

S. HEATH.  
PROTECTOR FOR PROPELLER BLADES.  
APPLICATION FILED SEPT. 18, 1918.

1,339,886.

Patented May 11, 1920.

FIG. 1.

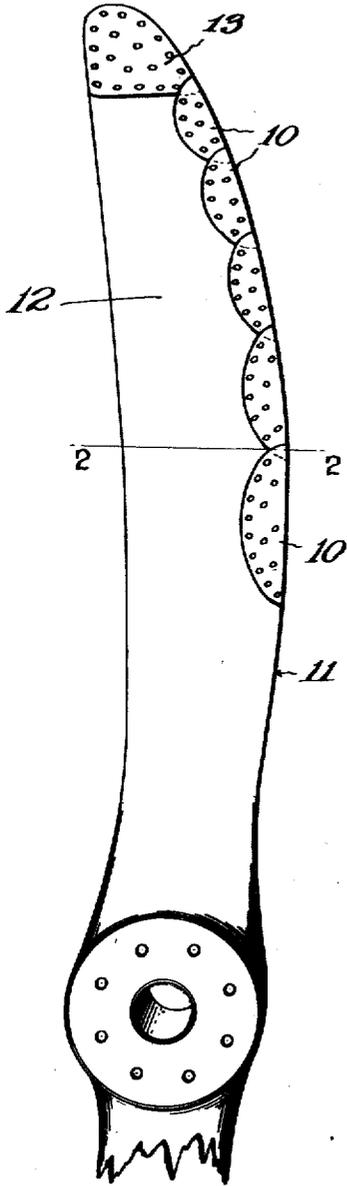


FIG. 2.

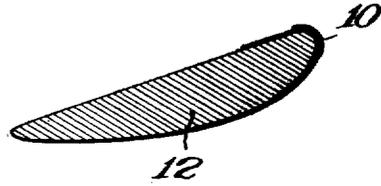
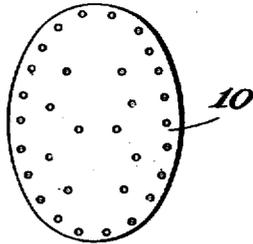


FIG. 3.



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# UNITED STATES PATENT OFFICE.

SPENCER HEATH, OF BALTIMORE, MARYLAND.

PROTECTOR FOR PROPELLER-BLADES.

1,339,886.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, SPENCER HEATH, a citizen of the United States, residing at Baltimore, and State of Maryland, have invented new and useful Improvements in Protectors for Propeller-Blades, of which the following is a specification.

My invention relates to the protection of frail and thin edges of flexible members, such as the advance edges of the blades of aeronautical propellers. These propellers when constructed of wood are subject to damage and injury along the advance edges and it is, therefore, often desirable to protect these edges by sheet metal secured along the blades on both faces adjacent said edges. It has been found difficult to fit this sheet metal to the form of the blades and the curvature of the edges, and, moreover, the constant and rapid bending of the blades during use causes fatigue of the sheet metal and consequently cracking and breaking of the same.

In carrying my invention into effect I apply to the edge of the propeller blade to be protected a series of short length protecting members, each member covering the edge and the adjacent faces of the blade to the desired distance from the edge. Each member is secured to the blade and overlaps an adjacent member so that the blade edge is fully protected and yet the bending may occur without causing the cracking of the metal.

The invention consists in the novel construction and arrangement of parts hereinafter described and claimed, and shown in the accompanying drawing, and the details and advantages of the construction will be fully understood by reference to the following description.

In the drawings:—

Figure 1 is a face of the propeller blade having a protecting means for an edge thereof constructed and arranged in accordance with my invention;

Fig. 2 is a sectional view of the same taken on the line 2—2 of Fig. 1;

Fig. 3 shows one of the sections before being applied to the blade.

Referring to the drawings, 10 indicates the individual members of a series of short protecting members secured to the advance edge 11 of the propeller blade 12. These members are made of sheet material preferably sheet metal, such as brass, and may

be given any desired shape in outline. Those shown are elliptical and are bent around the advance edge of the blade so as to protect said edge and be secured to and cover the blade faces adjacent thereto. Each member of the series overlaps the adjacent member toward the end of the blade, so that air and water thrown outwardly by centrifugal action during the action of the propeller is shed from one member to the next.

Each member may be given any desired outline, as above indicated, but I prefer to so form each member as to provide a less width toward the ends thereof than at the central portion, the elliptical form being a very satisfactory one and the one chosen for the illustration. Each member is independently secured to the blade by screws or rivets or in any other suitable manner.

Although each member or section may be of any preferred length, I prefer to make them comparatively short, and each succeeding member toward the outer end of the blade may be of less length than the preceding member in accordance with the degree of bending of the blade. The end section 13, however, is preferably made different from the others and incloses both faces and the entire end of the blade, as shown.

The invention will be fully understood from the foregoing, but it may be observed that in operation the sections cling closely to the blade and allow the bending of the latter without bending of the sections to any appreciable extent. These sections may be considered an analogy to fish scales in this respect, and in practice the construction is found to be highly efficient and satisfactory.

While I have described a specific embodiment of the invention for the purpose of illustrating the same, it will be understood that many modifications and changes may be made without departing from the spirit of the invention and all such modifications I aim to cover by the appended claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. The combination with a flexible propeller blade, of an edge protector therefor comprising a series of sections of sheet material covering the blade edge and face portions adjacent thereto.

2. The combination with a flexible pro-

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 peller blade, of an edge protector therefor comprising a series of overlapping sections of sheet material.

5 3. The combination with a flexible propeller blade, of an edge protector therefor comprising a series of sections of sheet material covering the blade edge and face portions adjacent thereto, the end portion of each section overlapping the end portion of  
 10 the adjacent section toward the end of the blade.

15 4. The combination with a flexible propeller blade, of an edge protector therefor comprising a series of sections of sheet material independently secured to the blade and covering the blade edge and face portions adjacent thereto.

20 5. The combination with a flexible propeller blade, of an edge protector therefor comprising a series of sections of sheet material covering the blade edge and face portions adjacent thereto the end section covering and inclosing the entire end of the  
 25 blade.

30 6. The combination with a flexible propeller blade, of an edge protector therefor comprising a series of sections of sheet material covering the blade edge and face portions adjacent thereto the end portion of each section overlapping the end portion of the adjacent section toward the end of the

blade, and the end section covering and inclosing the entire end of the blade.

7. The combination with a flexible propeller blade, of an edge protector therefor 35 comprising a series of sections of sheet material covering the blade edge and face portions adjacent thereto, the width of the portion of edge section on the blade faces being less at the ends than in the central part of 40 the section.

8. The combination with a flexible propeller blade, of a protector for the advance edges of said blade comprising a series of sections of sheet metal covering the blade 45 edge and face portions adjacent thereto.

9. The combination with a flexible propeller blade, of an edge protector therefor comprising a series of short length protecting members secured to the edge of the 50 blade.

10. The combination with a propeller blade of a sheathing therefor comprising a plurality of plates or sections of channel shape in cross-section, said plates embracing 55 one edge of the blade and having overlapping edges, and means for securing the sheathing to the blade.

In testimony whereof I have hereunto set my hand.

SPENCER HEATH.