Nov. 12, 1929. W. J. DANCKWART 1,735,675

PROPELLER GUARD

Filed May 7, 1929

Fig. 1.

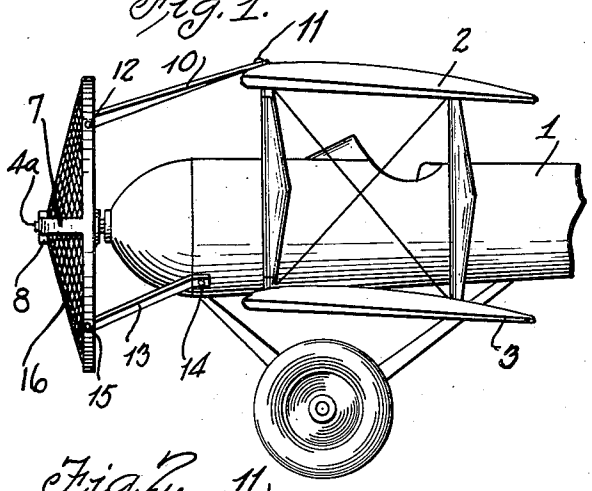


Fig. 2.

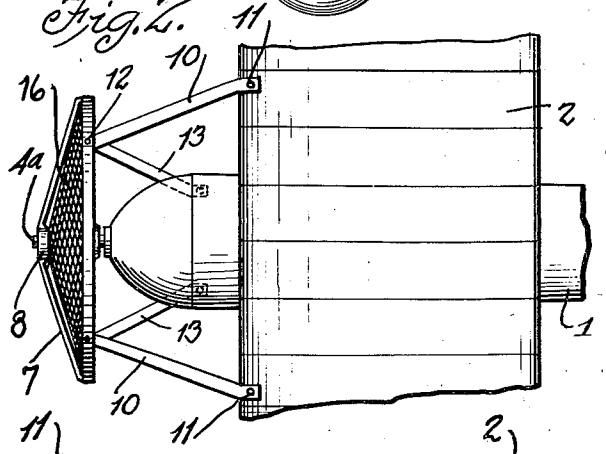
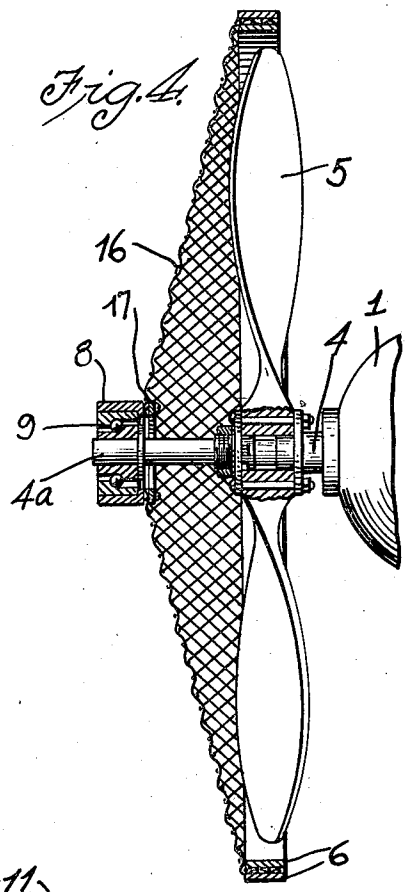


Fig. 4.



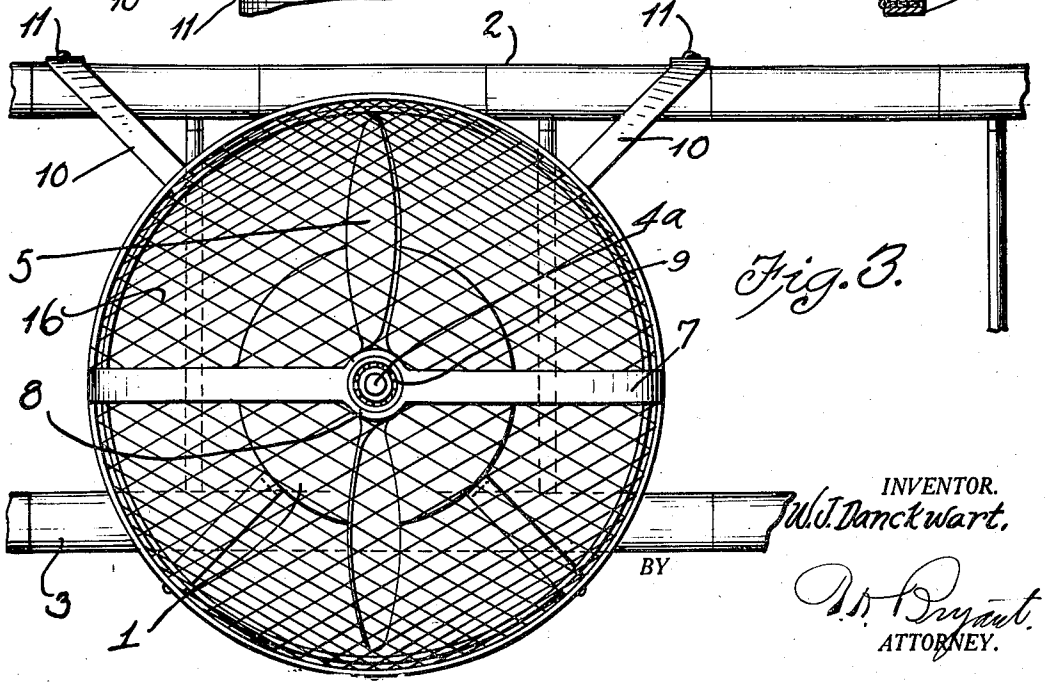


Fig. 3.

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Patented Nov. 12, 1929 1,735,675

UNITED STATES PATENT OFFICE

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PROPELLER GUARD

Application filed May 7, 1929. Serial No. 361,183.

This invention relates to certain new and useful improvements in propeller guards and is especially designed for association with the propeller of aircraft, such as an aeroplane, and has for its primary object to protect the propeller blades against injury by coming in contact with flying débris, birds or other objects in the air, but in no way tending to lessen the efficiency of the propelling force of the blades.

With the above and other objects in view that will become apparent as the nature of the invention is better understood, the same consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawing and claimed.

In the drawing:—

Figure 1 is a fragmentary side elevational view of a flying machine equipped with the propeller guard constructed in accordance with the present invention;

Figure 2 is a fragmentary top plan view of the flying machine equipped with the guard;

Figure 3 is an enlarged fragmentary front elevational view showing the guard or screen positioned forwardly of the propeller blades; and

Figure 4 is a vertical cross-sectional view through the propeller guard showing its relationship to the propeller blade.

As illustrated, the flying machine comprises a fuselage 1 provided with upper and lower wings 2 and 3 and a forwardly positioned propeller shaft 4 upon which a propeller blade 5 is anchored. The mounting of the propeller blade 5 upon the propeller shaft 4 is of the usual construction as shown in section in Figure 4, while the propeller shaft 4 carries a forward extension 4^a projecting forwardly of the propeller blade.

The guard for the propeller blade comprises a pair of concentric rings 6, one within the other and slightly spaced apart for purposes presently to appear, the rings 6 carrying a forwardly arched cross strip 7 extending between diametrically opposite points with a semi-cylindrical bearing collar 8 housing the ball bearing race 9 into which the propeller shaft extension 4^a extends. The connection between the propeller blade guard and flying machine comprises a pair of upper connecting rods 10 anchored at their inner ends as at 11 to the forward edge of the upper wing 2 and at their forward ends as at 12 to the upper sides of the rings 6 of the guard, the supporting bars 10 being forwardly convergent. Similar supporting rods 13 have their inner ends connected as at 14 to the forward end of the fuselage 1 while the forward ends of the rods 13 are anchored as at 15 to the lower sides of the rings 6. A screen guard 16, substantially of conical formation as shown in Figure 4 is carried by the guard frame with the peripheral edges thereof extending between the rings 6 and anchored in position by the fastening devices 12 and 15 for the brace rods 10 and 13 while the central portion of the screen gaurd 16 is anchored to the center bearing collar 8 by the clamping ring 17 as shown in Figure 4. The screen guard being positioned inwardly of the forwardly arched cross strap 7 as shown in Figure 3.

The screen may be of the desired mesh so that efficiency of the propeller blade 5 will not be impaired while injury to the propeller blade 5 will be eliminated as the screen guard will prevent the propeller blade from coming into contact with any objects moving in the air, such as birds or flying débris. The upper supporting rods 10 for the guard frame converge forwardly while the lower supporting rods 13 diverge forwardly, resulting in a strong and substantial support for the guard frame and holding the same rigidly positioned out of the path of movement of the propeller blade 5, the positioning of the supporting rods 10 and 13 eliminating any possibility of distortion of the guard frame so that injury to the propeller blade from the guard is eliminated.

From the above detailed description of the invention, it is believed that the construction and operation thereof will at once be apparent, and while there is herein shown and described the preferred embodiment of the present invention, it is nevertheless to be un-

derstood that minor changes may be made therein without departing from the spirit and scope of the invention as claimed.

I claim:—

1. The combination with the propeller of an aircraft, of a screen guard permanently positioned forwardly of the propeller, a forward extension on the propeller shaft upon which the guard is mounted, and brace rods extending between the peripheral edge of the guard and the aircraft.

2. The combination with the propeller of an aircraft, of a screen guard permanently positioned forwardly of the propeller, in enclosing relation therewith, a forward extension on the propeller shaft upon which the guard is mounted, and brace rods extending between the peripheral edge of the guard and the aircraft.

3. The combination with the propeller of an aircraft, of a screen guard permanently positioned forwardly of the propeller, a forward extension on the propeller shaft upon which the guard is mounted, and brace rods extending between the peripheral edge of the guard and the aircraft, upper and lower sets of brace rods extending between the peripheral edge of the guard and the aircraft, the upper set of rods forwardly converging and the lower set being forwardly divergent.

4. The combination with the propeller of an aircraft, of a screen guard permanently positioned forwardly of the propeller, in enclosing relation therewith, a forward extension on the propeller shaft upon which the guard is mounted, and brace rods extending between the peripheral edge of the guard and the aircraft, upper and lower sets of brace rods extending between the peripheral edge of the guard and the aircraft, the upper set of rods forwardly converging and the lower set being forwardly divergent.

In testimony whereof I affix my signature.

WILLIAM J. DANCKWART.