

(19)



(11)

EP 2 079 150 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

15.07.2009 Bulletin 2009/29

(51) Int Cl.:

H02K 5/00 (2006.01)

H02J 7/14 (2006.01)

F02B 77/14 (2006.01)

B60R 16/03 (2006.01)

(21) Application number: **08000353.6**

(22) Date of filing: **10.01.2008**

(84) Designated Contracting States:

**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT
RO SE SI SK TR**

Designated Extension States:

AL BA MK RS

(71) Applicant: **Salewski, Michael**

31162 Bad Salzdetfurth (DE)

(72) Inventors:

• **Salewski, Michael**

31162 Bad Salzdetfurth (DE)

• **Al Ali, Khalid Obaid Salim, Alothman
Sharjah (AE)**

(74) Representative: **Plöger, Jan Manfred et al**

Gramm, Lins & Partner

**Theodor-Heuss-Straße 1
38122 Braunschweig (DE)**

(54) **Alternator holder**

(57) The invention relates to an alternator holder (10) for attaching an alternator to an automobile. The invention solves the problem by an alternator holder for attach-

ing an alternator comprising (a) a main alternator support (12) supporting a main alternator (16) and (b) an auxiliary alternator support (14) for supporting an auxiliary alternator (18).

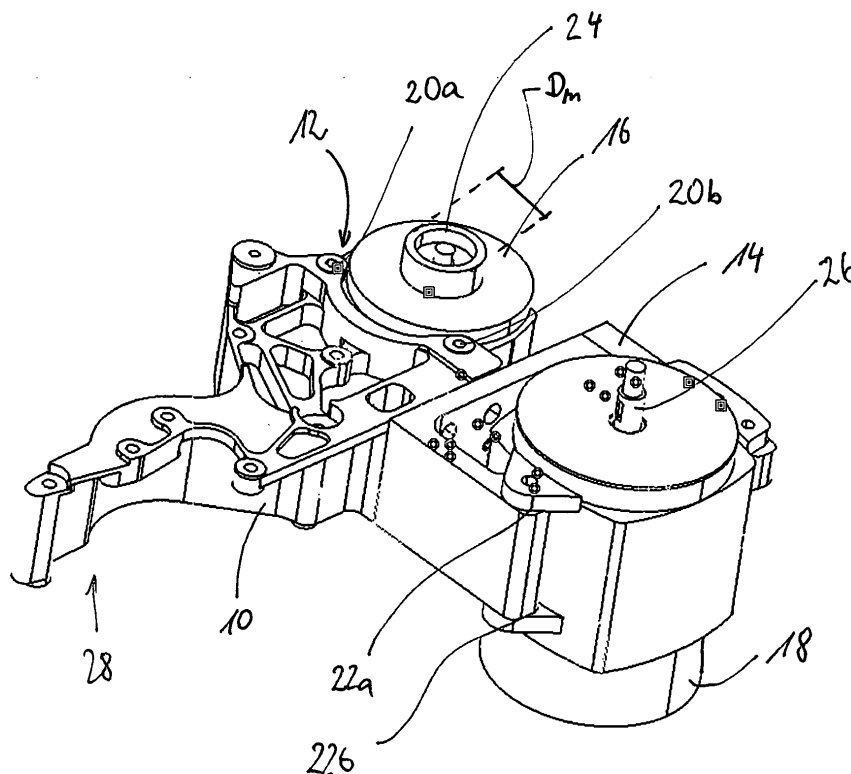


Fig. 1

EP 2 079 150 A1

Description

[0001] The invention relates to an alternator holder for attaching an alternator to an automobile, the alternator holder comprising a main alternator support for supporting a main alternator.

[0002] It is known to provide automobiles with two or even more alternators to increase the power production in those cases, when additional electrical components are provided in the automobile. These two alternators are mounted separately to a motor of the automobile. However, it has turned out that existing automobiles with two or even more alternators do not meet the requirements regarding liability and robustness. This is a particular problem, if the auxiliary alternator is used to supply electrical power to a sensitive application, e.g. a jammer system. Automobiles with jammer systems are used to protect convoys of endangered persons by jamming potential bombs in the vicinity.

[0003] The invention aims at mitigating prior art problems. The invention solves the problem by an alternator holder for attaching an alternator to a mobile, the alternator holder comprising (a) a main alternator support supporting a main alternator and (b) an auxiliary alternator support for supporting an auxiliary alternator.

[0004] The feature that the auxiliary alternator support is for supporting the auxiliary alternator means that the auxiliary alternator support is shaped such that the auxiliary alternator can directly be mounted to the alternator holder, e.g. by fastening means such as screws.

[0005] It is an advantage of the present invention that the main alternator and the auxiliary alternator are fixed and cannot move with respect to each other. It is therefore possible to firmly fix both alternators with respect to a motor pulley of a motor of the automobile. Even under extreme conditions, a driving belt driving the main alternator and/or the auxiliary alternator safely links the alternators to the motor. Advantageously, the alternator holder according to the invention also eases upgrading an automobile from one alternator to two alternators. No qualified stuff is required. Also, once tested, the alternator holder according to the present invention may be used without further testing each upgraded automobile. Thus, the holder according to the present invention is a means for reproducible fixing two alternators to an engine of an automobile.

[0006] In a preferred embodiment, the main alternator support and the auxiliary alternator support are arranged, such that the main alternator and the auxiliary alternator are drivable by means of a joint driving belt. This eases upgrading an automobile with an auxiliary alternator, as an existing motor pulley of the automobile's motor may be used for also driving the auxiliary alternator.

[0007] It is preferred that the main alternator is electrically insulated with respect to the auxiliary alternator or to the alternator holder. For example, an insulating element is placed between the auxiliary alternator and the alternator holder. This is in particular advantageous, if

the alternator holder is used in an automobile comprising a jammer system. In this case, the auxiliary alternator may drive the jamming system comprising a jammer antenna. Thus, the jammer antenna does not interfere with a possible electrical potential of a chassis of the automobile. Alternatively or in addition, the holder may comprise an insulating part between an adapter for mounting the holder to the motor and the support for the auxiliary alternator.

[0008] In a preferred embodiment, the alternator holder is part of an alternator assembly additionally comprising a main alternator supported by the main alternator support and an auxiliary alternator supported by the auxiliary alternator support.

[0009] Preferably, the alternator assembly comprises a main battery electrical connected to the main alternator and an auxiliary battery electrically connected to the auxiliary alternator. When the main alternator is electrically insulated with respect to the auxiliary alternator, the auxiliary electrical circuit comprising the auxiliary alternator and the auxiliary battery has a floating earth with respect to a main electrical circuit that comprises the main alternator and the main battery.

[0010] It is preferred that the main alternator comprises a main pulley and the auxiliary alternator comprises an auxiliary pulley, wherein the auxiliary pulley has a smaller diameter than the main pulley. The auxiliary alternator then has a higher power output than the main alternator.

[0011] It is preferred that the alternator assembly is part of an automobile, in particular a car, wherein the main alternator is earthed to a chassis of the automobile and the auxiliary alternator has a floating earth. If, in a preferred embodiment, the automobile comprises a jamming system, the auxiliary alternator is preferably used to power the jamming system. Thus, the jamming system has a floating earth and is independent from possibly changing electrical potentials of a chassis. It is preferred that the main alternator is connected with the electrical components of the car, such as igniting system, steering system, and motor components.

[0012] It is turned out to be advantageous to link the auxiliary alternator to the motor in such a way that one revolution of the motor corresponds to at least two, in particular to at least three revolutions of the auxiliary alternator. This yields a high power output of the auxiliary alternator even for an idling engine.

[0013] An embodiment of the present invention is now described with reference to the drawings, in which

Figure 1 depicts a perspective view of an alternator assembly according to the invention comprising an alternator holder according to the invention; and

Figure 2 is another perspective view of the alternator assembly according to Figure 1.

[0014] Figure 1 shows an alternator holder 10 com-

prising a main alternator support 12 and an auxiliary alternator support 14.

[0015] Main alternator 16 electrically contacts alternator holder 10 via screws 20a, 20b via which main alternator 16 is mechanically fixed to the alternator holder 10. In contrast, auxiliary alternator 18 is insulated from auxiliary alternator support 14 via electrical insulators, wherein in Figure 1 only electrical insulators 22a, 22b are shown.

[0016] Main alternator 16 comprises a main pulley 24 having a main pulley diameter D_m for cooperating with a driving belt (not shown). Correspondingly, auxiliary alternator 18 comprises an auxiliary pulley (not shown) that is mounted to a shaft 26. Main pulley 24 and the auxiliary pulley are oriented with respect to each other, such that the driving belt can drive both, the main alternator 16 and the auxiliary alternator 18 simultaneously.

[0017] When mounted to a motor of an automobile via a fixing part 28, the alternators 16, 18 are only mounted to the alternator holder 10. That is, the alternator holder 10 alone holds the alternator 16, 18 in place.

[0018] The alternator holder 10 may be made from e.g. aluminum, cast aluminum, or steel. It also serves as a heat bridge for the alternators 16, 18. In the automobile, alternator holder 10 is arranged, such that an air cooler of the automobile also cools the alternators 16, 18.

[0019] To provide for enough electrical power even at idling speed of the motor of the automobile it is advantageous to choose a transmission ratio t between the motor and the auxiliary alternator 18 to be for example $t = 1/4$. Thus, the auxiliary alternator rotates faster than the motor. One revolution of the motor equals to four revolutions of the auxiliary alternator 18.

[0020] Auxiliary alternator 18 is connected to an auxiliary battery (not shown) and a jamming system. As auxiliary alternator 18 is electrically insulated from an electrical circuit of main alternator 16, main alternator 16 being earthed to a chassis of the automobile, auxiliary alternator 18 has a floating ground. Thus, the main electric circuit of main alternator 16 and the auxiliary electric circuit of auxiliary alternator 18 are completely decoupled and cannot influence each other. An antenna of the jamming system does not interfere with e.g. the igniting system of the motor.

[0021] It is also possible to use the alternator holder and/or the alternator assembly e.g. in an ambulance. The alternator holder may be adapted to fit with one type of automobile. If necessary, the alternator holder has been redesigned for use with a different automobile.

List of reference numbers

[0022]

10 alternator holder
12 main alternator support
14 auxiliary alternator support
16 main alternator

18 auxiliary alternator

20 screw

22 electrical insulator

5 24 main pulley

26 shaft

28 fixing part

10 D_m main pulley diameter

Claims

1. Alternator holder (10) for attaching an alternator to an automobile, the alternator holder (10) comprising

(a) a main alternator support (12) for supporting a main alternator (16), **characterized in**

(b) an auxiliary alternator support (14) for supporting an auxiliary alternator (18).

2. Alternator holder (10) according to claim 1, the main alternator support (12) and the auxiliary alternator support (14) being arranged such that the main alternator (16) and the auxiliary alternator (18) are drivable by means of a joint driving belt.

3. Alternator holder (10) according to any preceding claim the main alternator (16) being electrically insulated with respect to the auxiliary alternator (18) or to the alternator holder (10).

4. Alternator assembly, comprising

(i) an alternator holder (10) according to any preceding claim;

(ii) a main alternator (16) supported by the main alternator support (12); and

(iii) an auxiliary alternator (18) supported by the auxiliary alternator support (14).

5. Alternator assembly according to claim 4, comprising

- a main battery electrically connected to the main alternator (16); and

- an auxiliary battery electrically connected to the auxiliary alternator (18).

6. Alternator assembly according to any of claims 4 to 3,

- the main alternator (16) comprising a main pulley (24);

- the auxiliary alternator (18) comprising an auxiliary pulley;

- the auxiliary pulley having a smaller diameter than the main pulley (24).

7. **Automobile**, in particular car, comprising an alternator assembly according to any of claims 4 to 6, the main alternator (16) being earthed to a chassis of the automobile and the auxiliary alternator (18) having a floating earth.

5

8. Automobile according to claim 7, comprising a motor, the main alternator (16) and the auxiliary alternator (18) being driven by a joint driving belt.

10

9. Automobile according to claim 8, the auxiliary alternator (18) being adapted such that one revolution of the motor corresponds to at least two revolutions of the auxiliary alternator (18).

15

10. Automobile according to any of claims 7 to 9, the auxiliary alternator (18) powering an auxiliary electrical circuit, the auxiliary electrical circuit being connected to a jamming system.

20

25

30

35

40

45

50

55

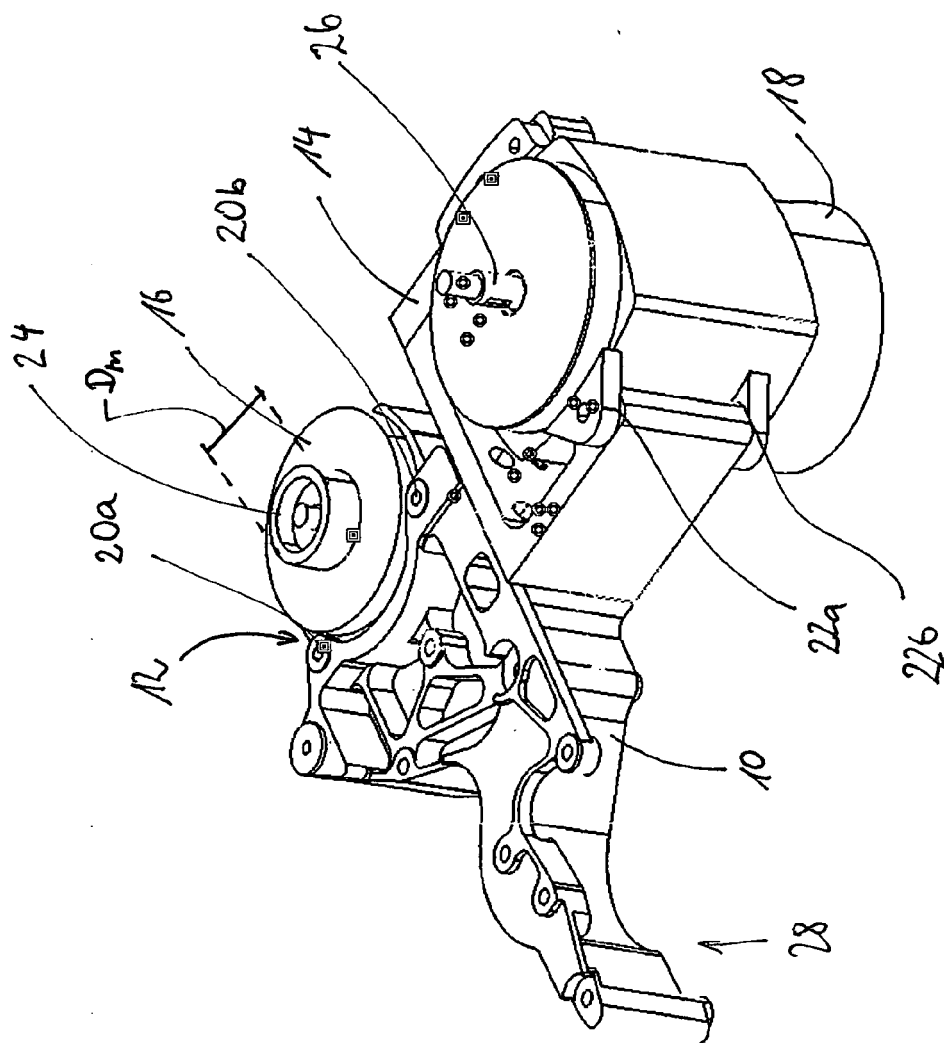


Fig. 1

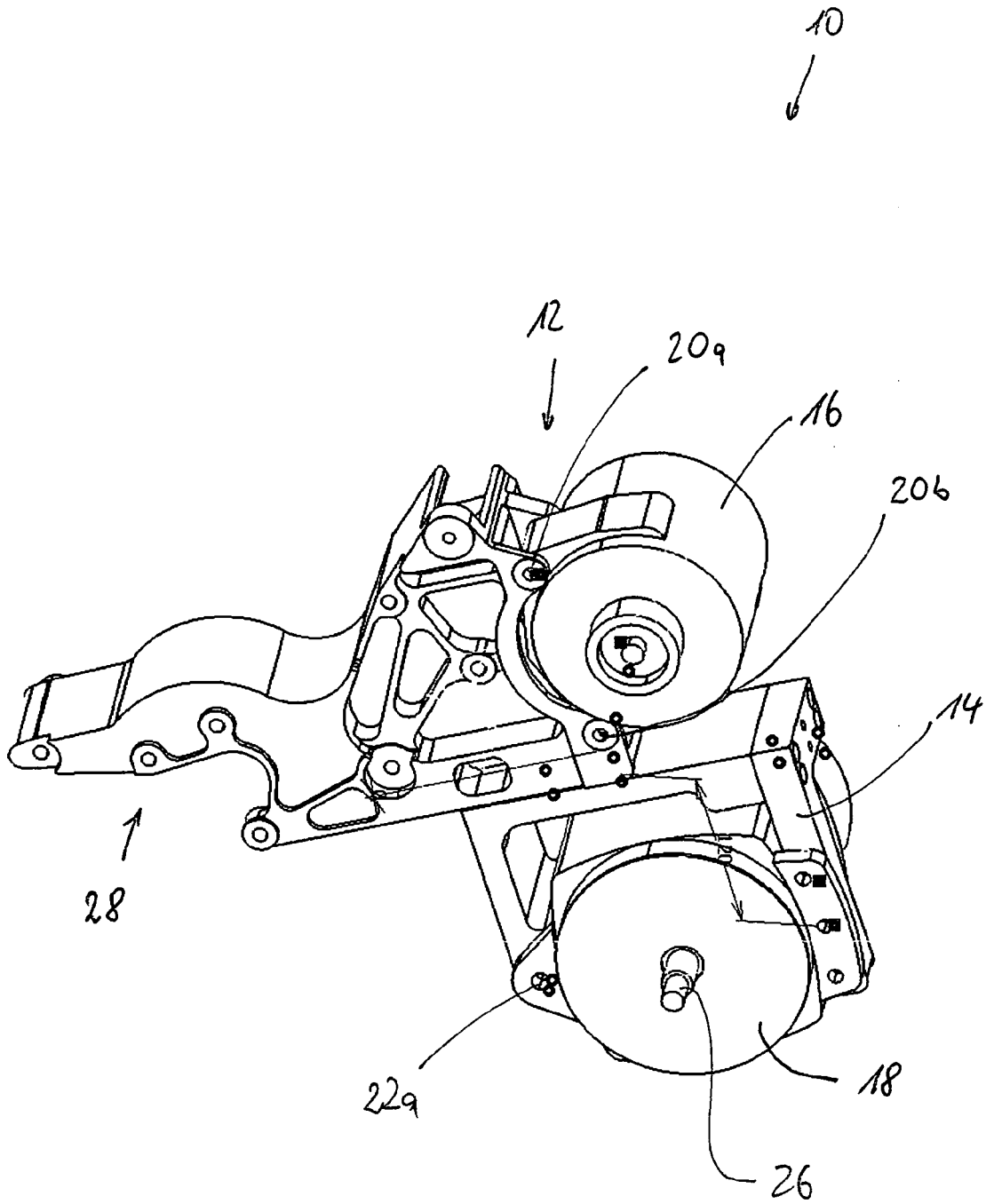


Fig. 2



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 08 00 0353

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 6 044 923 A (REAGAN DAVID H [US] ET AL) 4 April 2000 (2000-04-04)	1,3-5,10	INV. H02K5/00
Y	* column 2, line 53 - column 4, line 44; figures 1-5 *	2,8,9	F02B77/14 H02J7/14 B60R16/03

X	EP 0 426 345 A (HITACHI LTD [JP]) 8 May 1991 (1991-05-08)	1,3,4,6, 7,10	
Y	* column 3, line 10 - column 4, line 56; figures 1-3 * * abstract *	2,8,9	

Y	US 2004/067803 A1 (NAKAMURA SHIGENOBU [JP]) 8 April 2004 (2004-04-08) * paragraph [0028] - paragraph [0030]; figure 1 *	2,8,9	

			TECHNICAL FIELDS SEARCHED (IPC)
			H02K F02B B60R H02J
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 16 June 2008	Examiner Sedlmeyer, Rafael
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

1
EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 00 0353

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

16-06-2008

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6044923	A	04-04-2000	NONE	

EP 0426345	A	08-05-1991	JP 2619539 B2	11-06-1997
			JP 3150028 A	26-06-1991
			US 5097165 A	17-03-1992

US 2004067803	A1	08-04-2004	DE 10345414 A1	15-04-2004
			JP 4048901 B2	20-02-2008
			JP 2004129431 A	22-04-2004
