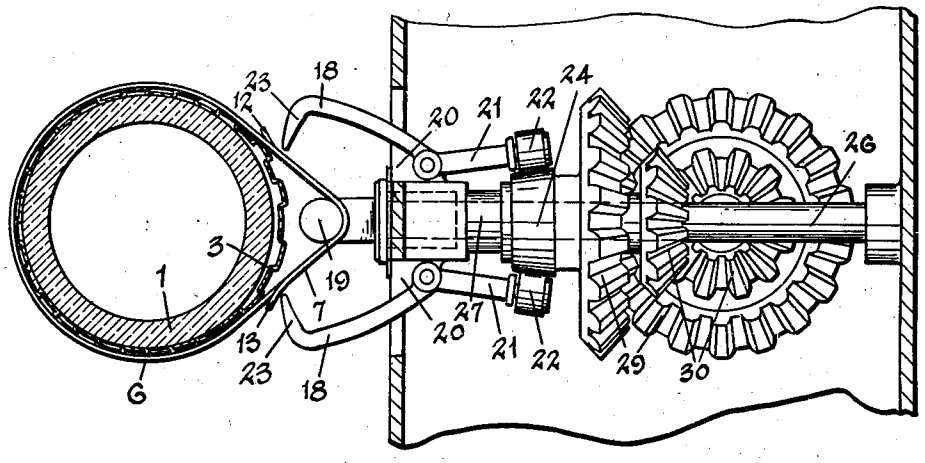


Fig 3

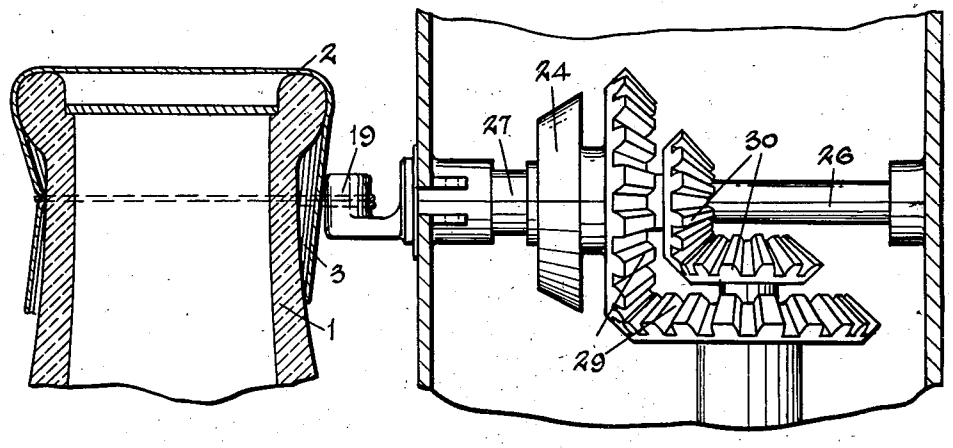


Fig 4

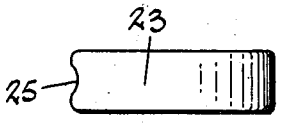


Fig 5

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Patented Mar. 30, 1937 2,075,243

UNITED STATES PATENT OFFICE

2,075,243

CLOSURE FASTENER

Bertis H. Urschel, Bowling Green, Ohio

Application April 30, 1936, Serial No. 77,093

2 Claims. (Cl. 215—94)

My invention relates to a closure means for securing a bottle cover or cap closure or for securing cloth or paper bags containing material of any kind closed. The invention is applicable to skirted bottle closures, such as are commonly used in connection with milk bottles, for sanitarily protecting the lip of the bottle. The invention particularly has for its object to provide a simple, easily released fastener for binding the closure to the neck of the bottle, yet one that is so formed as to prevent unfastening except upon proper manual manipulation to produce unfastening.

A pliable, relatively light-weight wire is disposed about the neck of the bottle or gathered parts of the open end of a bag so as to locate end portions of the wire in overlapping relation and dispose the overlapping portions one above the other and in close contact with each other and the surface of the part to be secured or closed. The central parts of the overlapping portions are bent to form open-ended loops. The parts of the loop located contiguous to the closure member are then twisted in a direction to press each end of the wire against the side of the other overlapping portion to produce a closed double loop substantially circular in form. The twist of the quadruple crossing strands will tighten and retain the tautness of the body part of the wire about the closure member and also cause the very ends to press into the material of the closure member. The quadruple twist prevents loosening of the fastener and thereby enables the use of a small or relatively fine and flexible wire. The wire may be readily loosened by reverse rotation which operates to swing each end of the wire away from the other over-lapping portion to cause the ends of the wire to engage the curved end portions of the said body part of the wire and hold the ends of the wire as the loops are further moved in the reverse rotation. The parts of the loop will eventually separate from each other, and the wire will ordinarily drop from the closure member, or by a slight outward pull to bend the body part of the wire, the wire may be removed. The double-stranded loop forms a handle that enables easy and convenient untwisting of the interengaging portions.

To illustrate a practical application of the invention, I have selected a fastener for a milk bottle cover or cap and will describe the fastener hereinafter. The fastener selected is shown in the accompanying drawings.

Fig. 1 illustrates a perspective view of a fastener and the closure member that is secured thereby. Fig. 2 is an enlarged view showing the parts of the wire slightly loosened or separated from each other in order to indicate the location of the parts. Fig. 3 illustrates a mechanism that may be used for securing the fasteners to the milk bottles at a relatively rapid rate. Fig. 4 is a side view of the mechanism illustrated in Fig. 3. Fig. 5 illustrates an end view of one of a pair of gripping means for holding the over-lapping portions of the wire fastener against the closure member as the portions slide relative to each other when the closure or cap is secured by the fastener.

In the form of construction shown, the bottle 1 is provided with a sanitary cap 2 for covering the top of the bottle. The wire closure fastener 6 is located around the skirt 3 of the cap or cover 2. The wire is of sufficient length to provide over-lapping end portions 5 and 7 that are centrally bent to extend to and from the bottle in the form of an open-ended loop. One over-lapping portion, such as the portion 5, is located beneath the other over-lapping portion, and each end part of the wire is located against the skirt 3 and in contact with the over-lapping portion terminating in the other end part of the wire. The loops are then rotated while the contacting parts of the over-lapping portions are maintained in their relation to each other. The twist of the parts of the wire operates to draw the body part 6 tightly against the skirt 3.

The end parts 8 and 9 of the body part of the wire are curved as they form into the twist. The curved end part 8 of the wire forms a continuance of the body part 6 of the wire to the loop part 12, and the curved end part 9 of the body part of the wire continues into the loop part 13. The loop part 12 terminates in the end part 14 of the wire, and the loop part 13 terminates in the end part 15 of the wire. When, therefore, it is desired to remove the closure or cover of the bottle, the loop parts are rotated in a reverse direction which causes the end part 15 to engage the curved part 9, it being directed thereto by the curved portion 16 of the overlapping part 5, and the end part 14 to engage the curved part 8, it being directed thereto by the curved portion 17 of the over-lapping part 7. The end parts of the wire are thus held as the loop parts 12 and 13 are reversely rotated about the same number of turns that produced the twisted connection. The loops are thereby separated and, by reason of the flexibility of the wire, the wire will ordinarily drop from the skirt of the closure member, or the wire may be removed from the skirt by slightly spreading the loops or by a slight outward pull of the loops to separate the end part 14 from the part 8 and the end part 15 from the part 9.

The fasteners are shaped by means of a pair of levers 18 and a rotatable post 19. The levers 18 may be pivotally supported by brackets 20 provided with arms 21 having rollers 22. The ends 23 of the levers are brought together by means of a cam 24 that engages the rollers 22. The ends 23 of the levers are provided with notches 25 to engage and partly enclose the over-lapping portions of the wire and draw the sides of the open loops of the wire towards each other and to the skirt 3 of the cap and engage and press the over-lapping portions and the end parts 12 and 13 of the wire and draw the body part 6 of the wire against the skirt. The closed loops 14 and 15 are formed by rotation of the post 19.

The post 19 may be connected to a shaft 26 that extends through a sleeve 27 on which is mounted the cam 24. The cam 24 may be rotated by the beveled gear wheels 29, while the shaft 26 and the post 19 may be rotated by the beveled gear wheels 30. The beveled gear wheels 29 and 30 may be driven by a suitable source of power.

I claim:

1. In a bottle cap fastener, a wire having over-lapping end portions located one above the other and in contact with each other, the body part of the wire surrounding the skirt of the bottle cap, the over-lapping portions forming loops interconnected by twisting the ends of the said parts about each other in a direction to resiliently press the ends of each of the over-lapping portions against the other over-lapping portion, and opened by reverse movement to produce engagement of the ends of the over-lapping portions with the end portions of the said body part of the wire at the twist.

2. In a bottle cover fastener for securing the skirt of the cover to the exterior of the neck of the bottle and comprising a wire having over-lapping end portions located one above the other and in contact with each other, and a body part surrounding the skirt, the central parts of the over-lapping portions forming closed loops, parts of the loops and the body part of the wire spirally shaped, each end of the wire resiliently pressed against the over-lapping portion terminating in the other end of the wire.

BERTIS H. URSCHEL.