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ADJUSTABLE TENSIONING MEANS FOR TOOLS

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FIG. 1

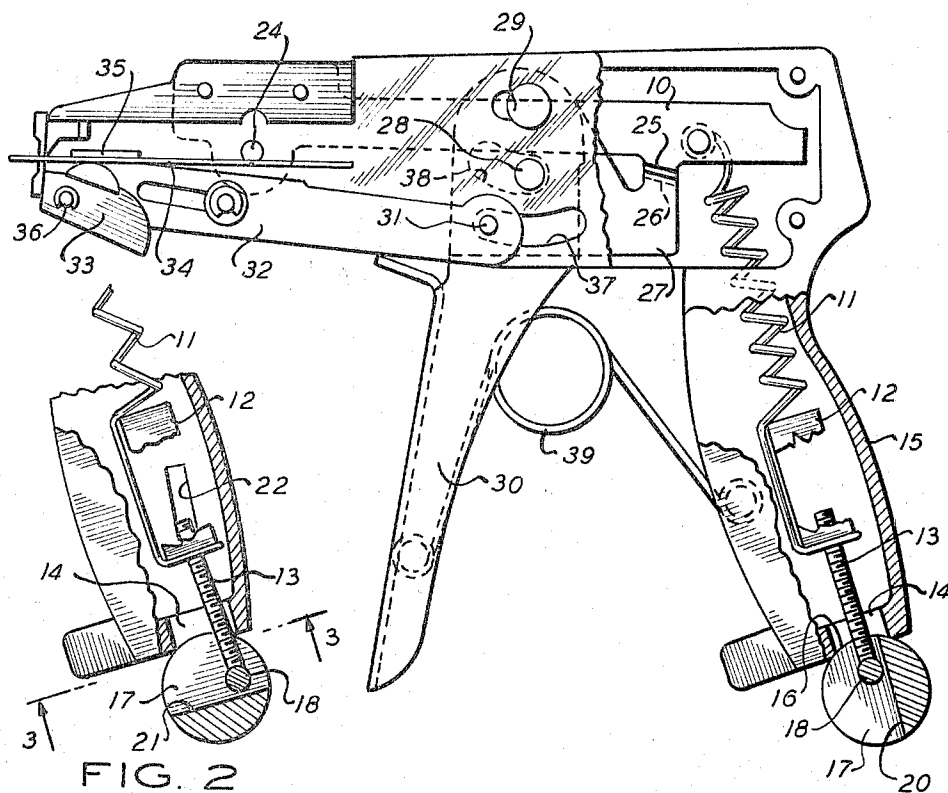
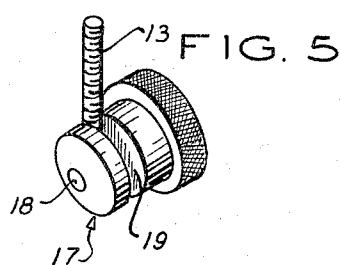
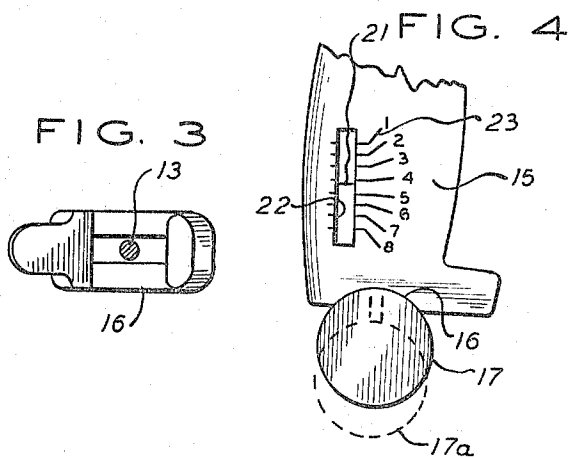


FIG. 2



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ADJUSTABLE TENSIONING MEANS FOR TOOLS
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5 Claims. (Cl. 267—1)

This invention relates to adjustable tension means for use in tools having an element or elements on which tension is to be exerted. Pursuant to the invention novel adjustment tension means are provided, enabling tension to be slowly or rapidly achieved, at the will of the user, in a convenient manner, as, for example, to adapt the tool from heavy to light duty work, and providing an infinite range of adjustments for various uses and conditions. Thus rapid adjustment, or, selectively minute adjustment, may be attained, as desired—in an efficient and highly effective manner.

The drawings, illustrating procedures and devices useful in carrying out the invention, and the description below, are exemplary only of the invention, which shall be deemed to cover all other devices and procedures coming within the scope and purview of the appended claims.

In the drawings, wherein similar reference characters indicate like parts:

FIG. 1 is a side elevational view of a tool provided with the adjustable tensioning means of the invention,

FIG. 2 is a fragmentary, partly sectional, view of a portion thereof,

FIG. 3 is a bottom plan view, taken at line 3—3 of FIG. 2;

FIG. 4 is a fragmentary elevational view thereof, and

FIG. 5 is a fragmentary perspective view of parts thereof.

As above noted, the invention is adapted for applying adjustable tension to tools, for example, as shown in the drawing, having a first member or element 10 as to which adjustable tension is to be exerted. The element 10 is a practical form of application of the invention, without limiting the invention in any wise thereto; the invention is equally applicable to all other tool elements to be subjected to tension. The adjustable tension means of the invention is operable on the tension element 11 and may comprise an axially movable part engaging said element 10, for example the threaded pin 13 which passes through a slot 14 in the casing 15 at one end and has complementary engagement at the other end with a link member 12 secured to the tension element 11. Casing 15 housing the adjustable tension means, is provided at the end thereof (FIGS. 2 and 1) with said slotted portion 14 recessed as at 16, adapted to be engaged by the complementary roller 17 to which the pin 13 is connected by a cross pin 18 or the like, the latter eccentrically journaled in the roller 17 having (FIG. 5) a slot 19 receiving the pin 13.

The roller 17, as above noted circumferentially engages the recess 16 of slot 14. By virtue of the eccentric mounting of roller 17 on pin 18 and its connection thus with the threaded pin 13, rotation of roller 17 in one direction will axially move the pin 13 relative to the axis of the casing 15, to thus increase tension on tension member 10, and rotation of roller 17 in the opposite direction will decrease tension. Bearing surface 20 of roller 17 serves at a stop engaging pin 13 on rotation of the roller, to limit such rotation in either (FIG. 1 or opposite) direction.

To achieve substantial changes in tension rapidly, the

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roller 17 is moved completely away from the arcuate portion 16 of the casing 15 (as shown at 17a, FIG. 4). One may then rotate the pin 13 rapidly to thread pin 13 in link 12 and thus achieve a very rapid or abrupt adjustment of the tension. As above noted, for achieving fine adjustments roller 17 may be slowly rotated. In either case, a marking 21 on the link or other element 12 connected to the tension element 11 may be read through a slot 22 (FIG. 4) in the casing 15 and on the scale 23 marked on the casing providing for a constant reading of the degree of tension exerted by the adjustable tension means 11, above described.

For illustration of one form of tension element 10 and without limitation thereto, reference is made to FIG. 1 from which it will be noted that element 10 is there shown as a rocker arm pivoted as at 24 and having a flanged part 25 to be engaged by a complementary flange 26 of a cam plate 27 pivotally mounted on the casing 15 as at 28, a pin 29 connecting said cam plate 27 with a handle 30, which is connected by a pin 31 to a plate 32 having a spring urged pawl 33 normally rotated counterclockwise by spring or other means to press a strap or the like 34 against a flange 35 on plate 32. The pawl 33 is mounted on a pin 36 on the plate 32, whereby the strap 34 will be normally held pressed between the pawl 33 and flange 35 and thus moved with movement of the handle 30. The pin 31 passes through an arcuate slot 37 in casing 15. The handle 30 has a slot 38 through which the pin 28 passes.

The handle 30 pivots on the pin 29 until the strap 34 resists further movement. The pin 31 then becomes the pivot point for the handle whose upper end 29 then moves the cam plate 27 to lift or rotate the rocker plate 10. The point at which the resistance on the strap 34 becomes sufficiently great to effect a shift in the pivot point for handle 30 from 29 to 31 is predetermined by the tension exerted by the tension element 11 on the plate 10, this in turn being adjusted by the adjustable tension means of the invention.

As above noted, this illustration of a practical form to which the adjustable tension means of the invention may be applied is illustrative only and is not to be deemed limitative in any fashion.

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

1. In a tool having a casing and a first member on which tension is to be exerted, a tension member engaging said first member, said casing having a slot, means passing through the casing slot and engaging said tension member, roller means eccentrically connected to said means passing through said slot and adapted to rotatably engage said casing whereby, on rotation of said roller means in engagement with the casing, the means passing through the slot will be moved and the degree of tension of the tension means may be varied.

2. In a tool as set forth in claim 1, said casing having an arcuate recess and said roller means so adapted to engage the casing by engaging said recess.

3. In a tool as set forth in claim 1, said means so passing through said slot comprising an elongated pin, threadedly connected to the tension member, so that the degree of tension of the tension member may be varied on rotation of the roller about the axis of the pin.

4. In a tool having a casing and a first member on which tension is to be exerted, a tension member engaging said first member, said casing having a slot, means passing through the casing slot and engaging said tension member, roller means connected to said means passing through said slot and adapted to rotatably engage said casing whereby, on rotation of said roller means, in engagement with the casing, the means passing through the slot

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will be moved and the degree of tension of the tension means may be varied, said casing having an arcuate recess and said roller means adapted to so engage the casing by engaging said recess, complementary means on said means so passing through said slot and said tension member for adjusting the point of connection thereof, thereby adjustably so connecting the same so that on rotation of said roller in the plane of its axis, the point of connection of the roller with the tension member may be adjusted.

5. In a tool having a casing and a first member on which tension is to be exerted, a tension member engaging said first member, said casing having a slot, means passing through the casing slot and engaging said tension member, a link connected to the tension member and complementarily threadedly engaging said means passing through the slot, roller means connected to said means

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passing through said slot, means on the casing adapted to be engaged by said roller means to thus juxtapose said roller means relative to the member on which tension is to be exerted, so that the degree of tension of the tension means may be varied on rotation of the roller on the plane of its axis.

References Cited by the Examiner

UNITED STATES PATENTS

2,599,403	6/1952	Martin	267—1
2,735,669	2/1956	Seiler	267—1
2,891,784	6/1959	Taylor	267—1

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