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(54) **HANDLE UNIT FOR A HAND-HELD WORKING TOOL**

HANDGRIFF FÜR TRAGBARES WERKZEUG

UNITE POIGNEE POUR UN OUTIL DE TRAVAIL TENU A LA MAIN

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(56) References cited:
DE-A- 2 300 353

- **DATABASE WPI Week 8515, Derwent Publications Ltd., London, GB; AN 1985-092300/15 & SU 1 117 210 A (MECH ENG WKS) 07 October 1984**
- **DATABASE WPI Week 8450, Derwent Publications Ltd., London, GB; AN 1984-310724/50 & SU 1 085 818 A (MACH ENG WKS) 15 April 1984**
- **DATABASE WPI Week 8238, Derwent Publications Ltd., London, GB; AN 1982-M5999E/38 & SU 880 717 A (FOREST POWER MECHN INST) 25 November 1981**
- **DATABASE WPI Week 8404, Derwent Publications Ltd., London, GB; AN 1984-022860/04 & SU 1 006 220 A (MECH ENG WKS) 23 March 1983**

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Description

Technical field

[0001] The subject invention refers to a handle unit for a handheld working tool, such as a chain saw, cutting machine or hedge trimmer, and the working tool comprises a drive unit with an engine and a cutting unit, such as a guide bar with saw chain, cutting disc or shears. The handle unit comprises two mutually associated hand grips, which, at normal use of the working tool, are located higher up than the drive unit, which is rotatably mounted to the handle unit, so that the cutting direction of the cutting unit while rotating is being changed in vertical to horizontal direction. At least one attachment frame is mounted to the drive unit, and the handle unit is arranged with at least one handle support intended for detachable attachment in different positions along the attachment frame.

Background of the invention

[0002] As a rule handheld working tools, such as chain saws, power cutters and hedge trimmers, have a rear handle with a throttle control as well as a front handle frame extending around most part of the drive unit. In this manner the operator would be able to hold the front handle frame in many different positions, thus simplifying cutting work both in horizontal and vertical direction. DE 2909777 describes a chain saw having a laterally rotatable front hand grip. Hedge trimmers equipped with a laterally rotatable rear handle are known. These features can of course simplify handling of the tool but does not solve another basic ergonomical problem, e. g. a great deal of cutting work must be done near the ground or floor, such as felling a tree with a chain saw, cutting a concrete pillar with a power cutter or short-cutting a hedge with a hedge trimmer. At this kind of work the operator often has to crawl on the ground to be able to manage the tool.

[0003] In the russian forestry there exists a number of chain saw models having an especially high level handle. The handle has two mutually associated hand grips located equally abreast and high above the saw. The space between the hand grips corresponds to the operator's breadth across the shoulders, approximately. The saw itself is rotatable in relation to the handle between a felling position and a cutting position. SU 1006220 and SU 1085818 both describe examples of such solutions having an attachment frame, which is sprung suspended and partly surrounding the drive unit. The handle is mounted to the attachment frame with a handle support, which can be pushed along the attachment frame in order to provide the rotatability of the saw. On the other hand the both highly located hand grips are completely without any engine control, which obviously is a very severe disadvantage. The operator could thus be standing upright felling or cutting a tree. On the other hand the

high handle could be clumsy to use at tree limbing work, however, in the russian forestry as a rule the trees are taken to a centrally stationed machine for automatic limbing. SU 880717 and SU 1117210 both describe chain saws with a high handle, which is mounted so that the saw can be used only in a felling position. The latter is arranged as an accessory to a conventional saw. Both have a throttle control in connection to one hand grip. However, the cable from the throttle control is lead completely unprotected down to the drive unit. For that reason it becomes sensitive to damages in the hard work environment where these products are used. Another type of saw has a pivot located entirely behind the drive unit. But since this pivot is located entirely behind the saw body with its drive unit and projecting guide bar, substantial strains will arise in this pivot. It therefore has to be substantially dimensioned and thus necessarily protrude a lot behind the very saw body. This is disadvantageous since the protruding pivot as well as the handle down to the pivot tend to end up between the operator's legs and thus come into conflict with these. Simultaneously, substantial strains will as well arise in the handle, so that this also has to be substantially dimensioned.

Purpose of the invention

[0004] The purpose of the subject invention is to substantially reduce the above outlined problems, and to achieve advantages in many respects.

Summary of the invention

[0005] The above mentioned purpose is achieved in that the handle unit in accordance with the invention is having the characteristics appearing from the appended claims. The handle unit, according to the invention, is thus essentially characterized as appearing from the appended claims. Accordingly, the down-projecting part extends down at the rear side of the drive unit and gives protection to the engine controls. For, generally the drive unit is arranged with a warm side having a muffler, which lets the exhaust gases out at the cutting side, as well as a cold side facing the operator. As a rule carburettors and similar parts are arranged at the cold side and the engine controls connect here. On a modern anti-vibrated working tool preferably this takes place in the vibration gap, which is arranged between the anti-vibrated part and the engine supporting part. For that reason said down-projecting part extends down at the rear side, and leads the engine controls almost right up to the vibration gap. The handle unit could also be provided with a fuel tank. In that case its fuel hose is drawn so that it becomes protected by the down-projecting part. These and other characteristic features and advantages will become more apparent from the following detailed description of various embodiments with the support of the annexed drawing.

Brief description of the drawing

[0006] The invention will be described in closer detail in the following by way of various embodiments thereof with reference to the accompanying drawing figures.

Figure 1 shows straight from the side a handheld working tool equipped with the handle unit in accordance with the invention. The tool has a cutting unit in form of a guide bar with chain.

Figure 2 shows the working tool in accordance with figure 1, but seen from the direction of its cutting unit. Figure 1 and figure 2 both show the chain saw in a so called cutting position.

Figure 3 shows the working tool according to figure 1 and 2, but the tool is here angled about 90 degrees, so that the chain saw takes up a so called felling position.

Figure 4 shows in perspective the lower anti-vibrated part of the drive unit according to the figures 1-3 and with a mounted attachment frame.

Figure 5 shows an adjustable handle unit intended to suit well for many operators. It is also provided with a fuel tank.

Description of embodiments

[0007] In figure 1 numeral reference 1 designates a handle unit for a working tool 2, in accordance with the invention. The working tool comprises a drive unit 3 with an engine, and a cutting unit 4, which in the shown example is a guide bar 4 with chain, since the shown tool is a chain saw. However, when the working tool is a power cutter the cutting unit 4 would be a cutter disc, or, when the tool is a hedge trimmer the cutting unit would be shears. The cutting unit 4 is shown by dash-dotted lines since it is only one of many conceivable examples of a cutting unit connected to the drive unit 3. Other examples than the given ones are of course possible. The cutting unit protrudes from a cutting side 11 of the drive unit. This side is opposite to a rear side 10 facing against the operator.

[0008] The cutting unit 4, in this case a guide bar, has a cutting direction according to arrow 16, i.e. in level with the paper in figure 1. In figure 3 the drive unit 3 and thus the cutting direction 16 have been turned approximately 90 degrees in relation to the handle unit 1. For, an advantage with this kind of solution of handle is that the operator can be standing upright in a natural working position at the same time as the cutting unit 4 is working near the ground in a suitably selected cutting direction 16. As mentioned, the intended work could be felling a tree, cutting a concrete pillar or short-cutting a hedge. Chain saws with such kind of high level handle have been used since a long time in the russian forestry. However, the subject invention illustrates a particularly advantageous method of arranging transfer of engine control by having an advantageous design for the handle

unit's mounting onto the drive unit of the tool.

[0009] At least one attachment frame 7 is mounted to the drive unit and serves as attachment of the handle unit. The handle unit is provided with a handle support 8. This is designed as a clamp holder, thus surrounding the attachment frame 7 and riding this. The handle support has a clamping screw 21, which the operator can untighten when he wants to turn the drive unit, and then tighten again when he wants to lock the drive unit in another angular position.) Preferably the clamping screw has a large and easily managed knob, which can be turned even when using working gloves. Other types of quick locks are of course also conceivable, e.g. locking with an eccentric or with one or several quick clamps. As becomes apparent from figure 2 the attachment frame 7 is mounted onto something that according to the figure is an underside and a left side of the drive unit. Hereby it becomes possible for the handle support 8 to be pushed along the attachment frame 7, so that a rotation of haughtily 90 degrees is created.

[0010] The embodiment of the invention that becomes apparent from the figures 1-4 offers a particularly simple and durable mounting of the handle unit. A rear attachment cooperating with the handle support 8, such as a pivot, is arranged, partly in the handle unit as a rear attachment 12 and partly in the drive unit as a rear drive unit attachment 13 arranged at the rear side 10. Compare figure 1 and 4. The handle unit is thus leading down to a rear attachment 12 arranged as a pivot. The rear attachment 12 is arranged in a down-projecting part of the handle unit and is preferably composed of a piece of flat metal bar with a hole. A screw 14 is inserted through this hole and into a threaded hole 22 in the rear drive unit attachment 13. Preferably a bushing 15 is placed between the rear drive unit attachment 13 and the rear attachment 12 in order to counteract wear of the parts. In figure 4 an imaginary axis of rotation 23 has been marked. It runs through the centre of the rear drive unit attachment 13 as well as the centre of a radius R. For, the attachment frame 7 preferably over a large part of its length has an essentially circular form, with a radius R, in order to simplify rearrangement of the handle support between the different positions along the attachment frame. This will simplify rearrangement of the handle support, but is not an absolute precondition. The handle support 8 can also be designed in many different ways not requiring any circular form of the attachment frame 7, e.g. the handle support 8 could be fully or partly open so that the attachment frame can be displaceable inside the handle support 8, e.g. if a more angular shaped frame had been used.

[0011] Many drive units 3 run by an internal combustion engine are comprising an anti-vibrated part 17 mounted to an engine supporting part 18 by means of anti-vibration elements 19. The engine supporting part is then mounted to one end of each anti-vibration element 19 respectively. Thereby the both parts are joined solely by these anti-vibration elements, which means

that the vibrations in the anti-vibrated part could be reduced substantially compared with the vibrations in the engine supporting part. For example, on a chain saw usually the handle frame and the rear handle are mounted to the anti-vibrated part. In figure 4 is shown how the attachment frame 7 is mounted to the anti-vibrated part 17. Furthermore the rear drive unit attachment 13 is arranged in the anti-vibrated part 17. In this manner the handle unit 1 will thus become anti-vibrated in relation to the engine unit. This anti-vibration will of course improve the user-comfort considerably for the operator. However, simultaneously there exist handheld working tools run by internal combustion engines, hydraulic engines, pneumatic engines or electric engines, having no kind of anti-vibration at all, and anti-vibration is of course no precondition for the invention.

[0012] The down-projecting part 9 extending down at the rear side 10 of the drive unit is used for giving protection to engine controls, such as a throttle cable, or an electric cord for stop control, leading from at least one of the hand grips 5, 6 to the rear side 10 of the drive unit. For, usually the drive unit 3 is arranged with a warm side having a muffler, which lets the exhaust gases out at the cutting side 11, as well as a cold side with a rear handle used by the operator. As a rule carburettors and similar parts are arranged at the cold side. It means that the engine controls are generally lead in at the cold side. On a modern anti-vibrated working tool preferably this takes place at the vibration gap arranged between the anti-vibrated part and the engine supporting part. It is therefore important that the down-projecting part 9 extends down at the rear side 10, and leads the engine controls almost right up to the vibration gap. The handle unit 1 could also be equipped with a fuel tank. In that case its fuel hose preferably is drawn so that it becomes protected by the down-projecting part 9. In the shown embodiment the handle unit as seen from the side of the operator, i.e. from the rear side 10, is shaped as a V and having its top point down at the rear attachment 12 and its upper ends at each hand grip 5, 6 respectively. It is therefore natural to lead engine controls from the left hand grip inside the left tube, and engine controls from the right hand grip inside the right tube. It is also natural to lead a fuel hose from a possible fuel tank at or inside one of the tubes. The branches of the shaped V are stabilized by a cross bar 26. Two bars 27 and 28 support the handle support 8. By this geometry the strains in different directions will be taken up very efficiently, so that a light and strong handle unit is created. The handle itself could be made of aluminium or magnesium, while the attachment frame 7 could be made of steel. Because they are combined with a fastening clamp or screw. As becomes apparent from figure 1 the drive unit attachment 13, the rear attachment 12 and the down-projecting part 9 protrude only a little behind the drive unit. This is due to the cooperation between the handle support 8 and the rear attachment, which is very effective and gives less strains.

[0013] Normally the hand grips 5, 6 are located beside each other approximately with a shoulder-breadth between them. But obviously the handle unit could be made adjustable both vertically and horizontally.

[0014] The attachment frame, according to figure 4, is composed of three different parts, a frame part 29, which in the actual case is made of a steel tube with a diameter of 22 millimetres and a material thickness of 1½ millimetres. At its lower part it is welded onto a bottom attachment part 24, in this case a flat iron bar mounted to the underside of the anti-vibrated part. At the other end the frame part 29 is welded onto a side-attachment 25, which in this case is made of a flat iron part and fastened onto the side of the anti-vibrated part 17. The bottom attachment 24 has in the shown case two shackles offering a wide mounting base onto the anti-vibrated part 17. However, in many applications it would be sufficient to have only one bottom attachment in the anti-vibrated part, e.g. the bottom attachment could then be made of a flattened part from a longer metal frame. In such a manner could also the side-attachment 25 be arranged. Furthermore, the whole frame could be cast from a plastic material, either homogeneously or with cast hollow spaces. Often the frame part 29 has a round cross-section, usually in form of a round tube. The cross-section could be completed with at least one protruding part for improving transfer of rotation between the attachment frame 7 and the handle unit 1. The protruding part could consist of a ridge, which protrudes from the periphery of the cross-section. This is particularly important if the cross-section is round and the attachment frame alone shall support the drive unit. The frame part 29 could also have an oval or a square or another cross-section, which will counteract rotation between the handle support 8 and the frame part 29. And the cross-section could either be homogeneous or tube-shaped. The attachment frame 7 could also over most part of its length be arranged as a double frame, i.e. two mutually parallel frame parts cooperating with the handle support 8. For example, two frame parts 29 could be arranged beside each other and mounted to the bottom attachment 24 and the upper attachment 25. The handle support 8 could then be riding both these frame parts 29 and the arrangement would ensure a satisfactory support of the drive unit, even if a rear attachment should be missing.

[0015] Figure 5 thus shows an adjustable handle unit provided also with a fuel tank. The hand grips 5,6 are arranged around handle tubes 37,38, which extend down in the down-projecting part 9, and the engine controls, and a possible fuel hose, are preferably attached to the down-projecting part by being inserted inside at least one of the handle tubes. Engine controls, such as a throttle cable, an electric cord for stop control or a possible fuel hose, are mounted to the down-projecting part 9, except for at the lowest part of the down-projecting part, where they instead pass over to the drive unit, e.g. by passing in through the vibration gap. Preferably they pass over from the inside of the handle unit so that

they become well protected at the changeover. The engine controls and a possible fuel hose could also be mounted onto the outside of the down-projecting part and thus be protected. This is particularly advantageous if the handle tubes are provided with one or several grooves for this purpose.

[0016] The handle tubes 37,38 extending down in the down-projecting part 9 are essentially arranged and shaped as a V, and are upwards and downwards adjustable, so that during raising the height of the handle unit will increase, as well as the distance between the hand grips 5, 6 will increase. This is achieved in that the handle tubes are displaceably attached, partly into a bottom attachment 39 and partly in a cross bar 41. Both these are designed so that they surround the handle tubes, e. g. U-shaped, and are clamped together around the tubes by means of screws. Hereby the tubes could be raised or lowered in order to suit different operators. At a raising also the mutual distance between the hand grips will increase. Because longer persons are often more broad-shouldered. However, the hand grips could preferably as well be turned somewhat thus altering the distance between the hand grips and their angling. The V-shape of the handle unit, as seen from the view of the operator, is thus offering obvious advantages with respect to adjustments, as well as to stability and low weight. The cross bar 41 is supporting the bars 27 and 28, compare fig. 2, as well as the fuel tank 36.

[0017] The bottom attachment 39 is in this case provided with a rear attachment 12 for mounting onto the drive unit, as earlier described. The bottom attachment 39 also serves to attach a supporting shield 40, intended to cooperate with the operator's legs. It therefore has a comfortably vaulted form, so that the operator could rest either of his legs against it. The supporting shield 40 could also form part of the attachment 39.

Claims

1. A handle unit (1) for a handheld working tool (2), such as a chain saw, cutting machine or hedge trimmer, wherein said unit comprises a drive unit (3) with an engine and a cutting unit (4) such as a guide bar (4) with saw chain, cutting disc or shears, and at least one attachment frame (7) mounted to said drive unit, said unit also comprises two mutually associated hand grips (5, 6), which, during use of said saw, are located higher up than said drive unit, and at least one handle support (8) intended for detachable attachment in different positions along said attachment frame (7), so that said hand grips can be rotated relative to said handle unit and that the orientation (16) of said cutting unit can be changed between vertical and horizontal positions, said handle unit is further provided with a single down-projecting part (9) located on the backside (10) of said hand grips opposite to the cutting side (11), so that engine controls, such as throttle cable and an electric stop control cord, which are arranged to lead from at least one of said hand grips (5, 6) to the rear side of the drive unit, are protectively mounted thereto, said down-projecting part terminates in a rear attachment (12) which pivotally co-operates with said handle support (8) and provides said orientation means together with a rear drive unit attachment (13) located on the rear side (10) of said drive unit to enable said relative rotation, said down-projecting part is further shaped as a V having its top-point, or meeting-point, down at said rear attachment (12) and its upper ends at each hand grip and the branches of the shaped V are stabilized by a cross-bar (26) and two additional bars (27, 28) support the handle support (8) and connect it with the down-projecting part.
2. A handle unit (1) according to claim 1, **characterized in that** the handle unit is provided with a fuel tank (36), whose fuel hose is mounted to the down-projecting part (9) and thus being protected.
3. A handle unit (1) according to claim 1 or 2, **characterized in that** engine controls, such as a throttle cable, an electric cord for stop control or a possible fuel hose, are mounted to the down-projecting part (9), except for at the lowest part of the down-projecting part (9), where they pass over to the drive unit.
4. A handle unit (1) according to any one of the preceding claims, **characterized in that** the hand grips (5, 6) are arranged around handle tubes (37, 38), which extend down in the down-projecting part (9), and the engine controls, and a possible fuel hose, are mounted to the down-projecting part in such a manner that they extend inside at least one of the handle tubes.
5. A handle unit (1) according to claim 4, **characterized in that** the handle tubes (37,38) extending down in the down-projecting part (9) are arranged as a V, and they are mounted to be upwards and downwards adjustable, so that during a raising the height of the handle unit as well as the distance between the hand grips (5, 6) will increase.
6. A handle unit (1) according to any one of the preceding claims, **characterized in that** the attachment frame (7) over most part of its length is arranged as a double frame, i.e. with two mutually parallel frame parts, which are cooperating with the handle support (8).
7. A handle unit (1) according to any of the preceding claims, **characterized in that** the rear attachment (12) is arranged in the down-projecting part (9).

8. A handle unit (1) according to any one of the preceding claims, and the drive unit (3) comprises an anti-vibrated part (17) mounted to an engine supporting part (18) by means of anti-vibration elements (19), **characterized in that** the attachment frame (7) is mounted to the anti-vibrated part. 5
9. A handle unit (1) according to claim 8, **characterized in that** the rear drive unit attachment (13) is arranged in the anti-vibrated part (17). 10

Patentansprüche

1. Griffereinheit (1) für ein handgehaltenes Arbeitswerkzeug (2) wie eine Kettensäge, Schneidemaschine oder Heckenschere, wobei die Einheit eine Antriebseinheit (3) mit einem Motor und eine Schneideinheit (4) wie eine Führungstange (4) mit Sägekette, Schneidscheibe oder Schere und wenigstens einen Befestigungsrahmen (7) umfaßt, der an der Antriebseinheit montiert ist, wobei diese Einheit außerdem zwei gegenseitig verbundene Handgriffe (5, 6), die sich bei Gebrauch der Säge höher oben als die Antriebseinheit befinden, und wenigstens eine Griffhalterung (8) umfaßt, die für eine lösbare Befestigung an verschiedenen Positionen längs des Befestigungsrahmens (7) bestimmt ist, so daß die Handgriffe in Bezug auf die Griffereinheit geschwenkt werden können und daß die Ausrichtung (16) der Schneideinheit zwischen vertikalen und horizontalen Positionen geändert werden kann, wobei die Griffereinheit überdies mit einem einzigen nach unten ragenden Teil (9) versehen ist, der sich der Schneideseite (11) gegenüberliegend auf der Rückseite (10) der Handgriffe befindet, so daß Motorsteuerungselemente wie etwa ein Gashebelkabel oder ein elektrisches Kabel zur Stop-Steuerung, die so angeordnet sind, daß sie von wenigstens einem der Handgriffe (5, 6) zur Rückseite der Antriebseinheit führen, in geschützter Weise daran angebracht sind, wobei dieser nach unten ragende Teil in einer rückseitigen Aufhängung (12) endet, die als Drehpunkt dienend mit der Griffhalterung (8) zusammenwirkt und gemeinsam mit einer rückseitigen Antriebseinheitsaufhängung (13), die sich an der Rückseite (10) der Antriebseinheit befindet, das Ausrichtungsmittel bereitstellt, um die relative Drehung zu ermöglichen, wobei der nach unten ragende Teil außerdem als ein V geformt ist, das seinen Spitzen- oder Treffpunkt unten an der rückseitigen Aufhängung (12) und seine oberen Enden an jedem Handgriff aufweist, und die Schenkel des geformten V durch eine Querstange (26) stabilisiert werden und zwei zusätzliche Stangen (27, 28) die Griffhalterung (8) stützen und diese mit dem nach unten ragenden Teil verbinden. 15
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2. Griffereinheit (1) nach Anspruch 1, **dadurch gekennzeichnet, daß** die Griffereinheit mit einem Treibstofftank (36) ausgestattet ist, dessen Treibstoffschlauch an dem nach unten ragenden Teil (9) befestigt ist und somit geschützt ist.
3. Griffereinheit (1) nach Anspruch 1 oder 2, **dadurch gekennzeichnet, daß** Motorsteuerungselemente wie zum Beispiel ein Gashebelkabel, ein elektrisches Kabel zur Stop-Steuerung oder ein etwaiger Treibstoffschlauch an dem nach unten ragenden Teil (9) montiert sind, außer an dem untersten Teil des nach unten ragenden Teils (9), wo sie zur Antriebseinheit übertreten.
4. Griffereinheit (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, daß** die Handgriffe (5, 6) um Griffrohre (37, 38) angeordnet sind, die sich in dem nach unten ragenden Teil (9) abwärts erstrecken, und die Motorsteuerung und ein etwaiger Treibstoffschlauch auf eine solche Weise an dem nach unten ragenden Teil befestigt sind, daß sie im Innern wenigstens eines der Griffrohre verlaufen.
5. Griffereinheit (1) nach Anspruch 4, **dadurch gekennzeichnet, daß** die Griffrohre (37, 38), die sich in dem nach unten ragenden Teil (9) abwärts erstrecken, als ein V angeordnet sind und sie nach oben und unten verstellbar montiert sind, so daß beim Höherstellen die Höhe der Griffereinheit wie auch der Abstand zwischen den Handgriffen (5, 6) zunehmen wird.
6. Griffereinheit (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, daß** der Befestigungsrahmen (7) über den größten Teil seiner Länge als ein Doppelrahmen ausgeführt ist, d.h. mit zwei zueinander parallelen Rahmenteilen, die mit der Griffhalterung (8) zusammenwirken.
7. Griffereinheit (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, daß** die rückseitige Aufhängung (12) in dem nach unten ragenden Teil (9) angeordnet ist.
8. Griffereinheit (1) nach einem der vorhergehenden Ansprüche, wobei die Antriebseinheit (3) einen vibrationsgedämpften Teil (17) umfaßt, der mittels Dämpfungselementen (19) an einem motortragenden Teil (18) montiert ist, **dadurch gekennzeichnet, daß** der Befestigungsrahmen (7) an dem vibrationsgedämpften Teil montiert ist.
9. Griffereinheit (1) nach Anspruch 8, **dadurch gekennzeichnet, daß** die rückseitige Antriebseinheitsaufhängung (13) in dem vibrationsgedämpften Teil (17) angeordnet ist. 55

Revendications

1. Unité à poignée (1) prévue pour un outil à main (2), tel qu'une scie à chaîne, une machine à découper ou un taille-haies, dans laquelle ladite unité comprend une unité d'entraînement (3) comportant un moteur et une unité de coupe (4), telle qu'une barre de guidage (4) avec chaîne de scie, disque de coupe ou cisailles, et au moins un cadre de fixation (7), monté sur ladite unité d'entraînement, ladite unité comprenant également deux poignées (5, 6) mutuellement associées et qui, pendant l'utilisation de ladite scie, sont situées au dessus de ladite unité d'entraînement, et au moins un support de poignée (8) apte à être fixé de manière détachable dans différentes positions le long dudit cadre de fixation (7), de telle sorte que lesdites poignées puissent être tournées par rapport à ladite unité formant poignée et que l'orientation (16) de ladite unité de coupe puisse être modifiée entre des positions verticale et horizontale, ladite unité formant poignée étant en outre pourvue d'une unique partie faisant saillie vers le bas (9), située sur le côté arrière (10) desdites poignées, à l'opposé du côté coupe (11), de telle manière que les commandes du moteur, tels que câble d'étranglement et cordon électrique de commande d'arrêt, qui sont prévus pour aller depuis au moins l'une desdites poignées (5, 6) jusqu'au côté arrière de l'unité d'entraînement, soient montés de manière à être protégés dans cette partie, ladite partie faisant saillie vers le bas se terminant dans une fixation arrière (12), qui coopère de manière pivotante avec ledit support de poignée (8) et qui constitue lesdits moyens d'orientation en association avec une fixation arrière d'unité d'entraînement (13), située sur le côté arrière (10) de ladite unité d'entraînement afin de permettre ladite rotation relative, ladite partie faisant saillie vers le bas étant, en outre, en forme de V dont le sommet, ou point de réunion, est situé en bas au niveau de ladite fixation arrière (12), et dont les extrémités supérieures sont situées au niveau de chaque poignée, tandis que les branches du V sont stabilisées par une entretoise (26) et que deux barres (27, 28) supplémentaires soutiennent le support de poignée (8) et le relie à la partie faisant saillie vers le bas.

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2. Unité à poignée (1) selon la revendication 1, **caractérisée en ce que** l'unité formant poignée est pourvue d'un réservoir à combustible (36) dont le flexible à combustible est monté dans la partie faisant saillie vers le bas (9) pour être ainsi protégé.

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3. Unité à poignée (1) selon la revendication 1 ou 2, **caractérisée en ce que** les éléments de commande de moteur tels qu'un câble d'étranglement, un cordon électrique de commande d'arrêt ou un éventuel flexible à combustible, sont montés dans la partie

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4. Unité à poignée (1) selon l'une quelconque des revendications précédentes, **caractérisée en ce que** les poignées (5, 6) sont disposées autour de tubes formant poignée (37, 38) qui s'étendent vers le bas dans la partie faisant saillie vers le bas (9), et **en ce que** les commandes du moteur, et un éventuel flexible à combustible, sont montés dans la partie faisant saillie vers le bas de telle manière qu'ils s'étendent à l'intérieur d'au moins l'un des tubes du manche.

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5. Unité à poignée (1) selon la revendication 4, **caractérisée en ce que** les tubes formant poignée (37, 38), s'étendant vers le bas dans la partie faisant saillie vers le bas (9), sont disposés en V, et **en ce qu'ils** sont montés de manière à pouvoir être réglés vers le haut et vers le bas si bien que, lors d'une remontée, la hauteur de l'unité formant manche ainsi que la distance entre les poignées (5, 6) augmenteront.

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6. Unité à poignée (1) selon l'une quelconque des revendications précédentes, **caractérisée en ce que** le cadre de fixation (7) est prévu, sur la majeure partie de sa longueur, en tant que double cadre, c'est-à-dire avec deux parties de cadre parallèles, qui coopèrent avec le support de poignée (8).

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7. Unité à poignée (1) selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la fixation arrière (12) est disposée dans la partie faisant saillie vers le bas (9).

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8. Unité à poignée (1) selon l'une quelconque des revendications précédentes, l'unité d'entraînement (3) comprenant une partie protégée contre les vibrations (17), montée sur une partie de soutien de moteur (18) au moyen d'éléments antivibratoires (19), **caractérisée en ce que** le cadre de fixation (7) est monté sur la partie protégée contre les vibrations.

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9. Unité à poignée (1) selon la revendication 8, **caractérisée en ce que** la fixation arrière (13) de l'unité d'entraînement est disposée dans la partie protégée contre les vibrations (17).

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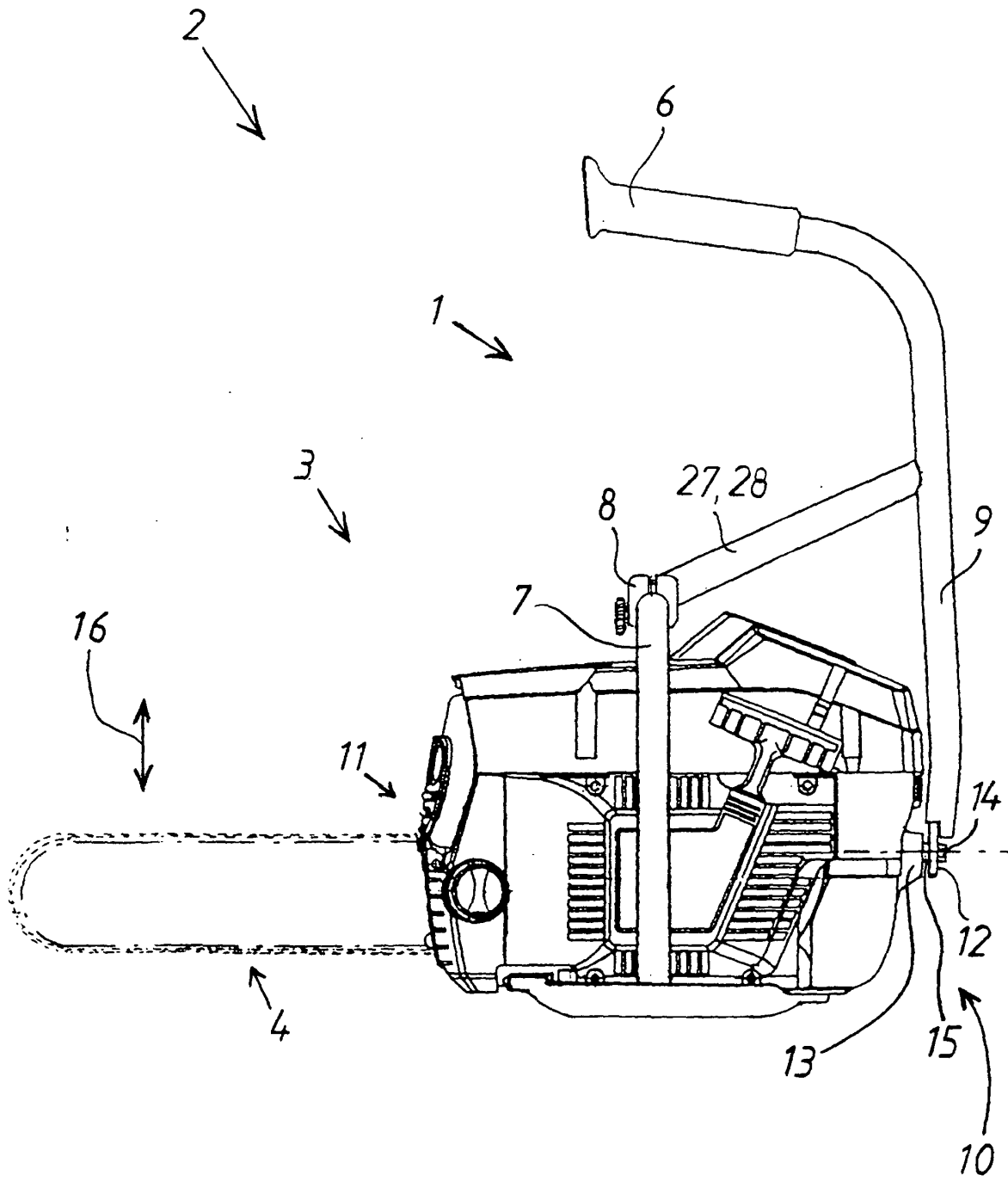
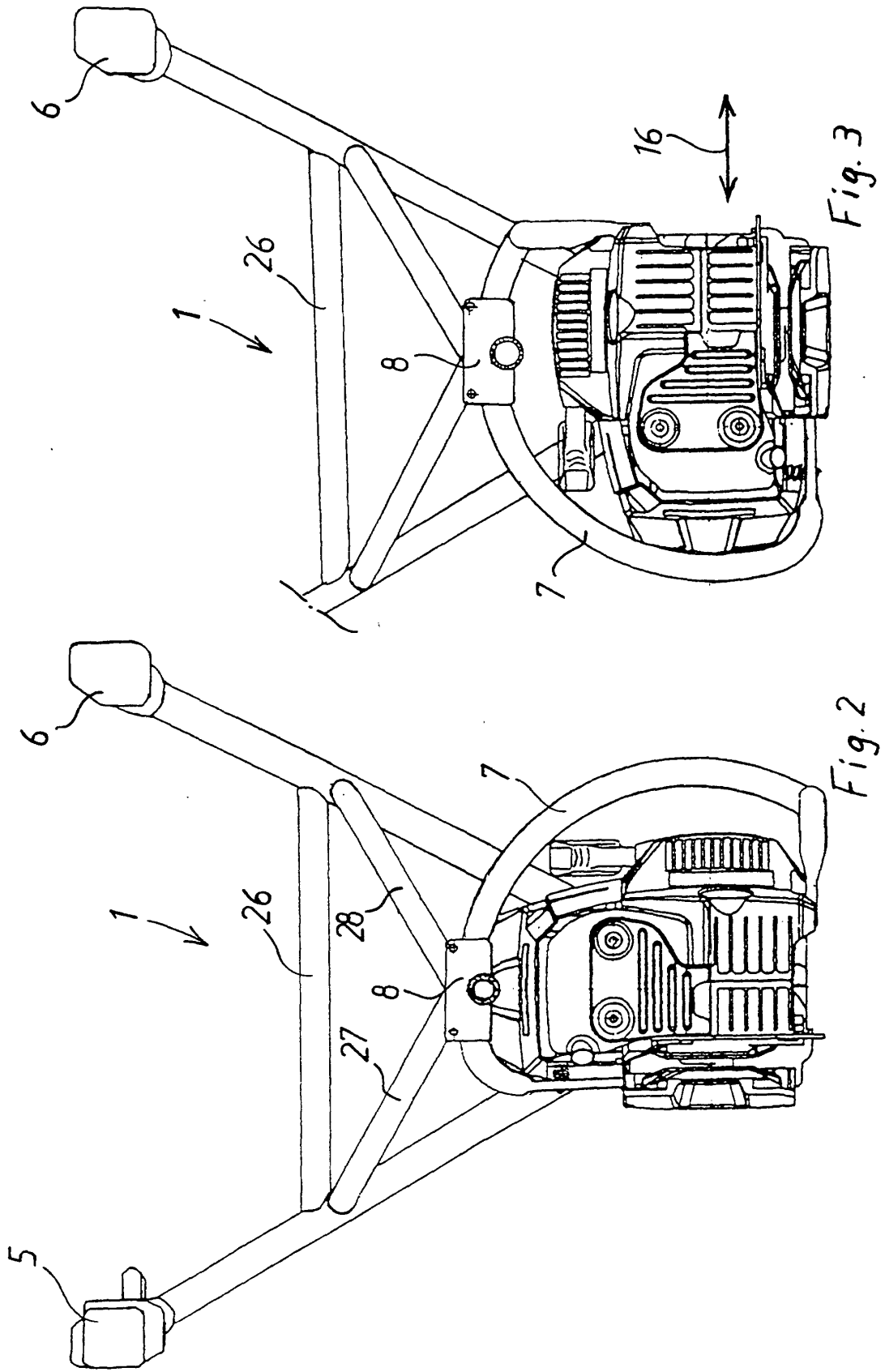
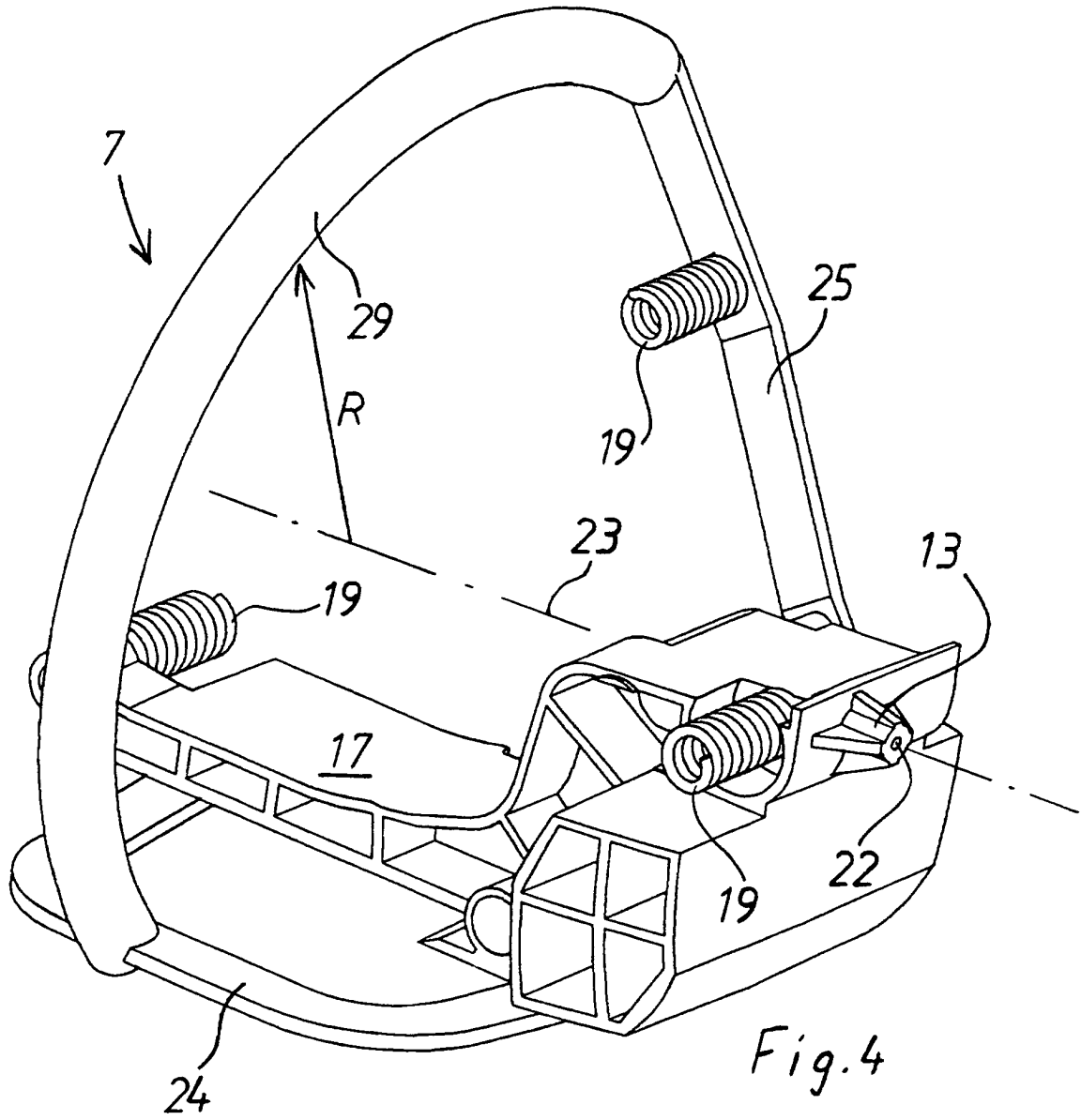


Fig. 1





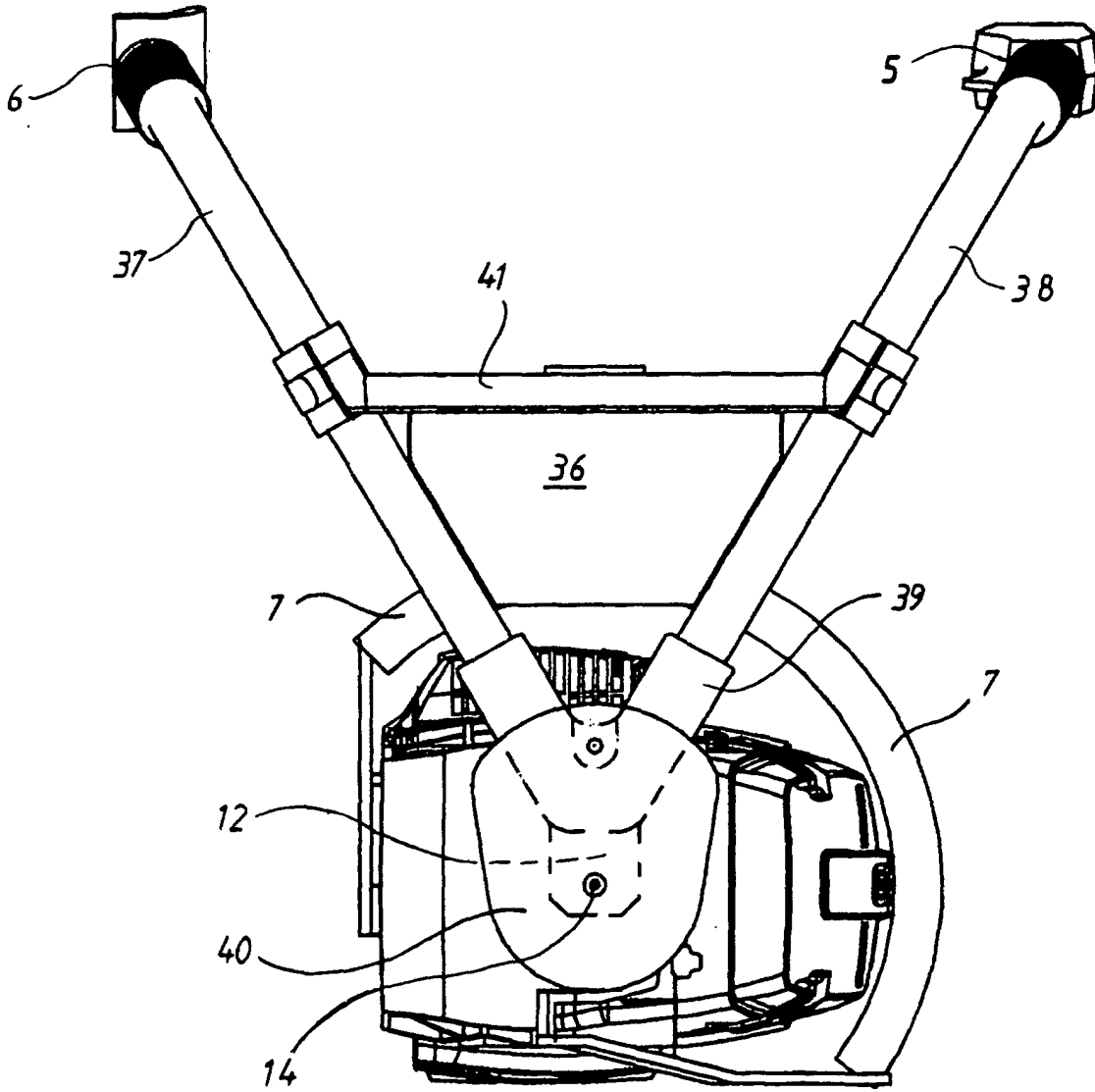


Fig.5