

Sept. 29, 1953

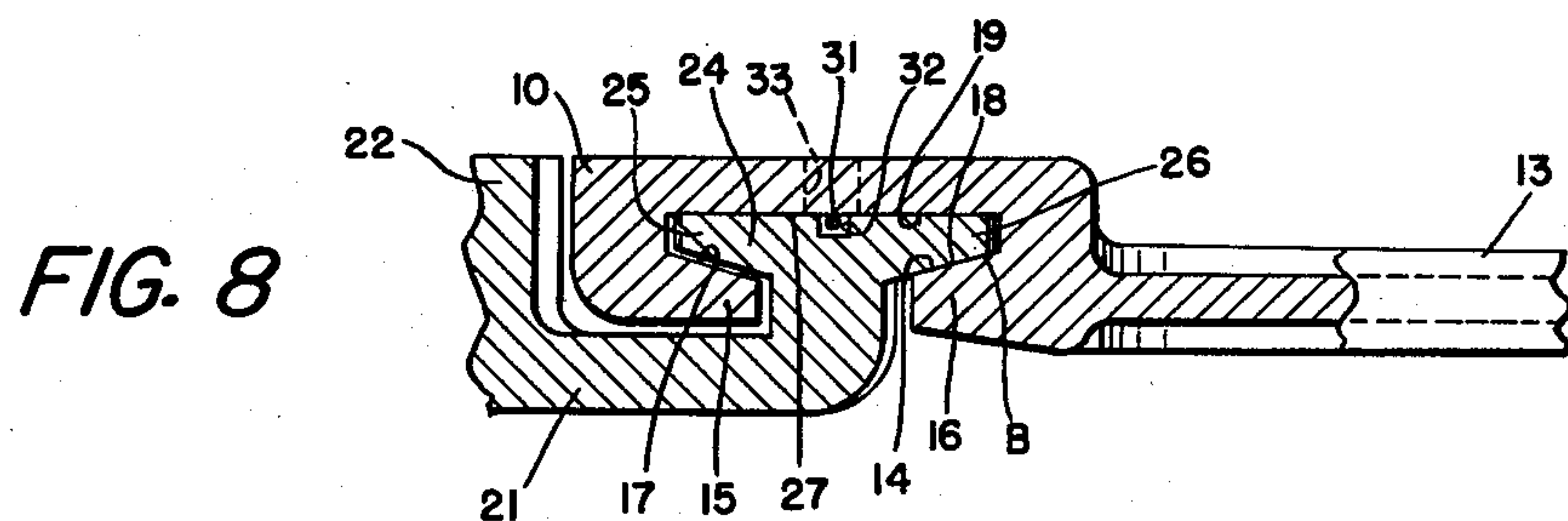
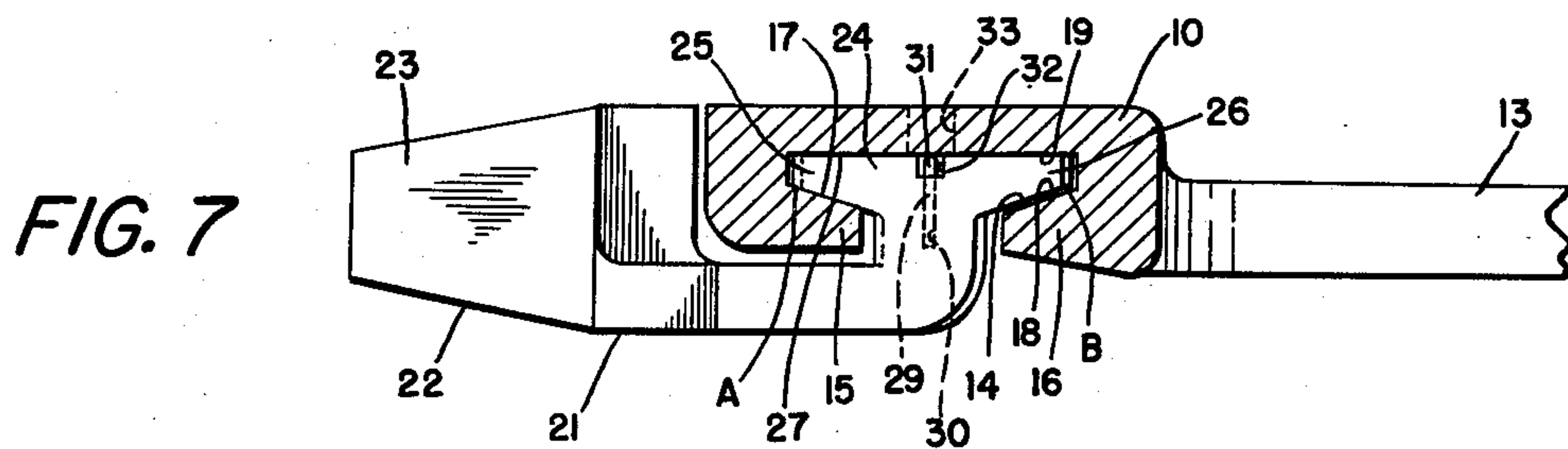
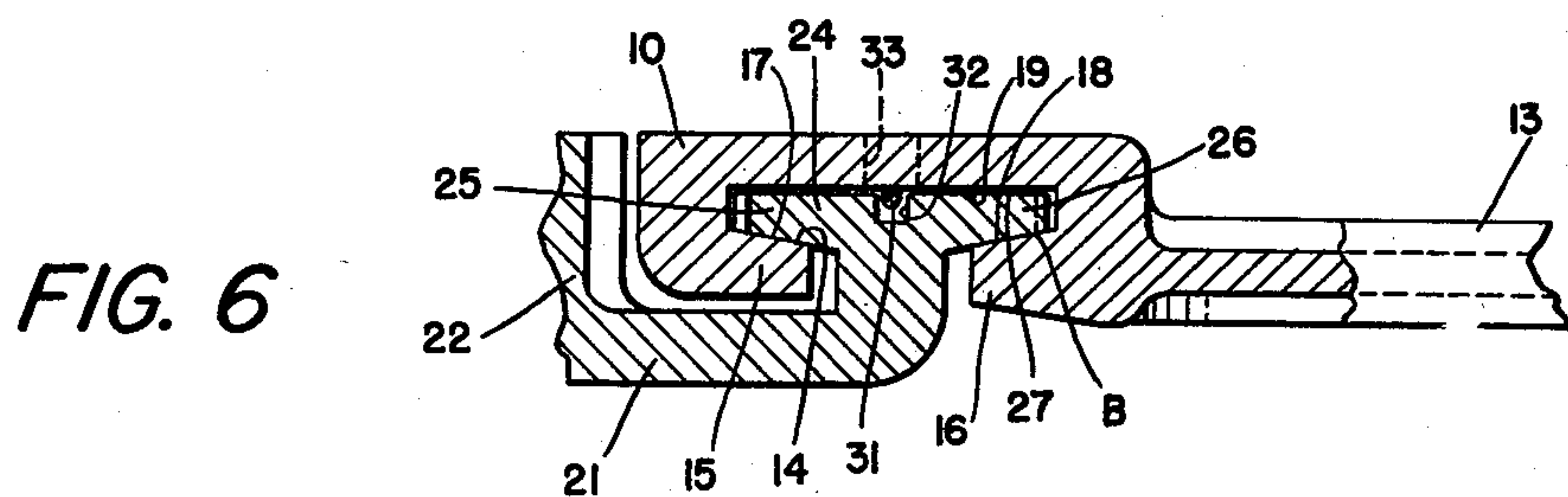
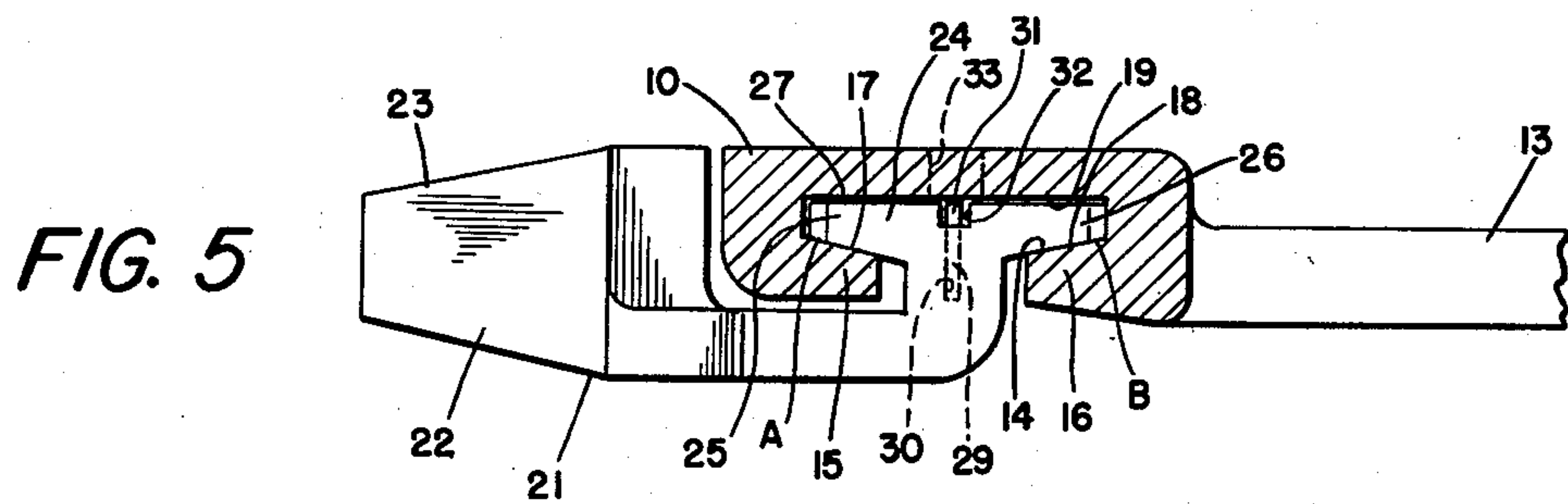
M. W. HUNTER

2,653,501

SHANK-GRIP SLIDABLE SIDE JAW WRENCH

Filed Dec. 4, 1951

3 Sheets-Sheet 2



INVENTOR.

MELMOTH W. HUNTER

BY

William Cleland

ATTORNEY

Sept. 29, 1953

M. W. HUNTER

2,653,501

SHANK-GRIP SLIDABLE SIDE JAW WRENCH

Filed Dec. 4, 1951

3 Sheets-Sheet 3

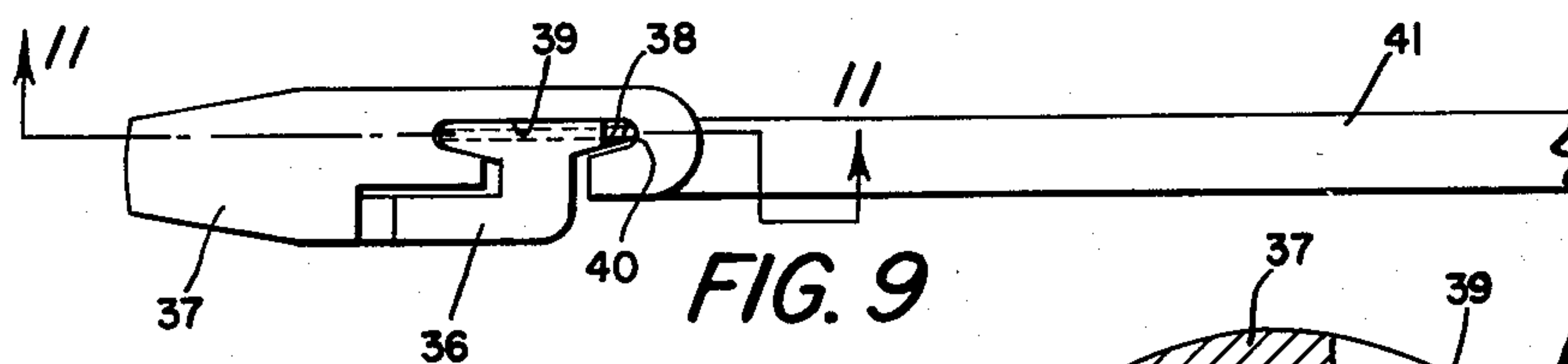


FIG. 10

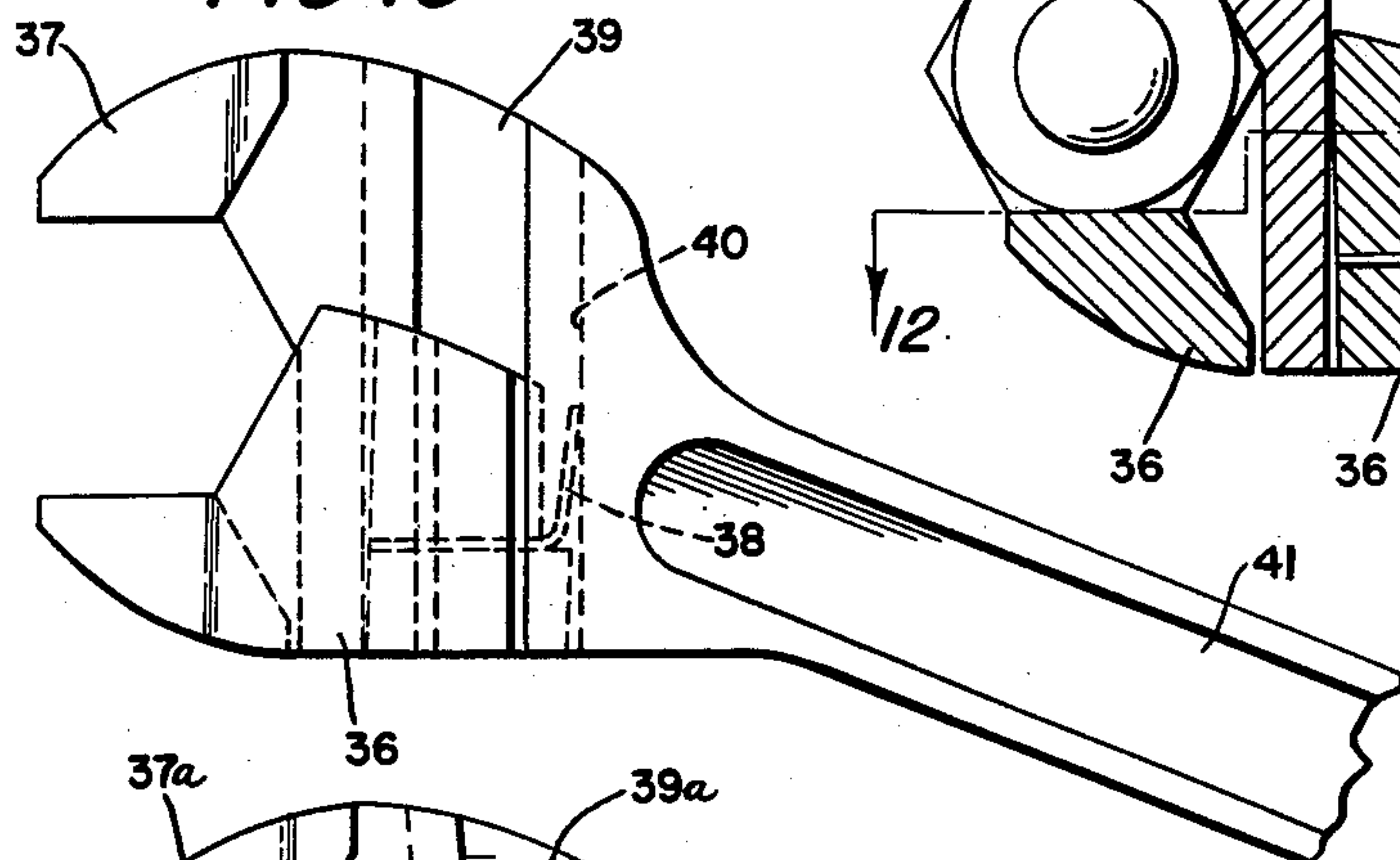
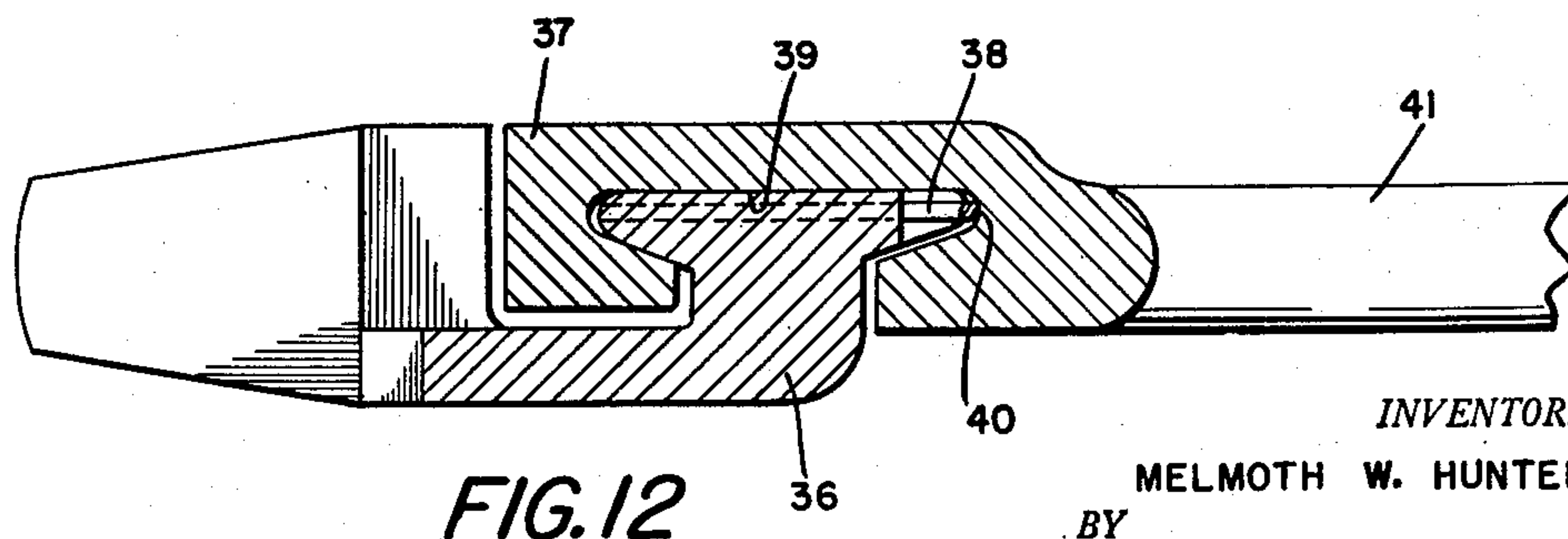
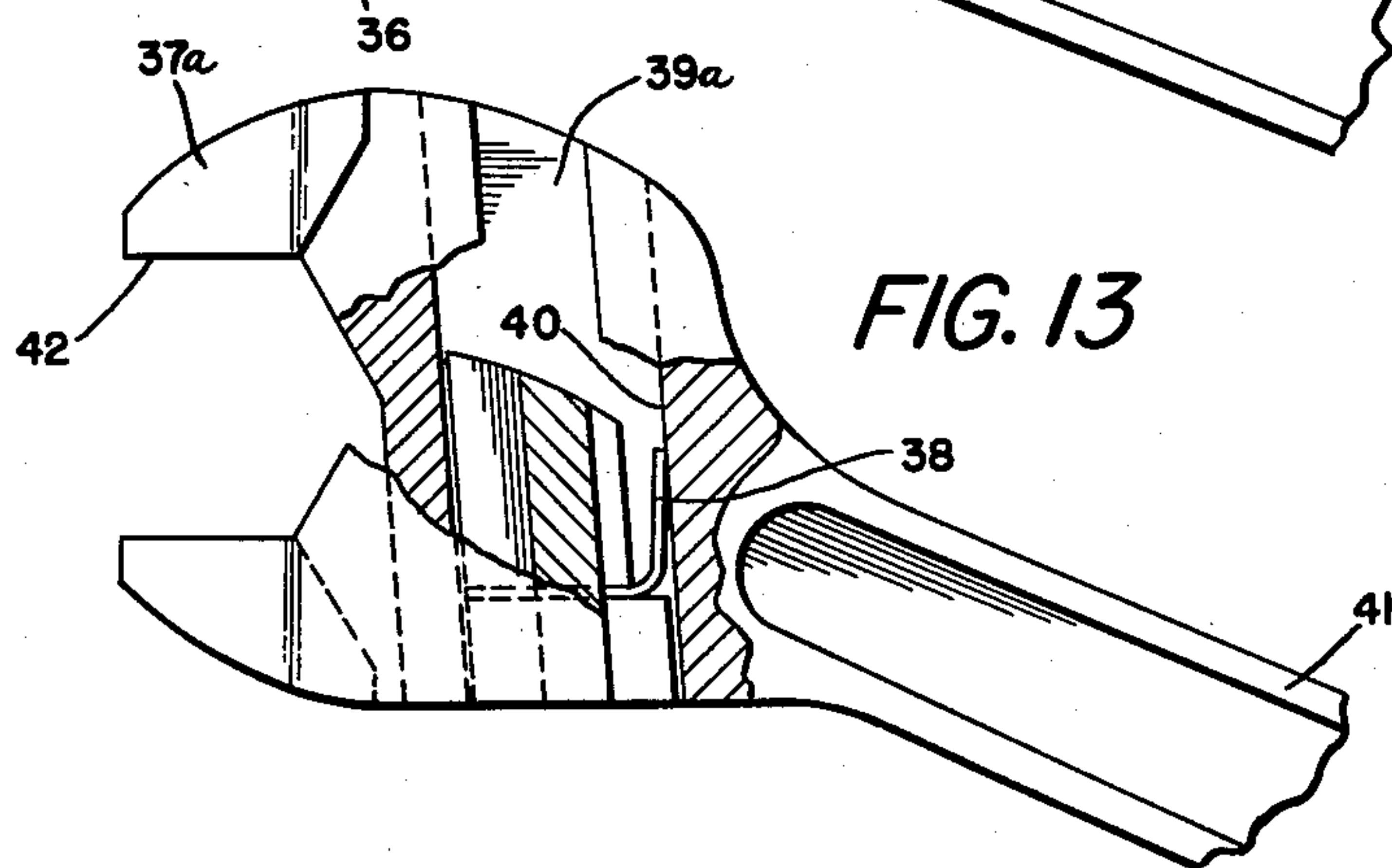
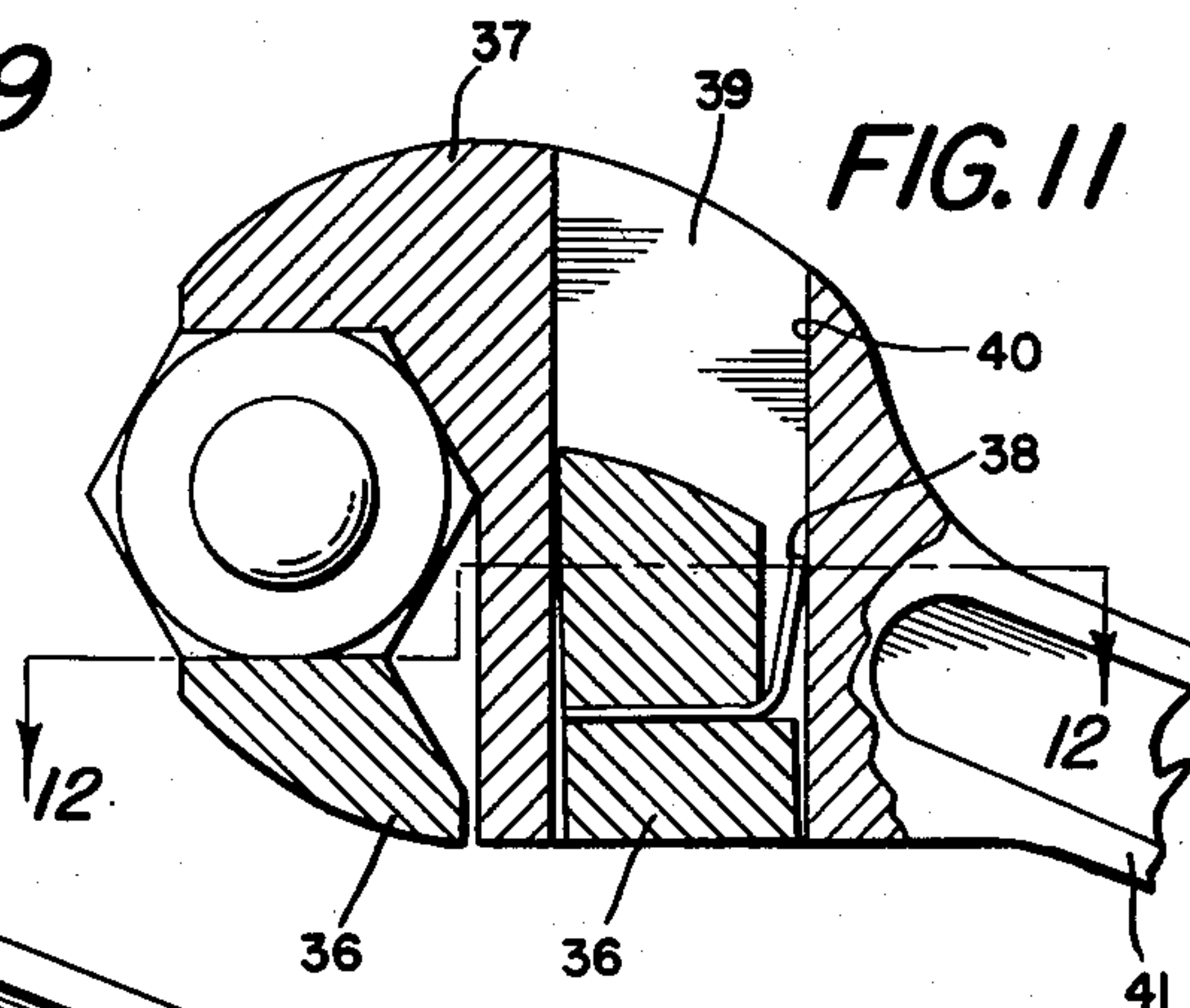


FIG. 11



INVENTOR.
MELMOTH W. HUNTER
BY
William Cleland
ATTORNEY

UNITED STATES PATENT OFFICE

2,653,501

SHANK-GRIP SLIDABLE SIDE JAW WRENCH

Melmoth W. Hunter, Lorain, Ohio

Application December 4, 1951, Serial No. 259,827

5 Claims. (Cl. 81-151)

1

This invention relates to wrenches, and in particular relates to monkey wrenches.

A primary object of the invention is to provide a monkey wrench having work-engaging jaws which are quickly engageable with work to be turned, such as a nut on a bolt, by simple relative sliding movement of the jaw-supporting parts, and without use of screw or like adjusting means, and including gripping means which is self-operating upon turning the wrench to hold the jaws in firm clamping engagement with said work.

Another object of the invention is to provide a wrench of the character described including a releasable device for limiting outward relative sliding movement of the jaw parts.

These and other objects of the invention will be manifest from the following brief description and the accompanying drawings.

Of the accompanying drawings:

Figure 1 is a top plan view of a monkey wrench embodying the features of the invention.

Figure 2 is a side elevation of the same, the jaws being shown in relative inoperative positions.

Figure 3 is a view similar to Figure 2, partly broken away, but with the jaws shown in operative positions clamped to a hexagonal nut.

Figure 4 is a cross-section, on the same scale as before, taken substantially on the line 4-4 of Figure 2.

Figures 5 and 6, are enlarged cross-sections, taken on the lines 5-5 and 6-6, respectively, in Figure 2, illustrating the non-wedging relationship of the parts in inoperative condition of the wrench.

Figures 7 and 8 are similarly enlarged cross-sections corresponding to Figures 5 and 6, respectively, taken on the lines 7-7 and 8-8 of Figure 3, and showing the parts in an operative condition of the wrench in which a hexagon nut is clamped between the jaws.

Figure 9 is a top plan view, partly broken away, corresponding to Figure 1, and on the same scale, the same showing a modified form of wrench.

Figure 10 is a side elevation, partly broken away, of Fig. 9.

Figure 11 is a cross-section taken substantially on the line 11-11 of Figure 9, but with the jaws of the wrench in wedging relationship for gripping a nut.

Figure 12 is a cross-section taken substantially on the line 12-12 of Figure 11.

Figure 13 is a view similar to Figure 10, but partly broken away and in section, illustrating another modified form of the invention.

Referring particularly to the embodiment of the invention shown in Figures 1 to 8, the numeral 10 designates a wrench head having an integral jaw extension 11 provided with a work-

2

engaging surface 12, and an elongated handle 13 extending generally in the opposite direction. In one side face of the head, and extending between opposite edges thereof, is a groove 14 defined by opposed parallel undercut portions 15 and 16 having beveled inner faces 17 and 18 which with a flat inner face 19 of the groove provide said undercut portions with oppositely inwardly diverging wedge-shaped cross-section. The groove 14 is shown extending substantially at right angles to the plane of work-engaging surface 12.

A relatively movable member 21 has a jaw 22 provided with a work-engaging face 23 substantially parallel to the face 12 of jaw 11, and an integral tongue 24 is slidably retained in groove 14 by opposite complementary rib portions 15 and 16. The inner face 27 of the tongue may be flat, as shown in Figure 1, with slight clearance provided between the same and the flat inner face of the groove to permit requisite free sliding adjustment of the member 21 on the wrench head. The ribs 25 and 26 are proportioned so as not to extend laterally to the full depths of the undercut portions to permit full wedging action at diagonally opposite corners A and B of the tongue (see Figure 3), upon turning the wrench while a nut 28 or like work is engaged between the jaws 11 and 22.

Stop means is provided for preventing accidental removal of the member 21 from the head 10. Accordingly, a length of spring wire has a short end portion 29 received in a hole 30 in the inner face of tongue 24, the remaining portion 31 of the wire being bent to extend freely along said groove in yielding engagement with the inner face of the same, a shallow groove 32 being provided in said inner face of the tongue to permit slight angular movement of spring portion 31. A hole 33 through the wall of the head centrally of the groove 14, provides a stop shoulder 34 (see Figure 4) which is engageable by the end of spring portion 31 in a fully open or extended position of movable jaw member 21. The member 21 may be easily removed from the head upon insertion of a pin or pointed object through the hole 33 to hold the end of spring portion 31 released from engagement with said stop shoulder 34.

In use of the wrench, described above in connection with Figures 1 to 8, it is first adjusted to the extended position of movable jaw member 21, as shown in Figure 2, by sliding said jaw member 21 along the groove 14, as limited by engagement of the end of spring 31 with stop shoulder 34. In this position of the jaws a hexagonal nut 28, for example, is readily received between the same, and the jaw member 21 is then slid inwardly along the groove 14 until opposite flat sides of the nut are engaged by the flat sides 12 and 23 of the jaws. Up

3

to this point, if no turning movement is applied to the movable member 21, no wedging action will be applied at the corners A and B (see Figures 5 and 6). In tightening the nut on a relatively fixed bolt 28a, however, the handle 13 is swung in clockwise direction, as viewed in Figure 3, thereby tending to urge the jaw 22 apart from relatively fixed jaw 11. This latter movement is very slight, however, before the consequent slight turning movement of the member 21 is effective to apply wedging action between the diagonally opposite corners of the tongue 24 and corresponding points in the undercut portions 15 and 16 of the groove 14, as indicated at A and B in Figures 3, 7 and 8. The more pressure applied to tighten the nut the tighter the jaw member will be wedged at the points A and B. When the nut is tightened the wrench is released by a sharp blow applied inwardly to the jaw 22 near the free end thereof. A nut may be loosened from a bolt in exactly the same manner, because upon turning the wrench in counter-clockwise direction the resulting tendency for the jaws to separate applies wedging action at the points A and B, as before.

The spring 31, in addition to serving as a stop means, as described above, prevents rattling of the movable jaw member with respect to the wrench head.

In order that the face 23 of jaw 22 may be parallel to face 12 of the fixed jaw in the clamped position shown in Figure 3 the plane of said face 23 in the inoperative position of the parts, as shown in Figure 2, may converge outwardly toward the plane of face 12 at a slight angle. In that case initial manual adjustment of the jaws to grip the nut as shown in Figure 3 would be effective to apply some degree of locking wedging action at the points A and B, that is, before actual turning movement of the wrench is started.

Figures 9, 10, 11 and 12 illustrate a modified form of the invention, which is substantially the same in construction and operation as previously described in connection with Figures 1 to 8, except that a movable jaw 36, in tongue-and-groove connection with a head 37 of the wrench, is prevented from rattling in the head by means of a wire-type spring 38 extending along a groove 39, in yielding engagement with the bottom of the wedge-shaped undercut portion 40 adjacent the wrench handle 41. For retaining the parts together in the inoperative condition of the wrench the spring may extend as shown to urge the movable jaw part into partial wedging engagement with the fixed head. Figure 12 shows the wrench parts in wedging relation.

The form of the wrench shown in Figure 13 is in all respects like the wrench shown in Figures 9 to 12, except that the groove 39a extends at an obtuse angle to the general plane of the gripping face 42 of the fixed jaw 37a. The groove may also be extended at a similar angle in the opposite direction.

Other modifications may be resorted to without departing from the spirit of the invention or the scope of the appended claims.

What is claimed is:

1. A wrench comprising a fixed jaw member having a work-engaging surface generally in a plane extending longitudinally and laterally of said jaw member between laterally opposite sides thereof, a relatively slidable jaw member having a work-engaging surface opposed to said work-

4

engaging surface of the fixed jaw member, said fixed jaw member having a guide groove extending transversely in one said side thereof at a substantial angle to said plane and defined by oppositely undercut side portions of wedge-shaped cross-section, said slidable jaw member having a tongue provided with complementally wedge-shaped portions slidably engaging in said undercut side portions of said groove, said wedge-shaped side portions of the tongue being proportioned so as not to extend to the full depths of said undercut side portions of the groove at diagonally opposite corner portions of said tongue, whereby relative turning movement of said jaw members is effective to apply wedging action at said diagonally opposite corner portions to prevent sliding movement of the slidable jaw relatively of said fixed jaw, one of said members having a handle thereon for turning the same.

2. A wrench comprising a head provided with a handle extension therefrom and a fixed jaw having a work-engaging surface generally in a plane extending longitudinally and laterally of said head between opposite sides thereof, a slidable jaw having a work-engaging surface opposed to said work-engaging surface of the fixed jaw, said head having a groove in one side thereof extending transversely at a substantial angle to said plane and defined by oppositely undercut side portions of oppositely inwardly diverging wedge-shaped cross-section, said slidable jaw having a tongue provided with complementally wedge-shaped side portions complementally slidably engaging in said undercut side portions of said channel, said wedge-shaped side portions of the tongue being proportioned so as not to extend to the full depths of said undercut side portions of the groove at diagonally opposite corner portions of said tongue, whereby turning movement on said head while work is gripped between said work-engaging surfaces is effective to apply wedging action at said diagonally opposite corner portions of the tongue to prevent sliding movement of the slidable jaw with respect to said head.

3. A wrench as set forth in claim 2, including an elongated resilient element mounted between said fixed and slidable jaws to extend along said groove in yielding engagement with said inner face of the groove and thereby tending to yieldingly hold said jaws in non-wedging relationship.

4. A wrench as set forth in claim 3, the inner face of said groove having therein a stop shoulder engageable by a free end on said resilient element to limit outward sliding of said movable member with respect to said head.

5. A wrench as set forth in claim 4, said shoulder recess being an edge portion of a hole extended through the wall of the head.

MELMOTH W. HUNTER.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
541,827	Becher	July 2, 1895
1,382,248	Schafer	June 21, 1921
1,389,487	Cassel	Aug. 30, 1921
1,794,085	Marcuson	Feb. 24, 1931
2,390,570	Zindars	Dec. 11, 1945
2,472,338	Osterdahl	June 7, 1949

FOREIGN PATENTS

Number	Country	Date
372,150	Germany	Mar. 24, 1923