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(54) CHAMFERCUT TYPE PROTECTIVE COVER OF COMPOSITE SAW

(57) A chamfer cut type protective cover of a composite saw comprises a front protective cover, an auxiliary protective cover and a rear protective cover. The outer ends of the front protective cover and the rear protective cover are respectively provided with connecting parts for connecting to a frame. The front end of the auxiliary protective cover is connected to the front protective cover, and the rear end of the auxiliary protective cover is connected to the rear protective cover. The chamfer cut type protective cover is a follower, the lower half part of the saw blade is prevented from being exposed to the outside, and thus the safety of the composite saw is increased.

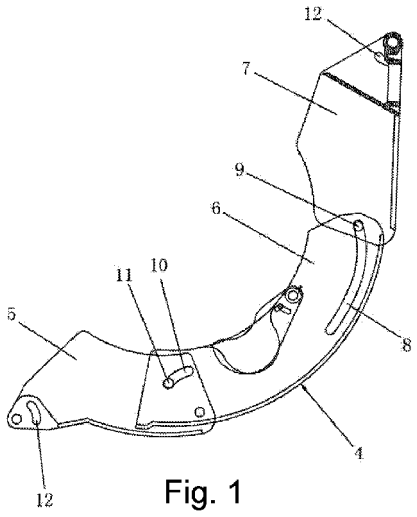

Fig. 1

EP 2 572 846 A1

Description

Technical Field

[0001] The present disclosure relates to composite saws, and in particular to a chamfer cut type protective cover for a composite saw.

Background Art

[0002] The conventional composite saw is provided with a protective cover on the chamfer cut type saw blade. At work, the protective cover encases the saw blade for protection when the frame is lifted up, and exposes the saw blade to work when the frame is pressed down. It has the following disadvantages: when the composite saw is changed from the chamfer cut mode into the table cut mode, the frame is pressed down and the chamfer cut type protective cover is closed; this means that, in the table cut mode, the saw blade on the chamfer cut type working surface below is exposed on the lower surface of a panel component and may easily hurt the user. Another disadvantage concerns mobile protection; that is to say, in cases where no workpiece exists, the protective cover lifts up to expose the saw blade as long as the frame is pressed down, which causes a safety issue. Thus, it is necessary to improve such protective covers.

Summary of invention

[0003] To overcome the defects of the prior art, the present disclosure provides a chamfer cut type protective cover for a composite saw. The protective cover has a simple structure and low cost; in any state and in cases where the composite saw is switched into the table cut mode, the lower half part of the saw blade is prevented from being exposed to the outside; the chamfer cut type protective cover starts to work with the input of a workpiece; the chamfer cut type protective cover is a follower and is more reliable at work, and thus the composite saw is safer in use.

[0004] To fulfill the above objective, the present disclosure provides the following technical solution: A chamfer cut type protective cover for a composite saw, comprising a front protective cover, an auxiliary protective cover and a rear protective cover, wherein the outer ends of the front protective cover and the rear protective cover are respectively provided with connecting parts for connecting to a frame; the front end of the auxiliary protective cover is connected to the front protective cover, and the rear end of the auxiliary protective cover is connected to the rear protective cover.

[0005] The auxiliary protective cover comprises a left protective cover plate and a right protective cover plate. The left and right protective cover plates are joined together to form the auxiliary protective cover.

[0006] The rear end of the left protective cover plate is hinged to the front end of the rear protective cover; the front end of the left protective cover plate is provided with a guiding slot; the rear end of the front protective cover is provided with a guiding column; and the guiding column is inserted in the guiding slot.

[0007] The rear end of the left protective cover plate is provided with an auxiliary limiting slot; the front end of the rear protective cover is provided with an auxiliary limiting column; and the auxiliary limiting column is inserted into the auxiliary limiting slot.

[0008] In comparison with the prior art, the present invention provides the following advantages: The chamfer cut type protective cover features a simple structure and low manufacturing cost; in any state and in cases where the composite saw is switched into the table cut mode, the lower half of the saw blade is prevented from being exposed to the outside; the chamfer cut type protective cover starts to work with the input of a workpiece; the chamfer cut type protective cover is a follower and is more reliable at work. Thus, the composite saw is safer in use. The chamfer cut type protective cover of the present invention can also be applied to the common chamfer cutting machine as well as the pull rod type chamfer cutting machine.

Brief description of the drawings

[0009] Below, the present invention is further described in detail with reference to the accompanying drawings and preferred embodiments.

[0010] Figure 1 is a diagram showing the structure of an embodiment of the present invention.

[0011] Figure 2 is another diagram showing the embodiment from another angle of view.

[0012] Figure 3 is a schematic diagram showing view I of an embodiment when is use.

[0013] Figure 4 is another schematic diagram showing view II of the embodiment when in use.

[0014] In the figures: panel component 1, frame 2, saw blade 3, chamfer cut type protective cover 4, rear protective cover 5, auxiliary protective cover 6, front protective cover 7, guiding slot 8, guiding column 9, auxiliary limiting slot 10, auxiliary limiting column 11, limiting slot 12, base 13, left protective cover plate 61, right protective cover plate 62.

Detailed Description of the preferred embodiments

[0015] The following serves as the description of preferable embodiments of the present invention and does not limit the scope of protection of the present invention.

[0016] As shown in figures 1-4, a chamfer cut type protective cover for a composite saw comprises a front protective cover 7, an auxiliary protective cover 6 and a rear protective cover 5. The outer ends of the front protective cover 7 and the rear protective cover 5 are respectively provided with connecting parts for connecting to a frame. The front end of the auxiliary protective cover 6 is connected to the front protective cover 7, and the rear end

of the auxiliary protective cover 6 is connected to the rear protective cover 5.

[0017] The auxiliary protective cover 6 comprises a left protective cover plate 61 and a right protective cover plate 62. The left and right protective cover plates 61, 62 are joined together to form the auxiliary protective cover 6.

[0018] The rear end of the left protective cover plate 61 is hinged to the front end of the rear protective cover 5; the front end of the left protective cover plate 61 is provided with a guiding slot 8; the rear end of the front protective cover 7 is provided with a guiding column 9; and the guiding column 8 is inserted in the guiding slot 9.

[0019] The rear end of the left protective cover plate 61 is provided with an auxiliary limiting slot 10; the front end of the rear protective cover 5 is provided with an auxiliary limiting column 11; and the auxiliary limiting column 11 is inserted into the auxiliary limiting slot 10. The auxiliary limiting column 11 and the auxiliary limiting slot 10 are used for further limiting the motion trajectory of the auxiliary protective cover 6.

[0020] The auxiliary protective cover 6 can be pushed by a workpiece to move up and down, and the saw blade seam may be provided at the middle position of the auxiliary protective cover 6.

[0021] In cases where the composite saw is in the chamfer cut mode, the protective cover 6 moves upward when the workpiece is pressed against the auxiliary protective cover 6, and then the saw blade 3 is exposed from the saw blade seam of the auxiliary protective cover 6 to perform cutting. When the workpiece is removed, the front protective cover 7, the auxiliary protective cover 6 and the rear protective cover 5 are automatically by means of gravity and a torsional spring.

[0022] The outer ends of the front protective cover 7 and the rear protective cover 5 are respectively hinged to the frame 2. The front protective cover 7 and the rear protective cover 5 can each rotate with respect to the frame 2 by a certain angle to facilitate the auxiliary protective cover 6 to move up and down more smoothly; thus the reliability of the auxiliary protective cover 6 is increased.

[0023] The front protective cover 7 and the rear protective cover 5 are respectively provided with a limiting slot 12; the frame 2 is provided with a left limiting column and a right limiting column; the left limiting column is inserted into the limiting slot 12 of the front protective cover 7, while the right limiting column is inserted into the limiting slot 12 of the rear protective over 5. The limiting slots 12 of the front protective cover 7 and the rear protective cover 5 are designed for limiting the motion trajectories of the front protective cover 7 and the rear protective cover 5 respectively, thus further improving the smoothness of the up/down movement of the auxiliary protective cover 6 and further increasing the reliability of the auxiliary protective cover 6.

[0024] In the following, the working principle of the chamfer cut type protective cover of the present disclosure is explained in more detail with reference to an application thereof when installed on a composite saw: A composite saw installed with a chamfer cut type protective cover comprises a base 13, a panel component 1, a frame 2 and a saw blade 3, wherein the frame 2 is fixed on or hinged to the base 13; the panel component 1 is fixed on the frame 2; the saw blade 3 is fixed on the fame 2 through a bearing block; and the lower half of the saw blade 3 is exposed on the lower surface of the panel component 1.

[0025] The composite saw also has a chamfer cut type protective cover 4 installed on it; the chamfer cut type protective cover 4 is arranged on the lower surface of the panel component 1; the saw blade 3 exposed on the lower surface of the panel component 1 is received in the chamfer cut type protective cover 4; and the middle portion of the chamfer cut type protective cover 4 is provided with a saw blade seam through which the saw blade 3 can extend out.

[0026] The chamfer cut type protective cover 4 arranged on the lower surface of the panel component 1 has a simple structure and low manufacturing cost. The lower half of the saw blade 3 is prevented from being exposed to the outside. At work, manual operation is not needed. The protective cover is reliable and the composite saw is safer in use. Thus, the safety of the composite saw is increased.

[0027] The chamfer cut type protective cover features a simple structure and low manufacturing cost; in any state and in cases where the composite saw is switched into the table cut mode, the lower half of the saw blade is prevented from being exposed to the outside; the chamfer cut type protective cover starts to work with the input of a workpiece; the chamfer cut type protective cover is a follower and is more reliable at work. Thus, the composite saw is safer in use.

[0028] The panel component 1 is provided with a saw blade seam through which the upper half of the saw blade 3 can extend to the upper surface of the panel component 1. The upper surface of the panel component 1 may be provided with a table type protective cover. The table type protective cover may extend to the upper surface of the panel component 1. The saw blade 3 may be received in the table type protective cover. The composite saw can respectively use the upper half and the lower half of the saw blade 3 by switching its working state.

[0029] The chamfer cut type protective cover of the present disclosure may also be applied to the common chamfer cutting machine as well as the pull rod type chamfer cutting machine.

[0030] The panel component 1, frame 2 and saw blade 3 have been widely used. Their structures and principles are with the same as those in the prior art, thus a detailed description of these parts is not necessary.

Claims

1. A chamfer cut type protective cover for a composite

saw, comprising a front protective cover, an auxiliary protective cover and a rear protective cover, wherein outer ends of the front protective cover and the rear protective cover are respectively provided with connecting parts for connecting to a frame; a front end of the auxiliary protective cover is connected to the front protective cover, and a rear end of the auxiliary protective cover is connected to the rear protective cover.

2. The chamfer cut type protective cover for a composite saw according to claim 1, **characterized in that**: the auxiliary protective cover comprises a left protective cover plate and a right protective cover plate; the left and right protective cover plates are joined together to form the auxiliary protective cover.

3. The chamfer cut type protective cover for a composite saw according to claim 2, **characterized in that**: a rear end of the left protective cover plate is hinged to a front end of the rear protective cover; a front end of the left protective cover plate is provided with a guiding slot; a rear end of the front protective cover is provided with a guiding column; wherein the guiding column is inserted in the guiding slot.

4. The chamfer cut type protective cover for a composite saw according to claim 3, **characterized in that**: the rear end of the left protective cover plate is provided with an auxiliary limiting slot; the front end of the rear protective cover is provided with an auxiliary limiting column; wherein the auxiliary limiting column is inserted into the auxiliary limiting slot.

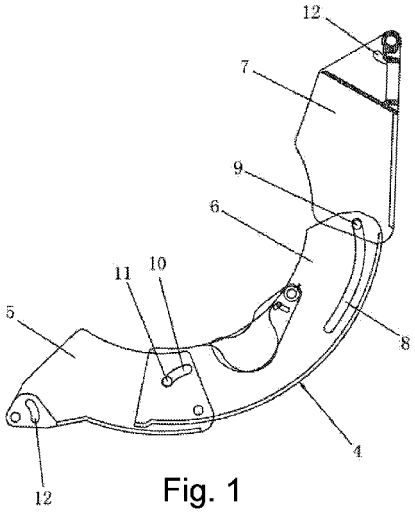

Fig. 1

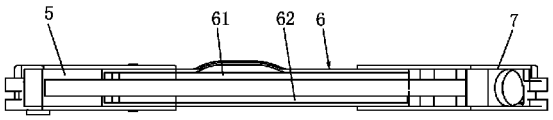

Fig. 2

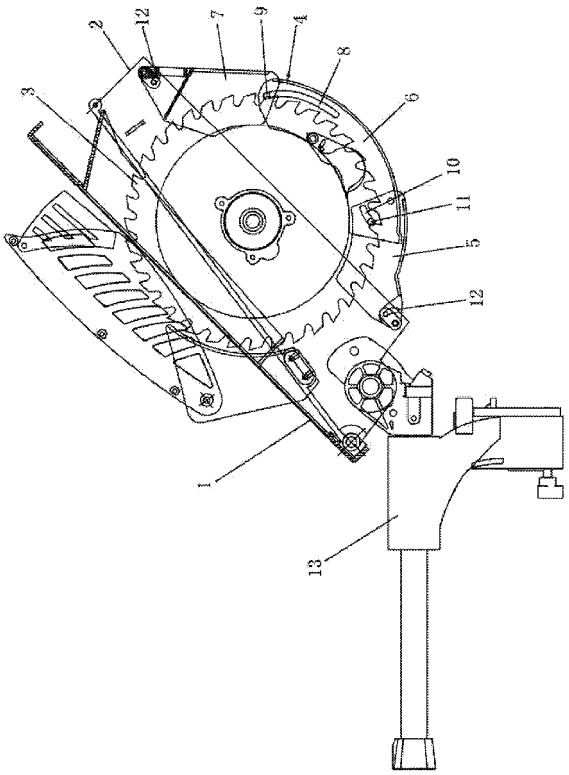

Fig. 3

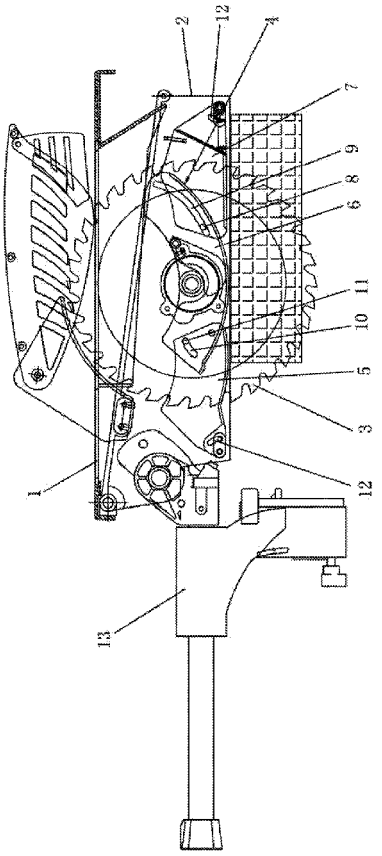

Fig. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2011/070763

A. CLASSIFICATION OF SUBJECT MATTER

See extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: B27B, B23D, B27G, B26D, B23Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, EPODOC, CPRS, CNKI: annular saw, circular saw, bench saw, miter saw, slide miter saw, hood, guard, shield, cover, articulate, hinge, pin joint, strap joint, swing joint, flexible connection, groove, slot, spacing, guide

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US2564350 A (SKILSAW INC) 14 Aug. 1951 (14.08.1951) see the description, column 6, line 36-column 8, line 10, figures 1, 3, 8-10	1-4
Y	US4150598 A (ROCKWELL INT CORP) 24 Apr. 1979 (24.04.1979) see the description, column 2, line 7-column 3, line 14, figures 1-3	1-4
Y	US2006/0272464 A1 (REXON IND CORP LTD) 7 Dec. 2006 (07.12.2006) see the description, page 1, paragraph 0018-page 2, paragraph 0024, figures 1, 3-4	1-4
Y	US2589309 A (RALPH R ROEMER et al.) 18 Mar. 1952 (18.03.1952) see the description, column 2, line 23-column 6, line 53, figures 1-9	1-4
A	US5918522 A (BENEDICT ENG CO INC) 6 Jul. 1999 (06.07.1999) see the whole document	1-4
A	US2009/0158904 A1 (REXON IND CORP LTD) 25 Jun. 2009 (25.06.2009) see the whole document	1-4

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim (S) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
29 Mar. 2011 (29.03.2011)	**19 May 2011 (19.05.2011)**
Name and mailing address of the ISA/CN The State Intellectual Property Office, the P.R.China 6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China 100088 Facsimile No. 86-10-62019451	Authorized officer ZHU,Dan Telephone No. (86-10)62085462

Form PCT/ISA /210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2011/070763

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
US2564350 A	14.08.1951	US2669264 A	16.02.1954
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		CA1082080 A1	22.07.1980
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US2006/0272464 A1	07.12.2006	TWM284466 U	01.01.2006
US2589309 A	18.03.1952	None	
US5918522 A	06.07.1999	None	
US2009/0158904 A1	25.06.2009	TW200927340 A	01.07.2009

Form PCT/ISA /210 (patent family annex) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2011/070763

A. CLASSIFICATION OF SUBJECT MATTER

B27G 19/04 (2006.01) i
B27B 9/00 (2006.01) i

Form PCT/ISA /210 (extra sheet) (July 2009)