June 1, 1943. H. HICKMAN 2,320,599

SCREW CAP OPENER

Filed April 20, 1942

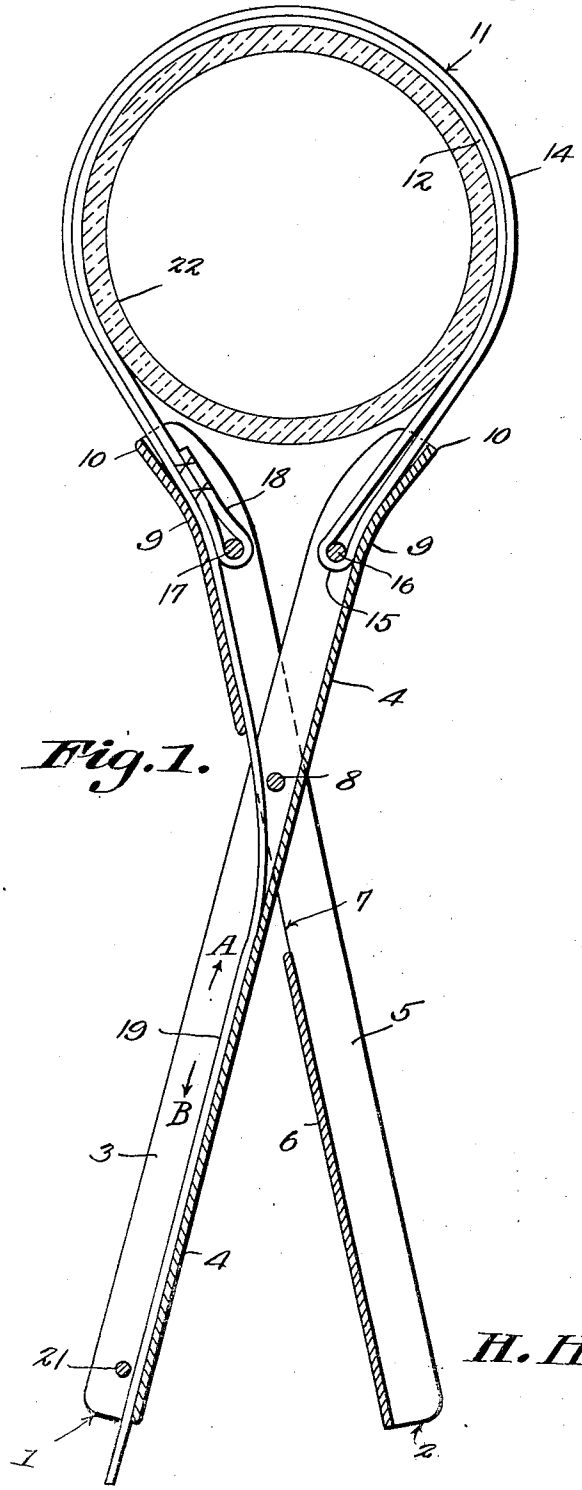


Fig. 1.

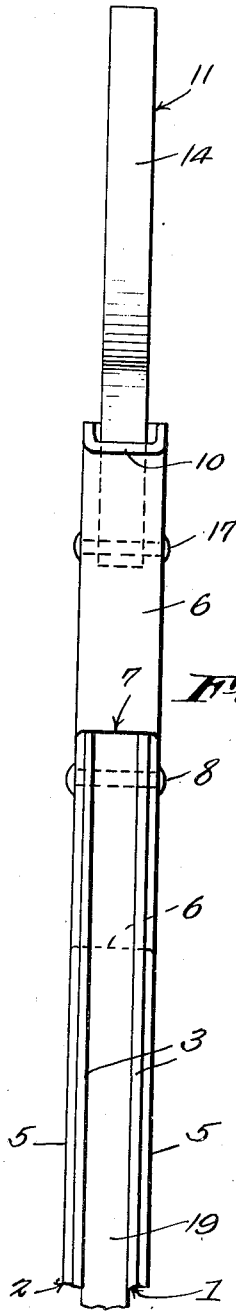


Fig. 2.

H. Hickman INVENTOR.

BY C. A. Snow & Co.

Patented June 1, 1943 2,320,599

UNITED STATES PATENT OFFICE

2,320,599

SCREW CAP OPENER

Hal Hickman, Lancaster, Calif.

Application April 20, 1942, Serial No. 439,763

3 Claims. (Cl. 81—3.43)

The device forming the subject matter of this application is adapted to be used for gripping the screw cap of a receptacle, for the purpose of threading off or on the cap. The invention comprises a pair of crossed levers, pivotally connected intermediate their ends, and a flexible, cap-gripping member associated with the levers. The invention aims to assemble the flexible member with the levers in a novel way, so that it will be unnecessary to provide cams or similar gripping elements to hold the flexible member, the flexible member being adjustable to accommodate caps of different sizes. Another object of the invention is to improve the construction of the levers, so that they will accommodate the flexible member readily.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawing:

Fig. 1 shows, in longitudinal section, a device constructed in accordance with the invention, the flexible member being in elevation;

Fig. 2 is an elevation wherein the tool is viewed edgewise.

The numeral 1 marks a first lever, which may be an outwardly-opening channel. The numeral 2 marks a second lever, which may be an outwardly-opening channel. The levers 1 and 2 preferably are made of metal. The first lever 1 comprises side flanges 3, connected by a wall 4. The second lever 2 comprises side flanges 5, connected by a wall 6. The levers 1 and 2 are crossed, the lever 1 extending through an opening 7 formed in the wall 6 of the lever 2. A fulcrum or pivot element 8 connects the levers 1 and 2 at their point of crossing and is located adjacent to the opening 7 in the lever 2. Near their working ends, the levers 1 and 2 are curved, as shown at 9, to form fingers 10, which are outwardly extended and disposed at an obtuse angle to the body portions of the levers. The lever 1 fits closely but in a freely movable manner between the side flanges 5 of the lever 2 and the lever 1 cannot slide on the pivot element 8, longitudinally thereof.

A flexible member is provided, and is in the form of a strap. The word "strap" is not to be construed as meaning any particular sort of material. The flexible member may be formed of leather, canvas or the like. The flexible member is formed into a loop 11, made up of frictionally-contact inner and outer layers 12 and 14 respectively. The layers 12 and 14 are in contact throughout the major portion of their length, when the tool is in use. The layers 12 and 14 of the flexible member are connected by a bend 15. The bend 15 extends around an anchor pin 16, connecting the side flanges 3 of the lever 1, near the working end of that lever. The flanges 5 of the lever 2 are connected by a similarly located anchor pin 17. The end portion of the inner layer 12 is formed into a loop 18, engaged about the anchor pin 17.

The end portion 19 of the outer layer 14 extends between the loop 18 and the wall 6 of the lever 2. The end portion 19 of the flexible member has a somewhat tight friction fit between loop 18 and the wall 6 of the lever 2. This aids in holding the loop 11 at a predetermined size, the loop being held at a predetermined size to a major extent, however, because the layers 12 and 14 are in close frictional contact when the device is in use. The end 19 of the outer layer 14 extends backwardly, lengthwise of the lever 1 and is held conveniently and removably between the side flanges 3 of the lever 1 by a cross pin 21 which connects the flanges 3 near the rear end of the lever 1. Since the levers 1 and 2 are outwardly-opening channels the strap-end 19 is accessible during a preliminary adjustment in the size of the loop 11.

The rear ends of the levers 1 and 2 are pressed toward each other, and the loop 11 will grip tightly, the screw cap 22 which is to be removed, the layer 11 holding the layer 12 in contact with the cap. The loop 11 can be reduced in size by pulling on the end 19 of the flexible member in the direction of the arrow B, and it may be enlarged by pulling the end 19 of the flexible member in the direction of the arrow A, the layers 12 and 14 of the loop 11 moving around the anchor pin 16 until they have accommodated themselves to each other. Owing to the fact that the levers 1 and 2 are curved as shown at 9, and provided with the outwardly inclined fingers 10, the flexible member, within reasonable limits as to the size of the cap 22, will not be cut or

worn by contact with the forward ends of the walls 4 and 6 of the levers.

Having thus described the invention, what is claimed is:

1. A screw cap opener comprising first and second levers, the first lever being provided adjacent to its working end with an anchor, a flexible member comprising a loop made up of frictionally-contacting inner and outer layers and a bend connecting the layers, the outer layer holding the inner layer in contact with the screw cap to be manipulated, the bend extending around the anchor, means for securing the end portion of the inner layer to the second lever, adjacent to the working end of that lever, the end portion of the outer layer being extended between the end portion of the inner layer and the second lever, and means for pivotally connecting the levers intermediate their ends.

2. A screw cap opener constructed as set forth in claim 1, and wherein the end portion of the outer layer is frictionally but adjustably gripped between the end portion of the inner layer and the second lever.

3. A screw cap opener comprising first and second levers, each in the form of a channel and including side flanges and a wall connecting the flanges, the wall of the second lever having an opening, the levers being crossed, and the first lever extending through the opening, means for pivotally connecting the levers at their place of crossing, an anchor connecting the side flanges of the first lever, near the working end of said lever, a flexible member comprising a loop made up of frictionally-contacting inner and outer layers and a bend connecting the layers, the outer layer holding the inner layer in contact with the cap to be manipulated, the bend extending around the anchor, means for securing the end portion of the inner layer to the second lever, near the working end of that lever, the end portion of the outer layer being extended between the end portion of the inner layer and the wall of the second lever, the end portion of the outer layer being prolonged through the opening, and lengthwise of the first lever, between the side flanges thereof, the channels opening outwardly, to expose the end portion of the outer layer and make it accessible during a preliminary adjustment in the size of the loop, and means for holding said end portion removably assembled with the first lever.

HAL HICKMAN.