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2,627,774

RELEASE ATTACHMENT FOR WRENCHES AND THE LIKE

Filed April 21, 1951

FIG. 1

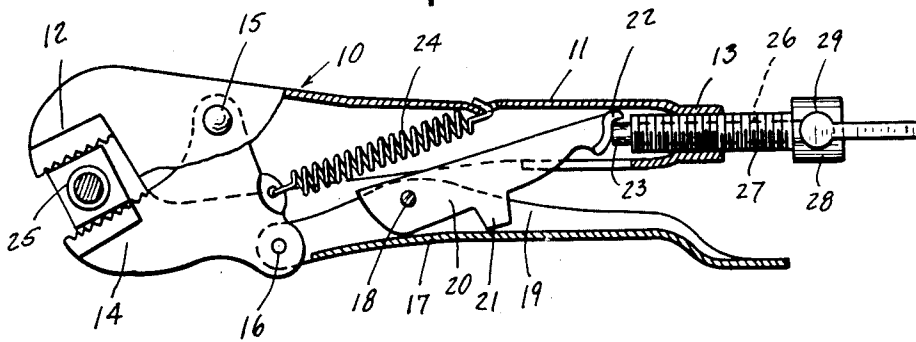


FIG. 2

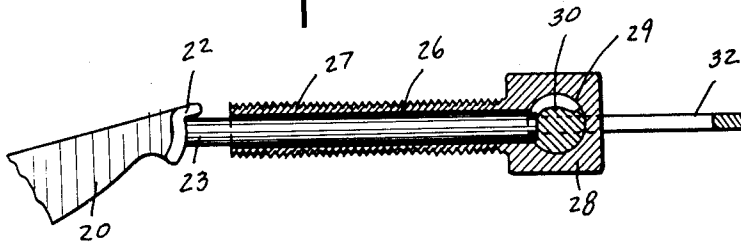


FIG. 3

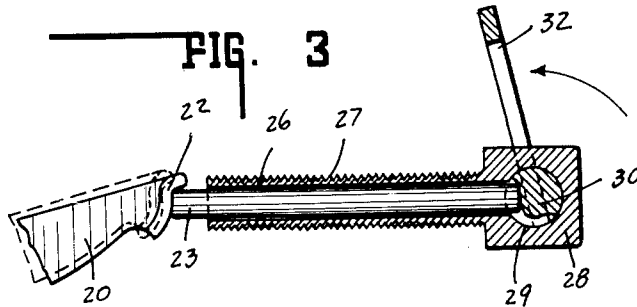
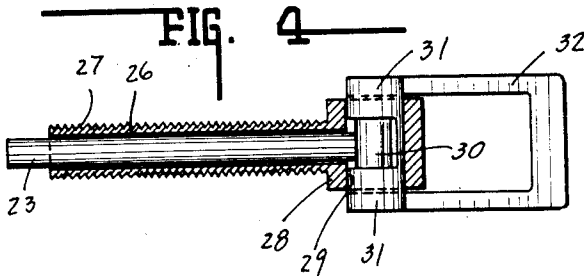


FIG. 4



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RELEASE ATTACHMENT FOR WRENCHES AND THE LIKE

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1 Claim. (Cl. 81—84)

1

This invention relates to an adjustable release attachment for wrenches, vice grips and similar tools.

Tools of that type are so constructed today that there is but one conventional way to break their grip. That is by spreading the handles through the use of both hands or the thumb of one hand of the user. Since the term "vice grip" is used literally in connection with such tools, it logically follows that a considerable amount of pressure or force must be exerted in order to effect a release. And such an exertion is normally attended by unsatisfactory results not only to the hands of the user but to his disposition as well. This is true since the handles of the tool generally fly open rapidly, thereby cracking, bruising or otherwise injuring the knuckles or hands of the user.

It is, therefore, the primary object of this invention to provide an attachment for such tools which will make possible their easy and ready release from gripping or closed position. This is accomplished through the provision of a cam type variable fulcrum in the form of an adjustable bolt and plunger.

A further object of the present invention is to provide an improvement for wrenches, particularly of the type disclosed in Letters Patent No. 2,280,005 issued to William Petersen on April 14, 1942 entitled Wrench. One disadvantage encountered by users of such a wrench lies in the difficulty of effecting a release thereof. With the present invention, such disadvantages are eliminated without in any manner affecting the excellent operation or function of the tool itself.

A still further object of the present invention is to make possible the use of such tools in confined spaces. In view of the difficulties inherent in releasing that type of tool, requiring both hands as it frequently does, it is obvious that their use in confined or limited spaces is undesirable if not practically impossible. On the other hand, through the medium of the present invention, tool release is easily and readily accomplished regardless of the size or limitations of the working space.

The full nature of the invention will be understood from the accompanying drawings and the following description and claim:

In the drawings,

Fig. 1 is a side elevation view (with parts broken away) of a type of wrench with which the invention is shown to be associated.

Fig. 2 is a longitudinal vertical section view of the invention in locked or gripping position.

2

Fig. 3 is a view similar to Fig. 2, except that the invention is shown in handle releasing position.

Fig. 4 is a longitudinal transverse section view thereof.

In the drawings a wrench of the type shown in Letters Patent No. 2,280,005 issued to William Petersen on April 14, 1942 is shown generally at 10. No claim, of course, is made to the wrench per se, but only to the attachment associated therewith about which comment will hereinafter be made.

The wrench itself consists of an elongated handle portion 11 of channel formation, having a fixed jaw 12 formed at its forward end and an internally threaded sleeve 13 formed at its rearward end. A movable jaw 14 is pivotally connected by the pin 15 to a portion of the handle 11 immediately adjacent the fixed jaw.

Pivotally connected at 16 to the inner end portion of the movable jaw is the elongated lever 17 of channel formation which serves as the operating handle. Pivotally mounted at 18 between the side walls 19 of this handle is one end of a stub lever or fulcrum bar 20 having a centrally disposed lug 21 depending therefrom into operative engagement with the adjacent portion of the handle or lever 17. The opposite end of said stub lever is transversely enlarged at 22 to provide a bearing for the plunger 23 hereinafter described.

The construction of the stub lever is such that its lug engages the adjacent portion of the channelled handle 17 as the handle is being moved relative to handle 11, thereby precluding further relative movement therebetween until pivot 18 passes "over center" of the line between pivot 16 and the bearing point of enlarged head 22 against plunger 23.

Spring 24 serves to maintain head 22 in contact with the inner face of the plunger, and also biases movable jaw 14 away from fixed jaw 12.

Up to this point the foregoing has described the Petersen wrench which is representative only, of the type of vice grip in connection with which applicant's invention is designed to be used. No claim is made to such a wrench per se.

As mentioned above, experience has proven that when a wrench of the type described is to be released so that the article 25 may be removed from between its jaws, it is necessary to exert a considerable amount of pressure. The exact amount of pressure required has direct relation to the distance between pivot 16 and the bearing point of the head against the plunger, i. e. the

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fulcrum. The further the plunger is adjusted outwardly, the less pressure is required to release the jaws. It is also apparent that the plunger can not be adjusted outwardly too far, else the wrench will not hold the article 25 in a vice like grip. If it is necessary to screw or unscrew the plunger, i. e. move it forwardly or rearwardly, a great deal of time will obviously be consumed, and the results will not always be satisfactory. On the other hand, with applicant's attachment satisfactory results can be achieved with a minimum of time and effort. And there is no cracking or bruising of the knuckles and hands when release is effected.

Applicant's attachment consists of the plunger 23 which is loosely received and slidably accommodated within the bore 26 formed in the externally threaded shank 27. The shank is adjustable within said internally threaded sleeve 13. Suitably connected to the rearward end of the sleeve is the enlarged block 29 having a transversely disposed bore 29 formed therethrough. Disposed within this bore is the pin having a reduced central portion 30 fashioned in the shape of the cam shown, and truncated end portions 31. Connected to either end of the pin is the substantially U-shaped handle 32.

While the throw of the plunger may be as desired, it is shown in the drawing to be approximately one-eighth of an inch. If it is necessary to move the plunger further forwardly or further rearwardly, it is, of course, possible to screw or unscrew the shank itself.

In operation, the shank is first adjusted to the desired position and the handle controlling the plunger is raised to a horizontal position, thereby forcing the plunger to its forwardmost position. (See Fig. 2.) The lever 17 is then moved upwardly until the lug engages it whereupon the pivot 18 connecting the stub lever to lever or handle 17 is moved to beyond center position as described above. The jaws of the wrench will then be "locked" in object gripping position.

When it is desired to release the jaws from such locked position it is necessary only to move the handle 32 upwardly (see Fig. 3) thereby through cam action permitting plunger 23 to be automatically forced rearwardly. Thereupon jaw release may be effected readily and easily by pressing downwardly on lever 17.

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While the invention has been illustrated and described in great detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character.

The invention claimed is:

In a wrench including a handle member having a fixed jaw at one end, a movable jaw pivotally connected to said handle member, an operating handle pivotally connected with the rearward portion of said movable jaw, the opposite end of said first mentioned handle having an internally threaded sleeve portion, a stub lever pivotally connected at one end to said operating handle, the opposite end of said lever having a head portion, the combination therewith of a release attachment comprising an externally threaded bolt received within said sleeve portion, said bolt having a longitudinal bore formed within its shank and a transversely disposed bore formed within its head, said bores communicating one with the other, a longitudinally reciprocable plunger disposed within said first mentioned bore, the forward end of said plunger extending beyond said bolt into abutting engagement with the head portion of said stub lever, and a rotary eccentric disposed within said second mentioned bore engageable by the opposite end of said plunger whereby the longitudinal position of said plunger may be varied by a change in the angular position of said eccentric, and means for varying the angular position of said eccentric.

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