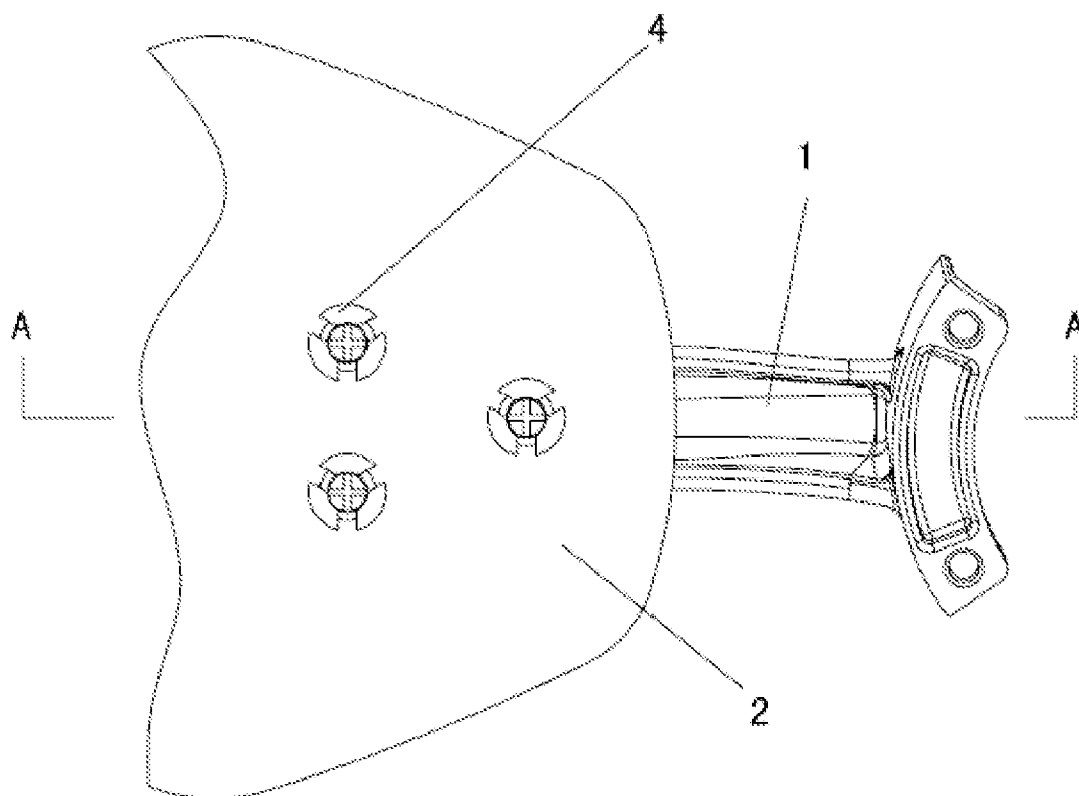




US 20110158812A1

(19) **United States**(12) **Patent Application Publication**
Lu(10) **Pub. No.: US 2011/0158812 A1**(43) **Pub. Date: Jun. 30, 2011**(54) **KIND OF FAN BLADE CAN BE EASILY
ASSEMBLED AND DISASSEMBLED**(75) Inventor: **Qi Rong Lu, Zhongshan (CN)**(73) Assignee: **New Century Electrical
Manufacturing (Zhongshan) Co.,
Ltd., Zhongshan City (CN)**(21) Appl. No.: **12/651,151**(22) Filed: **Dec. 31, 2009****Publication Classification**(51) **Int. Cl.**
F01D 5/30 (2006.01)(52) **U.S. Cl. 416/210 R**(57) **ABSTRACT**

This invention publishes a kind of fan blade which can be assembled and disassembled quickly, including blade and blade bracket for ceiling fan, desk fan, pole fan, etc. In this invention, the blade and blade bracket are joined together by the inserting structure. During assembling, we only need to align the mounting holes with the elastic connectors and press downwards forcibly, and then the blade could be installed on the blade bracket securely. In this invention, screws are unnecessary for installing the blade on the blade bracket. The assembling is fast and the inserting structure is firm and reliable. When it comes to the necessity of disassembling the blade, only a press plate with matched holes is needed to press the elastic connectors and separate the blade from the blade bracket, which could greatly enhance the ease of use.



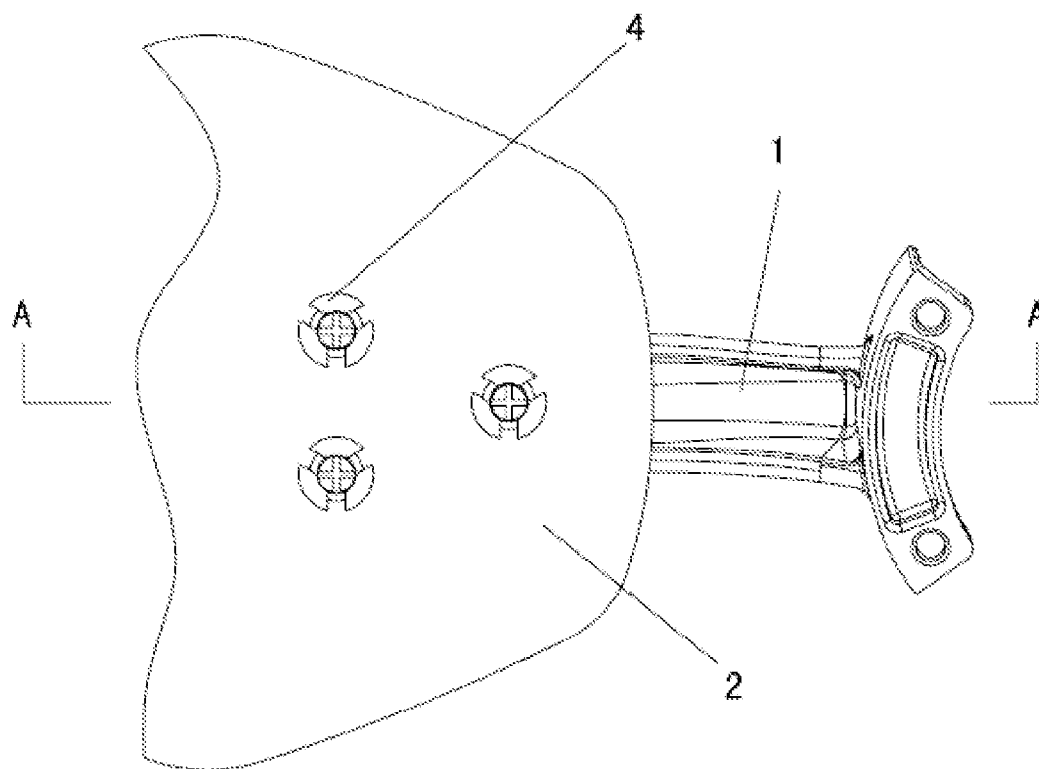
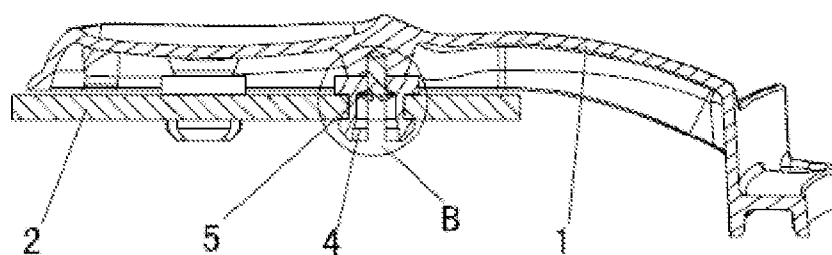


Fig. 1



A-A

Fig. 2

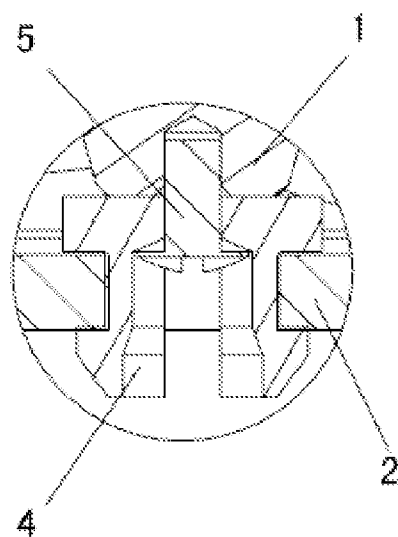


Fig. 3

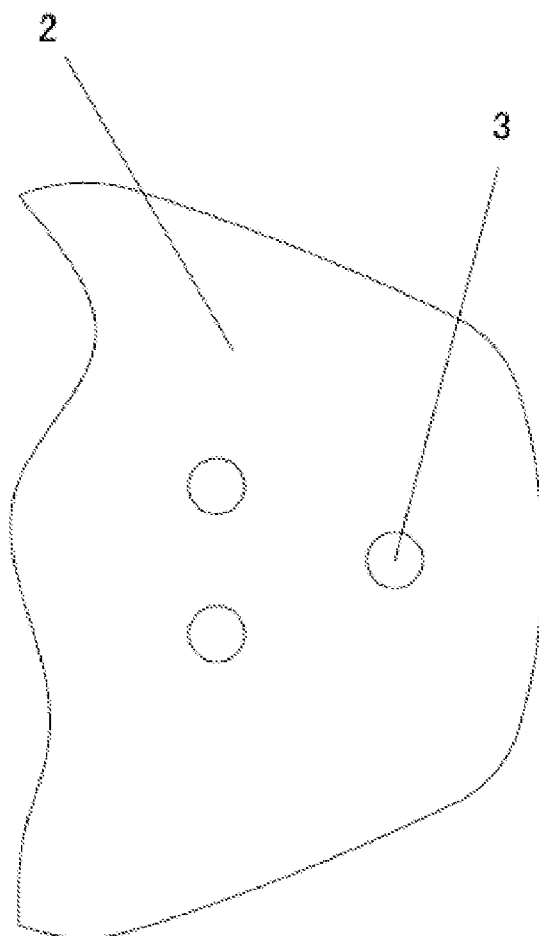


Fig. 4

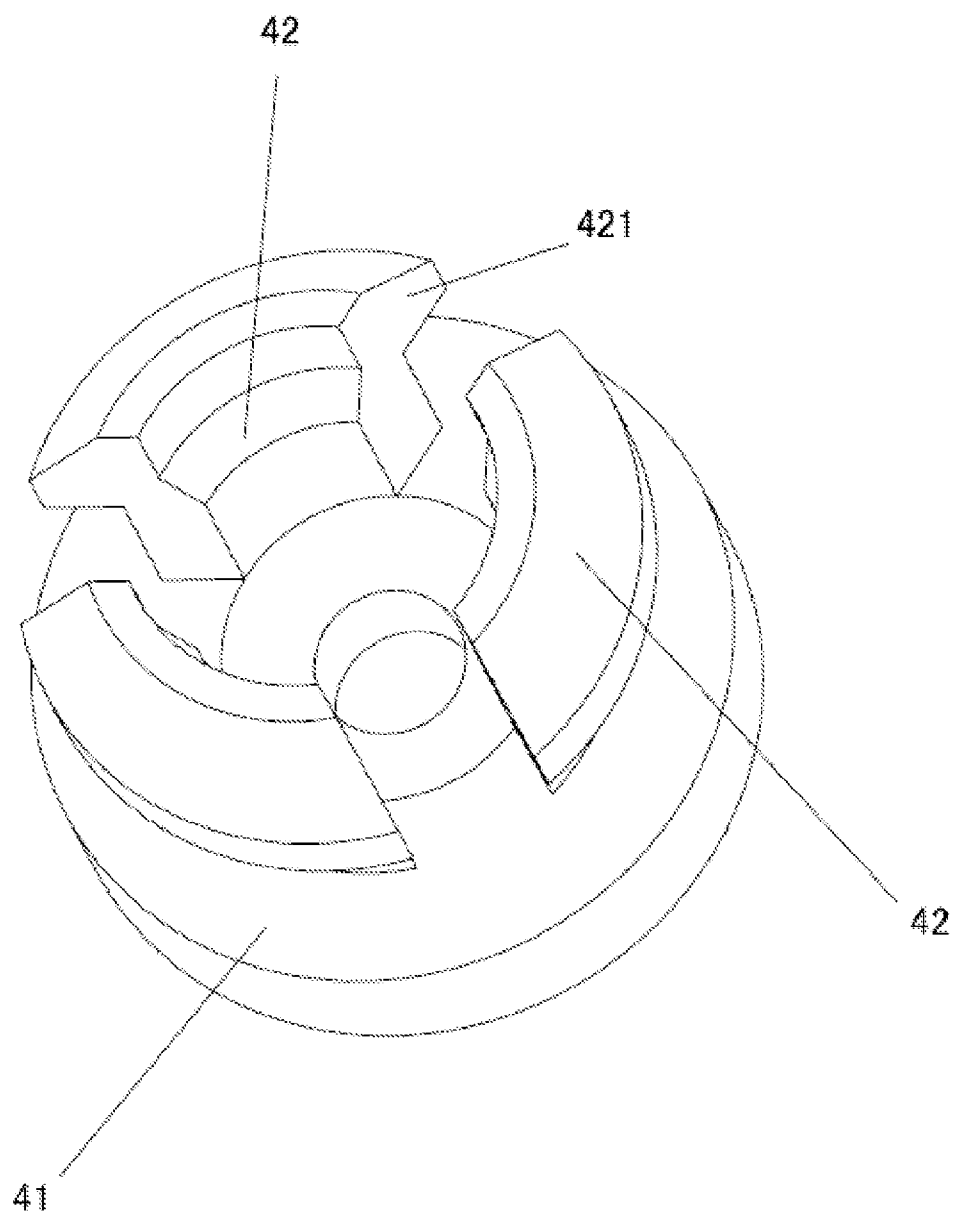


Fig. 5

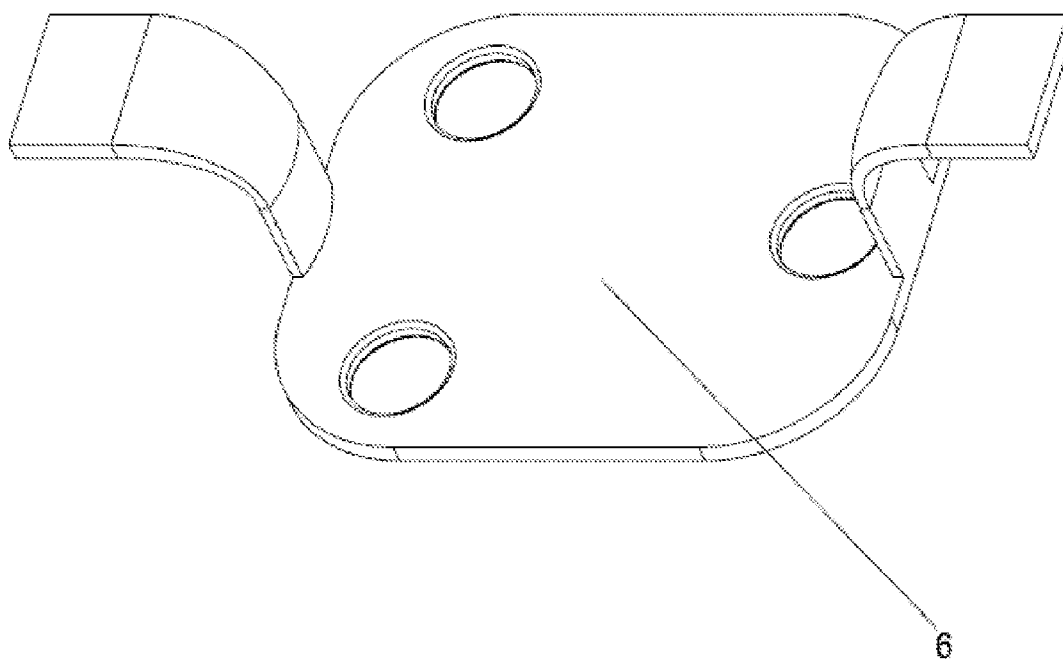


Fig. 6

KIND OF FAN BLADE CAN BE EASILY ASSEMBLED AND DISASSEMBLED

FIELD OF INVENTION

[0001] This invention publishes a fan blade, in particular a kind of fan blade which can be assembled and disassembled easily, comprising blade and blade bracket for ceiling fan, desk fan, pole fan, etc.

DESCRIPTION OF RELATED ART

[0002] Electric fan is a common household appliance in daily life. At present, electric fan generally includes ceiling fan, pole fan, desk fan, etc. No matter what kind of fan it is, the blade is all consisted of blade and blade bracket. In existing technology, fan blade and blade bracket are generally fixed together by screws or rivets, which make the handling way complicated during assembling. Furthermore, if the blade needs to be replaced, a screwdriver becomes a necessity to remove the screws. Under the situation that the screws are rusty, it will be hard to replace the blade; while if the riveting structure is adopted, the blade even can't be replaced, which causes much inconvenience to the user.

SUMMARY OF THE INVENTION

[0003] To solve the above-mentioned shortcomings of complicated assembling and inconvenient replacement, this invention provides a new blade structure which connects the blade and blade bracket by the inserting structure. The structure is simple and convenient to assemble and disassemble.

[0004] The technology project this invention adopts to solve the technology issues is: A kind of fan blade which can be assembled and disassembled easily, composing the blade and blade bracket, which are assembled together by the inserting structure.

[0005] The further technology projects which this invention adopts to solve the technology issues further include:

[0006] The above-mentioned inserting structure composes two or more elastic connectors and equal or more mounting holes. The elastic connectors are set on the blade bracket while the mounting holes are on the blade. The positions of the elastic connectors and mounting holes are matched.

[0007] The above-mentioned inserting structure composes two or more elastic connectors and equal or more mounting holes. The elastic connectors are set on the blade while the mounting holes are on the blade bracket. The positions of the elastic connectors and mounting holes are matched.

[0008] The above-mentioned elastic connectors are installed on the blade bracket by screws.

[0009] The above-mentioned elastic connectors are installed on the blade by screws.

[0010] The above-mentioned elastic connector has joint part in front, and the joint part has two or more elastic inserters.

[0011] The above-mentioned elastic inserters are wedge-shaped in front and have stoppers in the end.

[0012] The beneficial effects of the invention are: In this invention, the blade and blade bracket are joined together by the inserting structure. During assembling, we only need to align the mounting holes with the elastic connectors and press downwards forcibly. In this way, the blade could be securely installed on the blade bracket. In this invention, screws are unnecessary for installing the blade on the blade bracket. When it comes to the necessity of disassembling the blade,

only a press plate with matched holes is needed to press the above-mentioned elastic connectors and separate the blade from the blade bracket, which could greatly enhance the ease of use.

[0013] The explanations attached below are further descriptions for this invention by combining with the attached drawings and preferred embodiment.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is a partial structure sketching of below Embodiment 1.

[0015] FIG. 2 is a cross-section structure sketching for A-A direction of FIG. 1.

[0016] FIG. 3 is a partially amplificatory structure sketching for part B of FIG. 2.

[0017] FIG. 4 is a partial structure sketching for the blade in this invention.

[0018] FIG. 5 is a three-dimensional sketching for the elastic connector in this invention.

[0019] FIG. 6 is a three-dimensional sketching for the press plate in this invention.

[0020] In these Figures, 1 refers to blade bracket, 2 refers to blade, 3 refers to mounting hole, 4 refers to elastic connector, 41 refers to joint part, 42 refers to elastic inserter, 421 refers to stopper, 5 refers to screw, 6 refers to press plate.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0021] The following preferred embodiments are just priority ways for this invention. Any other embodiments of same or similar principle and basic structure are all under protection scope of this invention.

[0022] Please refer to FIG. 1 to FIG. 6. The invention mainly comprises blade bracket 1 and blade 2, the blade bracket 1 and blade 2 are joined together by the inserting structure. Below is detailed display for this invention by introducing several preferred embodiments.

Embodiment 1

[0023] Please refer to FIG. 1 to FIG. 4. The structures in FIG. 1 to FIG. 4 are for this embodiment. Any other embodiments in this specification introduced later that have similar structures as embodiment one are not displayed by attached figures. In this embodiment, there are three mounting holes 3 on the blade 2 and three elastic connectors 4 on the blade bracket 1. The elastic connectors 4 could insert into the mounting holes 3 on the blade 2 and fix the blade 2 to the blade bracket 1. In this embodiment, there are three mounting holes 3 and three matched elastic connectors 4. In actual practice, they could be set as two or more according to actual requirement. And the quantity of mounting holes 3 could be equal or more than the quantity of elastic connectors 4. There are mounting holes on the bottom centre of the elastic connectors 4 in this embodiment. And the elastic connectors 4 are installed on the blade bracket 1 by screws 5. In actual practice, elastic connectors 4 could be installed on the blade bracket 1 by inserting or riveting or other ways. There is a joint part 41 on the bottom of the elastic connector 4. In this embodiment, there are three elastic inserters 42 on the elastic joint 41 and there is space between two adjacent elastic inserters 42. In actual practice, the elastic inserters 42 could be set two or more. There are stoppers 421 on the bottom edge of elastic inserters 42. As the elastic inserters 42 insert into the mount-

ing hole 3, the stoppers 421 are wedged on the edge of the mounting hole 3, which keeps blade 2 and blade bracket 1 relatively fixed. In this embodiment, in order to make the elastic inserters 42 insert into the mounting hole 3 easily, the elastic inserters 42 are designed to be wedge-shaped in front. To be specific, the front of the elastic inserters 42 is similar to the shape of a cone with the front smaller and the end bigger, which make them easily wedge into.

Embodiment 2

[0024] The structures for this embodiment are similar to embodiment 1. The differences are: The elastic connectors 4 are installed on the blade 2 while the mounting holes 3 are installed on the blade bracket 1. Other structures are as same as what described in embodiment 1.

[0025] During assembling of this invention, we first fix the elastic connectors 4 on the blade bracket 1 or blade 2, and then align the mounting holes 3 with the elastic connectors 4 and press downwards forcibly to securely fix the blade 2 and blade bracket 1 together. In this invention, screws are unnecessary for installing the blade 2 on the blade bracket 1. The process of assembling is fast and the inserting structure is firm and reliable. When it comes to the necessity of disassembling the blade 2, only a press plate 6 of matched holes with elastic connectors 4 is needed to press the elastic connectors 4 and make the elastic inserters 42 retract to the center, which achieves the separation of the blade 2 from the blade bracket 1.

[0026] In this invention, the blade and blade bracket are joined together by the inserting structure. Screws are unnecessary for installing the blade on the blade bracket. The process of assembling is fast and the inserting structure is firm and reliable. When it comes to the necessity of disassembling the blade, only a press plate with matched holes is needed to press the above-mentioned elastic connectors and separate the blade from the blade bracket, which could greatly enhance the ease of use.

1. A kind of fan blade which can be assembled and disassembled easily, comprising blade bracket and blade, the feature is the said blade bracket and blade are joined together by inserting structure.

2. The kind of fan blade which can be assembled and disassembled easily of claim 1, wherein the said inserting structure comprises two or more elastic connectors and equal or more mounting holes, and the elastic connectors are set on

the blade bracket while the mounting holes are on the blade, and the positions of the elastic connectors and mounting holes are matched.

3. The kind of fan blade which can be assembled and disassembled easily of claim 1, wherein the said inserting structure comprises two or more elastic connectors and equal or more mounting holes, the elastic connectors are set on the blade while the mounting holes are on the blade bracket, and the positions of the elastic connectors and mounting holes are matched.

4. The kind of fan blade which can be assembled and disassembled easily of claim 2, wherein the said elastic connectors are installed on the blade bracket by screws.

5. The kind of fan blade which can be assembled and disassembled easily of claim 3, wherein the said elastic connectors are installed on the blade by screws.

6. The kind of fan blade which can be assembled and disassembled easily of claim 2, wherein the said elastic connector has joint part in front, and the joint part has two or more elastic inserters.

7. The kind of fan blade which can be assembled and disassembled easily of claim 3, wherein the said elastic connector has joint part in front, and the joint part has two or more elastic inserters.

8. The kind of fan blade which can be assembled and disassembled easily of claim 4, wherein the said elastic connector has joint part in front, and the joint part has two or more elastic inserters.

9. The kind of fan blade which can be assembled and disassembled easily of claim 5, wherein the said elastic connector has joint part in front, and the joint part has two or more elastic inserters.

10. The kind of fan blade which can be assembled and disassembled easily of claim 6, wherein the said elastic inserters are wedge-shaped in front and have stoppers in the end.

11. The kind of fan blade which can be assembled and disassembled easily of claim 7, wherein the said elastic inserters are wedge-shaped in front and have stoppers in the end.

12. The kind of fan blade which can be assembled and disassembled easily of claim 8, wherein the said elastic inserters are wedge-shaped in front and have stoppers in the end.

13. The kind of fan blade which can be assembled and disassembled easily of claim 9, wherein the said elastic inserters are wedge-shaped in front and have stoppers in the end.

* * * * *