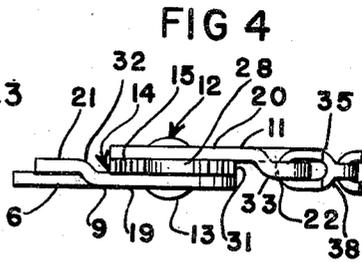
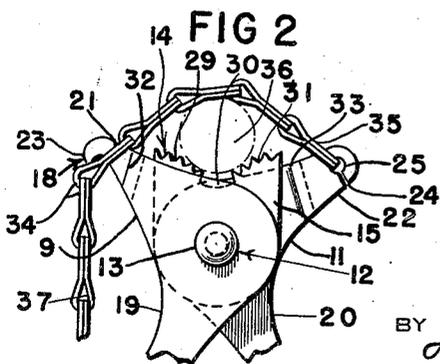
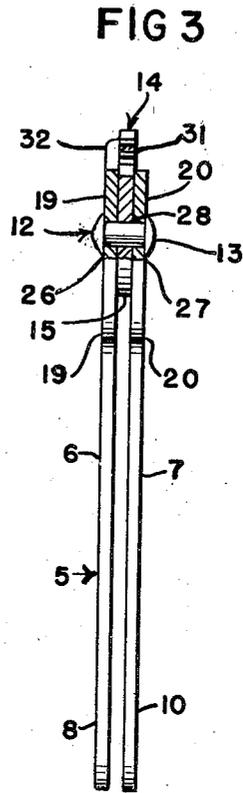
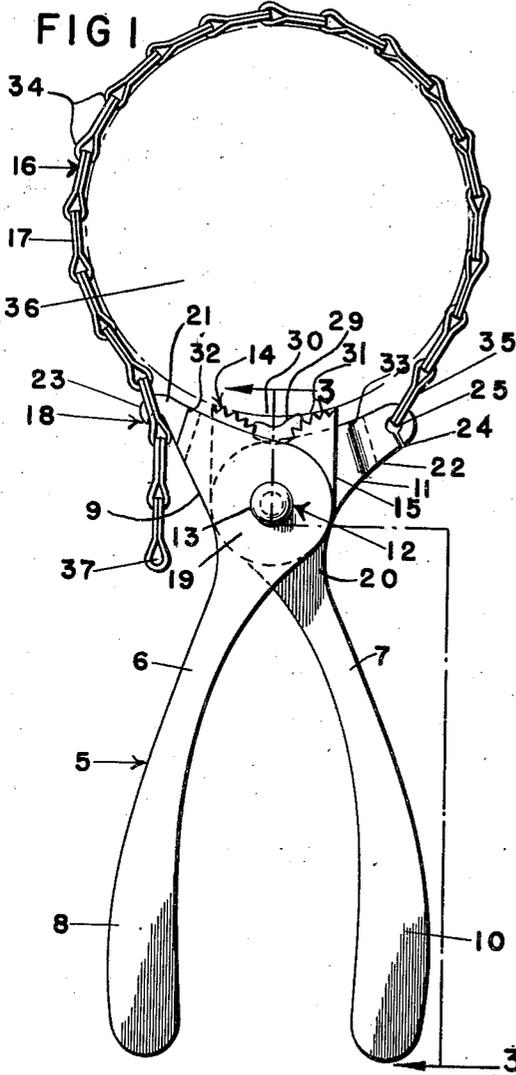


April 3, 1951

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FLEXIBLE LOOP JAR CAP WRENCH

2,547,748

Filed Sept. 2, 1948



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UNITED STATES PATENT OFFICE

2,547,748

FLEXIBLE LOOP JAR CAP WRENCH

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Application September 2, 1948, Serial No. 47,457

3 Claims. (Cl. 81-3.43)

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This invention relates to an adjustable screw cap remover.

Heretofore, most of such devices in common use are characterized by assemblies composed of numerous moving parts and involving several complex pivoting and linkage arrangements. Altho many of these designs are adjustable for various cap sizes, the range of such adjustment is usually quite limited. Also, the adjustments are often extremely difficult to make. Furthermore, many of the screw cap removers are rendered unsatisfactory by the use of wires and bands as gripping or holding devices, which permit the cap to slip when clutched. This deficiency is frequently the cause of damage to the jar or container on which the cap is located, as well as serious injury to the operator.

The principal object of this invention is to provide an adjustable screw cap remover, which has a wide range of adjustment, which can be quickly and easily effected.

Another object is to provide an adjustable screw cap remover, which is adapted to securely grip the screw cap, so as to afford safe, but yet efficient operation.

A further object is to provide an adjustable screw cap remover, composed of relatively few parts, some of which may be stock materials, such as chain and rivets and therefore can be cheaply and easily manufactured.

Other objects will be apparent to those skilled in the art from the following detailed description of the annexed drawing which, by way of a preferred example only, illustrates one embodiment of the invention and wherein:

Fig. 1 is a plan view of the adjustable screw cap remover showing the relative positions of its elements when used to remove a cap of relatively large diameter.

Fig. 2 is a fragmentary plan view of the device showing the relative positions of its elements when used to remove a cap of relatively small diameter.

Fig. 3 is a side view of the device, partially in section, taken along the line 3-3 of Fig. 1.

Fig. 4 is an end view looking toward the work gripping portion and showing a fragment of the chain used to embrace the work.

In general my adjustable screw cap remover comprises a main body portion 5, consisting of lever members 6 and 7, the former having a handle portion 8 and an arm portion 9, and the latter, a handle portion 10 and an arm portion 11; a pivotal means 12; a gripping means 14; a retaining means 16; and an adjusting means 18 associated with the arm portion 9.

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The lever members 6 and 7 are preferably stamped from sheet metal stock, and are designed so as to provide the handle portions 8 and 10 with a slightly arcuate shape. The handle portions may be twisted, if desired, to provide a greater gripping surface.

The handle portion 8 is provided with a widened end portion 19 from which the arm portion 9 extends laterally. The other handle portion 10 is similarly provided with a widened end portion 20 from which arm portion 11 is disposed laterally. The arm portions 9 and 11 are preferably in obtuse angular relation to their respective hand portions 8 and 10.

The arm portions 9 and 11 are provided with offset ends, 21 and 22 respectively, arranged so that when the widened end portions 19 and 20 of the handle portions 8 and 11 respectively are disposed in overlying relationship, the offset ends 21 and 22 will lie in the same plane, as shown in Fig. 4.

The offset end 21 of the arm portion 9 is shaped to form a hook portion 23 at its outer end. The offset end 22 of the arm portion 11 is provided with a slot 24 and an aperture or eye 25 adjacent its outer end.

The widened end portions 19 and 20 of the handle portions 8 and 10 are provided at their center with apertures 26 and 27, respectively, as shown in Fig. 3.

The pivotal means 12 preferably consist of a standard rivet 13 the shank of which is disposed in apertures 26 and 27 of the widened end portions 19 and 20, respectively, with the offset heads in overlying relationship.

The gripping means 14, preferably comprises a flat, disk-shaped member 15, which can be easily stamped from sheet metal stock. It is provided with an aperture 28 at approximately its center and with a pair of substantially arcuate surfaces 29 at its one end. The surfaces 29 are disposed in an angular relation to each other, so as to form a substantially V-shaped groove 30. The surfaces 29 are each provided with a plurality of teeth 31. The toothed member 15 is disposed between the widened end portions 19 and 20, and is pivotally attached thereto by the rivet 13 the shank of which also extends thru the aperture 28.

The pivotal movement of the toothed member 15 is restricted by the shoulders 32 and 33 of the offset ends 21 and 22, respectively, of the arm portions, as is clearly shown in Fig. 4.

The retaining means 16 is preferably a standard sash type chain 17 composed of a plurality of stamped steel links 34. The link 35 at one

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end of the chain member 17 is forced thru the slot 24 and into engaging relation with the eye 25 of the offset end 22. If necessary, the slot 24 may be compressed so as to retain the link 35 in proper position relative to the eye 25, but in a manner that it can move freely without binding.

The other end of the chain member 17 is secured to the hook portion 23 of the other offset end 21, so that the chain member 17 is disposed in the nature of a loop 36.

The adjusting means 18 is formed by the hook portion 23 and its relation with any of the links 34 of the chain member 17, whereby the apertures 37 in the links 34 are of a size so as to be effectively engaged by the hook portion 23. Thus, the diameter or size of the loop 36 may be easily varied by connecting various links 34 of the chain member 17 to the hook portion 23.

To operate the adjustable screw cap remover, the chain member 17 is wrapped around the periphery of the screw cap of a container, and a suitable link 34 is engaged to the hook 23 of the offset end 21, so as to draw the links of the chain member into a substantially taut relationship.

As is shown in Fig. 1, it will be noticed that when a relatively large cap is located within the loop 36 of the chain member 17, only the outer teeth in the V-shaped groove 30 are utilized. However, when a relatively small screw cap is so located, only the inner teeth in the groove are in engagement with the periphery of the cap, as is shown in Fig. 2.

When the handle portions 8 and 10 are moved toward each other, the screw cap is brought tightly against the teeth 31 of the V-shaped groove 30, and is held in secure embrasure within the loop 36. A removal of the screw cap from its container is thus possible by a rotation of the cap on the container, and such is accomplished with a minimum of slippage.

It is to be noted that when the screw cap remover is rotated in a direction to remove a cap from a container, the loop 36 of the chain member 17, the offset ends 21 and 22 and the toothed member 15, are all in coplanar relationship. Therefore, the embrasive force of the chain member is applied to the cap in the same plane along its periphery, resulting in a more effective utilization of the forces applied.

It should be further noted that the links 34 of the chain member 17 are disposed with their flat sides 38, as shown in Fig. 4, in contiguous relationship with the circumference of the screw cap. With a stamped steel link chain, as preferably used, a greater contact area is afforded, which minimizes the possibility of slippage.

I claim:

1. An adjustable screw cap remover comprising a pair of lever members each having a handle portion and an arm portion extending laterally from one end of said handle portion, pivotal means connecting said lever members adjacent the juncture of said handle and arm portions, so that said arm portions extend laterally outward of said pivotal means in substantially opposite directions, a flexible member attached at its one end to one of said arm portions, adjustment means associated with said other arm portion adapted to engage said flex-

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ible member in a plurality of positions so as to form a loop, whereby said loop may be varied in size, and a flat disk disposed intermediate said arm portions and opposite to said loop, said disk having a pair of arcuately shaped toothed portions rigid therewith, said toothed portions disposed relative to each other to form a substantially V-shaped groove, whereby a screw cap placed within said loop may be drawn into said groove and secured therein when said handle portions are moved toward each other.

2. A screw cap remover comprising a pair of lever members each having a handle portion and an arm portion extending laterally from one end of said handle portion, said arm portions each having an offset portion adjacent the outer end thereof, pivotal means connecting said lever members adjacent the junctures of said handle and arm portions, so that said arm portions extend laterally outward of said pivotal means in substantially opposite directions and so that the offset portions of said arm portions are in coplanar relationship, a flexible member attached at its ends to said offset portions so as to form a loop, whereby said loop and said offset portions are in coplanar relationship, and gripping means disposed intermediate said arm portions adjacent said pivotal means, said gripping means attached to said pivotal means and prevented from rotational movement by the offset portions of said arm portions, whereby a screw cap placed within the loop is drawn against said gripping means when said handle portions are moved toward each other.

3. A screw cap remover comprising a pair of lever members each having a handle portion and an arm portion extending laterally from one end of said handle portion, pivotal means connecting said lever members adjacent to junctures of said handle and arm portions, a flexible member attached at its ends to said arm portions so as to form a loop, and a flat disk disposed intermediate said arm portions and opposite to said loop, said disk having a pair of arcuately shaped toothed portions rigid therewith, said toothed portions disposed relative to each other to form a substantially V-shaped groove, whereby a screw cap placed within said loop may be drawn into said groove and secured therein when said handle portions are moved toward each other.

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