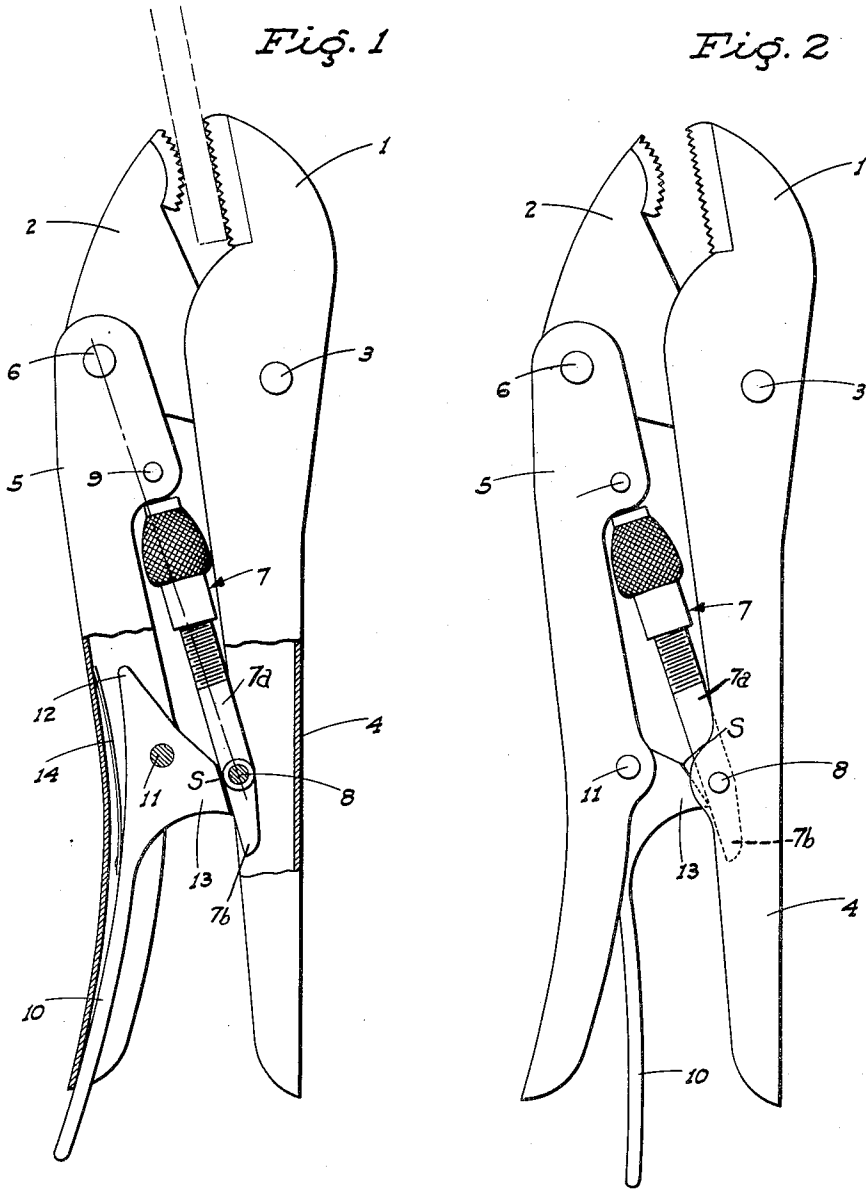


Sept. 26, 1950

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LEVER AND CAM OPERATING MEANS FOR RELEASING
LOCKING PLIERS FROM LOCKED POSITION
Filed Feb. 6, 1946

2,523,385



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2,523,385

LEVER AND CAM OPERATING MEANS FOR RELEASING LOCKING PLIERS FROM LOCKED POSITION

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Application February 6, 1946, Serial No. 645,761

1 Claim. (Cl. 81-84)

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This invention relates to, and it is an object to provide, an easily and readily manipulated release for locking pliers wherein the jaws are locked in engagement with the work upon approaching movement of the handles sufficient to cause a locking device, in the tool, to pass dead-center and yieldably lock the handles against separation; pliers of this type being shown in co-pending application, Serial No. 613,875, filed August 31, 1945, now abandoned.

Another object of the present invention is to provide a release for locking pliers, as above, which is operative by the same hand which holds the pliers; such release including a longitudinally extending lever pivoted on one handle of the pliers and having a leg adapted to engage a part on and to force the other handle away from said one handle upon swinging of said lever, and so as to break the locking device over dead-center in a pliers-opening direction.

A further object of the invention is to provide a practical device, and one which will be exceedingly effective for the purpose for which it is produced.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings:

Figure 1 is a side elevation, partly broken away, showing the position of the release when the pliers are in locked, closed position.

Figure 2 is an elevation showing the position of the release after it has been actuated to unlock the pliers.

Referring now more particularly to the characters of reference on the drawings, the release is here shown as embodied in a pair of locking pliers which include a fixed jaw 1 and a movable cooperative jaw 2 pivoted in connection therewith, as at 3. The fixed jaw 1 is formed in integral rigid relation on the forward end of a handle 4, whereas the other handle 5 of the pliers is of relatively reduced length and pivoted to the movable jaw 2, as at 6.

A longitudinally adjustable locking device or link, indicated generally at 7 extends diagonally between the handles 4 and 5, and is pivoted in connection therewith, at opposite ends, as at 8 and 9. The locking device 7 is adjusted in length so that when the jaws 1 and 2 engage with the work, relative approaching movement of the handles 4 and 5 to a given point will cause the locking device 7 to pass inwardly beyond dead-center and to thereafter releasably lock the han-

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dles, and consequently the jaws, against separation.

In pliers of this type it has been found difficult to unlock the same; i. e. to manually separate the handles 4 and 5 for the purpose of releasing the jaws from the work. The release, which comprises the present invention, is provided for the purpose of facilitating the separation of the handles and the breaking of the locking device 7 from a locked position over dead-center to a pliers-release position. The release comprises the following arrangement:

The handles 4 and 5 are of channel configuration, and an elongated lever 10 is disposed in the handle 5 and projects out of the rear end thereof, as shown. Substantially opposite the pivot 8 the lever 10 is pivoted in the handle 5, as at 11, for swinging movement toward the handle 4. A forwardly projecting stop 12 on the front end of the lever 10 ahead of the pivot 11 limits the extent to which said lever may swing toward said handle 4.

A laterally projecting leg or cam element 13 is formed on the lever 10 adjacent but mainly to the rear of the pivot 11, and said leg is straight-cut, at its outer end as at S, to substantially flatly engage with the shank 7a locking device 7 closely adjacent the pivot 8 when the pliers are closed and locked. The shank 7a extends rearwardly of the pivot 8, as at 7b, to provide a bearing surface for the straight-cut cam end S; the bearing of said cam end on this extension providing excellent leverage for release of the locking device. Further, as the straight-cut cam end S substantially flatly engages said extension 7b, the leverage for release of the locking device 7 is enhanced. A leaf spring 14 between the lever 10 and handle 5 normally urges the lever toward the handle 4.

The position of the parts, when the pliers are closed and locked, is shown in Fig. 1. To separate the handles 4 and 5 and release the locking device 7, the operator, with the same hand that manipulates the pliers, grasps handle 4 and the projecting end of lever 10, swinging the latter towards the handle 4. The cam action which results from the laterally projecting leg 13 moving forwardly relative to the pivot 11 then causes separation of the handles 4 and 5, and breaking of the locking device 7 over dead-center in a pliers-release direction. In this manner the pliers are readily and easily opened, and with much greater facility than is possible without the described release.

From the foregoing description it will be readily

seen that there has been described such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claim.

Having thus described the invention, the following is claimed as new and useful and upon which Letters Patent are desired:

In locking pliers having longitudinal jaw control handles arranged for relative approaching or separating motion, the handles being of channel shape opening toward each other, a releasable over-dead-center locking link extending at a forward diagonal from within one handle to within the other handle, a transverse pivot between each handle and the adjacent end of the locking link, a longitudinal lever disposed in said other handle and projecting out of the rear end thereof, and a transverse pivot between the lever adjacent its forward end and said other handle; a link release device comprising, with said longitudinal lever, a cam projecting laterally from the lever adjacent its pivot and in the direction of said one handle, said cam engaging the link adjacent the link pivot on said one handle, the link being extended rearwardly of its pivot in said

one handle, the outer end of the cam being straight-cut and substantially flatly engaging said extension when the pliers are closed, a stop projecting forwardly from the front end of the lever ahead of the pivot for the latter, said stop and adjacent portion of the lever being normally spaced from the bottom of said other handle, and a leaf spring in said space connected between the lever rearwardly of its pivot and extending forwardly to engagement with the bottom of said other handle under the stop.

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