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### Hand-held electric tool

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#### Abstract

The present invention provides a hand-held electric tool comprising a housing and an operating component. The housing has a main body section and a grip section extending from the rear side of the main body section, and the front end of the main body section is provided with a mounting interface. The operating component is mounted at the mounting interface of the housing and protrudes from the housing. A chip removal hole is formed in the bottom wall of the main body section of the housing, and a protective portion that extends downwards at least partially is provided at the bottom end at the position where the main body section joins the grip section. The bottom of a hand-held electric tool of the present invention is substantially closed, except for being provided with a chip removal hole, which allows removal of chips while preventing a user's hand from being inadvertently extended into the housing and contacting a component operating at a high speed. Moreover, chips removed through the chip removal hole are blocked by the protective portion, without reaching the grip section, which offers considerable advantages in terms of safety and hygiene.

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## Background/Summary

(1) This application claims priority to Chinese Patent Application No. 202210383385.9, filed on Apr. 12, 2022, the disclosure of which is incorporated by reference herein in its entirety.

### TECHNICAL FIELD

(2) The present invention relates to the field of small industrial appliances, in particular to a hand-

held electric tool.

## BACKGROUND ART

(3) When a common hand-held electric tool currently available on the market is used to cut or chip an object, some chips are generated, which are usually brought into the housing and then removed from the housing as its operating components (such as the saw chain and blades) move. Generally, the bottom of the housing is fully open for the removal of chips, and a user's hand can easily come into contact with the high-speed saw chain, blades, or another structure inside the housing through such an open bottom, which poses substantial safety risks. Moreover, after being removed from the housing, chips may, due to inertia, continue to move at a high speed and fall onto the user's hands, adversely affecting the user's health and safety. In another aspect, since the external structure of an existing hand-held electric tool is not well designed, the hand-held electric tool is very stable and easily shakes during operation.

(4) Therefore, it is necessary to provide a hand-held electric tool to at least partially solve the above-mentioned problems.

## SUMMARY OF THE INVENTION

(5) An objective of the present invention is to provide a hand-held electric tool, wherein the bottom of the main body of the hand-held electric tool is provided with a bottom wall, and a chip removal hole is provided in the bottom wall, which means that the bottom of the hand-held electric tool is substantially closed, so such a bottom arrangement allows the removal of chips while preventing a user's hand from being inadvertently extended into the housing and contacting a component operating at a high speed. The rear side of the chip removal hole of the hand-held electric tool is provided with a protective portion, so that chips removed through the chip removal hole are blocked by the protective portion, without reaching the grip section, which offers considerable advantages in terms of safety and hygiene.

(6) On the other hand, the present invention provides preferred settings of the dimensions of various components and structures, making the hand-held electric tool safer and more comfortable. A hand-held electric tool of the present invention is further provided with a first rest block located at the top for a user's fingers to rest, and a second rest block located at the bottom for the object to be worked to rest, wherein these rest blocks can improve operational stability, and the first rest block can also prevent the user's fingers from crossing the front end of the housing and contacting an operating component.

(7) According to one aspect of the present invention, a hand-held electric tool is provided, comprising: a housing having a main body section and a grip section extending towards the rear side from the main body section, wherein the front end of the main body section is provided with a mounting interface; an operating component mounted at the mounting interface of the housing and protruding from the housing, wherein a chip removal hole is formed in the bottom wall of the main body section of the housing, and a protective portion that extends downwards at least partially is provided at the bottom end at the position where the main body section joins the grip section.

(8) In one embodiment, the chip removal hole is oriented forwards and downwards, preferably with the inner wall of the housing, which is located behind the chip removal hole, extending forwards and downwards.

(9) In one embodiment, the chip removal hole is oriented backwards and downwards, and the main body section comprises a guide member located near the chip removal hole to guide the removal of chips backwards and downwards from the main body section, wherein, preferably, the guide member comprises a first guide wall and a second guide wall that is located below the first guide wall and has a guide direction different from that of the first guide wall, the second guide wall extending backwards and downwards.

(10) In one embodiment, the operating component comprises a saw chain that rotates on its plane of extension, the first guide wall facing and being shaped to fit a portion of the saw chain.

(11) In one embodiment, the protective portion comprises a downwardly and forwardly extending

baffle located at its frontmost portion.

(12) In one embodiment, the protective portion further comprises a protective portion cross member extending backwards from the baffle, defining a space for accommodating a user's hand between the protective portion and the grip section.

(13) In one embodiment, the housing further comprises a battery engagement section located at the rear end of the grip section and extending substantially perpendicular to the grip section, preferably with the protective portion extending to be joined to the lower end of the battery engagement section.

(14) In one embodiment, the width of the baffle is greater than that of the housing, wherein preferably the overall width of the protective portion is greater than the width of the grip section, and preferably the baffle of the protective portion is wider than other parts.

(15) In one embodiment, the grip section extends backwards and downwards from the main body section, preferably with the protective portion cross member being substantially parallel to the direction of extension of the grip section.

(16) In one embodiment, the chip removal hole is adjacent to the front surface of the baffle, wherein preferably the chip removal hole has a length that is  $\frac{1}{8}$ - $\frac{1}{4}$  that of the main body section, preferably the chip removal hole has a width that is  $\frac{1}{4}$ - $\frac{1}{2}$  that of the main body section, and preferably the chip removal hole is a substantially circular hole or a substantially square hole.

(17) In one embodiment, the operating component comprises a saw chain that rotates on its plane of extension, the saw chain comprising a bottom section, a top section, as well as a front connecting section and a rear connecting section that are connected therebetween, wherein the bottom section of the saw chain moves backwards during the operation.

(18) In one embodiment, the top side of the main body section is provided with a first rest block, which is configured to allow a user's hand to rest against the rear end face of the first rest block, wherein, preferably, the width of the rear end face of the first rest block is  $\frac{1}{5}$ - $\frac{1}{3}$  that of the main body section, and preferably, the top surface of the first rest block is configured as an L-shaped structure.

(19) In one embodiment, a second rest block is arranged at the frontmost position on the bottom side of the main body section, and the second rest block is configured such that its front end face abuts the object to be worked during use, wherein, preferably, the second rest block extends over the almost complete width of the main body section, and preferably, the length of the second rest block is  $\frac{1}{5}$ - $\frac{1}{3}$  that of the main body section.

(20) In one embodiment, the main body section comprises a first section and a second section that are adjacent to each other, wherein the direction of extension of the first section forms an angle between 100-160 degrees, preferably between 100-150 degrees, and more preferably between 140-150 degrees with the direction of extension of the second section, the second section being specifically a motor section.

(21) In one embodiment, the first rest block is located at least partially in the first section, preferably the first rest block being located substantially in the first section.

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## Description

### BRIEF DESCRIPTION OF THE DRAWINGS

(1) For a better understanding of the above-described and other objectives, features, advantages and functions of the present invention, reference may be made to the preferred embodiments shown in the drawings. In the drawings, identical reference symbols denote identical components. Those skilled in the art will understand that the drawings are intended to schematically illustrate preferred embodiments of the present invention, without imposing any restrictions on the scope of the present invention, and that the components in the drawings are not drawn to scale.

- (2) FIG. 1 is a front view of a hand-held electric tool according to a preferred embodiment of the present invention;
- (3) FIG. 2 is a schematic diagram of the hand-held electric tool shown in FIG. 1 after removal of the protective cover of the operating component;
- (4) FIG. 3 is a perspective view of the hand-held electric tool shown in FIG. 1 taken from its bottom side;
- (5) FIG. 4A is a front view of the operating component and the first housing portion of the main body section in FIG. 1, with other portions omitted, to clearly show the chip removal hole;
- (6) FIG. 4B is an alternative solution for that shown in FIG. 4A, in which a guide member is further provided at the chip removal hole;
- (7) FIG. 5 is a top view of the hand-held electric tool shown in FIG. 1;
- (8) FIG. 6 is a perspective view of the hand-held electric tool shown in FIG. 1 taken from the top side and the front side.

#### REFERENCE SYMBOLS

- (9) **100** Hand-held electric tool **10** Housing **11** Main body section **11a** Bottom wall of main body section **11b** Chip removal hole **111** First section of main body section **112** Second section of main body section **113** First housing portion of main body section **114** Second housing portion of main body section **115** Third housing portion of main body section **113a** Protective wall **113b** Guide wall **12** Grip section **13** First rest block **131** Rear end face of first rest block **14** Second rest block **141** Front end face of second rest block **15** Guide member **151** First guide wall **152** Second guide wall **16** Battery engagement section **17** Transmission member **20** Operating component **21** Saw chain **211** Bottom section of saw chain **212** Top section of saw chain **213** Front connecting section of saw chain **215** Rear connecting section of saw chain **214** Support plate **22** Protective cover **30** Protective portion **31** Baffle **32** Transition section **33** Protective portion cross member

#### SPECIFIC EMBODIMENTS

(10) Specific embodiments of the present invention are now described in detail with reference to the drawings. The embodiments described here are merely preferred embodiments according to the present invention; those skilled in the art will be able to think of other ways of implementing the present invention based on these preferred embodiments, and these other ways likewise fall within the scope of the present invention.

(11) FIG. 1-FIG. 6 are preferred embodiments of a hand-held electric tool according to the present invention, which may be, for example, a hand-held trimming device or a hand-held cutting device. First of all, it must be explained that directional and positional terms in the present invention should be understood to mean relative directions and positions, not absolute directions and positions. The directional terms and positional terms used in the present invention are explainable with reference to the exemplary structures shown in FIG. 1-FIG. 6. For example, as used in the present invention, “front side” and “forwards” refer to the direction that extends in direction D1 and, when the user correctly holds the hand-held electric tool, is away from the user (that is, the direction pointing to the left as shown in FIG. 1); “rear side” and “backwards” refer to the direction that extends in direction D1 and, when the user correctly holds the hand-held electric tool, faces the user (that is, the direction pointing to the right as shown in FIG. 1); terms like “top side” and “above” refer to the upward position and direction in direction D2 as shown in FIG. 1; terms like “bottom side” and “below” refer to the downward position and direction in direction D2 as shown in FIG. 1; the width of a component refers to the size of the component in direction D3; and the length of a component refers to the size of the component in direction D1. In addition, the terms “first” and “second” as used in the present invention are only intended to distinguish between names, rather than implying any order of precedence, wherein, for example, the presence of a second rest block does not necessarily mean that a first rest block exists.

(12) Referring first to FIG. 1, a hand-held electric tool **100** of the present invention comprises a housing **10** and an operating component **20**. The housing **10** and the components located therein

constitute the main structure of the hand-held electric tool **100**. In some embodiments, the housing **10** may have a main body section **11** and a grip section **12** extending backwards from the main body section **11**, as well as a battery engagement section **16** located at the rear end of the grip section **12** and extending perpendicular to the grip section **12**. The main body section **11** may further comprise a first section **111** and a second section **112** that are adjacent to each other, wherein the second section **112** is configured to accommodate the motor section **15** of the electric machine, for example. The direction of extension of the first section **111** forms an angle between 100-160 degrees, preferably between 100-150 degrees, and more preferably between 140-150 degrees with the direction of extension of the second section **112**. Referring to FIG. 3, the housing of the main body section **11** may comprise a first housing portion **113**, a second housing portion **114**, and a third housing portion **115** arranged sequentially in a third direction D3.

(13) The front end of the main body section **11** is provided with a mounting interface, and the operating component **20** may be mounted at the mounting interface of the housing **10** and protrude forwards from the housing **10**. In some embodiments, the grip section **12** may extend backwards and downwards from the main body section **11**, such that an obtuse angle is formed between the direction of extension of the grip section **12** and the direction of extension of the operating component **20**. A battery can be slid in a direction of extension parallel to the battery engagement section **16** to the position where it engages the battery engagement section **16**.

(14) The operating component **20** is used for cutting and trimming objects to be worked, such as woods and branches of trees. Referring to FIG. 2, in some embodiments, the operating component **20** comprises, for example, a saw chain **21** supported by a support plate **214**, the saw chain **21** being rotatable around the support plate **214** within a plane defined by the first direction D1 and the second direction D2 to cut an object. Preferably, the top of the saw chain **21** is provided with a protective cover **22**, the protective cover **22** being removable from the housing **10** or pivotally openable relative to the housing **10**. During the operation, when the saw chain **21** acts on an object to be worked, some chips will be generated and, as the saw chain **21** rotates, will be driven into the housing **10**, and a chip removal hole **11b** for removing chips is formed in the bottom wall **11a** of the main body section **11** of the housing **10**, the chip removal hole **11b** being shown in detail in FIG. 3-FIG. 4B.

(15) Again referring to FIG. 2, in some embodiments, the saw chain **21** comprises a bottom section **211**, a top section **212**, as well as a front connecting section **213** and a rear connecting section **215** that are connected therebetween (as shown in FIG. 4A and FIG. 4B, the rear connecting section **215** may be located within the housing **10**), wherein, during the operation, the bottom section **211** moves backwards and the top section **212** moves forwards. The rear connecting section **215** of the saw chain **21** rotates around a transmission member **17** (see FIG. 4A and FIG. 4B) to be driven by the transmission member **17**, the transmission member **17** can be connected to the output shaft of the motor. The chip removal hole **11b** is positioned just downstream of the movement direction of the bottom section **211** of the saw chain **21** to allow the removal of chips, thus preventing the accumulation of chips in the housing **10**.

(16) Referring to FIG. 3, the bottom of the housing **10** is substantially closed, on which only one chip removal hole **11b** is provided, the chip removal hole **11b** being preferably located at the rearmost end of the bottom wall **11a** of the main body section **11**. In some embodiments, the bottom walls of the second housing portion **114** and the third housing portion **115** are complete, and only the rear end of the bottom wall of the first housing portion **113** is provided with an opening for the formation of a chip removal hole **11b**. In some embodiments, the chip removal hole **11b** may have a small opening area, wherein the length of the chip removal hole **11b** may be  $\frac{1}{8}$ - $\frac{1}{4}$  that of the main body section **11**, for example, and the length of the chip removal hole **11b** may be  $\frac{1}{5}$  that of the main body section **11**, for example; the width of the chip removal hole **11b** may be  $\frac{1}{4}$ - $\frac{1}{2}$  that of the main body section **11**, wherein the width of the chip removal hole **11b** may be  $\frac{1}{3}$  that of the main body section **11**, for example. In some embodiments, the chip removal hole **11b** has a regular



shape, being, for example, a substantially circular hole or, as shown in FIG. 3, a substantially square hole. The substantially closed bottom structure of the hand-held electric tool **100** allows the removal of chips while preventing a user's hand from being inadvertently extended into the housing **10** and contacting the operating component **20** rotating at a high speed. For example, in some embodiments, the rotary speed of the saw chain **21** may be as high as 3-8 m/s, preferably 4-8 m/s and more preferably 6 m/s.

(17) Possible orientations of the chip removal hole are shown in FIG. 4A and FIG. 4B. Referring to FIG. 4A, the direction of removal of chips is indicated by an arrow, which has a forward component and a downward component, so it is clear that the chip removal hole **11b** is oriented downwards and forwards. Preferably, the first housing portion **113** has a forwardly and downwardly extending inner wall **113b** located behind the chip removal hole **11b**, the inner wall **113b** being usable as a guide wall to guide chips forwards and downwards. The bottom wall **113a** of the first housing portion **113** forms a protective wall to prevent a user's hand from being extended upwards into the housing.

(18) The structure shown in FIG. 4B is substantially the same as that shown in FIG. 4A, except that a guide member **15** is further provided in FIG. 4B to guide chips backwards and downwards until they are removed through the chip removal hole **11b**. In FIG. 4B, the direction of removal of chips is also indicated by arrows, with the endmost arrow portion having a backward component and a downward component, so it is clear that the chip removal hole **11b** is oriented downwards and backwards. Optionally, the guide member **15** comprises a first guide wall **151** and a second guide wall **152** that is located below the first guide wall **151** and has a guide direction different from that of the first guide wall **151**, the second guide wall **152** extending backwards and downwards. More preferably, the first guide wall **151** and the rear connecting section **215** of the saw chain **21** face each other and are shaped to fit each other, so that the first guide wall **151** is a curved wall, while the second guide wall **152** may be a straight wall.

(19) The arrangements and orientations of the two chip removal holes shown in FIG. 4A and FIG. 4B are conducive to the centralised removal of chips, particularly suitable for small hand-held electric tools.

(20) To prevent chips removed from the chip removal hole **11b** from continuing to move due to inertia and falling onto the user's hand, the hand-held electric tool **100** of the present application is provided with a protective portion **30** that extends downwards at least partially behind the chip removal hole **11b** (that is, at the bottom end at the position where the main body section **11** joins the grip section **12**), and the protective portion **30** can separate the chip removal hole **11b** from the grip section **12** for the user to grasp, so that chips removed through the chip removal hole **11b** do not contact the user's hand. The protective portion **30** comprises, for example, a baffle **31** directly connected to the rear side of the chip removal hole **11b**. Preferably, the baffle **31** may extend downwards and forwards to enhance the effect of chip blockage.

(21) The protective portion **30** may be just a downwardly extending baffle as described above, but in some embodiments, with continued reference to FIG. 1-FIG. 3, the protective portion **30** may extend as a whole towards the battery engagement section **16**. It should be noted that the backward extension of the protective portion as a whole does not mean that each portion thereof extends backwards, wherein, for example, the frontmost portion of the protective portion **30**, which serves as the baffle **31**, may partially extend forwards. The protective portion **30**, the grip section **12**, and the battery engagement section **16** may jointly define a ring shape that closes on the plane defined by direction D1 and direction D2, and a user's hand can extend into the ring. More specifically, the protective portion **30** further comprises a protective portion cross member **33** that is parallel to the direction of extension of the grip section **12** and a transition section **32** connected between the protective portion cross member **33** and the baffle **31**. The protective portion cross member **33** constitutes the main body of the protective portion **30**, wherein, for example, the length of the protective portion cross member **33** may be greater than  $\frac{1}{2}$  or  $\frac{2}{3}$  of the overall length of the

protective portion. Preferably, both the baffle **31** and the protective portion cross member **33** can have a specific shape or direction of extension (for example, the baffle **31** extends downwards and forwards, and the protective portion cross member **33** is parallel to the direction of extension of the grip section **12**), and there may be no limitations on the direction of extension of the transition section **32**, as long as the protective portion cross member **33** can be connected to the baffle **31**. Setting the protective portion cross member **33** to be parallel to the direction of extension of the grip section **12** can increase the space for accommodating the user's hand, thus bringing greater comfortableness to the user.

(22) Although in the embodiments shown in FIG. 1-FIG. 6, the protective portion extends from the position of engagement between the main body section **11** and the grip section **12** to the bottom end of the battery engagement section **16**, in another embodiment not shown, there may be a gap between the protective portion and the battery engagement section **16**, which means that the area for accommodating the user's hand may be an unclosed structure. In other words, the protective portion **30**, instead of being used to form a closed ring shape, may also open to a certain extent, which means that the protective portion cross member **33** may form a cantilever structure.

(23) In order to more preferably produce the protection effect of the protective portion **30**, the baffle **31** may be set to have a large width, for example, by making the width of the baffle **31** greater than that of the housing **10**. More preferably, the protective portion **30** may also be arranged to have a large width as a whole. A comparison between the width of the protective portion **30** and that of the housing is shown in FIG. 5, and as is clear from FIG. 5, the width of the protective portion is greater than that of the housing **10**, especially that of the grip section **12**, wherein, for example, the width of the protective portion **30** may be 2-3 times that of the grip section **12**. With this arrangement, the user's hand is effectively protected within a space defined by the protective portion **30**, the grip section **12**, and the battery engagement section **16**, while chips and other impurities that may be generated during operation are difficult to enter the space. Although not shown in the drawings, preferably the protective portion **30** may have an increased width at the baffle **31**, and the width of the baffle **31** may be greater than that of the protective portion cross member **33** and that of the transition section **32**.

(24) The housing **10** of the hand-held electric tool **100** is further provided with structures that can improve operational stability and safety. For example, referring to FIG. 1-2 and FIG. 5-6, the top side of the main body section **11** is provided with a first rest block **13**, the first rest block **13** being configured to allow the user's hand to rest against the rear end face **131** of the first rest block **13**. For example, a user can extend his/her index finger, middle finger, ring finger, and little finger into the annular space defined by the protective portion **30**, the grip section **12**, and the battery engagement section **16**, while resting his/her thumb against the rear end face **131** of the first rest block **13**; alternatively, the user can rest his/her index finger against the rear end face of the first rest block **13**. Preferably, the first rest block **13** is located at least partially in the first section **111** of the main body section **11**, and more preferably, the first rest block **13** is located substantially in the first section **111**.

(25) Preferably, since the first rest block **13** only needs to abut and contact the user's fingers, the first rest block **13** does not need to have a large width, wherein, as shown in FIG. 5, for example, the width of the rear end face **131** of the first rest block **13** may be  $\frac{1}{5}$ - $\frac{1}{3}$  that of the main body section **11**. Preferably, the first rest block **13** is configured with an L-shaped top surface, and the portion of the L-shaped structure extending in the third direction **D3** serves as a portion that abuts and contacts the user's fingers; the portion of the L-shaped structure extending in the first direction **D1** serves as a reinforcing rib. The first rest block **13**, besides improving operational stability, prevents the user's fingers from crossing the front end of the housing **10** and contacting an operating component. Moreover, the L-shaped first rest block **13** does not prevent the protective cover **22** from springing open.

(26) Similarly, referring to FIG. 1-3, a second rest block **141** is provided at the frontmost position

on the bottom side of the main body section **11**, and the second rest block **141** is configured such that its front end face **141** abuts the object to be worked during use. Since an object to be worked is usually large, increasing the area of contact with the object to be worked can improve the stability of the engagement, so preferably the second rest block **141** extends over the almost complete width of the main body section **11**, which means that the width of the second rest block **141** is substantially equal to that of the main body section **11**. In addition, the length of the second rest block **141** is most preferably  $\frac{1}{5}$ - $\frac{1}{3}$  that of the main body section **11**, wherein it is comprehensible that if the second rest block **141** has a small length, it easily breaks due to insufficiency of stiffness, while if the second rest block **141** is too long, the housing **10** of the hand-held electric tool **100** is heavy.

(27) According to the present invention, the bottom of the main body of a hand-held electric tool is provided with a bottom wall, and a chip removal hole is provided in the bottom wall, which means that the bottom of the hand-held electric tool is substantially closed, so such a bottom arrangement allows the removal of chips while preventing a user's hand from being inadvertently extended into the housing and contacting a component operating at a high speed. The rear side of the chip removal hole of the hand-held electric tool is provided with a protective portion, so that chips removed through the chip removal hole are blocked by the protective portion, without reaching the grip section, which offers considerable advantages in terms of safety and hygiene. On the other hand, the present invention provides preferred settings of the dimensions of various components and structures, making the hand-held electric tool safer and more comfortable. A hand-held electric tool of the present invention is further provided with a first rest block located at the top for a user's fingers to rest, and a second rest block located at the bottom for the object to be worked to rest, wherein these rest blocks can improve operational stability, and the first rest block can also prevent the user's fingers from crossing the front end of the housing and contacting an operating component.

(28) The above description of various embodiments of the present invention is provided to a person skilled in the art for descriptive purposes. The present invention is not intended to be exclusive or limited to a single disclosed embodiment. Based on the above, a person skilled in the art as taught above will understand various substitutes for and variants of the present invention. Thus, although some alternative embodiments have been described specifically, those skilled in the art will understand or develop with relative ease other embodiments. The present invention is intended to include all substitutes for, alterations to, and variants of the present invention described herein, as well as other embodiments falling within the spirit and scope of the present invention described above.

## Claims

1. Hand-held electric tool, wherein the hand-held electric tool comprises: a housing having a main body section and a grip section extending towards the rear side from the main body section, wherein the front end of the main body section is provided with a mounting interface; an operating component mounted at the mounting interface of the housing and protruding from the housing, wherein a chip removal hole is formed in a bottom wall of the main body section of the housing, and a protective portion that extends downwards at least partially is provided at the bottom end at a position where the main body section joins the grip section.
2. Hand-held electric tool according to claim 1, wherein the chip removal hole is oriented forwards and downwards.
3. Hand-held electric tool according to claim 1, wherein the chip removal hole is oriented backwards and downwards, and the main body section comprises a guide member located near the chip removal hole to guide the removal of chips backwards and downwards from the main body

section.

4. Hand-held electric tool according to claim 3, wherein the operating component comprises a saw chain that rotates on its plane of extension, the first guide wall facing and being shaped to fit a portion of the saw chain.

5. Hand-held electric tool according to claim 1, wherein the protective portion comprises a downwardly and forwardly extending baffle located at its frontmost portion.

6. Hand-held electric tool according to claim 5, wherein the protective portion further comprises a protective portion cross member extending backwards from the baffle, defining a space for accommodating a user's hand between the protective portion and the grip section.

7. Hand-held electric tool according to claim 6, wherein the housing further comprises a battery engagement section located at the rear end of the grip section and extending substantially perpendicular to the grip section.

8. Hand-held electric tool according to claim 6, wherein the width of the baffle is greater than that of the housing.

9. Hand-held electric tool according to claim 6, wherein the grip section extends backwards and downwards from the main body section.

10. Hand-held electric tool according to claim 1, wherein the chip removal hole is adjacent to the front surface of the protective portion.

11. Hand-held electric tool according to claim 1, wherein the operating component comprises a saw chain that rotates on its plane of extension, the saw chain comprising a bottom section, a top section, as well as a front connecting section and a rear connecting section that are connected therebetween, wherein the bottom section of the saw chain moves backwards during the operation.

12. Hand-held electric tool according to claim 1, wherein the top side of the main body section is provided with a first rest block, which is configured to allow a user's hand to rest against a rear end face of the first rest block.

13. Hand-held electric tool according to claim 1, wherein a second rest block is arranged at the frontmost position on the bottom side of the main body section, and the second rest block is configured such that its front end face abuts an object to be worked during use.

14. Hand-held electric tool according to claim 1, wherein the main body section comprises a first section and a second section that are adjacent to each other, wherein the direction of extension of the first section forms an angle between 100-160 degrees.

15. Hand-held electric tool according to claim 14, wherein the first rest block is located at least partially in the first section.

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