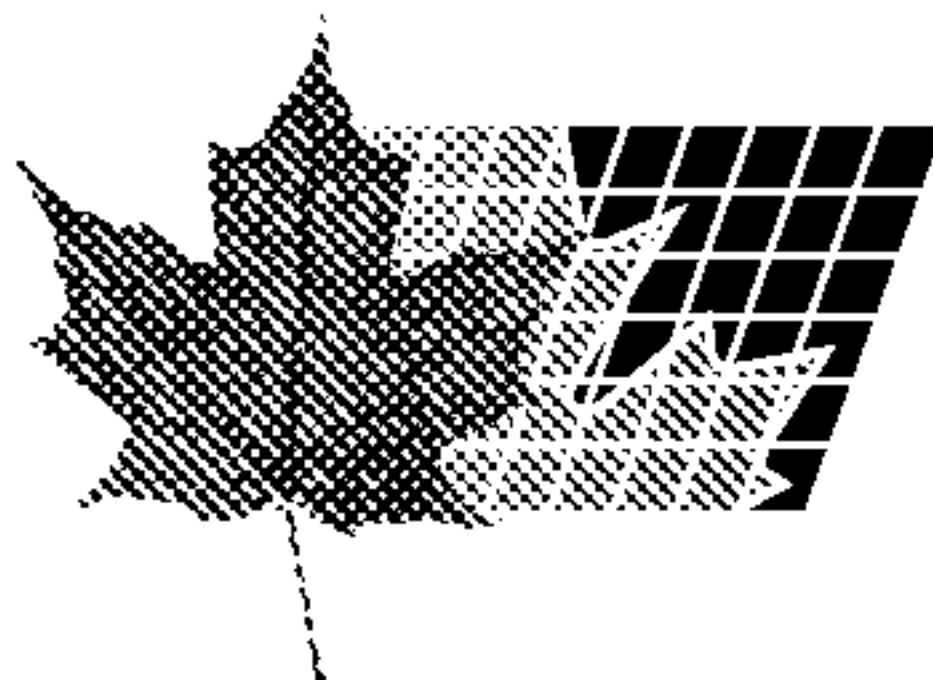




(72) PEGGION, FERNANDO, IT

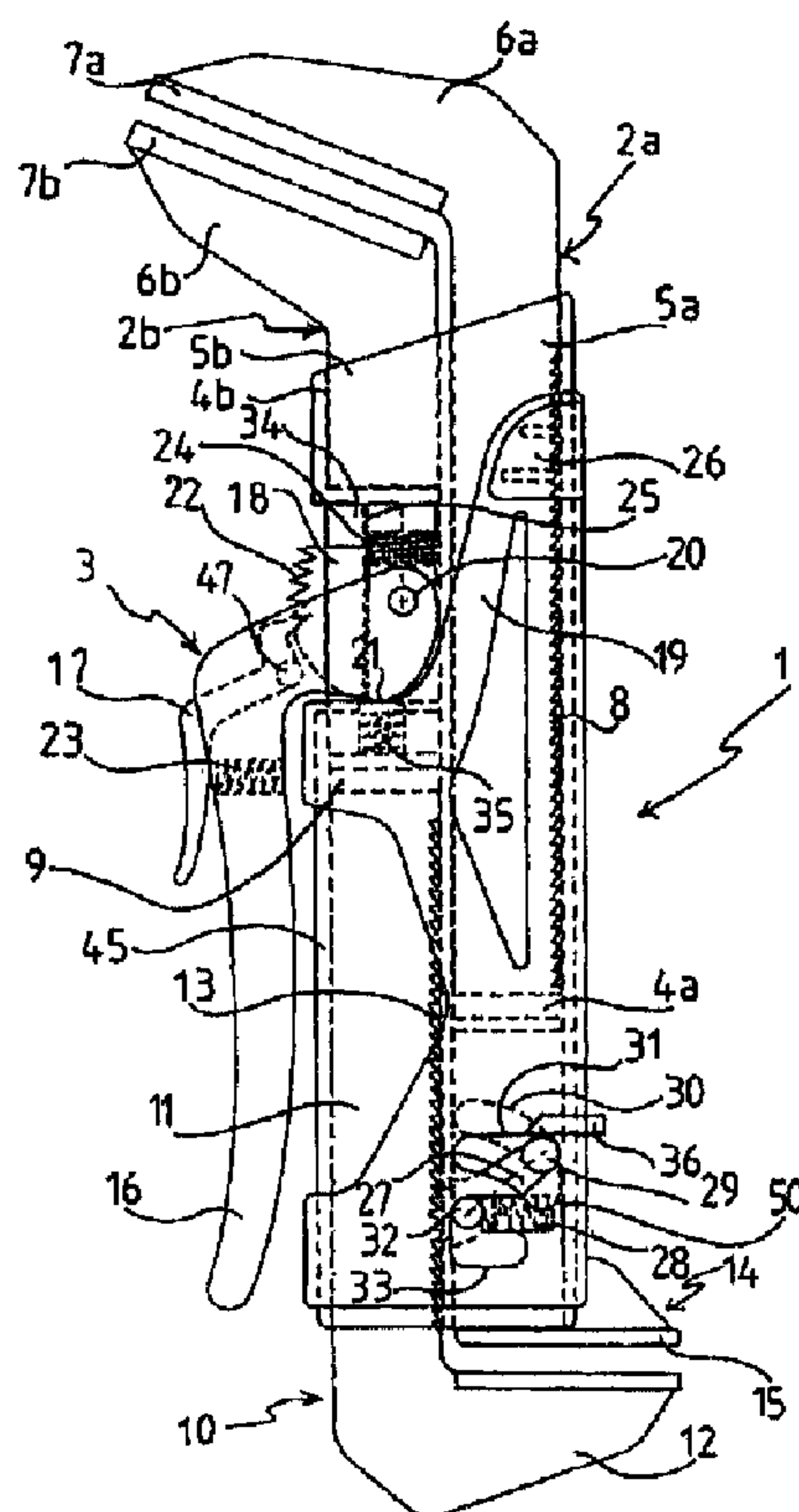
(71) PEGGION, FERNANDO, IT

(51) Int.Cl.⁷ B25B 13/50, B25B 13/12

(30) 1998/07/15 (CR98A000004) IT

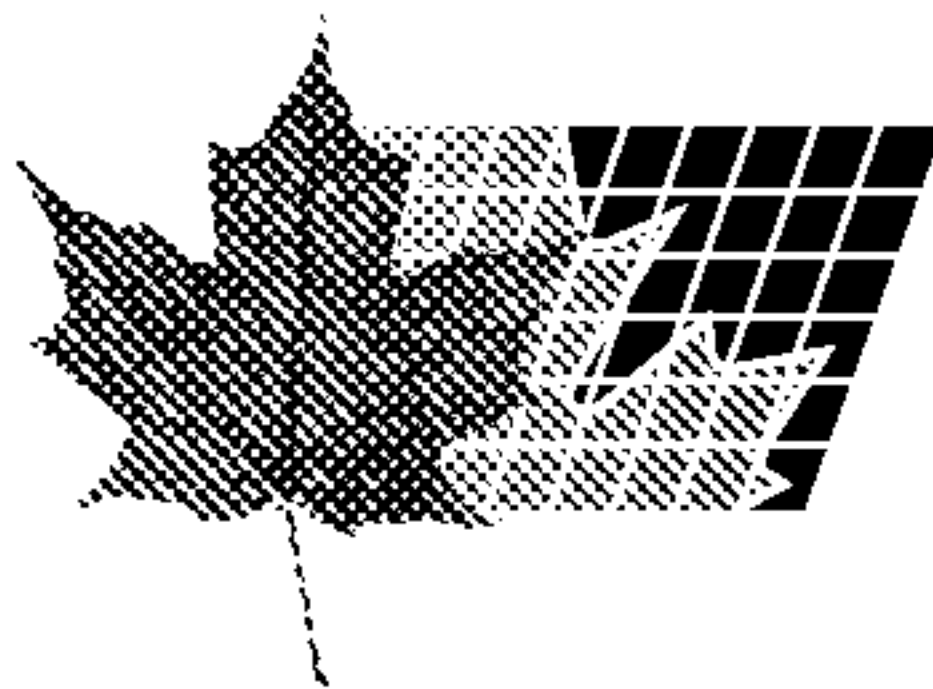
(54) **OUTIL A PINCE AUTOBLOQUANTE ET A BRAS
INTERCHANGEABLES, ET MECANISME DE FIXATION A
L'ETABLI**

(54) **TOOL WITH SELF-LOCKING GRIP, INTERCHANGEABLE
HEAD-PIECES AND CLAMP FOR FASTENING TO THE WORK
BENCH**



(57) L'invention concerne un outil à pince autobloquante comprenant une poignée (1), deux bras (2a et 2b), et un dispositif à levier autobloquant (3), dans lequel ladite poignée (1) présente un corps principal (45) qui contient deux sièges de guidage prismatiques (4a et 4b), destinés à tenir les deux bras. Ces bras sont en outre amovibles et interchangeables avec d'autres bras, de manière à pouvoir effectuer divers travaux mécaniques, le

(57) Tool with self-locking grip featuring a handle (1), two levers (2a) and (2b), and a self-locking device (3), in which the handle (1) features a main body (45), containing two prismatic housing-guides (4a) and (4b) which hold the two levers. These are removable and interchangeable with other levers for performing different mechanical functions, where the self-locking device (3) is kinetically connected between the main



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dispositif à levier autobloquant (3) étant raccordé de manière cinétique entre ledit corps principal (45) et l'un de ces bras. Ce corps principal (45) renferme également un troisième guide prismatique (9), destiné à un autre bras amovible (10). Etant raccordé sélectivement au dispositif à levier autobloquant (3) de manière à pouvoir coulisser à l'intérieur de son siège, ce bras amovible approche d'un élément butoir (14), relié audit corps principal (45), pour permettre de fixer ledit outil à une partie saillante de l'établi.

body (45) and one of the levers. The main body (45) also contains a third prismatic guide (9) for a further removable lever (10); this lever, being connected as required to the same a self-locking device (3) and sliding inside its own housing, approaching a counter element (14) fixed to the main body (45) allows vice-like fastening of the tool to a protruding part of the work bench.

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International Bureau

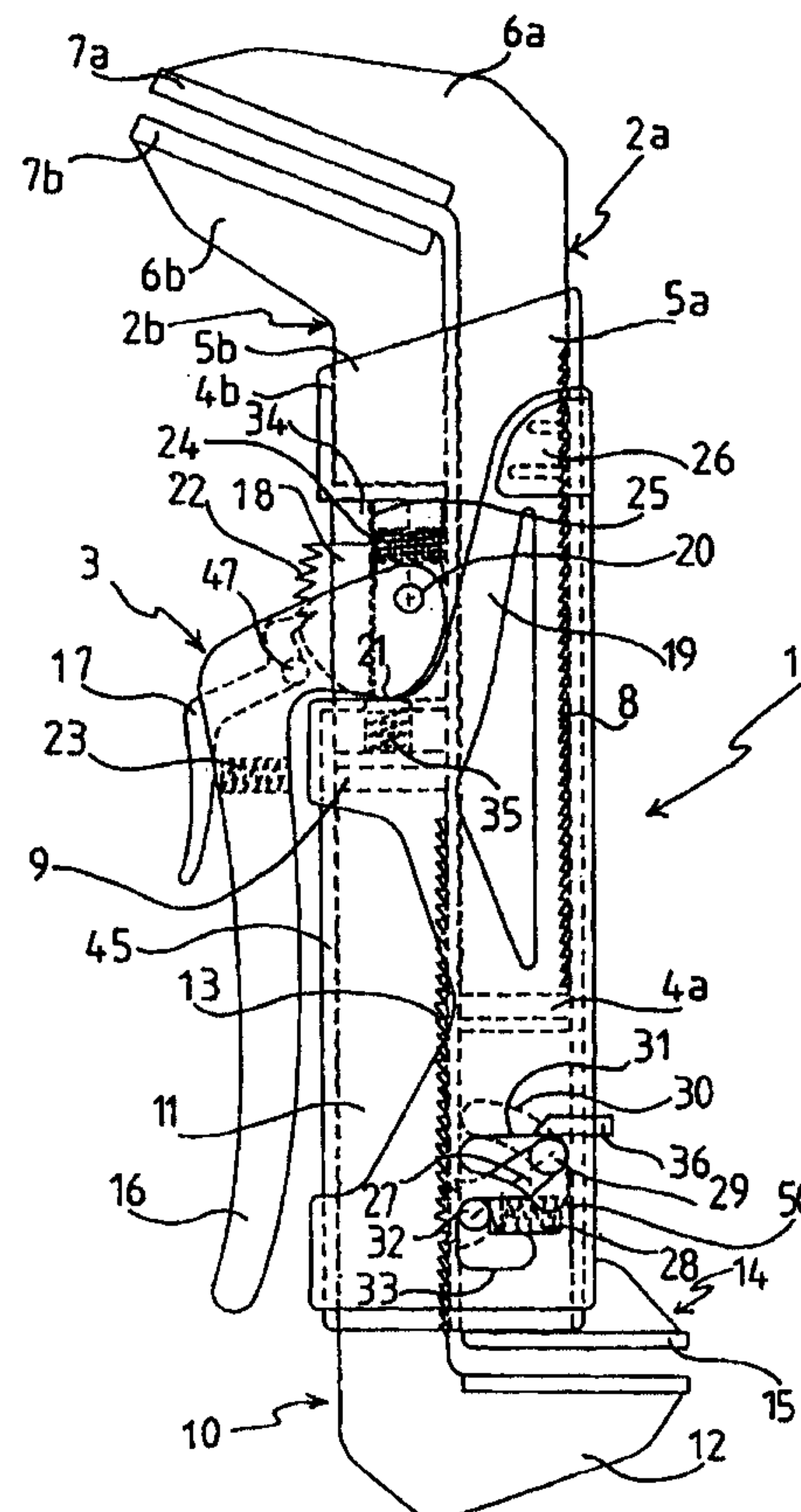
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/IT99/00200 (22) International Filing Date: 2 July 1999 (02.07.99) (30) Priority Data: CR98A000004 15 July 1998 (15.07.98) IT (71)(72) Applicant and Inventor: PEGGION, Fernando [IT/IT]; Via Punara, 1, I-35010 San Giorgio delle Pertiche (IT). (74) Agent: MASCIOLI, Alessandro; Via Urbana, 20, I-00184 Roma (IT).		(81) Designated States: AU, CA, CZ, JP, NO, NZ, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>

(54) Title: TOOL WITH SELF-LOCKING GRIP, INTERCHANGEABLE HEAD-PIECES AND CLAMP FOR FASTENING TO THE WORK BENCH

(57) Abstract

Tool with self-locking grip featuring a handle (1), two levers (2a) and (2b), and a self-locking device (3), in which the handle (1) features a main body (45), containing two prismatic housing-guides (4a) and (4b) which hold the two levers. These are removable and interchangeable with other levers for performing different mechanical functions, where the self-locking device (3) is kinetically connected between the main body (45) and one of the levers. The main body (45) also contains a third prismatic guide (9) for a further removable lever (10); this lever, being connected as required to the same a self-locking device (3) and sliding inside its own housing, approaching a counter element (14) fixed to the main body (45) allows vice-like fastening of the tool to a protruding part of the work bench.



TOOL WITH SELF-LOCKING GRIP, INTERCHANGEABLE HEAD-PIECES AND CLAMP FOR FASTENING TO THE WORK BENCH.

The invention relates to a tool with self-locking grip, interchangeable head-pieces and clamp for fastening to the work bench.

5 It is well known that there is currently a vast range of work tools made up essentially of two levers, which are permanently fastened to the handle, with at least one of the levers being mobile.

At the ends of the levers there are normally jaws designed to carry out the various operations, such as tightening bolts, pipes or couplings, or holding still an object
10 being machined, and so on.

In some cases the ends of the levers feature special devices designed to, for example, cut pipes, punch holes, etc.

Each tool is generally designed to perform just one task, depending on the type and shape of the jaws set at the end of the levers, the way in which the distance
15 between the end of the levers is adjusted and the possibility of locking the levers in position using a specific self-locking system.

For this reason, there is an almost endless variety of two-lever tools on the market today, the more common of which are: self-locking pliers with screw-adjustment of the distance between the jaws and the locking pressure; adjustable pipe wrenches
20 which allow the distance between the jaws to be set; wrenches featuring one movable jaw which slides along a worm screw-lead screw system; pipe cutters with cutting wheel set at the end of at least one of the levers; punches for punching holes in soft sheet material, etc.

The main problem with the better-known tools of this type is the fact that each tool
25 is generally designed to carry out just one task, depending on the type and shape of the jaws set at the end of the levers, the type of material used in the gripping portion of the jaws, the presence or otherwise of special devices or head-pieces at the end of the levers, the way in which the distance between the end of the levers is adjusted, and the possibility of locking the levers in position using a specific self-
30 locking system.

As a result, it is usually necessary to purchase a series of tools to carry out different tasks, which means not only greater expense but also transport and handling problems due to increased bulk and weight.

US Pat. n. 2 312 425 describes a wrench wherein it is easy to place the jaws in gripping relation to the work, and having interchangeable jaws of different contours, suitable to particular types of work.

The wrench comprises an elongated flat transversely rectangular casing having an open end and a closed end, and an elongated longitudinal slot in one edge thereof, a pair of jaw members having flat shanks extending into said open end of the casing and relatively slidable in edge-to-edge engaging relation therein, inwardly and outwardly of said open end, respectively, into different positions, detent means for releasably holding one shank in different positions, a spring in said casing having its ends fastened to the inner end of the other shank and to the closed end of the casing, respectively, in the line of movement of said other shank and tensioning said other shank against outward sliding, and means to slide said other shank outwardly in opposition to said spring comprising a lateral edge lug on said other shank extending into the slot in said one edge of the casing flush with said edge, a pair of opposed ears extending from said one edge of the casing at opposite sides of said slot, a cam pivoted between said lugs and having a handle and a radial shoulder rotatable into said slot into camming engagement with said lug.

The main disadvantages of the wrench consist in that is difficult to unfasten the spring and to interchange the shank without disassembling the casing.

The interchangeability is theoretic more than practical.

Moreover, the thickness of the object to be gripped does not allow the handle to find a rest in the casing.

Furthermore, the user must had the wrench in his hand while he is working, and this means that one hand is constantly engaged.

Finally, the compression of the handle always causes the lower jaw to move towards the upper jaw, whereas in some works it is more convenient that the upper jaw moves towards the lower one.

In US Pat. n. 2 149 541 a wrench is disclosed having a handle and a pair of complemental jaws. The jaws have some type of removable jaw members attached to the regular jaws of the wrench, in order to provide alternatively a smooth flat clamping surface on the jaws, or a punch member, or a cutting pipe device.

The main defect consists in that the jaws are not interchangeable, but may just be fitted by applying thereto devices of reduced dimensions, which aren't practical and are weak. Further disadvantages consist in that the wrench lacks a device for blocking the jaws in position, and that the push of the user on the handle is not balanced, thus forcing the user himself to use not only one, but both hands to do his work.

Finally, none of the more common tools available has the option of being fastened directly to the work bench; indeed, even those tools which are designed to hold two objects in place for operations such as welding or gluing, must in turn be fastened to the bench using a traditional vice, in order to allow the user to have
5 both hands free to perform the task in question.

The latter situation requires the operation to be carried out using a bench vice, which may in many cases damage or deform the handle of the tool being used.

The aim of this invention then is to eliminate all of the problems described above.

In particular, the main objective of this tool is to allow the use of removable and
10 interchangeable levers, making the tool itself suitable for performing a wide variety of tasks.

A further objective is the possibility of fastening the tool to the work bench using a specific, incorporated device, which is operated by the same self-locking system used to lock the levers of the tool.

15 These and other objectives have been fulfilled by this invention, a self-locking tool made up of a handle, at least two levers and a self-locking system, the handle of the tool features a main body, containing at least two prismatic housing-guides, holding and guiding the levers of the tool; such levers are removable and interchangeable with other levers designed for performing other mechanical
20 functions, and the self-locking device is kinetically connected between the main body of the handle and one of the levers, which traverses inside its housing-guide, this movement results in the end of the moving lever approaching the end of the other lever, which remains fixed inside its housing, creating the grip effect and locking into position when closed.

25 To fasten the tool to the work bench, the main body of the handle contains at least a third prismatic housing-guide, which houses a further removable lever located at the opposite end of the handle to the first two levers; this lever, also being kinetically and selectively connected to the same self-locking device which acts on one of the interchangeable levers, slides inside its own housing, approaching an
30 element fixed to the handle of the tool and creating a clamping effect which allows the tool to be fastened to a protruding part of the work bench.

Finally, to allow the interchangeable levers of the tool to grip objects of different shapes, or with different mechanical resistance to buckling, the gripping area of

the ends of the levers are also fitted with removable devices which can be easily replaced as required.

The advantages of this invention consist, in general, in the fact that several different applications can be performed using one single handle, costs for the purchasing of a complete kit of tools are reduced, and the user can operate alone
5 and carry out jobs in which both hands must be free, without the need to use a vice to clamp the wrench.

The advantages relating to the different types of applications, consist in the possibility to obtain a greater opening of the jaws at the end of the levers suitable
10 to the grip; in the possibility to have a progressive pressure between the end of the levers using a claw device, fitted in the self-blocking lever (useful, for example, when cutting pipes; and finally in the possibility to exercise an elevated pressure thanks to the gearbox ratio present in the cinematic movement of the self-locking lever (useful for example, to trim or punch), etc.

15 Finally, further characteristics and advantages of the invention will be better highlighted by the more detailed description as follows, with the help of drawings showing some of the more common applications. The illustrations are provided as examples only, and do not represent the complete range of possibilities.

Figure 1 shows a side view with hidden lines dashed, of the self-blocking tool in
20 grip closed position, the principle version of this invention.

Figure 2 shows a side view of the same tool, in open release position.

Figure 3 shows a side view with hidden lines dashed, the self-blocking tool in grip closed position, one possible variation.

Figure 4 shows the same variation of the tool as in Figure 3, in open release
25 position.

Figure 5 shows a side view with hidden lines dashed, the self-blocking tool in grip position closed, a further possible variation.

Figure 6 shows the same variation of the tool as in Figure 5, in open release position.

30 Figure 7 shows a side view of the interchangeable levers of the tool.

Figure 8 shows a exploded perspective view of the jaws at the ends of the interchangeable levers, with an example of the replaceable grip zone.

Figures 9, 10, 11, and 12 show a side view of the tool respectively and illustratively

fitted with jaws for holding objects in place for operations such as welding or gluing, jaws for tightening or loosening bolts, jaws with a pipe cutting device, and jaws with a device for punching holes.

Figure 13 shows a exploded perspective view of the fixed element for the locking jaw of the tool, in the versions illustrated in Figures 1, 2, 3, and 4.

Figure 14 shows a perspective view of the sliding block on which the manoeuvring lever of the self-blocking lever device pivots.

Figure 15 shows a perspective view of the ratchet of the handle, which allows the tool to be fastened to the work bench.

10 With reference to the details shown in the figures, this invention features a handle 1, two levers 2a and 2b, and a self-locking lever device 3.

The handle of the tool 1 in turn features a main body 45, containing at least two prismatic housing-guides 4a and 4b, holding and guiding respectively the two levers of the tool 2a and 2b.

15 Each of these levers 2a and 2b features a prismatic portion 5a and 5b, which can be inserted in the two prismatic housing-guides 4a and 4b, and ends 6a and 6b, which are remain external.

These levers are thus removable and can be interchanged with other levers, which are identical as far as the internal prismatic position to the housing-guides is concerned, yet different as far as the external ends are concerned, the latter acting, as needs require, as a jaw, shown in Figures 1 to 10, or as a support tool for other work devices and tools, as shown in Figures 11 and 12.

20 In the case where ends 6a and 6b act as jaws, their gripping position 7a and 7b is fitted with a track guide 46, which allows their replacement either to modify the shape of the gripping zone or to change the materials used in the manufacture of the grip itself, which comes into contact with the object being held.

Both the shape and the materials of the gripping sections may be varied according to the requirements of the application.

30 The materials which may be used included rubber, Teflon, copper, etc., in addition to the standard steel.

Finally, the prismatic portion 5a of lever 2a features, on one side, selective locking elements, which in the applications shown in the figures are fitted with a rack 8.

Furthermore, the main body 45 of the handle 1 features a third prismatic housing-

guide 9, designed for housing and guiding a third lever 10.

The lever 10 features a prismatic portion 11 which can be inserted in the prismatic housing-guide 9, and an end 12 acting as a jaw.

The prismatic portion 11 of lever 10 also features, on one side, selective locking
5 elements 13, which in the application shown in the figures are saw-tooth shaped, as per those for lever 2a.

Opposite element 12, at the end of the main body 45 and using locking devices 48 and 49, a removable element 14 is inserted, whose gripping portion 15 co-
operates with that of jaw 12. Element 14 thus acts as a fixed element for the jaws,
10 allowing the tightening of the above-mentioned gripping portions to a stable protrusion of the work bench or similar support, in a way similar to that of a vice.

With reference to the principle version of the tool shown in Figures 1 and 2, the self-blocking device features a manoeuvring lever 16, a spike 17, a sliding block 18 and a saddle 19.

15 The manoeuvring lever 16 is pivoted on the sliding block 18 using pin 20 and connected to saddle 19 through contact with the surface of cam 21, as shown in Figure 1, or otherwise using a rod 44, as shown in the alternative versions in Figures 3 and 4.

The spike 17 is pivoted on the manoeuvring lever 16 using pin 47 and is meshed
20 in the teeth of a rack 22 on sliding block 18 by the effect of a spring 23.

The device made up of the spike 17 and the rack 22 allow the manoeuvring lever 16 to reach and maintain a multitude of positions.

A worm screw and nut screw device, made up of a reel 24 meshed in a sliding block 18 and rotating on the nut screw 25, housed in the main body 45 of handle
25 1, allow small movements of the sliding block 18 along the rail guide 34, and consequently also of the manoeuvring lever 16, in order to finely adjust the gripping strength between the ends 6a and 6b, elements 12 and 15.

The saddle 19 slides in both directions along the main body 45, contrasted by the counter spring 35.

30 The saddle 19 is connected to lever 2a through a connection device 26, fitted with teeth which are meshed in rack 8.

This device 26 is meshed in the saddle 19 using a common rail-type connection, making it able to be removed from rack 8, and thus allowing the disconnection of

saddle 19 from lever 2a, in turn allowing the latter to slide inside its own housing and position itself in the correct initial position.

The saddle 19, finally, is also connected to lever 10 using a pawl 27, fitted with teeth for meshing in rack 13, due to the push effect of spring 28.

5 The pawl 27 is also fitted with a pin 29 which slides or rotates along the surfaces bordering the slotted holes 30 and 31, on the main body of handle 1 and the saddle 19, as well as with a second pin 32 which slides in slotted hole 33 on saddle 19, if required, horizontally in slotted hole 50, on the main body 45, countered by spring 28.

10 The first pin 29 allows the action, as required, of devices blocking the pawl 27, made up, in the example shown, of a hook 36 pivoted in the main body 45 of handle 1.

The second pin 32 is pushed towards the teeth 13 by the spring 28 housed in the main body 45.

15 In a second version of the tool, as illustrated in Figures 5 and 6, the saddle 19 is replaced with a block 37 which slides inside guide 4b of lever 2b.

This block 37 is connected to manoeuvring lever 16 using a connecting rod 38 and to lever 10 using a rod 39, at the lower end of which is fastened a rotating reel 40, a rounded portion of the side surface of which is fitted with teeth 41 for meshing in
20 the teeth 13 of lever 10.

In this version, lever 10 is inserted into a prismatic guide which is coaxial to that of lever 2a; the position of lever 10 can be blocked as required using the locking device 42 of teeth 13 fastened onto the main body 45 of handle 1.

In a further version of the device, which is not illustrated, lever 10 may be absent
25 and element 14 can be replaced by magnetic elements which the tool to be fastened to iron-based parts of the work bench.

In the principle version of the tool, lever 2a can be inserted in housing 4a by disconnecting device 26, while lever 2b can be directly inserted into housing 4b.

The connecting device 26 also allows the setting of the initial distance between
30 jaws 6a and 6b.

Lever 10 can be disconnected (or inserted) from housing 9 by disconnecting pawl 27, acting on pin 32 which can horizontally slide in slotted hole 33, against the force of spring 28.

Element 14 can be fastened at the end of the main body 45 of handle 1 using common locking elements 48.

Acting on manoeuvring lever 16, the saddle 19 slides downwards, dragging lever 2a, whose end 6a approaches end 6b of lever 2b, which remains fixed in its housing.

At the same time, pin 29 is made to slide along slotted hole 30 from the edge of slotted hole 31.

In this way the toothed side of pawl 27 is meshed in rack 13 of lever 10, making it slide upwards and causing end element 12 to approach the grip portion 15 of element 14.

This movement allows the vice, made up of jaws 12 and 14, to fasten the tool onto a protruding part of the work bench.

Lever 16 is kept in position by spike 17 which meshes in the teeth 22 of block 18, thanks to the action of spring 23.

In this way it is possible to keep a fixed distance both between end 6a and 6b of levers 2a and 2b, and the end jaw 12 of lever 10 and the grip portion 15 of element 14.

Reel 24 can be used to adjust the pressure on the object tightened between these elements with greater precision.

To fasten the grip of the jaws 10 and 14, hook 36 acting on pawl 27 can be used. In this way, even further upward movement of saddle 19 will not separate lever 10 and element 14, and will thus keep the tool fastened to the work bench.

As a consequence, the fine adjustment of the pressure between levers 2a and 2b or 10 and 14, using reel 24, can be performed independently both in the case where hook 36 is inserted or not.

In the second version of the tool, acting on manoeuvring lever 16, block 37 slides inside housing 4b, pushing lever 2b upwards, whose end 6b approaches end 6a of lever 2a.

At the same time, rod 39 is made to slide and, via reel 40, whose teeth 41 are meshed in rack 13, drags lever 10.

To fasten lever 10 in position and free the movement of levers 2a and 2b from the movement of lever 10, place locking element 42 in rack 13 and roll reel 40 sufficiently to free teeth 41 from the rack, made up of teeth 13 of lever 10.

8

This operation thus allows the upper section of the tool, made up of levers 2a and 2b, to be made independent from the lower portion (or vice), made up of elements 10 and 14, which can remain closed even on opening lever 16.

In order to remove lever 10 from its housing, remove the locking element 42 from
5 rack 13, after having rolled reel 40 sufficiently to disconnect the teeth 41 from the above mentioned rack.

To remove lever 2a from its housing 4a, disconnect the teeth of locking element 43, fastened in a removable manner to handle 1, from teeth 8 of lever 2a.

CLAIMS

1. Tool with self-locking grip featuring a handle (1), at least two ^{gripping arms} levers (2a) and (2b), and a ~~self~~locking device (3), ~~characterised by the fact that~~ the handle of the tool (1) features a main body (45), containing at least two prismatic housing-guides (4a) and (4b), which hold and guide the two ^{gripping arms} levers of the tool, said ^{gripping arms} levers are removable and interchangeable with other ^{gripping arms} levers, and fitted with ends (6a) and (6b) designed for performing a range of mechanical functions, ~~and by the fact that~~ the ~~self~~locking device (3) is kinetically connected between the main body (45) of handle (1) and one of the ^{gripping arms} levers, which moves transversally inside its housing-guide, this movement results in the end of the moving ^{gripping arm} lever approaching the end of the other ^{gripping arm} lever, which remains fixed inside its housing, creating the gripping effect and locking into position when closed;
2. Tool, as claimed in claim 1, characterised by the fact that the main body (45) of handle (1) contains at least a third prismatic housing-guide (9), which houses a further removable ^{gripping arm} lever (10) located at the opposite end of the main body (45) of the handle (1) to the first two ^{gripping arms} levers (2a) and (2b); this ^{gripping arm} lever, also being kinetically connected as required to the same ~~self~~locking device (3) which acts on one of the interchangeable ^{gripping arms} levers, slides inside its own housing, approaching an element (14) fixed to the main body (45) of handle (1) of the tool, and creating a clamping effect which allows the tool to be fastened to a protruding part of the work bench.
3. Tool, as claimed in claim 1, characterised by the fact that ^{gripping arms} levers (2a) and (2b) each feature respectively a prismatic portion (5a) and (5b), which can be inserted in the two prismatic housing-guides (4a) and (4b), and an end (6a) and (6b), which remains outside the main body (45) of the handle (1).
4. Tool, as claimed in claims 1 and 3, characterised by the fact that the ends (6a) and (6b) of the ^{gripping arms} levers (2a) and (2b) act as jaws, include gripping portions (7a) and (7b) fitted with mobile fastening elements at the ends, whose replacement allows the changing of the shape of the gripping area or the structural material of the parts which come into contact with the object to be gripped.
5. Tool, as claimed in claims 1 and 3, characterised by the fact that the prismatic portion (5a) of ^{gripping arm} lever (2a) is fitted with elements (8) for locking as required to the main body (45) of handle (1).

5 ⁵ [6] Tool, as claimed in claim 2, characterised by the fact that ⁷ [lever] (10) includes a prismatic portion (11), and can be inserted in a prismatic housing guide (9), fitted with elements (13) for locking as required to the main body (45) of handle (1), and a protruding end (12) of the handle (1) acting as a jaw.

5 6 ⁵ [7] Tool, as claimed in claims 2 and 6, characterised by the fact that opposite jaw (12), an element (14) with gripping portion (15) and acting with jaw (12), can be inserted, and removed, at the end of main body (45), and acts as a fixed element countering the moving jaw.

(1) → 8. Tool, as claimed in claims 1 and ⁵ [8], characterised by the fact that the self-blocking device features one manoeuvring lever (16), one spike (17), one sliding block (18) and one saddle (19).

9. Tool, as claimed in claim 8, characterised by the fact that the manoeuvring lever (16) is pivoted on the sliding block (18) using pin (20) and connected to the saddle (19) through contact with the surface of the cam (21).

15 10. Tool, as claimed in claim 8, characterised by the fact that the manoeuvring lever (16) is pivoted on the sliding block (18) using pin (20) and connected to the saddle (19) by a rod (44).

20 11. Tool, as claimed in claim 8, characterised by the fact that the spike (17) is pivoted on the manoeuvring lever (16) using pin (47) and is meshed in the teeth of a rack (22), present on the sliding block (18), due to the action of a spring (23).

25 12. Tool, as claimed in claims 1 ⁵ and ⁸ [9], characterised by the fact that a reel (24) is meshed in sliding block (18) and rotates on the nut screw (25), which is housed in the main body (45) of handle (1), allowing small movements of the sliding block (18) along the rail guide (34), and consequently also of the manoeuvring lever (16), in order to finely adjust the gripping strength between the ends (6a) and (6b), (12) and (14).

30 13. Tool, as claimed in claims 1 and ⁸ [10], characterised by the fact that the saddle (19) slides in both directions along the main body (45) of handle (1), countered by a return spring (35).

14. Tool, as claimed in claims 1, ⁸ [11] and 13, characterised by the fact that the saddle (19) is connected to lever (2a) using a removable connection device (26), fitted with suitable teeth for meshing in rack (8) in a variety of possible positions as

(1) 7. Tool, as claimed in claim 1, characterised by the fact that the locking device (3) is a self-locking device.

required.

15. Tool, as claimed in claims 1, ^{5,8}~~5~~ and 13, characterised by the fact that the saddle (19) is connected to lever (10) using elements (27), fitted with teeth for meshing in rack (13), due to the effect of spring (28), housed in the main body (45).

16. Tool, as claimed in claims ⁸~~1, 3~~ and ¹⁵~~1, 3~~, characterised by the fact that the pawl (27) is also fitted with a pin (29) which slides on the surfaces bordering the slotted holes (30) and (31), respectively in the main body (45) of handle (1) and in the saddle (19), as well as a second pin (32) which slides in slotted hole (33) on the saddle (19), and horizontally in slotted hole (50) on the main body (45), countered by spring (28).

17. Tool, as claimed in claims 1 and 2, characterised by the fact that the self-locking device (3) includes a manoeuvring lever (16), a spike (17), a sliding block (18), and a block (37).

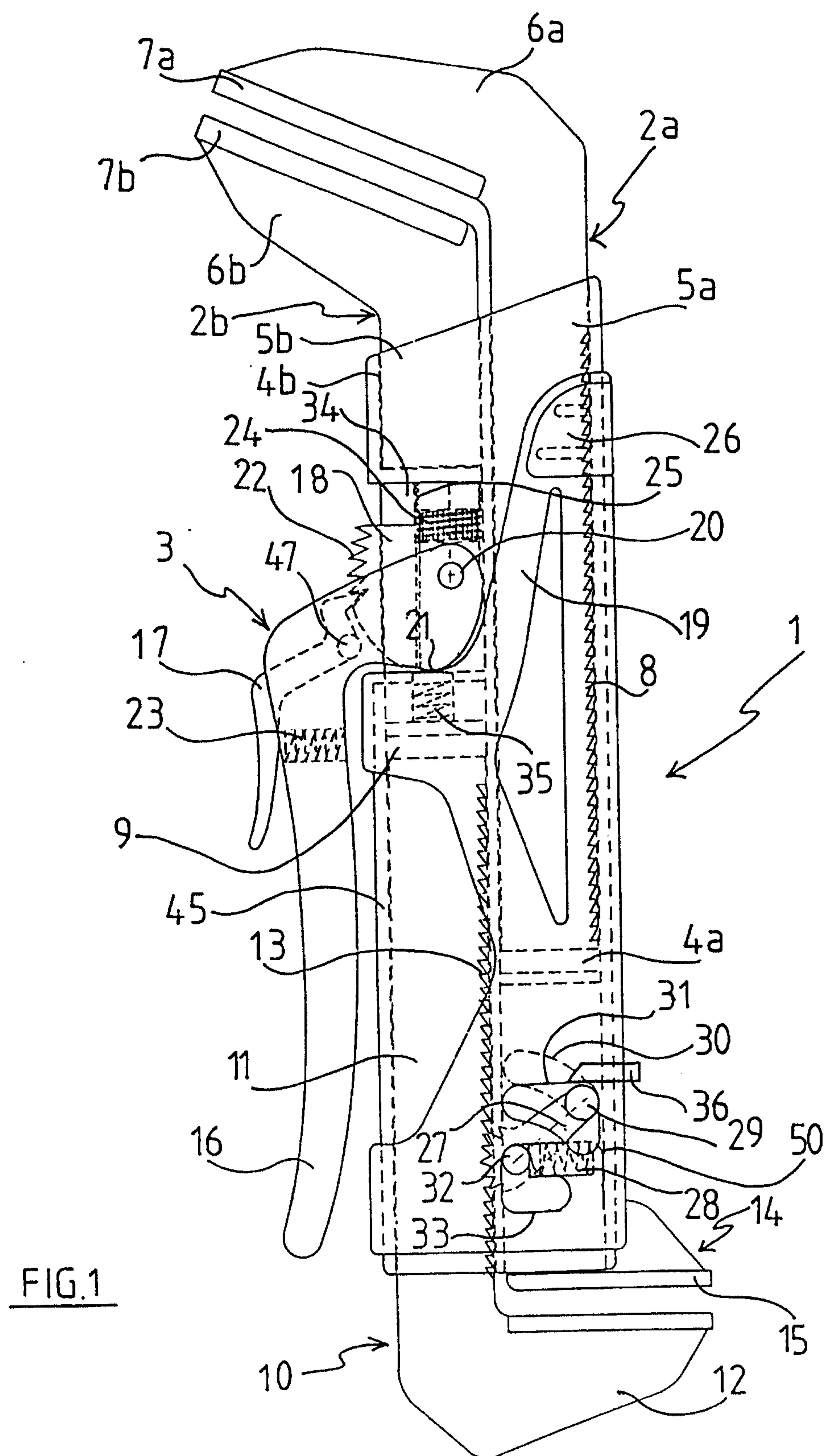
18. Tool, as claimed in claim 17, characterised by the fact that the block (37) is connected to the manoeuvring lever (16) using a connecting rod (38), and to the lever (10) using a rod (39).

19. Tool, as claimed in claims 17 and 18, characterised by the fact that a rotating reel (40) is fastened to the lower end of the rod (39), a rounded portion of whose side surface is fitted with teeth (41) for meshing in the teeth (13) of lever (10).

20. Tool, as claimed in claims 17, 18 and 19, characterised by the fact that lever (10) is inserted in a prismatic guide which is coaxial to that of the lever (2a), and whose position can be blocked as required using the locking device (42) of teeth (13), fastened to the main body (45) of handle (1).

21. Tool, as claimed in any preceding claim, characterised by the fact that element (14) includes magnetic elements which act on iron-based parts of the work bench, allowing the tool to be fastened to the work bench itself.

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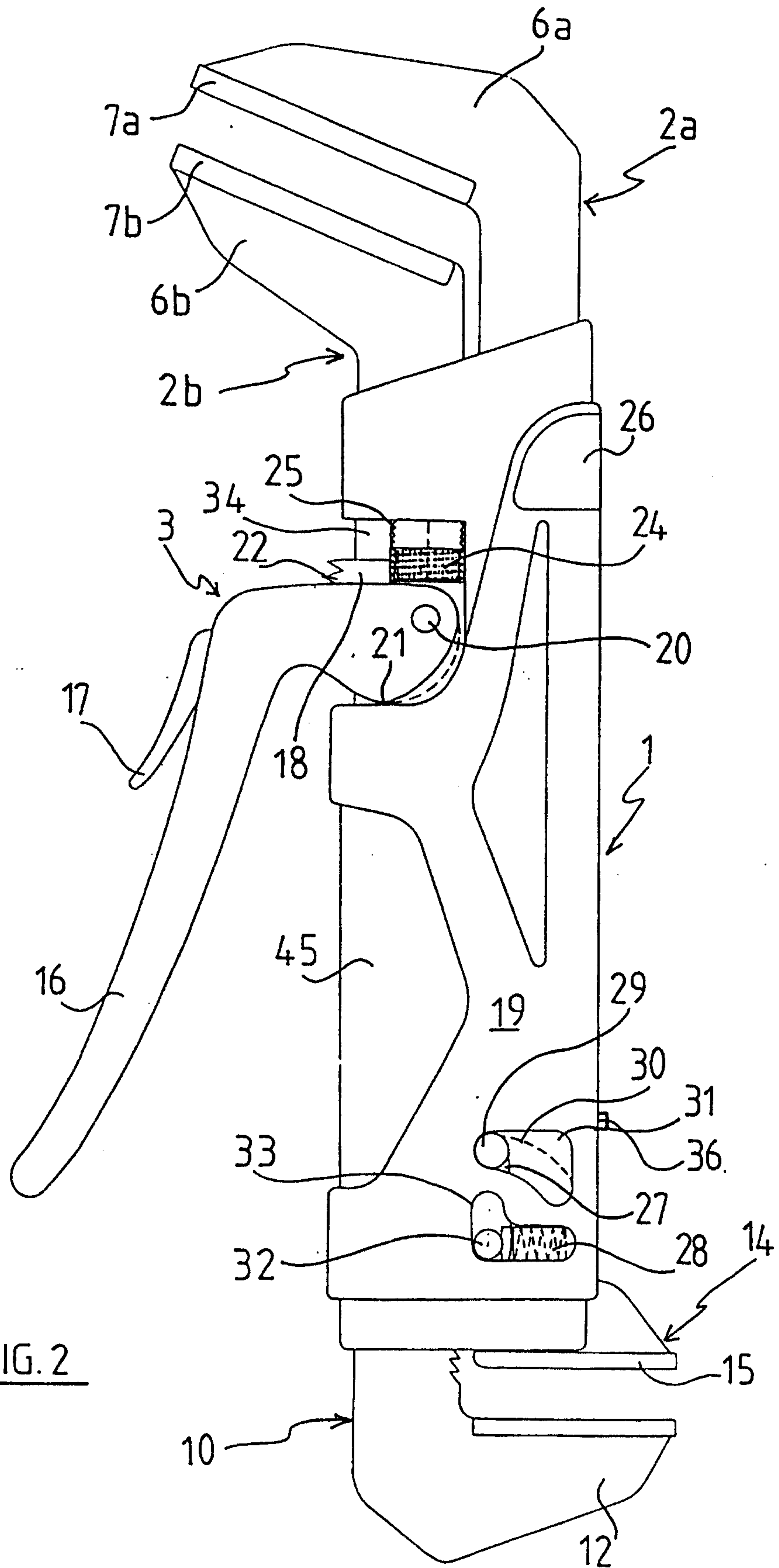


FIG. 2

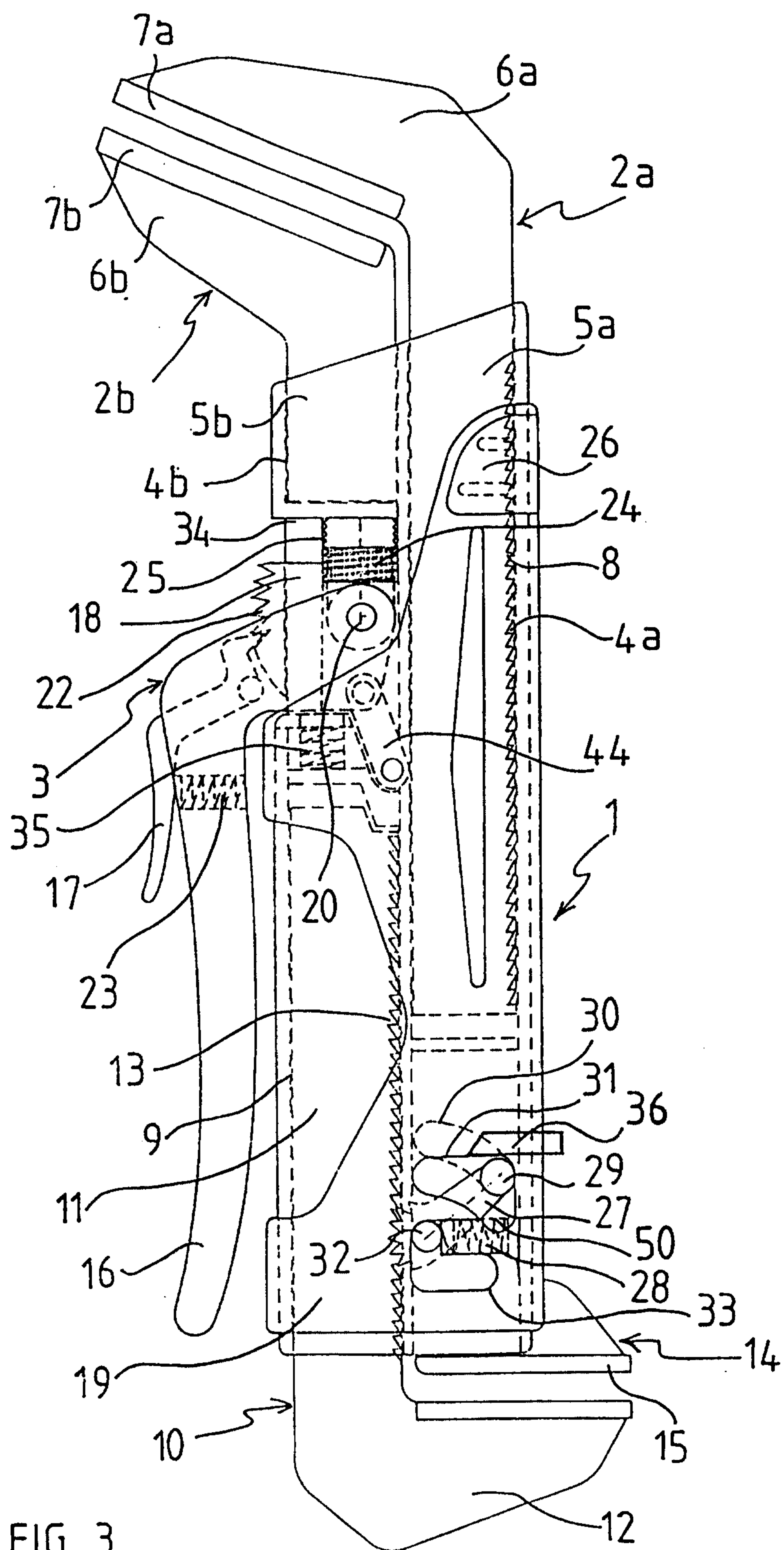
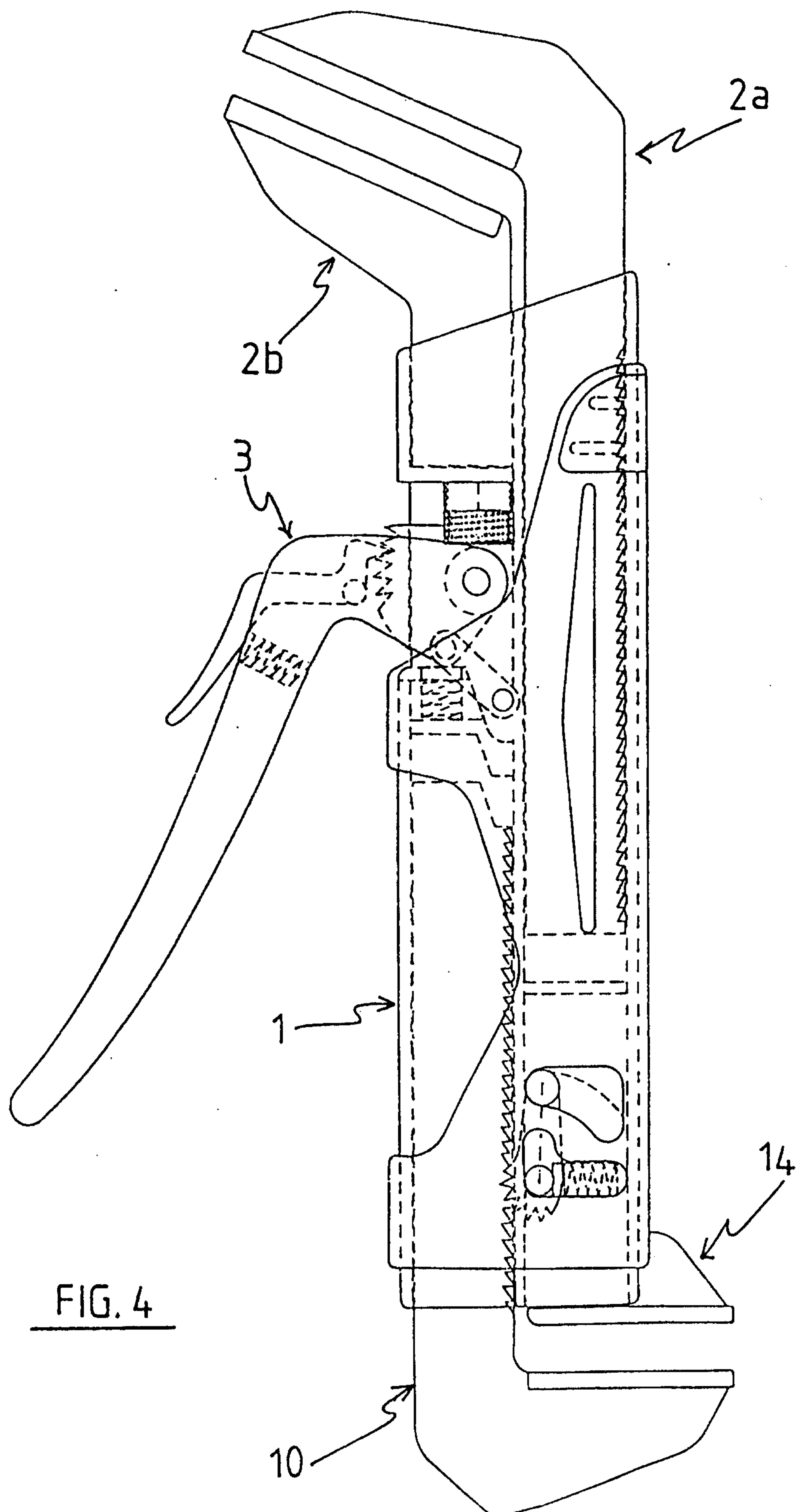
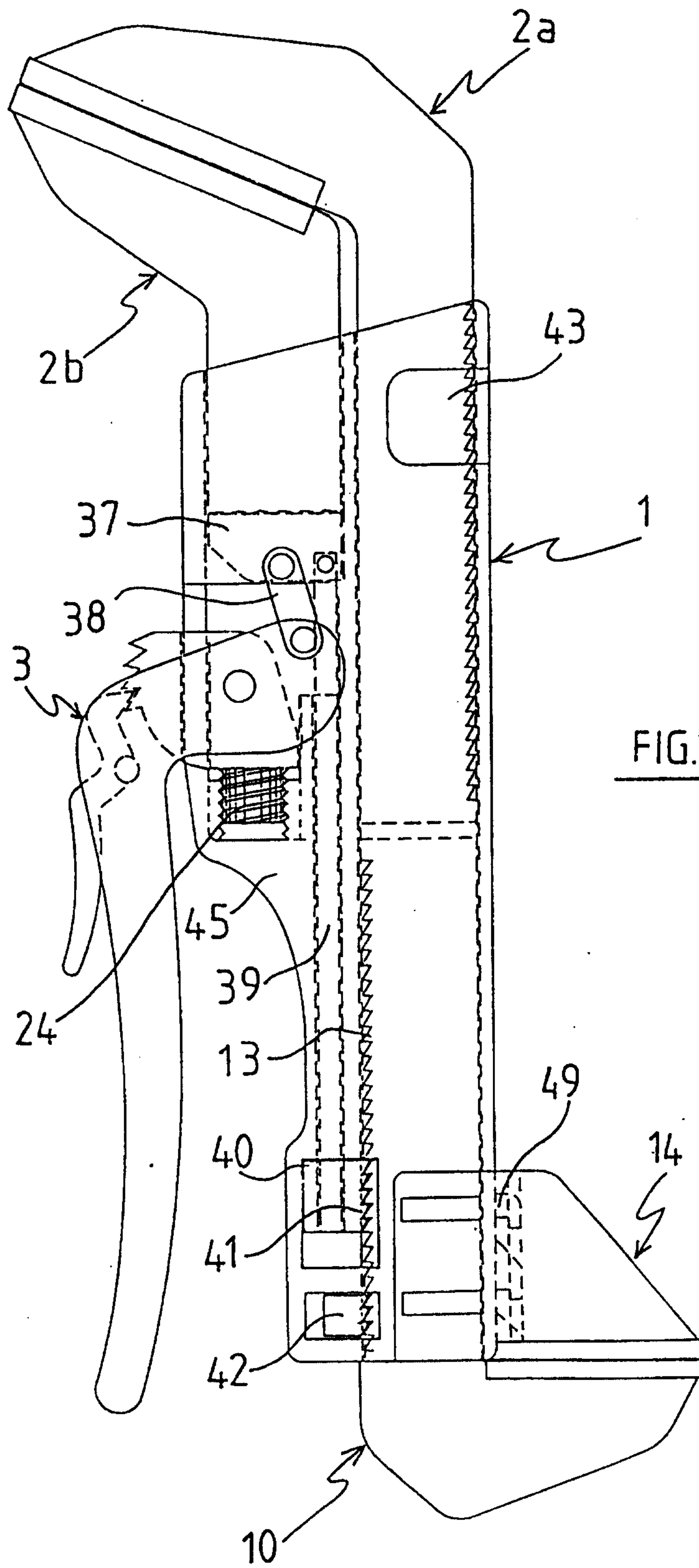


FIG. 3

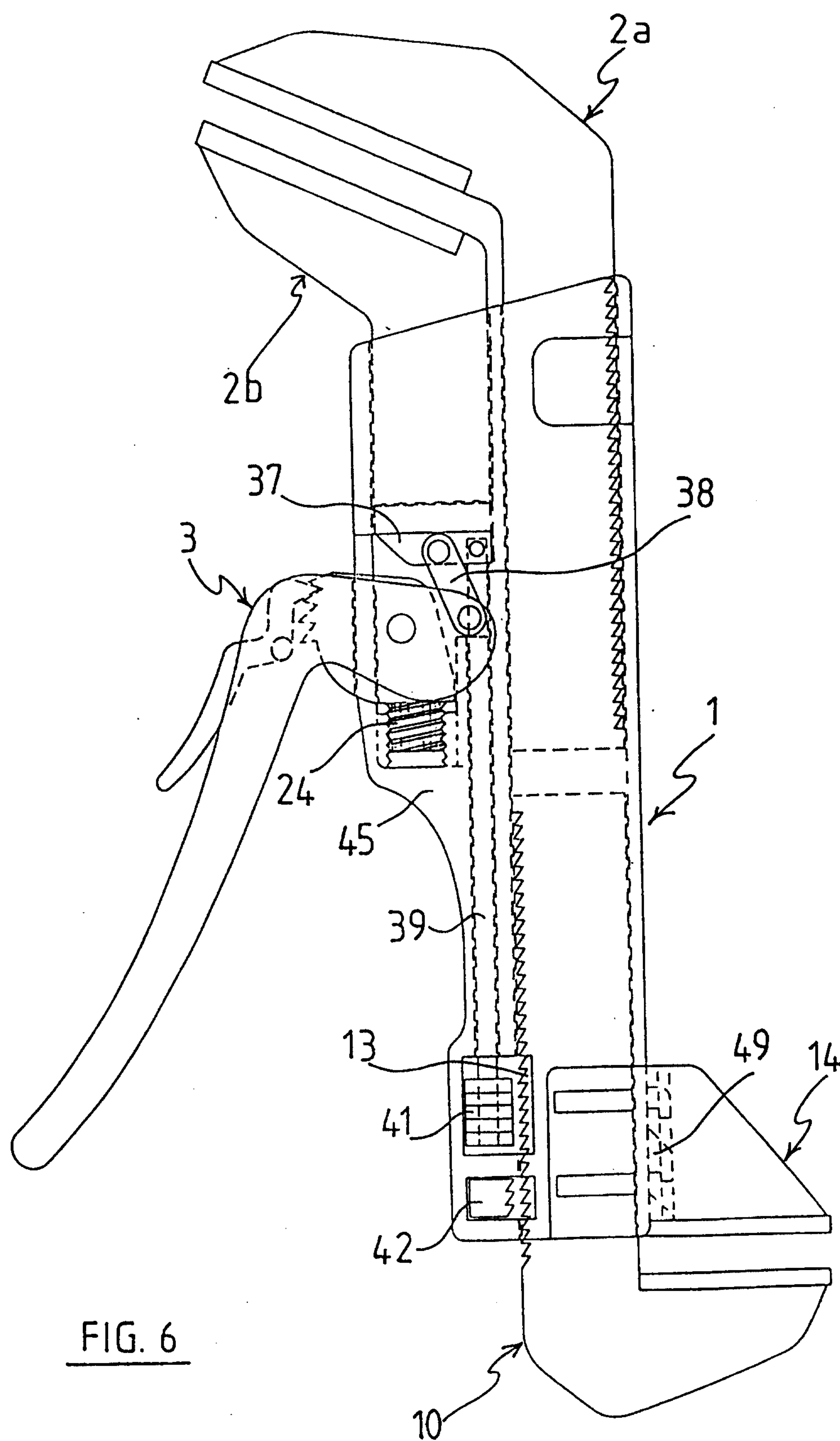
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FIG. 4

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FIG. 6

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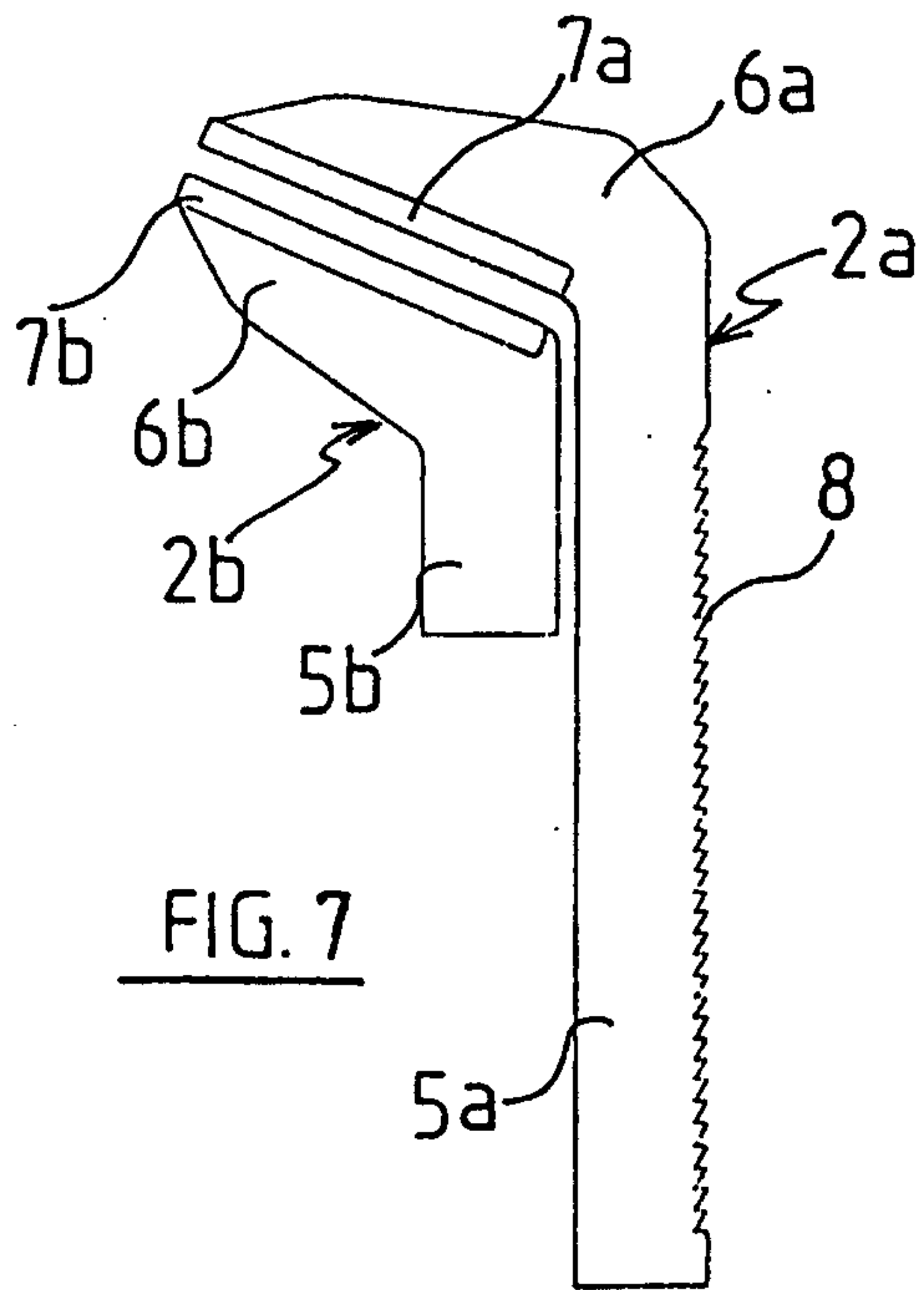


FIG. 7

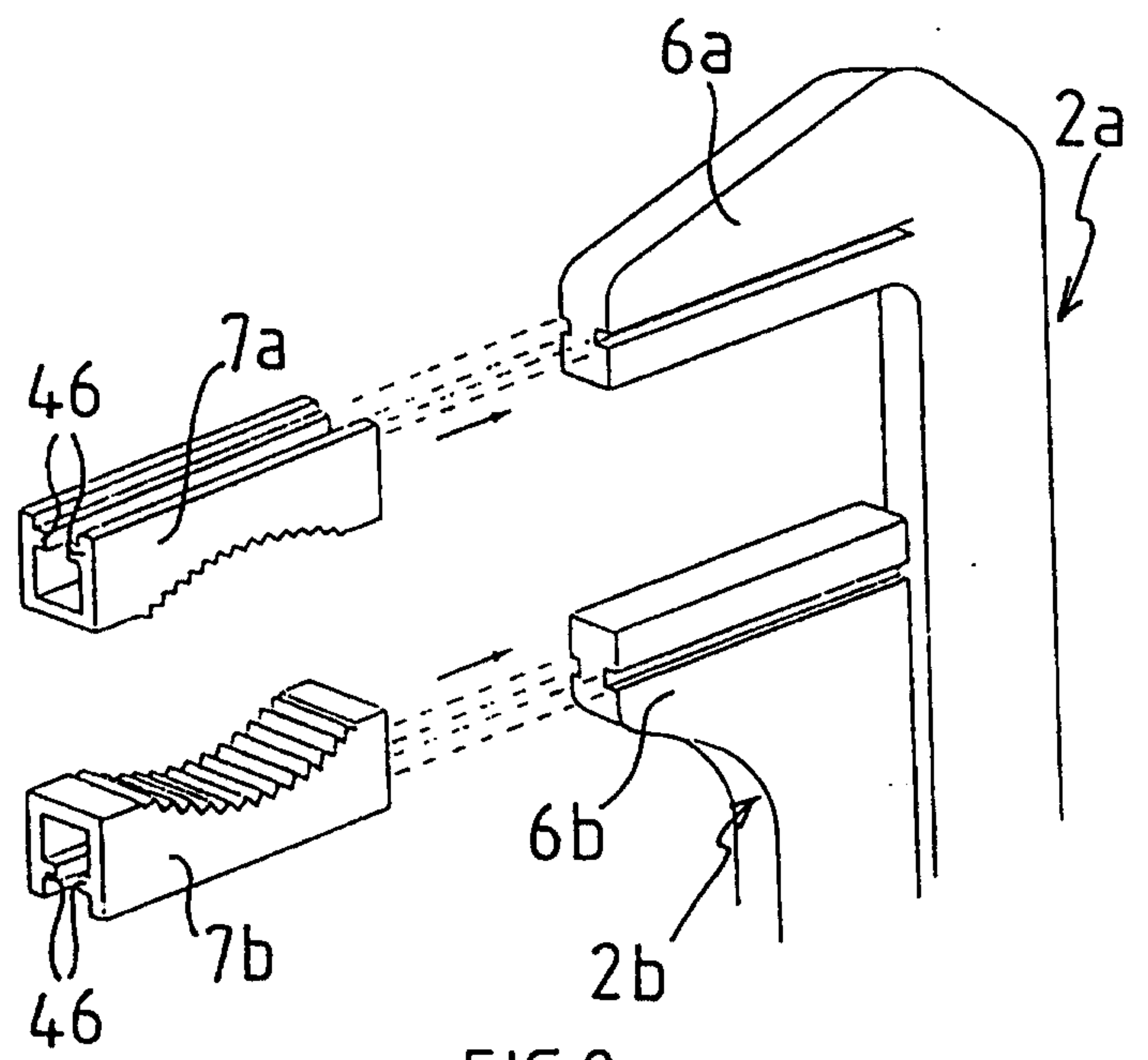


FIG. 8

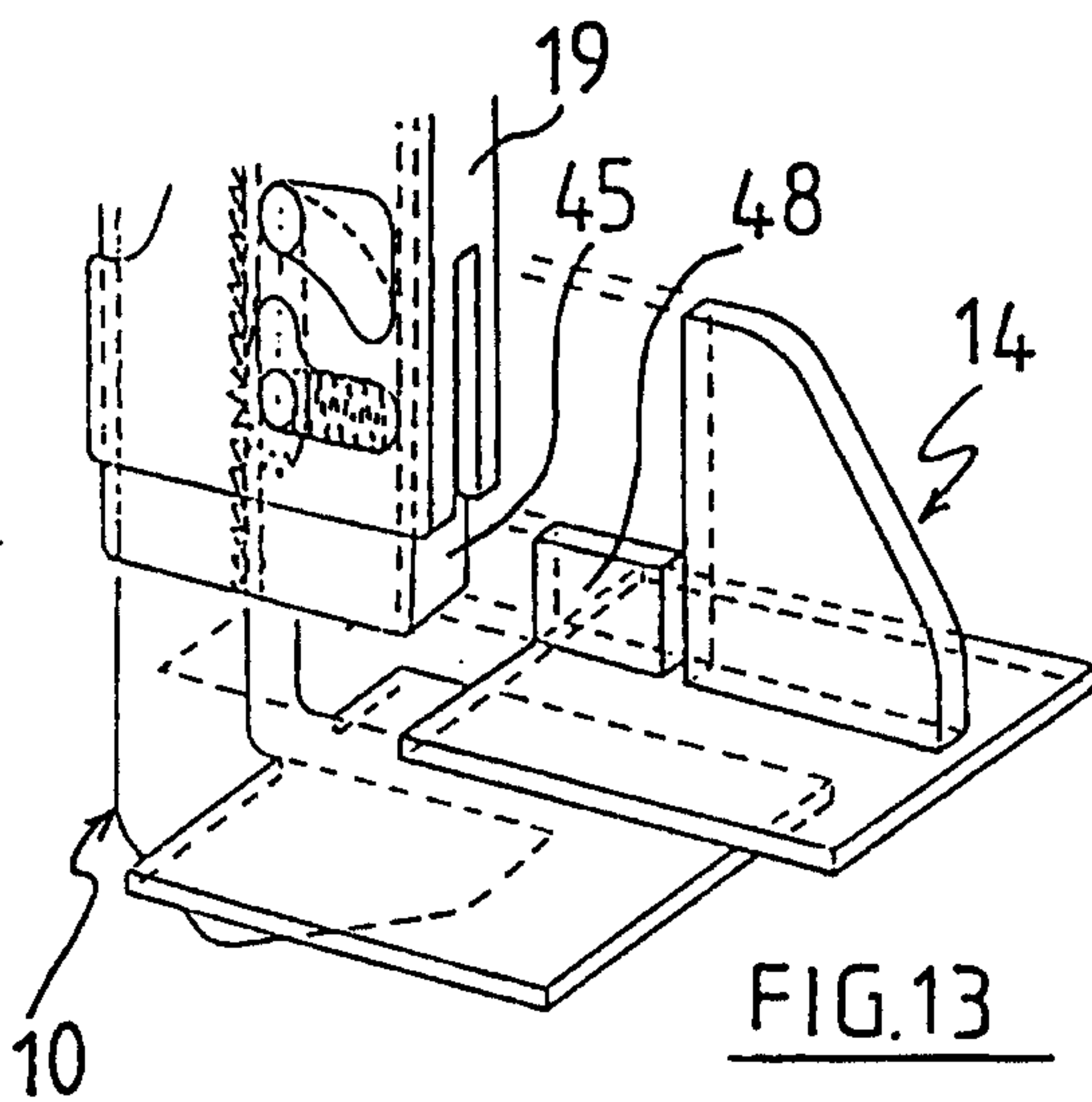


FIG. 13

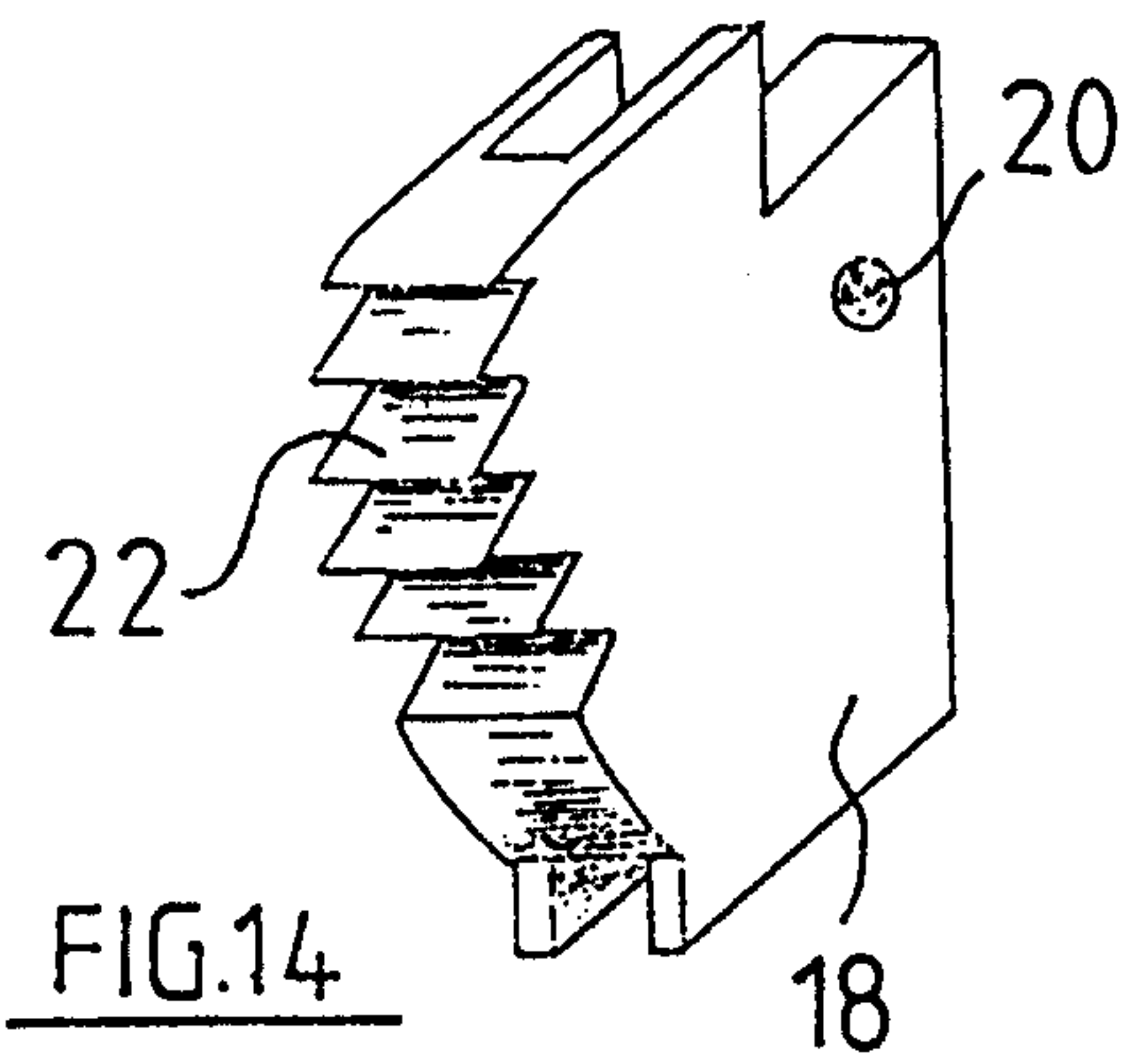


FIG. 14

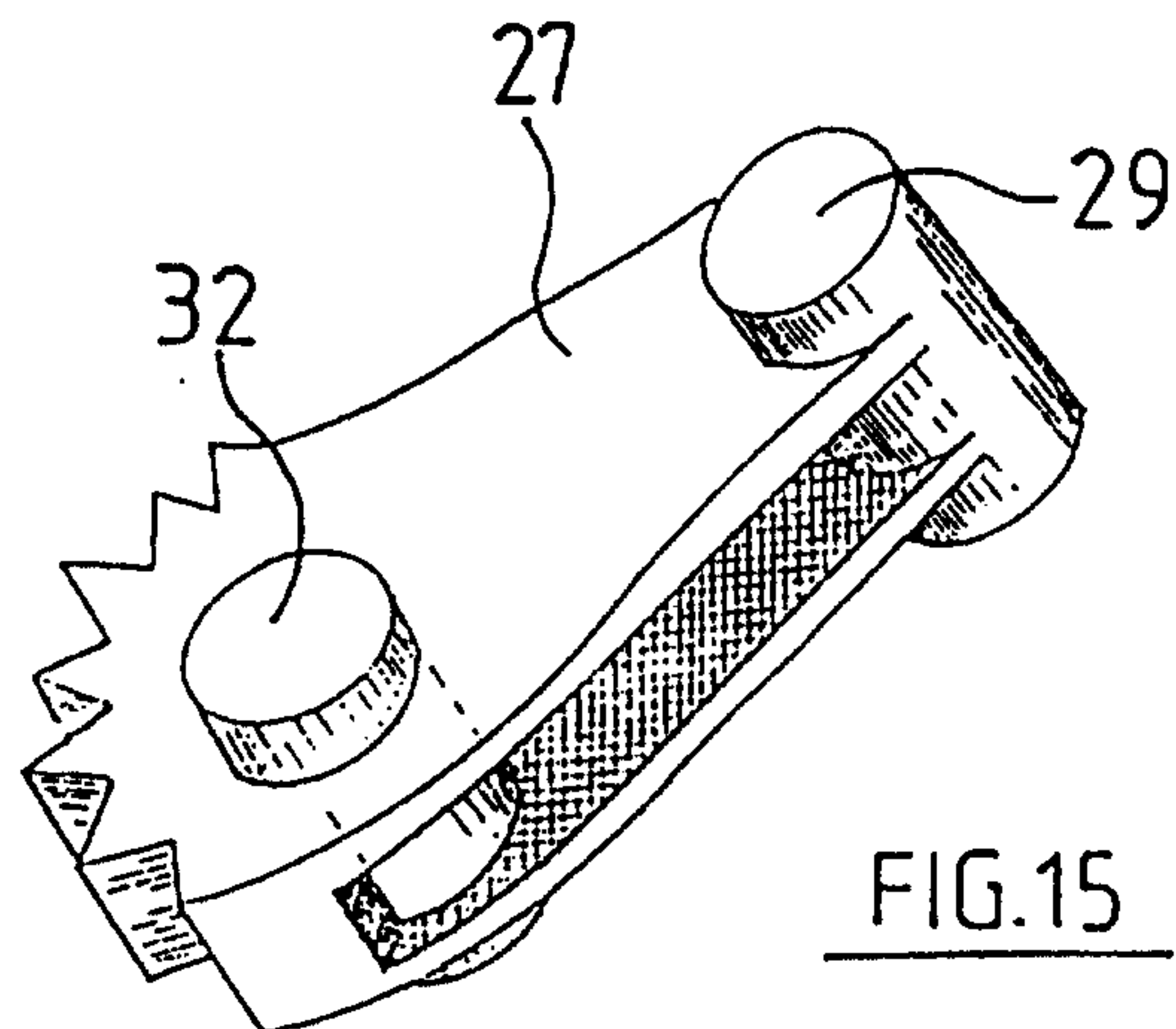


FIG. 15

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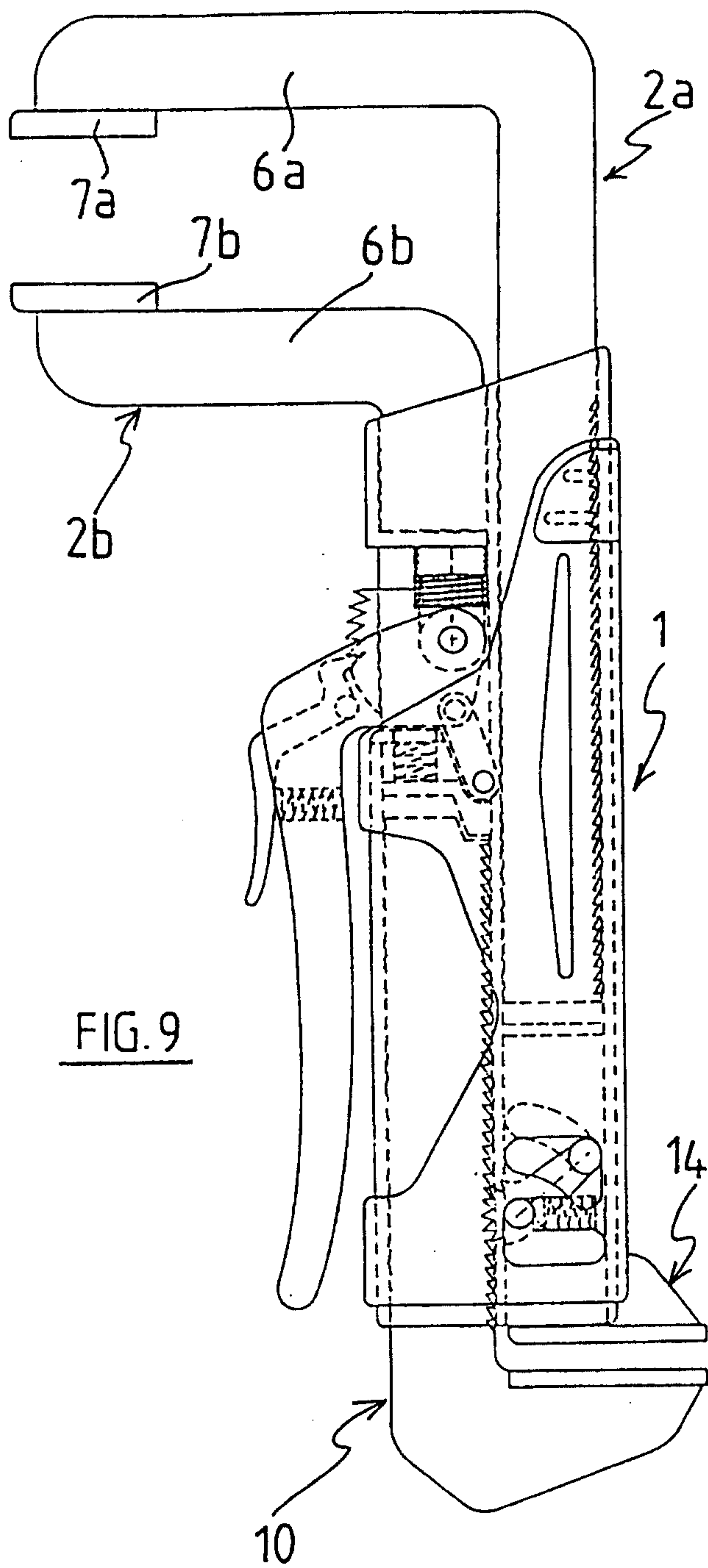
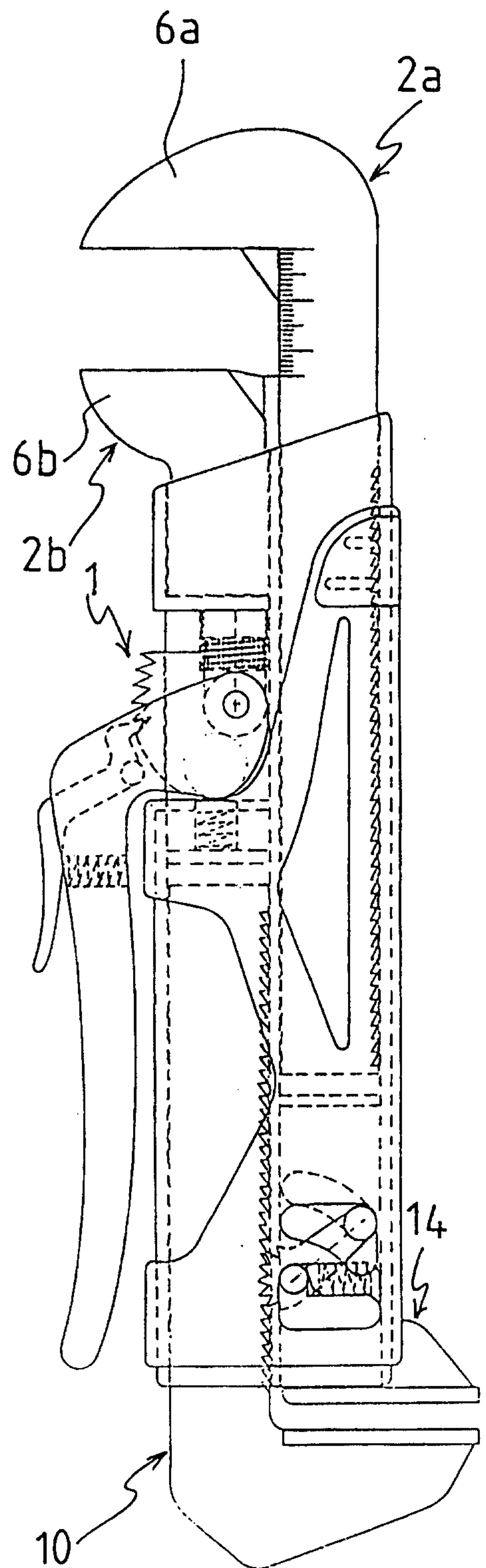
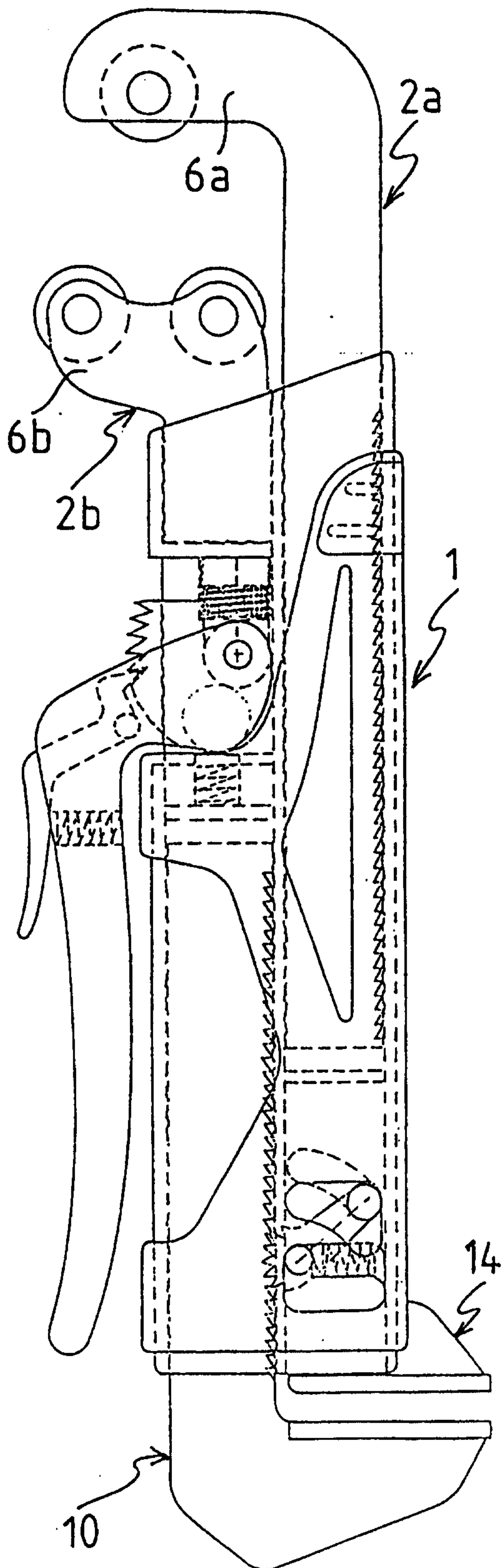


FIG. 10



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FIG.11FIG.12