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(54) FASTENING DEVICE WITH INDIRECT FIRING AND OPERATIONAL SAFETY

BEFESTIGUNGSVORRICHTUNG MIT INDIREKTER FEUER- UND BETRIEBSSICHERHEIT

DISPOSITIF DE FIXATION À TIR INDIRECT ET SÉCURITÉ DE FONCTIONNEMENT

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Description

[0001] The invention relates to a fastening device with indirect firing, comprising in a housing a mobile equipment including a barrel and a nail guide so as to drive, through a piston in the equipment barrel, a fastening element into a support material, driving piston propelling means and anti-firing means arranged to avoid a manual backward movement of the nail guide, which nail guide projects at rest outside the housing. So, it can be a device intended to receive powder loads or a gas cartridge. The state of the art includes US-A-3,348,751.

[0002] The devices of such a type are provided with a safety unit, a so-called abutment safety, preventing any fire if the device is not on abutment against the support material. Such a safety avoids this possibility of a so-called "clay-pigeon shooting". Putting the device on abutment, the nail guide is pushed backward, which guide, through a cinematic chain, releases the "anti-firing" safety.

[0003] With a conventional device i.e. with a device the nail guide of which has a normal length, it is practically not possible to push the nail guide neither with a finger due to the spring return force of the guide in a rest position, nor with the whole hand or with a jaw tool like pliers, due to the fact that the nail guide is only projecting very weakly outside the device barrel.

[0004] The problem at the base of the invention of the present application does not relate to a conventional fastening device, but to a fastening device with a quite long nail guide, for fastening fasteners like those being used for fastening thick insulation panels that those nail guides must cross. With such devices, an operator could easily grip the nail guide with the hand or with pliers. The problem of the invention is to prevent, in spite of such characteristics, that an operator cannot push back the nail guide towards the rear of the device without positively unlocking an anti-firing safety device.

[0005] So, the invention relates to a device of the type above defined, wherein there is mounted on the device an anti-firing lock and, on the equipment, a locking abutment, the anti-firing lock being arranged for, in a resting and locking position, being on a rear abutment against said equipment locking abutment and preventing the axial backward movement thereof and for, in an unlocking position, allowing the axial backward movement of the equipment.

[0006] Thus, when the lock is at rest, if an operator wants to push the nail guide backwards, the abutment of the nail guide will be rapidly anchored by pressing on the lock in a locking position, thereby preventing the backward movement of the nail guide and thus the release of the anti-firing unit. It is only if the operator, on a positive or voluntary way, acts on the lock to drive it into a locking position, that he will be able to push back the nail guide of the equipment and authorize firing.

[0007] For example, said locking abutment could be provided on the equipment nail guide or barrel.

[0008] According to one embodiment, said anti-firing lock is mounted on the housing to act, in a resting and locking position, on said abutment and preventing the axial backward movement of the equipment projecting outside the housing.

[0009] In such a case, the anti-firing lock can comprise at least a locking lever being manually displaceable, connected to the housing so as to prevent the backward movement of the equipment, while marking the resting and locking position of the lock, and authorizing, after a displacement of the lever, the backward movement of the equipment while marking the unlocking position of the lock.

[0010] According to another embodiment, said anti-firing lock is slidably mounted around the mobile equipment projecting from the housing to be pressed, in the locking position, against said housing and preventing the axial backward movement of the equipment by the locking abutment.

[0011] In such a case, said anti-firing lock can comprise a cylindrical sleeve being slidably mounted around the equipment projecting from the housing and provided at least with a locking lever being manually displaceable and arranged to be pressed against said housing and prevent the axial backward movement of the equipment, while marking the resting and locking position of the lock and moving aside from the housing and authorizing the backward movement of the equipment while marking the unlocking position of the lock.

[0012] In particular, said locking lever is pivotally mounted around a joint axis orthogonal to the equipment axis and is subjected to a resilient element against which a manual action authorizes switching from the locked position to the unlocked position of the anti-firing lock.

[0013] The anti-firing lock preferably comprises several pivoting levers distributed around the latter.

[0014] To integrate the lever into the sleeve, the locking lever is advantageously received in a housing of the side wall of said cylindrical sleeve, with one end turned towards the wall inside and coming in an axial abutment against the housing and with the opposite end turned towards the wall outside so as to be accessible therein.

[0015] Thus, by enclosing the ring, levers are pressed on the whole projecting external ends thereof so that the projecting internal ends of the abutment forming levers are radially spread out to switch from the locked position to the unlocked position of the anti-firing lock and authorize the axial backward movement of the equipment with the abutment thereof being then released up to the firing triggering.

[0016] Furthermore, the device comprises a nail guide abutment safety unit with a return spring, arranged around the equipment barrel, between the housing and an abutment of said barrel. The cylindrical sleeve of the anti-firing lock is then mounted around the unit and presents, in the axial passage of the sleeve, an internal shoulder being able to apply on the spring upon switching from the resting and locking position to the unlocking po-

sition.

[0017] Moreover, to spontaneously reject the lock towards its rest position, a spring can be provided between an internal shoulder of the sleeve and an external shoulder of the nail guide, against the axial abutment of the nail guide.

[0018] The invention will be better understood with the help of the following description of a particular embodiment of the fixing device according to the invention in reference to the accompanying drawing, wherein:

- Fig. 1 represents an axial sectional view and an enlargement of the fixing device at rest with, according to a first embodiment, a safety anti-firing lock of the device in a resting and locking position ;
- Fig. 2 represents an axial sectional view of the fixing device with the nail guide in a backward movement due to its abutment against a support material and the anti-firing lock in a locking position preventing firing;
- Fig. 3 represents an axial sectional view of the fixing device with a nail guide manually drawn back and the anti-firing lock in a locking position preventing firing;
- Fig. 4 represents an axial sectional view of the fixing device with the anti-firing lock being manually acted on, in an unlocking position, and authorizing the backward movement of the nail guide to trigger firing; and
- Fig. 5 and 6 schematically represent an axial sectional view of the fixing device with a second embodiment of the anti-firing lock mounted on the housing and occupying, respectively, a resting and locking position and an unlocking position.

[0019] The fastening or fixing device 1 represented on Fig. 12 currently comprises, inside a housing 2, an equipment 3 including a cylindrical barrel 1 and a nail guide 5 extending the barrel and externally projecting outside the housing 2 at the front of the device, a piston 6 slidably mounted in the barrel and the nail guide of the equipment so as to drive, into a support material, a fastener E. The cylindrical barrel 4 is in turn mounted inside a barrel support 7 received within the housing and ending, on its front end, by an annular ring screwed on the barrel support and projecting outside the housing 2. Those components 3, 6, 7, 8 have together the axis A.

[0020] It is to be noticed that the length of the nail guide 5 going beyond the housing is large for the reasons above mentioned, to be able to mount, in such non limitative example, a long dowel C through a thick insulator and to fix the dowel by the fastener E, such as a nail. The dowel and the nail are represented in a mixed line on Fig. 1, the nail E being inserted into the passage of the nail guide and the dowel C mounted around the latter, with the nail crossing a hole of the distal end of the dowel, the other headed end thereof being closed to and facing the housing.

[0021] Moreover, the different means for propelling the piston and give safety to the device as illustrated on Figs. are well known per se and will not be thus either disclosed or referenced.

[0022] The housing 2 further ends with a gripping handle 11 from which an operable trigger 12 triggering firing emerges, subject to the backward movement of the assembly consisting in the equipment 3 and the piston 6, and to the action on an anti-firing safety lock 13, as detailed hereinunder.

[0023] In particular, the piston 6 is turned towards the bottom 14 of the barrel 4, which bottom is bored to receive the load or the cartridge of the propelling means and extends on the other side by a rod 15 crossing the barrel to be slidably engaged in an axial boring 16 of the nail guide 5, on a part of the latter. In the remaining free part 17 of the boring 16, in such particular example, the nail E of the dowel C which surrounds the nail guide is introduced, the dowel head coming in the vicinity of the anti-firing lock. A return spring means is moreover provided in the barrel, between the piston 6 and the nail guide 5 for the return to the initial position of the piston and the equipment after firing.

[0024] In such first exemplary embodiment illustrated on Figs. 1 to 4, including on the enlargement of Fig. 1, the safety anti-firing lock 13 is arranged to be, in a resting and locking position for which firing is prevented, on a rear abutment against an axial locking abutment 19 provided on the equipment 3 and being integral with the nail guide 5. Such abutment 19 is in the form of a resilient ring engaged in a reception groove of the nail guide 5. Thus, the latter cannot move back without a manual voluntary action on the lock allowing the latter to switch from the resting and locking position to an unlocking position and authorizing, only then and as it will be seen later, the backward movement of the nail guide 5 and the subsequent triggering of firing to fasten the dowel.

[0025] Such lock 13 is then mounted around the equipment 3 projecting from the ring 8 so as to be able to move in translation or in sliding according to the axis A, as it will be seen hereinunder and it is presented, in such exemplary embodiment, in the form of a cylindrical sleeve 20 with an axial crossing passage 21 located in front of the ring 8, more particularly at the level on the connection between the barrel 4 and the nail guide 5 while enclosing the latter.

[0026] Structurally, the anti-firing cylindrical sleeve 20 with an axial passage 21 comprises a locking means 22 with free release which, in such exemplary embodiment, takes the form of levers 23 pivotally mounted around axes 24 orthogonal to the axis A and connected to the side wall 25 of the sleeve. Such levers aim at defining the locking position and the unlocking position of the lock. As it can be seen on Figs., two pivoting locking levers 23 are represented being arranged on a diametrically opposite way on the wall of the sleeve 20, knowing that there could be a different number of levers distributed around the sleeve without deviating from the scope of the inven-

tion. The presence of only one locking lever could be also envisaged.

[0027] Such locking levers 23 extend parallel to the cylindrical sleeve while being located on the periphery of the latter and received in reception housings 26 arranged in the side wall 25 of the sleeve. Each lever 23 is furthermore subjected to the action of a resilient element 27, such as a spring, provided between the pivoting axis 24 of the lever and the end 28 of the lever turned towards the nail guide 5. In such a way, as shown in Figs. 1 to 3, such end 28 projects externally from the wall 25 of the ring, whereas the other opposite end 29 of the lever projects as far as it is concerned internally from the side-wall 25 of the reception housing 26, into the axial passage 15.

[0028] It will also be noticed that the ends of the levers 23 are ending by flanges 30 being substantially perpendicular to the axis A and which, as will be seen on Figs. 2 and 3, come in abutment against the transversal side 31, forming an axial abutment, of the ring 10 and are located facing and at distance of the latter in the initial position of the lock, Fig. 1.

[0029] In the axial passage 21 of the sleeve 20 crossed by the barrel 4 and the nail guide 5, a return elastic element 32, such as a spring, is provided, acting as a support safety device being to be pressed so as to authorize firing and which pushes, after firing, the equipment (barrel and nail guide) forwards.

[0030] With this end in view, the spring 32 surrounds the part of the barrel 4 going out of the ring 8 and it abuts, on the one side, against the transversal side 31 of the latter and, on the other side, against an external ring 33 received in a groove at the end of the barrel 4 and serving as an axial abutment for the spring. A support washer 34 is furthermore located between the spring 32 and the ring 33. Moreover, facing the washer without reaching the external ring, there is a first internal shoulder 35 arranged in the wall 25 of the passage 21 and supposed to cooperate with a spring 32 via the washer.

[0031] This spring has also as a function to move axial away the lock 13 from the housing 2 of the device 1.

[0032] On the other side of the spring 32 with respect to the internal ring 33, in the cylindrical sleeve 20, a second internal shoulder 36 is provided being arranged in the sidewall 25 of the axial passage 21 and located plumb of the guide 7. This second shoulder 36 is in abutment against the axial abutment 19, such as the blocking ring, marking the axial backward movement maximal position of the lock 13, i.e. the initial resting and locking position thereof under the action of a spring 37 provided with this end in view, around the nail guide 5 between a shoulder 38 of the latter and the second shoulder 36 of the sleeve.

[0033] Thus, as shown on Fig. 1 representing the fixing device 1 at rest, the piston 9 is moved back at the maximum into the housing by the elastic element 20 and the nail guide 5 connected to the barrel 4 is drawn out at the maximum with respect to the rod 15 of the piston 6 by the spring 32, thereby driving with it the anti-firing safety

lock 13 pushed back itself by the spring 37 against the axial abutment 19 for locking said nail guide 5. The sleeve lock 13 is then maintained axially away from the ring 8, at distance from the latter.

[0034] As shown on Fig. 2, when the nail guide 5 is voluntarily applied directly through its transversal side 39 (or through the dowel if the latter is mounted on the nail guide) against the wall P of the support material MS, the equipment 3 moves axially back according to the axis A with respect to the barrel support 7, thereby driving also in a rear translation the sleeve 20 of the safety lock 13 through the action of the ring abutment 19 on the shoulder 36, according to the arrow F, and a compressing beginning of the spring 32. The nail guide is thus prevented to move back relative to the lock.

[0035] Such axial back movement is stopped when the flanges 30 of the ends 29 of the pivoting lever 23 touch the abutment forming transversal side 31 of the ring 10 and thus, before the equipment 3 have covered the course so as to authorize the triggering of the power source. Indeed, under the action of the springs 27, the levers 23 of the locking means are spontaneously maintained in the resting and locking position around the axes 24 anticlockwise (Figs. 1 and 2) with the flanges 30 projecting internally from the wall 25 of the ring, in the axial passage 21, opposite the side 31 of the front ring 8.

[0036] At such moment, it is impossible to move back further the nail guide 5 (the above assembly) to trigger firing except by an intervention on the anti-firing lock itself as will be seen further on Fig. 4.

[0037] Such a position of the nail guide 5 (and thus of the lock 13) similar to Fig. 2 can be obtained by acting on the guide itself, as shown on Fig. 3.

[0038] If the user grips the nail guide 5 of a great length manually or with pliers (with or without the dowel) and push it back according to the arrow F', the guide drives in a rear translation, through the ring axial abutment 19 in contact with the second shoulder 36, the sleeve 20 until the moment where the flanges 30 of the ends 29 of the levers 23 touch the transversal side 31 of the ring 8. The lock 13 being thus axially blocked in a locking position by the levers 23 of the locking means 22, fully plays its safety paper, avoiding the continuation of the axial backward movement of the nail guide 7 through the contact with the abutment 19. The trigger 12 cannot be pressed due to the fact that the equipment is insufficiently moved back and the spring 32 insufficiently pressed to release the safety means and initiate the propelling means.

[0039] In order to allow for the axial backward movement of the above assembly, the user must voluntarily manually act on the safety lock 13 and cannot then anymore handle the nail guide 5 of the equipment, since his other hand holds the tool handle.

[0040] With this end in view, the user presses on the spontaneously projecting external ends 28 of the locking levers 23 pivoting around the axes 24 clockwise by pressing the springs 27, thereby having as an effect to move

away from the transversal side 31, radially and externally, the flanges 30 of the initially internal ends 29 of said levers 23. Such ends 29 with flanges 30 are spread out from the axial passage 15 and enter the housings 26 of the side wall 25 of the sleeve, thereby releasing the locking and allowing moreover for a manual backward movement of the lock 13 while still pressing the levers.

[0041] The lock 13 clears the ring 8 until a ring shoulder 41 arranged in the wall 25 of the passage 21 abuts against the transversal side 31 of the ring 8. The transversal side 40 of the sleeve faces then the transversal side 42 of the housing close to the latter. The spring 32, upon such backward movement of the lock, is compressed by the action of the first shoulder 35 on the washer 34.

[0042] The axial backward movement of the lock 13 with respect to the nail guide 5 has simultaneously moved away the shoulder 36 from the ring abutment 19 so as to generate a course authorizing the axial backward movement of the equipment 3, as shown on Fig. 4, so as to be able to initiate firing. Simultaneously, the spring 37 is also pressed by the shoulder 36 of the lock.

[0043] At that moment, the anti-firing safety lock 13 is located in the unlocking position through the release of the levers and the clearing of the ring 8 from the housing. Firing can then be authorized.

[0044] With this end in view, while continuing to maintain the sleeve 20 with the locking levers 23 in an unlocked position, being spread out, the nail guide 5 (with the barrel and the piston), in abutment through its side 39 (through the not represented dowel) against the wall P of the support material MS, in a dotted line, can axially moved back (arrow F", Fig. 4) from the necessary axial course between the abutment 19 and the lock so as to authorize fire triggering.

[0045] Although the final position of the device 1 is not represented as it is current per se (abutment 19 against the shoulder and spring 32 being pressed), the trigger 12 is then released and can be then pressed by the other hand of the user, thereby releasing the propelling means, the generated power of which propels, through the bored bottom 24 of the barrel, the piston 6 forwards with the rod 15 thereof sliding in the boring 16 of the nail guide, acting on the nail being in turn propelled (driving the dowel) and penetrating in the wall P to be located within the latter.

[0046] After firing, the piston 6 is returned into its initial position by the elastic element 18 and the mobile equipment 3 is axially moved back by the spring 32. The device 1 is located in a position similar to Fig. 4 if the lock is maintained unlocked.

[0047] At that time, either a new fire can be provided since the sleeve 20 is always manually gripped and maintained unlocked against the ring, while applying the buffering nail guide 5 with a new fastener on the wall to another place being selected. Or, the sleeve 20 is released, spontaneously returning the pivoting levers 23 under the action of the springs 27 into a resting and locking position and, under the action of the spring 32 and the washer 34

acting on the shoulder 36 of the sleeve, the lock 13 being again in the position illustrated on Fig. 1, in front of the ring 8 and against the axial abutment 19 of the nail guide 5 being also pushed back.

[0048] The above described anti-firing lock 13 then reaches its objective, namely forming an extra operational safety upon the use of the device so as to prevent the axial backward movement of the nail guide, specifically when it is of a great length, or manually, even with a tool, or by application against the material, prohibiting firing and authorizing fire triggering only when the lock is gripped and moved back by cancelling the action of the axial locking of the latter with respect to the equipment abutment.

[0049] In the second exemplary embodiment schematically illustrated on Figs. 5 and 6, the anti-firing lock 13 of the fixing device 1 is provided directly on the housing 2 of the device and not around the mobile equipment, whereas the locking abutment 19 keeps integral with the mobile equipment 3. Consequently, the lock 13 acts, in a resting and locking position (Fig. 5) on said abutment 19 and prevents the axial backward movement of the equipment 3 projecting outside the housing and, when it is manually activated (Fig. 6) authorizes the axial backward movement of the equipment and the operation of the device.

[0050] In the illustrated representation, the anti-firing lock 13 comprises at least one locking lever 23 which is, at the structural and functional point of view, substantially similar to the preceding levers of the lock described in the first exemplary embodiment so that a brief description of such a lever is given hereafter.

[0051] First of all, it is specified that the lock 13, in this second example, can comprise several levers 23 distributed around the periphery of the housing and it is appropriate to handle simultaneously to switch from the locked position to the unlocked position. Such lever(s) 23 can be mounted, as a non limitative example, around joint axes directly on the housing 2 of the device close to or at the level of the nose of the latter, or of the end annular ring, or like in the first embodiment, on a sleeve being inserted on the housing.

[0052] It can be seen, on Fig. 5, that the locking lever 23 being represented is articulated around an axis 24 orthogonal to the axis A of the device 1 and integral with the housing 2. Such lever 23 is biased, on the one side, towards the so-called resting and locking position by a spring 27 so that, on the other side of the lever with respect to such axis, the flange 30 of the end 29 of the lever acts on the abutment 19 (for example, on the nail guide 5) to prevent the axial backward movement thereof and, thus, the one of the mobile equipment, thereby justifying the function of such lock.

[0053] The operation of the device 1 as previously explained can be done only by a voluntary manual action of the user on the lever 23 of the lock 13, whereas he holds the handle 11 of the device with his other hand.

[0054] To do so, he presses on the lever 23 against

the action of the spring 27 which is pressed, so as to move radially away externally, by the lever being pivoted around the axis 24, the flange 30 ending the lever of said abutment 19 of the mobile equipment 3. The lock 13 is then in the unlocking position releasing the abutment 19 so as to authorize the backward movement of the equipment. At that time, the user cannot act per se directly on the mobile equipment, except by applying it actually against a wall P to move it backward again and press the safety spring (not represented referenced at 32 in the first example) to be able to initiate then a firing, as shown on Fig. 6.

[0055] After firing, as soon as the user releases the lock lever, the latter spontaneously returns, through the action of the spring 27, to its resting and locking position acting, through the abutment 19, against the backward movement of the equipment 13 rejected towards the housing outside.

Claims

1. A fastening device with indirect firing, comprising in a housing (2) a mobile equipment (3) including a barrel (4) and a nail guide (5) so as to drive, through a piston (6) in the equipment barrel, a fastening element into a support material, driving piston propelling means and anti-firing means arranged to avoid a manual backward movement of the nail guide, which nail guide projects at rest outside the housing, **characterized in that** it is mounted on the device an anti-firing lock (13) and, on the equipment (3), a locking abutment (19), the anti-firing lock being arranged for, in a resting and locking position, being on a rear abutment against said equipment locking abutment (19) and preventing the axial backward movement thereof and for, in an unlocking position, allowing the axial backward movement of the equipment.
2. The device according to claim 1, wherein said locking abutment (19) is provided on the nail guide (5) of the equipment.
3. The device according to claim 1, wherein said locking abutment (19) is provided on the barrel (4) of the equipment.
4. The device according to any of claims 1 to 3, wherein said anti-firing lock (13) is mounted on the housing (2) to act, in a resting and locking position, on said abutment and prevent the axial backward movement of the equipment projecting outside the housing.
5. The device according to claim 4, wherein the anti-firing lock (13) comprises at least a locking lever (23) being manually displaceable, connected to the housing (2) so as to prevent the backward movement of

the equipment, while marking the resting and locking position of the lock, and authorize, after a displacement of the lever, the backward movement of the equipment while marking the unlocking position of the lock.

6. The device according to any of claims 1 to 3, wherein said anti-firing lock (13) is slidably mounted around the mobile equipment (3) projecting from the housing to be pressed, in the locking position, against said housing and preventing the axial backward movement of the equipment by the locking abutment.
7. The device according to claim 6, wherein said anti-firing lock (13) comprises a cylindrical sleeve (20) being slidably mounted around the equipment projecting from the housing and provided at least with a locking lever (23) being manually displaceable and arranged to be pressed against said housing and prevent the axial backward movement of the equipment, while marking the resting and locking position of the lock and moving aside from the housing and authorizing the backward movement of the equipment, while marking the unlocking position of the lock.
8. The device according to claim 5 or 7, wherein said locking lever (23) is pivotally mounted around a joint axis (24) orthogonal to the equipment axis and is subjected to a resilient element (27) against which a manual action authorizes switching from the locked position to the unlocked position of the anti-firing lock.
9. The device according to claim 8, wherein the anti-firing lock (13) comprises several pivoting levers (23) distributed around the latter.
10. The device according to claims 7 and 8, wherein the locking lever (23) is received in a housing (26) of the side wall (25) of said cylindrical sleeve, with one end (29) turned towards the wall inside and coming in an axial abutment against the housing, and with the opposite end (28) turned towards the wall outside so as to be accessible therein.
11. The device according to any of claims 1 to 10, wherein the barrel (5) of the equipment is mounted in a barrel support (8) of the housing ending by a ring (10) being fastened on the tip of the barrel support and crossed by the equipment, the lock (13) cooperating with said ring.
12. The device according to any of claims 1 to 11, wherein said axial locking abutment (19) comprises a ring being mounted on the mobile equipment.
13. Device according to claim 7, comprising a nail guide

abutment safety unit with a return spring (32), arranged around the equipment barrel, between the housing (2) and an abutment (33) of said barrel, in which the cylindrical sleeve (20) of the anti-firing lock (13) is mounted around the unit and presents, in the axial passage (21) of the sleeve, an internal shoulder (35) being able to apply on the spring upon switching from the resting and locking position to the unlocking position.

14. The device according to claim 13, wherein a spring (37) is provided between an internal shoulder (38) of the sleeve and an external shoulder of the nail guide so as to spontaneously reject the lock towards the rest position thereof against the axial abutment (19) of the nail guide.

Patentansprüche

1. Befestigungsvorrichtung mit indirekter Auslösung, die in einem Gehäuse (2) ein mobiles Gerät (3), das einen Zylinder (4) und eine Nagelführung (5) zum Treiben eines Befestigungselements, durch einen Kolben (6) in dem Gerätezylinder, in ein Stützmaterial umfasst, Treibkolbenantriebsmittel und Auslösungsschutzmittel zur Vermeidung einer manuellen Rückwärtsbewegung der Nagelführung, wobei die Nagelführung im Ruhezustand außerhalb des Gehäuses vorsteht, umfasst,
dadurch gekennzeichnet, dass an der Vorrichtung ein Auslösungsschutzschloss (13) und an dem Gerät (3) ein Verriegelungsanschlag (19) befestigt sind, wobei das Auslösungsschutzschloss dazu ausgeführt ist, in einer Ruhe- und Verriegelungsstellung nach hinten gegen den Geräteverriegelungsanschlag (19) anzuliegen und die axiale Rückwärtsbewegung davon zu verhindern, und in einer Entriegelungsstellung die axiale Rückwärtsbewegung des Geräts zu gestatten.
2. Vorrichtung nach Anspruch 1, wobei der Verriegelungsanschlag (19) an der Nagelführung (5) des Geräts vorgesehen ist.
3. Vorrichtung nach Anspruch 1, wobei der Verriegelungsanschlag (19) an dem Zylinder (4) des Geräts vorgesehen ist.
4. Vorrichtung nach einem der Ansprüche 1-3, wobei das Auslösungsschutzschloss (13) dahingehend an dem Gehäuse (2) befestigt ist, in einer Ruhe- und Verriegelungsstellung auf den Anschlag zu wirken und die axiale Rückwärtsbewegung des Geräts, das außerhalb des Gehäuses vorsteht, zu verhindern.
5. Vorrichtung nach Anspruch 4, wobei das Auslösungsschutzschloss (13) mindestens einen Verrie-

gelungshebel (23) umfasst, der manuell verlagerbar ist, mit dem Gehäuse (2) dahingehend verbunden ist, die Rückwärtsbewegung des Geräts zu verhindern und gleichzeitig die Ruhe- und Verriegelungsstellung des Schlosses anzugeben, und nach einer Verlagerung des Hebels die Rückwärtsbewegung des Geräts zuzulassen und gleichzeitig die Entriegelungsstellung des Schlosses anzugeben.

6. Vorrichtung nach einem der Ansprüche 1-3, wobei das Auslösungsschutzschloss (13) dahingehend um das aus dem Gehäuse vorstehende mobile Gerät (3) herum verschiebbar befestigt ist, in der Verriegelungsstellung gegen das Gehäuse gedrückt zu werden und die axiale Rückwärtsbewegung des Geräts durch den Verriegelungsanschlag zu verhindern.
7. Vorrichtung nach Anspruch 6, wobei das Auslösungsschutzschloss (13) eine zylinderförmige Hülse (20) umfasst, die um das aus dem Gehäuse vorstehende Gerät herum verschiebbar befestigt ist und mindestens mit einem Verriegelungshebel (23) versehen ist, der manuell verlagerbar ist und dahingehend angeordnet ist, gegen das Gehäuse gedrückt zu werden und die axiale Rückwärtsbewegung des Geräts zu verhindern und gleichzeitig die Ruhe- und Verriegelungsstellung des Schlosses anzugeben, und sich von dem Gehäuse weg zu bewegen und die Rückwärtsbewegung des Geräts zuzulassen und gleichzeitig die Entriegelungsstellung des Schlosses anzugeben.
8. Vorrichtung nach Anspruch 5 oder 7, wobei der Verriegelungshebel (23) um eine orthogonal zu der Geräteachse verlaufende Gelenkachse (24) herum schwenkbar befestigt ist und einem elastischen Element (27) unterworfen ist, wobei eine manuelle Einwirkung auf dieses einen Wechsel von der Verriegelungsstellung in die Entriegelungsstellung des Auslösungsschutzschlosses zulässt.
9. Vorrichtung nach Anspruch 8, wobei das Auslösungsschutzschloss (13) einige Schwenkhebel (23), die um Letzteres herum verteilt sind, umfasst.
10. Vorrichtung nach Anspruch 7 und 8, wobei der Verriegelungshebel (23) in einem Gehäuse (26) der Seitenwand (25) der zylinderförmigen Hülse aufgenommen ist, wobei ein Ende (29) zu der Wand im Inneren gewandt ist und in eine axiale Anlage gegen das Gehäuse gelangt, und wobei das gegenüberliegende Ende (28) zu der Wand außerhalb gewandt ist, um darin zugänglich zu sein.
11. Vorrichtung nach einem der Ansprüche 1-10, wobei der Zylinder (5) des Geräts in einer Zylinderstütze (8) des Gehäuses befestigt ist, die mit einem an der

Spitze der Zylinderstütze befestigten und von dem Gerät durchquerten Ring (10) abschließt, wobei das Schloss (13) mit dem Ring zusammenwirkt.

12. Vorrichtung nach einem der Ansprüche 1-11, wobei der axiale Verriegelungsanschlag (19) einen Ring umfasst, der an dem mobilen Gerät befestigt ist.
13. Vorrichtung nach Anspruch 7, die eine Nagelführungsanschlagsicherheitsseinheit mit einer Rückstellfeder (32), die um den Gerätezylinder herum angeordnet ist, zwischen dem Gehäuse (2) und einem Anschlag (33) des Zylinders umfasst, wobei die zylinderförmige Hülse (20) des Auslösungsschutzschlosses (13) um die Einheit herum befestigt ist und in dem axialen Kanal (21) der Hülse eine innere Schulter (35) aufweist, die dazu in der Lage ist, die Feder beim Wechsel aus der Ruhe- und Verriegelungsstellung in die Entriegelungsstellung zu beaufschlagen.
14. Vorrichtung nach Anspruch 13, wobei eine Feder (37) dahingehend zwischen einer inneren Schulter (38) der Hülse und einer äußeren Schulter der Nagelführung vorgesehen ist, das Schloss selbstständig in seine Ruhestellung gegen den axialen Anschlag (1) der Nagelführung zurückzuführen.

Revendications

1. Dispositif de fixation à déclenchement indirect, comprenant, dans un logement (2), un équipement mobile (3) comprenant un canon (4) et un guide de clou (5) afin d'enfoncer, par le biais d'un piston (6) se trouvant dans le canon de l'équipement, un élément de fixation dans un matériau de support, des moyens de propulsion de piston d'enfoncement et des moyens anti-déclenchement conçus pour empêcher un déplacement manuel vers l'arrière du guide de clou, ledit guide de clou faisant saillie, au repos, à l'extérieur du logement, **caractérisé en ce que** sont montés, sur le dispositif, un élément de verrouillage anti-déclenchement (13) et, sur l'équipement (3), une butée de verrouillage (19), l'élément de verrouillage anti-déclenchement étant conçu pour, dans une position de repos et de verrouillage, se trouver en appui arrière contre ladite butée de verrouillage (19) de l'équipement et empêcher le déplacement axial vers l'arrière de celui-ci et pour, dans une position de déverrouillage, permettre le déplacement axial vers l'arrière de l'équipement.
2. Dispositif selon la revendication 1, dans lequel ladite butée de verrouillage (19) est placée sur le guide de clou (5) de l'équipement.
3. Dispositif selon la revendication 1, dans lequel ladite

butée de verrouillage (19) est placée sur le canon (4) de l'équipement.

4. Dispositif selon l'une quelconque des revendications 1 à 3, dans lequel ledit élément de verrouillage anti-déclenchement (13) est monté sur le logement (2) afin d'agir, dans une position de repos et de verrouillage, sur ladite butée et empêcher le déplacement axial vers l'arrière de l'équipement faisant saillie à l'extérieur du logement.
5. Dispositif selon la revendication 4, dans lequel l'élément de verrouillage anti-déclenchement (13) comprend au moins un levier de verrouillage (23) pouvant être déplacé manuellement, raccordé au logement (2) de façon à empêcher le déplacement vers l'arrière de l'équipement, en marquant la position de repos et de verrouillage de l'élément de verrouillage, et à autoriser, après un déplacement du levier, le déplacement vers l'arrière de l'équipement en marquant la position de déverrouillage de l'élément de verrouillage.
6. Dispositif selon l'une quelconque des revendications 1 à 3, dans lequel ledit élément de verrouillage anti-déclenchement (13) est monté à coulissement autour de l'équipement mobile (3) faisant saillie à partir du logement afin d'être pressé, dans la position de verrouillage, contre ledit logement et empêchant le déplacement axial vers l'arrière de l'équipement par la butée de verrouillage.
7. Dispositif selon la revendication 6, dans lequel ledit élément de verrouillage anti-déclenchement (13) comprend un manchon cylindrique (20) monté à coulissement autour de l'équipement faisant saillie à partir du logement et pourvu au moins d'un levier de verrouillage (23) pouvant être déplacé manuellement et conçu pour être pressé contre ledit logement et empêcher le déplacement axial vers l'arrière de l'équipement, en marquant la position de repos et de verrouillage de l'élément de verrouillage et s'écartant du logement et autorisant le déplacement vers l'arrière de l'équipement, en marquant la position de déverrouillage de l'élément de verrouillage.
8. Dispositif selon la revendication 5 ou 7, dans lequel ledit levier de verrouillage (23) est monté à pivotement autour d'un axe d'articulation (24) perpendiculaire à l'axe de l'équipement et est soumis à l'action d'un élément élastique (27) à l'encontre de laquelle une action manuelle autorise le passage de la position verrouillée à la position déverrouillée de l'élément de verrouillage anti-déclenchement.
9. Dispositif selon la revendication 8, dans lequel l'élément de verrouillage anti-déclenchement (13) comprend plusieurs leviers de pivotement (23) répartis

autour de ce dernier.

10. Dispositif selon les revendications 7 et 8, dans lequel le levier de verrouillage (23) est reçu dans un logement (26) de la paroi latérale (25) dudit manchon cylindrique, une extrémité (29) étant tournée vers le côté intérieur de la paroi et venant en appui axial contre le logement, et l'extrémité opposée (28) étant tournée vers le côté extérieur de la paroi de façon à y être accessible. 5
10
11. Dispositif selon l'une quelconque des revendications 1 à 10, dans lequel le canon (5) de l'équipement est monté dans un support de canon (8) du logement se terminant par un anneau (10) fixé sur la pointe du support de canon et traversé par l'équipement, l'élément de verrouillage (13) coopérant avec ledit anneau. 15
12. Dispositif selon l'une quelconque des revendications 1 à 11, dans lequel ladite butée de verrouillage axiale (19) comprend un anneau monté sur l'équipement mobile. 20
13. Dispositif selon la revendication 7, comprenant une unité de sécurité d'appui de guide de clou comportant un ressort de rappel (32), disposé autour du canon de l'équipement, entre le logement (2) et une butée (33) dudit canon, dans lequel le manchon cylindrique (20) de l'élément de verrouillage anti-déclenchement (13) est monté autour de l'unité et présente, dans le passage axial (21) du manchon, un épaulement intérieur (35) pouvant s'appliquer sur le ressort lors du passage de la position de repos et de verrouillage à la position de déverrouillage. 25
30
35
14. Dispositif selon la revendication 13, dans lequel un ressort (37) est placé entre un épaulement intérieur (38) du manchon et un épaulement extérieur du guide de clou de façon à repousser spontanément l'élément de verrouillage en direction de sa position de repos contre la butée axiale (19) du guide de clou. 40
45
50
55

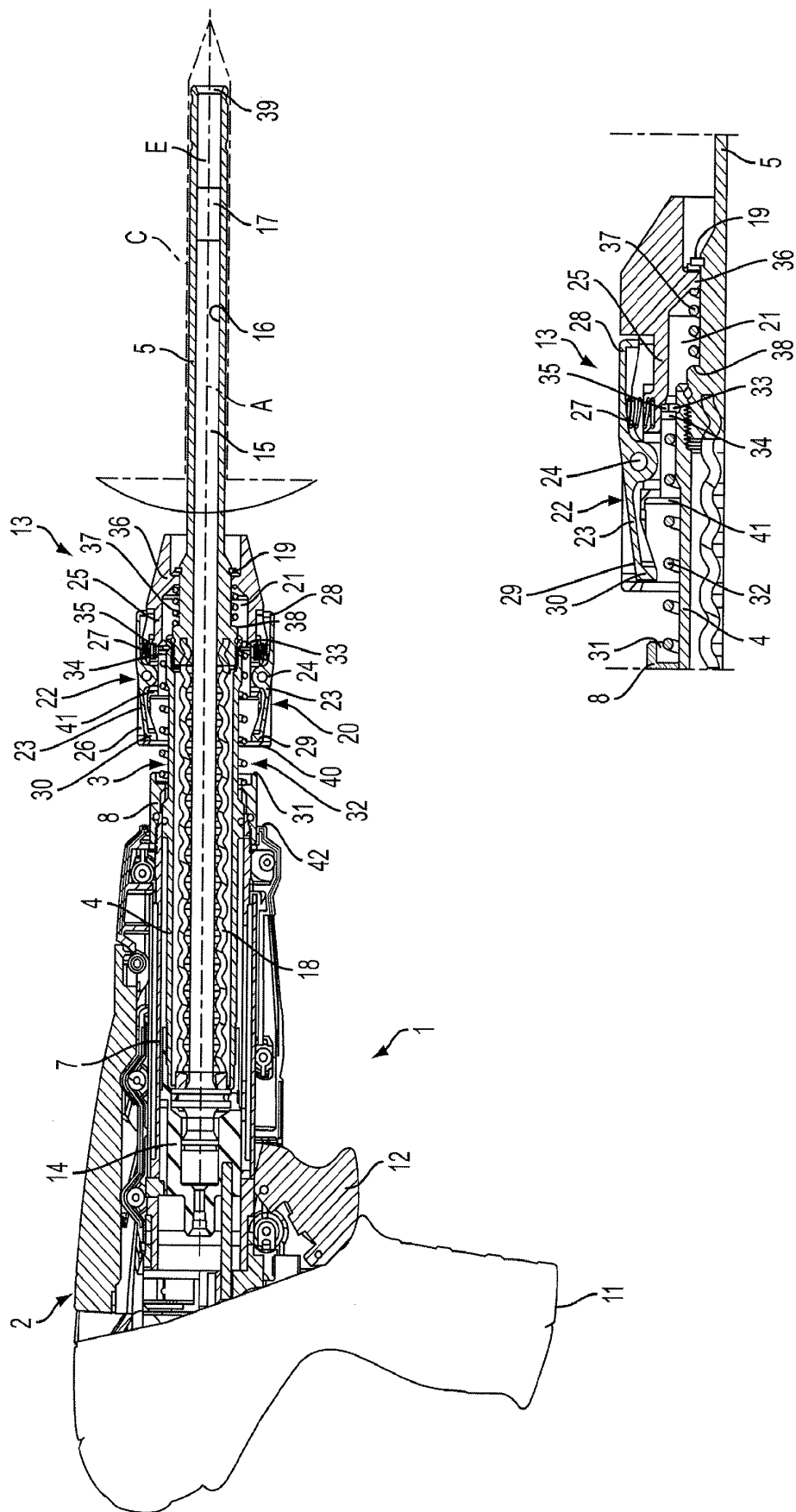


FIG. 1

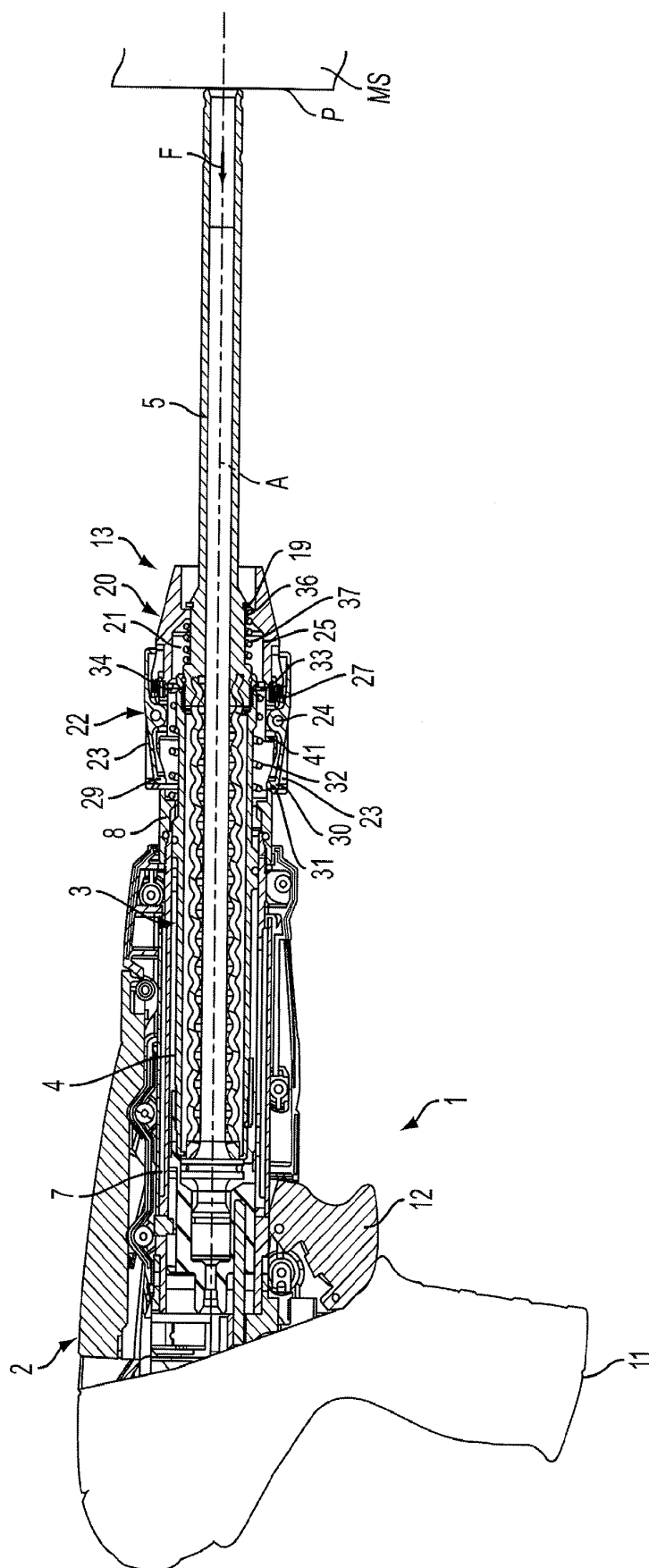


FIG. 2

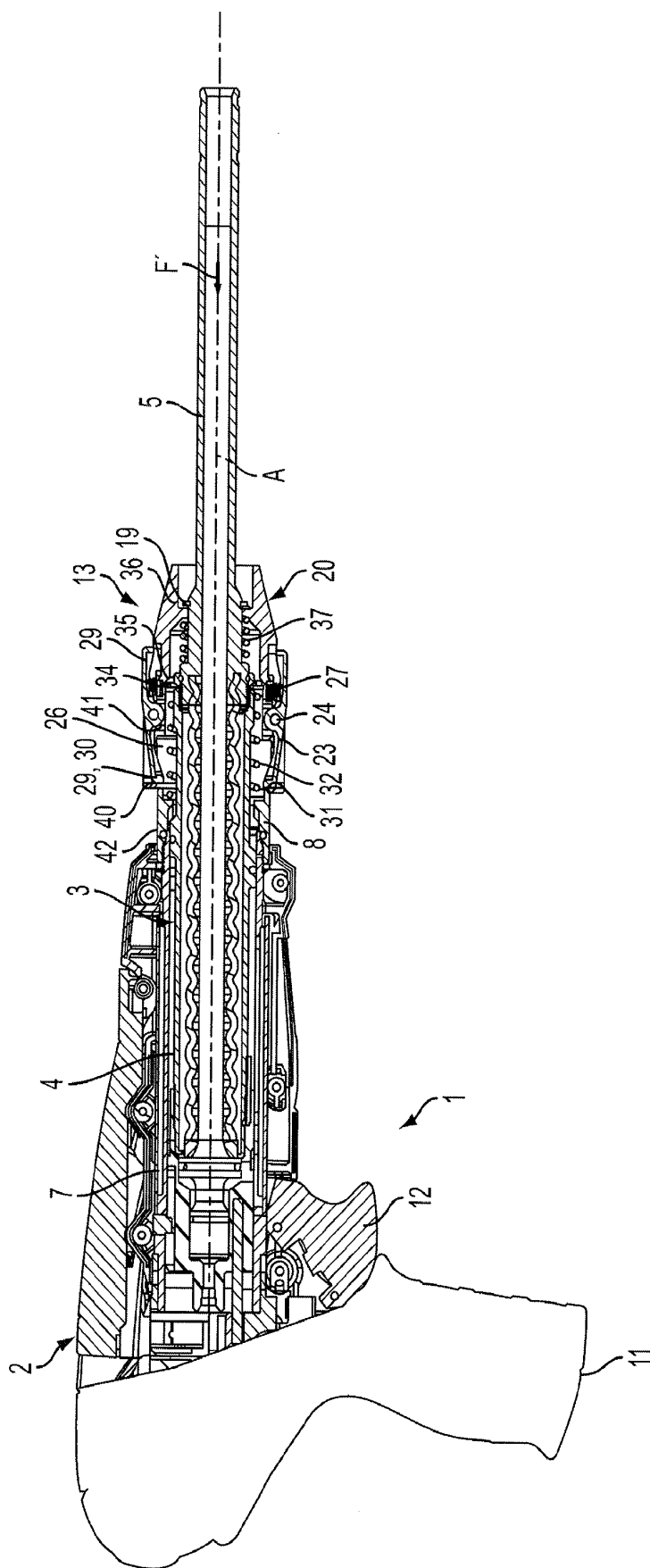


FIG. 3

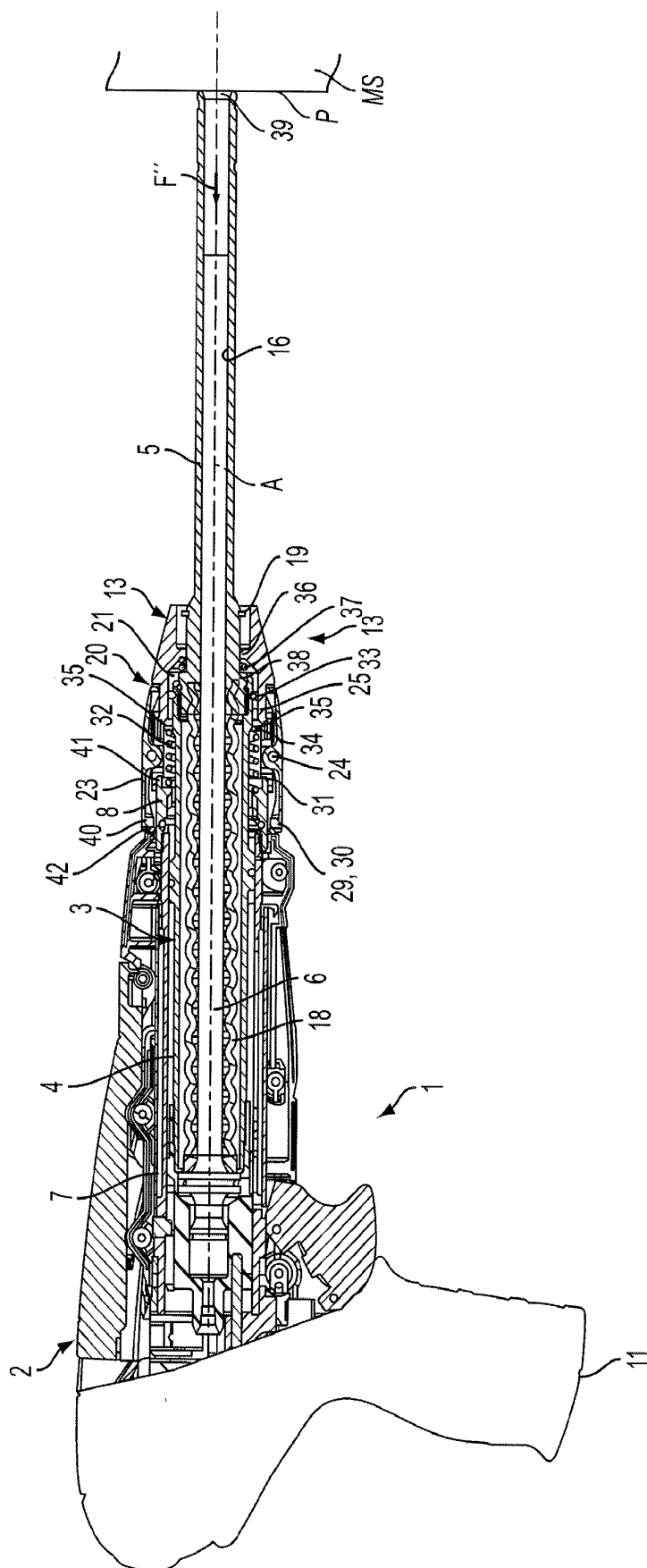


FIG. 4

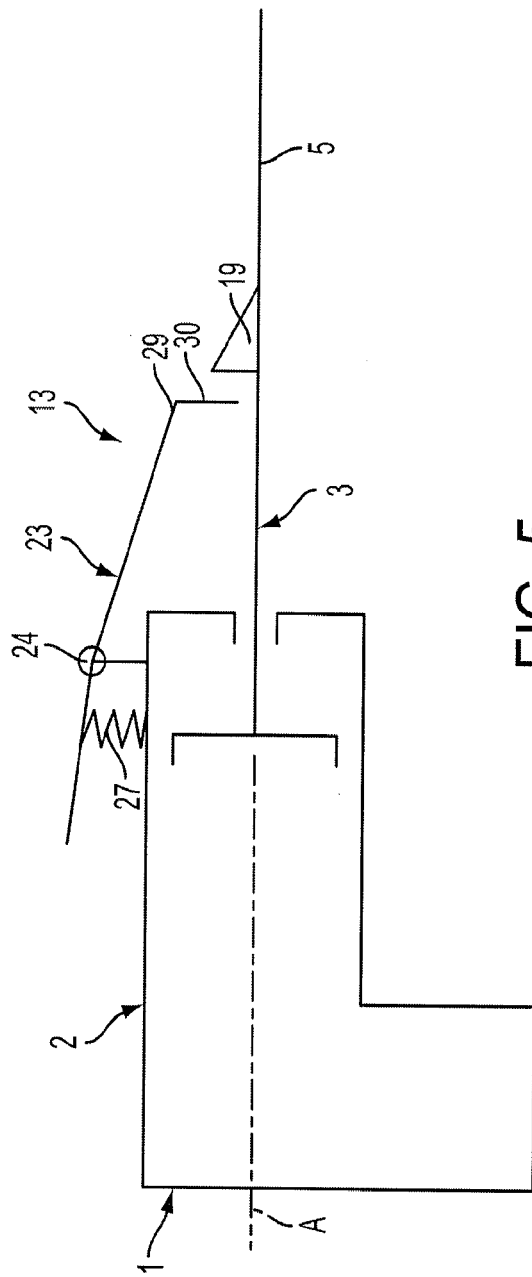


FIG. 5

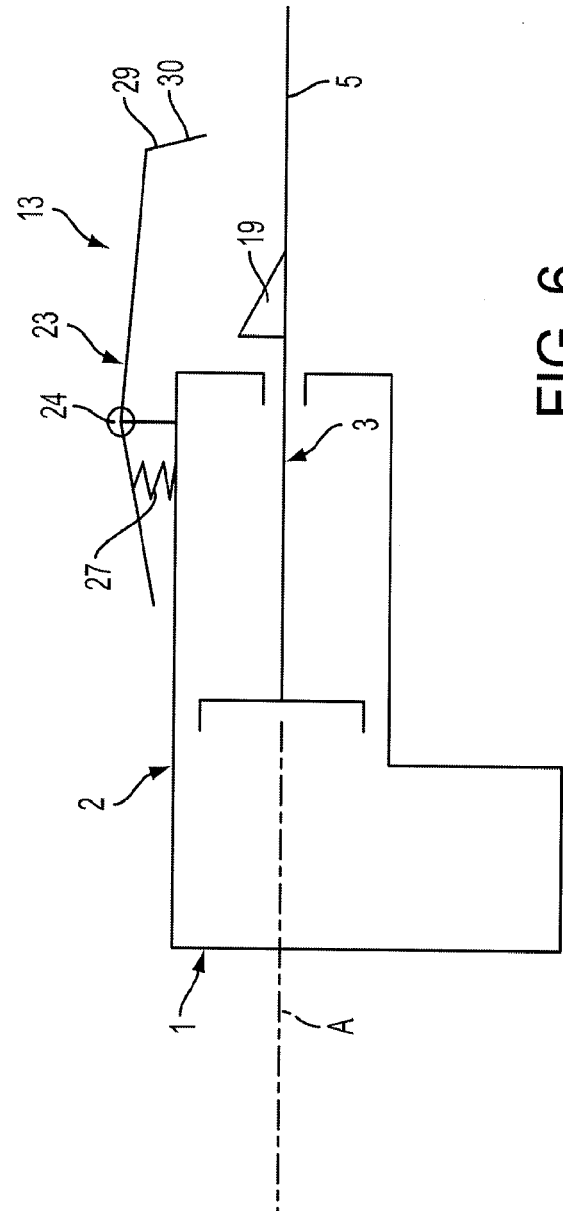


FIG. 6

REFERENCES CITED IN THE DESCRIPTION

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