

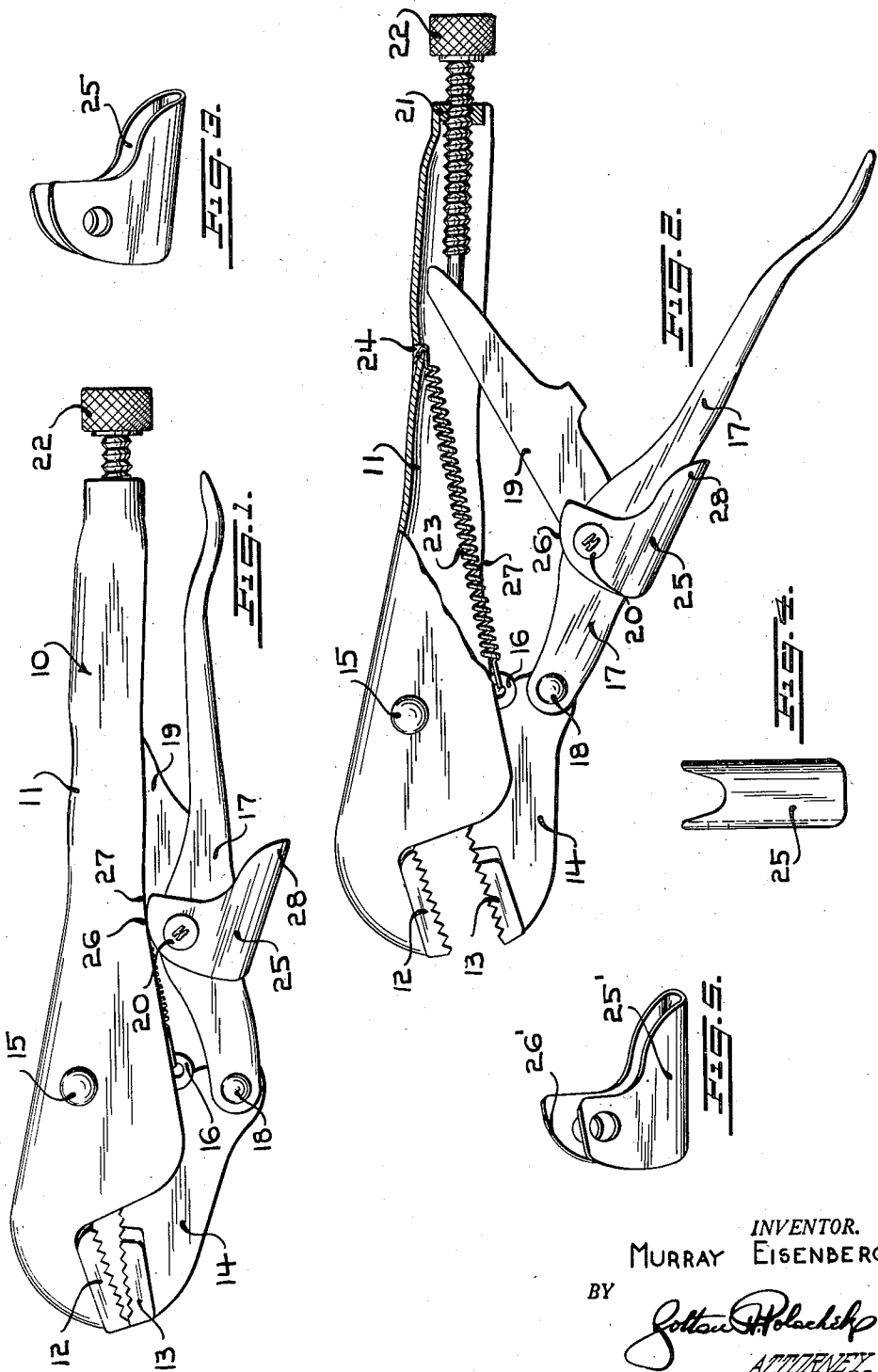
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QUICK RELEASE ATTACHMENT FOR VISE GRIP PLIERS

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QUICK RELEASE ATTACHMENT FOR VISE
GRIP PLIERS

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6 Claims. (Cl. 81-84)

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This invention relates to new and useful improvements in a vise grip pliers.

More specifically, the present invention proposes the construction of an adjustable vise grip pliers or wrench of the snap-lock type, having means for snapping open the locking parts of the wrench.

Still further, it is proposed to provide a wrench as aforesaid, in which the opening means is a pivoted cam thumb member adapted to force the two operating handles of the wrench apart and adapted to be automatically set when the two operating handles are pushed together into wrench locking position.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is an elevation of a vise grip pliers or wrench constructed in accordance with this invention, the parts being shown in wrench locked position.

Fig. 2 is a view, similar to Fig. 1, but having parts in section of the wrench in unlocked or open position.

Fig. 3 is a perspective view of the cam member of the wrench.

Fig. 4 is a view of the cam member taken from the left of Fig. 3.

Fig. 5 is a view, similar to Fig. 3, of a cam member constructed in accordance with a modification of this invention.

The present invention involves an improvement of a snap-lock type of adjustable vise grip pliers or wrench. These wrenches are adapted to be locked in gripping relation with a part to be worked on. In order to so lock the wrench, the two operating handles of the wrench are squeezed together by a person's hand. A person with a strong grip can lock the wrench so that it is very difficult to get it open again, the opening being accomplished by pulling the handles apart. This pulling must, of course, be done by the fingers which can not exert the power that a hand grip can exert. Thus if a man exerts all his strength to close the wrench, he will not have sufficient strength to open it. According to the present invention, means are provided making it a simple matter to open the wrench under the above conditions.

The wrench, according to this invention, comprises a member 10 having a handle 11, channel

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shaped in cross section, and a jaw member 12. The jaw member 12 is a serrated solid block welded to the handle 11. Opposed to jaw member 12 for coaction therewith is a jaw member 13. Member 13 is a serrated solid block welded to a member 14 pivotally connected by a rivet 15 to handle 11. An orificed lug 16 depends from the member 14.

A handle 17, channel shaped in cross section, is pivotally connected to the bottom of member 14 by a pivot pin 18. A link 19 is pivotally connected at one end to the handle 17 by a pivot pin 20 and at the other end extends into the channel interior of handle 11, this other end being enlarged so that it is retained in the channel but can move longitudinally thereof.

Handle 11 has a nut 21 welded in its lower end, and an adjustment bolt 22 is threaded through this nut and extends upwardly to and engages the adjacent end of the link 19, forming an abutment for this link. A tension spring 23, connected at one end to lug 16 and at the other end to a lug 24 on handle 11 tends to swing the jaws apart and holds link 19 down on bolt 22.

The wrench as thus far described is substantially conventional and its operation is well known. Suffice it to say that when an object is to be gripped in the jaws 12 and 13, the handles 10 and 17 are squeezed together until a tight grip is secured, the link 19 acts like a toggle, swinging over toward handle 11 and firmly holding the jaws in locked engagement with the object gripped. To adjust the wrench for different size objects, the bolt 22 is turned.

According to the present invention, a cam member 25, best shown in Figs. 3 and 4, is mounted on the pin 20. The cam member 25 is U-shaped and is engaged around two sides of the handle 17. It has two cam surfaces 26 for coaction with the edges 27 of handle 11, and a thumb piece 28. When the handles 11 and 17 are squeezed together, the cam surfaces contact the edges 27 and are guided thereby, swinging the member 25 until the wrench is locked the cam member then being disposed so that the thumb piece 28 extends outwardly away from the handle 17 as is shown in Fig. 1, the cam surfaces at this time being in tight engagement with the edges 27. As the handles are squeezed together, eventually the handle 17 snaps over toward the handle 11 and at the same time the member 25 swings around to the position shown in Fig. 1.

The cam member 25 operates as follows: When it is desired to open the wrench, it is only necessary to hold the wrench in one hand with the thumb on the thumb piece 28 and squeeze, there-

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by rotating the member 25 about the pin 20. This rotation forces the cam surfaces against the edges 27 and pushes the handles apart, the cam surfaces finally acting to release the handles so that they fly apart. The cam member 25, being pivoted on the pin 20 at the top of the link 19, can force the handles apart with comparatively little effort compared with the effort needed to pull the handles apart by gripping and pulling their free ends.

While the cam member 25 has two cam surfaces, one for each edge 27, only one cam surface is needed. Such a member, indicated by the numeral 25', is shown in Fig. 5, the cam surface 26' being similar to the corresponding surface of member 25. The other cam surface has been eliminated by shortening that side of the member 25'.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. In a wrench, the combination including a handle provided with a fixed jaw, a pivoted jaw, an articulated lever having one section pivotally connected to the pivoted jaw, and another section operatively connected to the handle by adjustable pivot means, said articulated lever being movable in one direction to lock the jaws, and a pivoted cam element for camming engagement with said handle to move the articulated lever in the reverse direction to unlock the jaws, said cam element being carried on a medial pivot on said articulated lever positioned to move away from the handle when the cam element is actuated.

2. A tool of the character described, comprising a handle provided with a fixed jaw, a pivoted jaw pivotally connected to the handle, an articulated lever having at least one intermediate pivot, said lever being operatively connected at one end to the handle by adjustable pivot means and connected at the other end to the pivoted jaw by pivot means spaced from the pivot connecting the pivoted jaw and the handle, the articulated lever being movable in one direction to lock the jaws, and cam means swinging about an intermediate pivot of said articulated lever to unlock the jaws.

3. In a tool, the combination including a handle provided with a fixed jaw, a pivoted jaw, pivot means operatively connecting said jaws, toggle linkage means, second pivot means operatively connecting said toggle linkage means and said pivoted jaw, third pivot means operatively connecting said toggle linkage means and said handle, said toggle linkage means being movable toward said handle to lock said jaws, said handle and said toggle linkage means being provided with complementary gripping portions to enable

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the tool to be manipulated with one hand, cam means adapted to exert force between said handle and said toggle linkage means to unlock said jaws, fourth pivot means for said cam means disposed adjacent the forward portion of said gripping portions to facilitate actuation of said cam means by the hand with which the tool is manipulated.

4. Vise-grip pliers of the character described provided with a handle and articulated lever means movable in one direction with respect to said handle for locking the jaws thereof, said articulated lever means being provided with a medial pivot including a pivot pin and a cam plate provided with a bore to receive said pivot pin to position said cam plate on said medial pivot for camming engagement with an element other than said articulated lever means to urge the articulated lever means in the other direction to unlock said jaws.

5. An attachment for a tool of the character described provided with jaws for gripping an article, a handle and an articulated lever movable in one direction with respect to the handle to lock the jaws thereof, said handle and said articulated lever being the operating elements of the tool, comprising a U-shaped stamping, the upstanding portions of the stamping forming ears for straddling one of the operating elements of the tool, means for pivotally mounting the stamping on one of said operating elements of the tool, at least one of the ears of the stamping forming a cam surface for operative engagement with the other operating element of the tool to urge the articulated lever in the other direction to unlock the jaws.

6. An attachment for a wrench of the character described provided with jaws for gripping an article, a handle and toggle linkage means having a medial pivot movable toward the handle to lock the jaws of the wrench, comprising a U-shaped stamping, the upstanding portions of the stamping forming ears for straddling an element of the toggle linkage means, said ears being pierced to receive a pivot pin passing through the medial pivot of the toggle linkage means, at least one of the ears being shaped to provide a cam surface for operative engagement with the handle to move the toggle linkage means away from the handle to unlock the jaws.

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