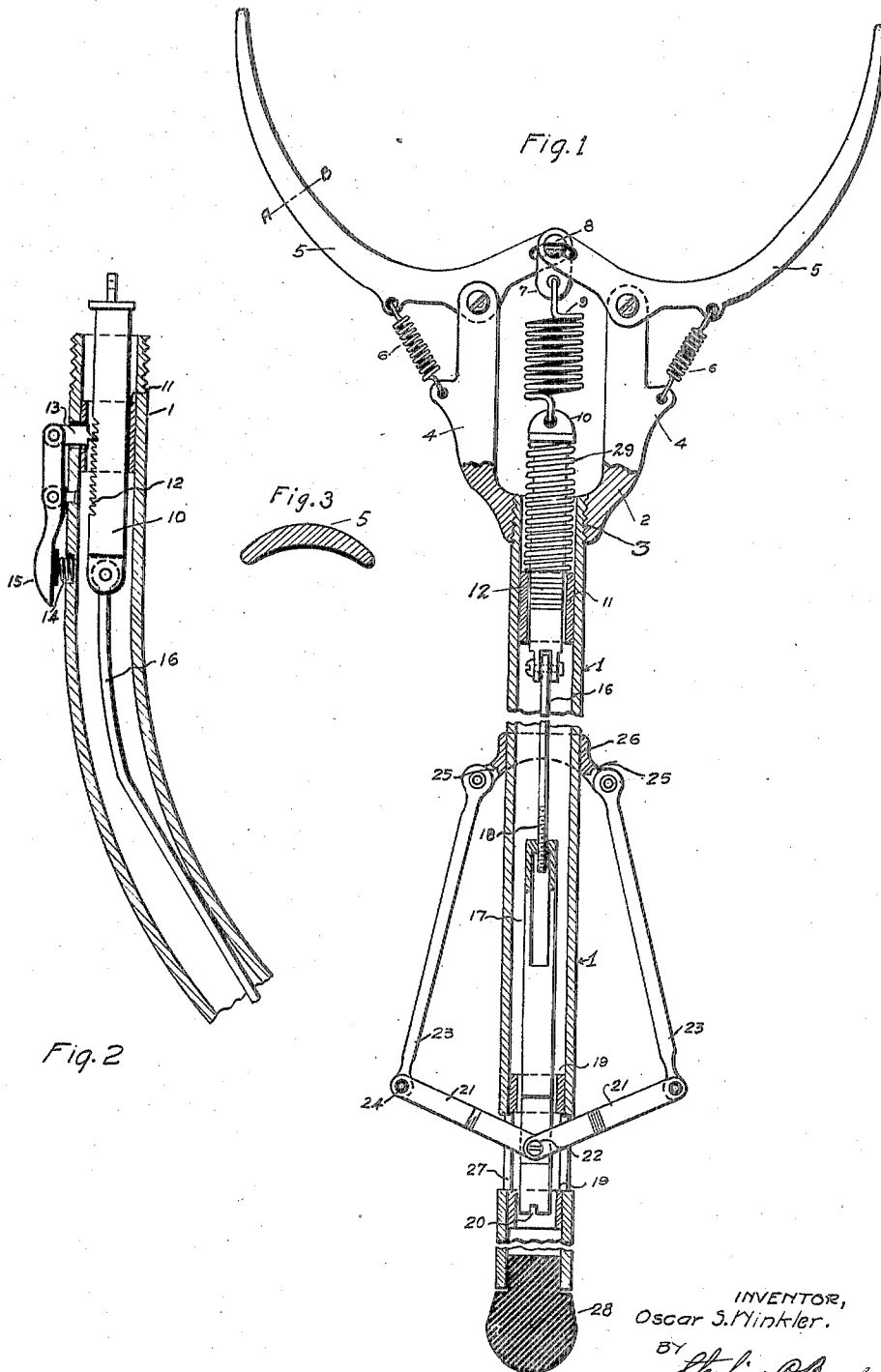


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O. S. WINKLER
LONG REACH TONGS
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LONG-REACH TONGS.

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To all whom it may concern:

Be it known that I, OSCAR S. WINKLER, a citizen of the United States, residing at Baltimore city, State of Maryland, have invented certain new and useful Improvements in Long-Reach Tongs, of which the following is a specification.

This invention relates to handling devices and more specifically, it relates to long-reach tongs.

One object of this invention is to provide a device of this character having jaws that are spring-pressed into gripping engagement with an article to be gripped thereby.

Another object is to provide a device of this character that is spring-pressed into the open position when its gripping engagement is released.

Another object is to provide a device of this character that automatically locks itself in the gripping engagement with an article.

Another object is to provide a device of this character that is quickly and easily releasable with the maximum of convenience, by a simple pressure of a thumb or finger, from the means that locks or detains it in the gripping relation.

A further object is to provide a device of this character that automatically retains its grip on articles of different widths, and provides for increasing the pressure when necessary on account of unusual weight of the article to be gripped or handled; also providing for decreasing or minimizing the required pressure where the article to be handled is comparatively light or fragile.

Another object is to provide a device of this character that is comparatively strong, durable, compact, and convenient to handle and operate.

Other objects and advantages will be pointed out or implied in the following details of description, in connection with the accompanying drawings in which:

Fig. 1 is a longitudinal sectional view through the device, portions being broken from its intermediate and rear end portions. Fig. 2 is a longitudinal sectional view through the front end portion, parts being broken away, the section being at right angles to that of Fig. 1. Fig. 3 is a sectional detail view along the line A—B, Fig. 1.

Referring to these drawings in detail, in which similar reference characters correspond to similar parts throughout the sev-

eral views;—The invention consists in the construction and arrangement or combination of parts, as will now be fully described, in detail, as follows:

A tubular body or reach is generally referred to by the numeral 1, and is provided at its front end with a member 2 which includes a threaded socket 3 into which the body or length of pipe 1 is screwed. The member 1 also includes two spaced pivot bearings at the front ends of two arms 4, and two jaws or levers 5 are pivoted respectively to these arms 4. Springs 6, preferably of the helical retractile type, are connected to the arms 4 and jaws 5 in such a manner that the jaws are thereby normally held open. These springs automatically return the jaws to the open position when they are released from the automatic detaining means which will be described. The inner ends of the jaws or levers 5 are lapped over one another and connected to a link 7 by a pin-and-slot connection, as shown at 8, and the link 7 is connected to a retractile helical spring 9 which is preferably close-wound and of very considerable strength or pulling power. A link or sliding actuating member 10 is seated in a bearing 11, the latter being secured by any appropriate means in the tube or body 1. The member 10 is serrated or notched at 12, and each notch provides a shoulder against which a detent 13 is adapted to engage for holding the member 10 against the pressure of the spring 9 to tension the latter and thus hold the jaws 5 in the closed or gripping position. Because of the strength of the spring 9, the grip of the jaws 5 will hold comparatively heavy articles, like cans or jars of fruit and vegetables, that is, when the member 10 is at or near its rearmost position; but of course, the pressure or tension of this spring (and consequently of the jaws) is comparatively slight when the member 10 is drawn only slightly rearward, especially if the article being gripped is comparatively small or narrow. By engagement of the detent 13 with one of the rearmost teeth or shoulders of the notches 12, the device is automatically held in comparatively weak gripping engagement; but by the detent engaging one of the foremost shoulders, the device is automatically held in a strong gripping engagement. The detent 13 is spring-pressed by a spring 14, through the medium of a handle or lever 15 which releases the mem-

ber 10 when sufficient pressure is applied to the lever 15 in opposition to the spring 14.

The rear end of the member 10 is connected to a link or rod 16 which is connected at its front end to a slide or plunger 17, preferably by a screw-threaded connection 18, so that by turning the member 17, the length of the connection between the members 17 and 9 is shortened or lengthened for regulating the tension of the spring 9; and this adjustment can be accomplished by applying a screw-driver in the notch 20 of the member 17 and turning the screw-driver. A pair of links 21 are pivoted to the member 17, at 22; and the outer ends of these links are pivoted respectively to a pair of handle members 23, at 24; the front ends of the members 23 being pivoted to a pair of spaced pivot bearings 25 which are formed on a collar 26; the latter being united with the body 1 or secured thereon by any appropriate means. The body 1 is slotted at 27 to permit the links 21 to swing on their pivots when the members or links 23 are pressed towards the body 1; for it may be seen that the links 21 are at an obtuse angle to the links 23, so that when these latter are pressed inwards, they cause the links 21 to push the plunger 17 rearward, thus pulling the members that connect this plunger to the spring 9 and consequently extending and tensioning the latter so as to operate the jaws 5 and yieldingly hold the latter in the clutching or clamping relation.

A cushion of rubber or other appropriate material is shown at 28, to prevent injury to the floor and to the grappling device when its rear end is placed on the floor while removing the article it is clamping.

A spring of the helical compression type is shown at 29, and the same bears against a shoulder of the member 10 and against the bearing 11 so as to assist the springs 6 in returning the jaws to the normal or open position.

In adjusting the member 17, as described in the foregoing, the screw or pivot 22 must first be removed and the links disconnected, so that the member 17 can be rotated.

It is not intended to limit this invention to the exact details of construction and arrangement shown and described, but changes may be made within the scope of the inventive ideas as implied and claimed.

What I claim as my invention is:

1. In a grapple, the combination of a pair of gripping jaws, a body on which said jaws are mounted, an actuating handle on said body, and means including an elastic

element connecting the handle to the jaws in such manner that the jaws can be both closed and yieldingly held closed by said handle and said means.

2. The structure defined by claim 1, and releasable detaining means for co-operating with the first said means to hold the jaws in the gripping position when the handle is released.

3. The structure defined by claim 1, and means to return the jaws and handle and the first said means to the normal position when the handle is released.

4. The combination of a tubular body provided with spaced pivot bearings at one end, gripping levers each pivoted to one of said bearings and including a jaw, a spring between said bearings, means operatively connecting said spring with both of said gripping levers and operable when tensioned to close the jaws of the levers, a handle near the other end of said tubular body, and means within the said tubular body connecting the handle to the said spring in such manner that the operation of the handle will co-operate with the spring and with both of said means so as to close the jaws of said gripping levers.

5. The structure defined by claim 5, means being provided to adjust the first said means for varying the tension of said spring while holding the gripping jaws closed.

6. The combination of a tubular body provided with spaced pivot bearings at one end and with spaced pivot bearings near its other end, gripping levers pivoted to the first said jaws respectively, an actuating element slidably mounted in the first said end and provided with a shoulder, connecting means including a spring and connected to said jaws and said actuating element, a spring-pressed detent mounted on said body and engageable with said shoulder for holding the spring and thus holding the gripping levers yieldingly closed on an object being gripped, handle members pivoted respectively to the second said bearings, and means operatively connecting said handles to said actuating element in a proper manner for causing the latter to move to the position for engaging its shoulder with said detent.

7. The structure defined by claim 7, the last said means including a member slidably mounted in said tubular body, and a pair of links pivotally connected to said slidably mounted member and pivotally connected to said handle members, substantially as shown.

In testimony whereof I affix my signature.
OSCAR S. WINKLER.