

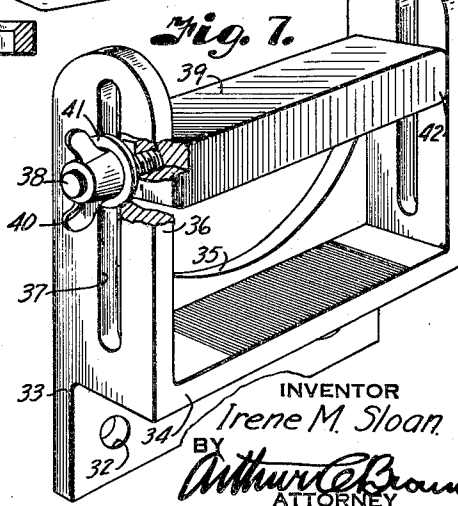
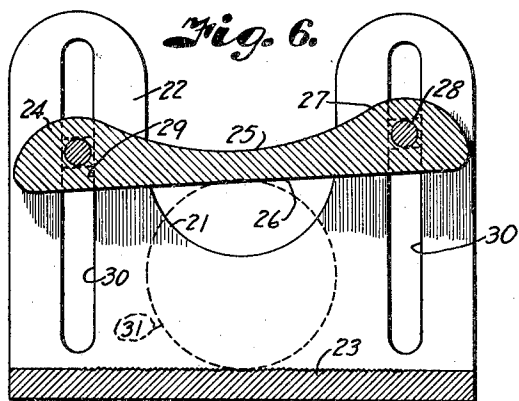
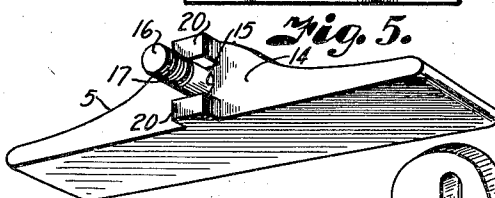
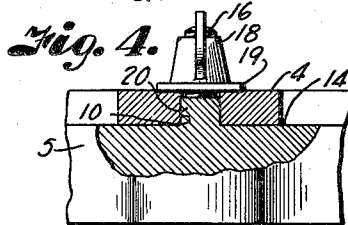
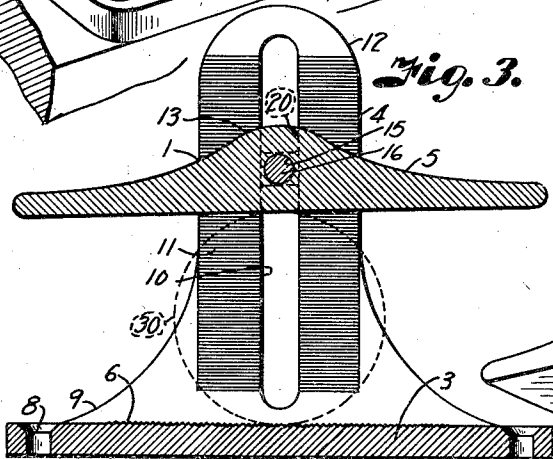
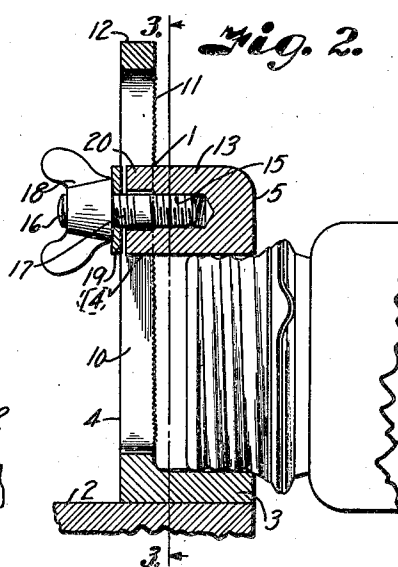
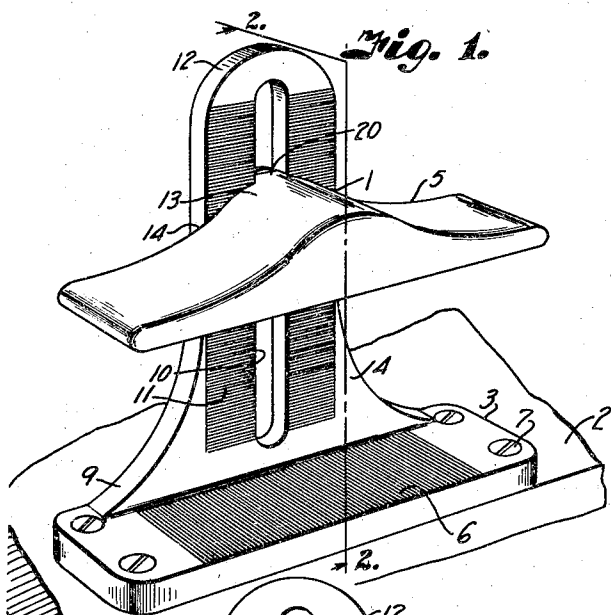
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GRIPPING DEVICE

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GRIPPING DEVICE

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2 Claims. (Cl. 81-3.1)

This invention relates to gripping devices, and more particularly to those for assisting in removing the closures of jars and like containers.

In the practice of canning, it is necessary to the preservation of the contents that the receptacles therefor be tightly sealed in order to exclude air, moisture and dirt. A partial vacuum is sometimes used to enhance the seal of the closure, in addition to the ordinary gaskets between the closure and container and great pressure exerted when applying the closures. This often results in great difficulty in removing the closures from the containers.

It is, therefore, the principal object of the present invention to provide a device in which a closure or container may be positively retained while manual pressure is applied to loosen and thereby easily remove the closure.

Other objects of the invention are to provide a device which is attractive in appearance and sufficiently inexpensive to be available for the average household; to provide a device which is easily operated; to provide for positively holding the closure or container without damage to either; to provide an adjustable tool for gripping articles of various size; and to provide means to enhance the clamping action of the device.

In accomplishing these and other objects of the invention, I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective view of a gripping device embodying the features of the present invention and mounted on a support.

Fig. 2 is a vertical cross section on the line 2-2, Fig. 1, showing the device in use and retaining a jar closure.

Fig. 3 is a longitudinal section through the device on the line 3-3, Fig. 2 showing the adjustable clamping member set in the slotted bracket and at a slight angle to the base plate to form a wedge or constricted portion for receiving the closure.

Fig. 4 is a fragmentary detail plan view of the adjustable member of the device with parts broken away to show the pin and wing nut mounting of the adjustable clamp member relative to the slotted bracket.

Fig. 5 is a detail perspective view of the movable clamping member showing the pin and tongue extensions for retaining the member in position relative to the bracket.

Fig. 6 is a modified form of invention provided

with a double slot bracket for the adjustable member showing said adjustable member set at a slight angle to form a wedge or constricted portion, the adjustable and base members being shown in longitudinal section.

Fig. 7 is a further modified form of invention adapted to be attached to a vertical support such as a wall and with the slotted supporting brackets for the adjustable clamping member arranged oppositely at the outer extremities of the base member.

Referring more in detail to the drawing:

1 designates a gripping device embodying the features of the present invention, which is mounted on a support 2 such as a table, and which comprises a base member 3, a bracket 4, and an adjustable clamping member 5.

The base member 3 is preferably rectangular in shape and is formed of metal of sufficient thickness and strength to withstand the pressure necessary in positively gripping a container closure such as a screw cap between the base member and clamping member and removing the same from the container. The upper or working surface of the base member is provided with serrations 6 to facilitate gripping action on the closure to be removed. The corners of the base member are rounded to enhance its appearance and the device is secured to the table by screws 7 or other suitable fastening devices projecting through holes 8 in the base member.

The bracket 4 is formed integrally with the base member and at right angles thereto, the connecting portion 9 thereof being flared to almost the length of the base plate in order to form a rigid vertical bracket. A slot 10 is provided centrally of the bracket and at a right angle to the working surface 6 for mounting the adjustable clamping member later described. Serrations 11 are provided on the front working surface of the bracket in order to lessen risk of slippage of the adjustable clamping member. The bracket is of the same thickness and approximately the same height as the length of the base member and its upper end is rounded as at 12 to present a uniform, attractive appearance.

The adjustable clamping member 5 is substantially the same length and width as the base member, but is provided centrally thereof with a raised portion 13. The inside working surface 14 of the member 5 which engages against the bracket is bored midway of its length and thickness and threaded to provide a socket 15 for a threaded bolt 16, the outer end of which is

also provided with threads 17 to receive a wing nut 18 after the outer end of the bolt has been extended through the slot 10 of the bracket 4, a washer 19 separating the nut from the rear face of the bracket. Lugs 20 are formed integrally with the clamping member 5 on the working surface thereof next to the bracket and are of substantially the width of the slot 10, the lugs extending laterally of the clamping member to engage in the slot 10 to prevent misalignment of the clamping member when it is being adjusted to its proper height. The lugs are preferably formed laterally of the clamping member in order to provide an angle other than a right angle for the working surface of the clamping member relative to the sides of the slot and consequently at an angle other than a right angle to the working surface of the base member. This small angle of the clamping member relative to the base member provides an effective wedge or constricted portion for facilitating gripping the closure, for the reason that when the closure is placed between the base and clamping members and thereafter rolled toward the left by manually rotating the container, the closure moves into the constricted portion of the wedge and becomes firmly lodged therein to enhance the gripping action of the device, and upon continued rolling motion of the container toward the left, the closure cap is loosened and may be easily removed from the container.

In Fig. 6 a gripping device is shown in which the vertical bracket 21 is provided with two slotted portions 22 formed integrally with the base plate 23. The outer sides of the slotted portion are perpendicular and at right angles to the base member, the upper ends of the slotted portions being rounded and the inner sides of which are extended downwardly as at 24 in a joined curve to form a substantially U-shaped mid-section.

The clamping member 25 is provided with a flat working surface 26 and its outer ends are enlarged, as at 27, to form a rigid support for the bolts 28 received in threaded sockets in the enlarged portions of the plate similarly to the preferred form of clamp. Lugs, indicated by the dotted lines 29, are also provided to slide in the slots 30 of the portions 22, the lugs being constructed similarly to the lugs 20 previously described and particularly shown in Fig. 5. It will be noted that the angles of the lugs also provide an inclination for the working face 26 of the clamping member in this form of invention to provide a wedging or constricted space for receiving a closure indicated by the dotted line 31 when the closure is rolled to the left relative to the wedge.

In Fig. 7 a further modified form of invention is shown wherein a bracket extension is provided for attaching the device to a vertical support such as a wall. The bracket 33 is integral with the base member 34 and extends below the base member to form a wall bracket, the device being secured to the support by fastening devices extended through openings 32 and into the wall.

The bracket is also extended upwardly from the base member to form an arcuate rear brace 35 relative to the work pieces for vertical slotted brackets 36 extending at right angles from the base member at the outer lengthwise extremities thereof, the brackets 36 also being integral with the base member. Slots 37 are provided in the brackets similar to those previously described

for receiving lugs, not shown, and threaded bolts 38 extending from a clamping member 39 and slidable in the slots for adjustment as to height by a wing nut 40 separated from the outer surface of the brackets by a washer 41. The adjustable clamping member is here shown as a rectangular block of a length adapted to slide freely between the inner surfaces of the vertical brackets 36, the ends of the block being bored and threaded to receive the bolts 38. The block is of substantial thickness to provide additional weight in applying pressure to hold a closure in removing it from a container, and its corners are rounded off as at 42 to enhance the appearance of the device.

In operating a device constructed and assembled as described, the device is secured to a support by extending screws through the holes shown and into the support. Having secured the device, the closure cap of a container which is desired to be opened, for example the Mason jar shown in Fig. 2 is placed in the clamp as shown.

The wing nut is loosened to allow free movement of the lugs 20 in the slot 10 and the clamping member 5 is pressed downwardly on the closure by hand as tightly as possible. The wing nut is then tightened on the bolt 16 to retain the member 5 in position.

The container is then manually rolled to the left to engage in the wedge-shaped constriction formed by the angle of the member 5, the serrations 6 forming a roughened surface to further enhance the grip of the device. Upon rotating or rolling the container toward the left, the closure is loosened. The clamping member 5 may then be raised by loosening the wing nut and the container and closure are then removed from the device. The closure may then be completely removed from the container without danger of spilling any of the contents.

In the forms of clamp shown in Figs. 6 and 7, the operation is the same except for the adjustment of the two wing nuts connected to the bolts at the ends of the clamping member. The angle forming the constriction is present in the form shown in Fig. 6 and may be provided in the form shown in Fig. 7 by lowering one end of the clamping member slightly below the opposite end. The action is otherwise the same as in the preferred form of device.

When removing closures other than screw threaded closures, the clamping operation is similar to the previously described use. When the clamp has been adjusted, however, slight downward pressure on the container will tend to loosen the closure in the manner of a bottle opener.

From the foregoing it is apparent that I have provided an easily operated clamp which is attractive in appearance and which positively retains the closure of a container while manual pressure is applied to loosen and remove the closure.

It is also apparent that I have provided an adjustable tool for receiving closures of various size and that a slight wedge and constricted portion is incorporated into the clamping action to further enhance the grip of the device without, however, causing damage to either the container or closure.

What I claim and desire to secure by Letters Patent is:

1. In a device of the character described, a base member having a flat working surface, a

support mounted on the base member having a slot at right angles to said working surface, a clamping member mounted on the support having a flat working surface at other than a right angle to the sides of said slot and cooperable with said base working surface for providing a constricted portion at one end thereof, whereby a screw cap attached to a container may be rolled on said base member toward said constricted portion of the device to loosen and remove the cap from the container, the clamping member having means extending laterally therefrom and slidable in said slot, and means mounted on said laterally extending means clampingly engageable with said support for adjustably fixing the clamping member on the support relative to the base member.

2. In a device of the character described, a fixed base member having a flat serrated working surface, a support mounted on the base

member having sides extending at right angles to said working surface, a clamping member mounted on the support having a flat serrated working surface at other than a right angle to the sides of said support and cooperable with said working surface of the base member for providing a constricted portion at one end thereof, whereby a screw cap attached to a container may be rolled on said base member toward said constricted portion of the device to loosen and remove the cap from the container, the clamping member having means extending laterally therefrom and slidable in mating relation to said support, and means mounted on said laterally extending means clampingly engageable with said support for adjustably fixing the clamping member on the support relative to the base member.

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