

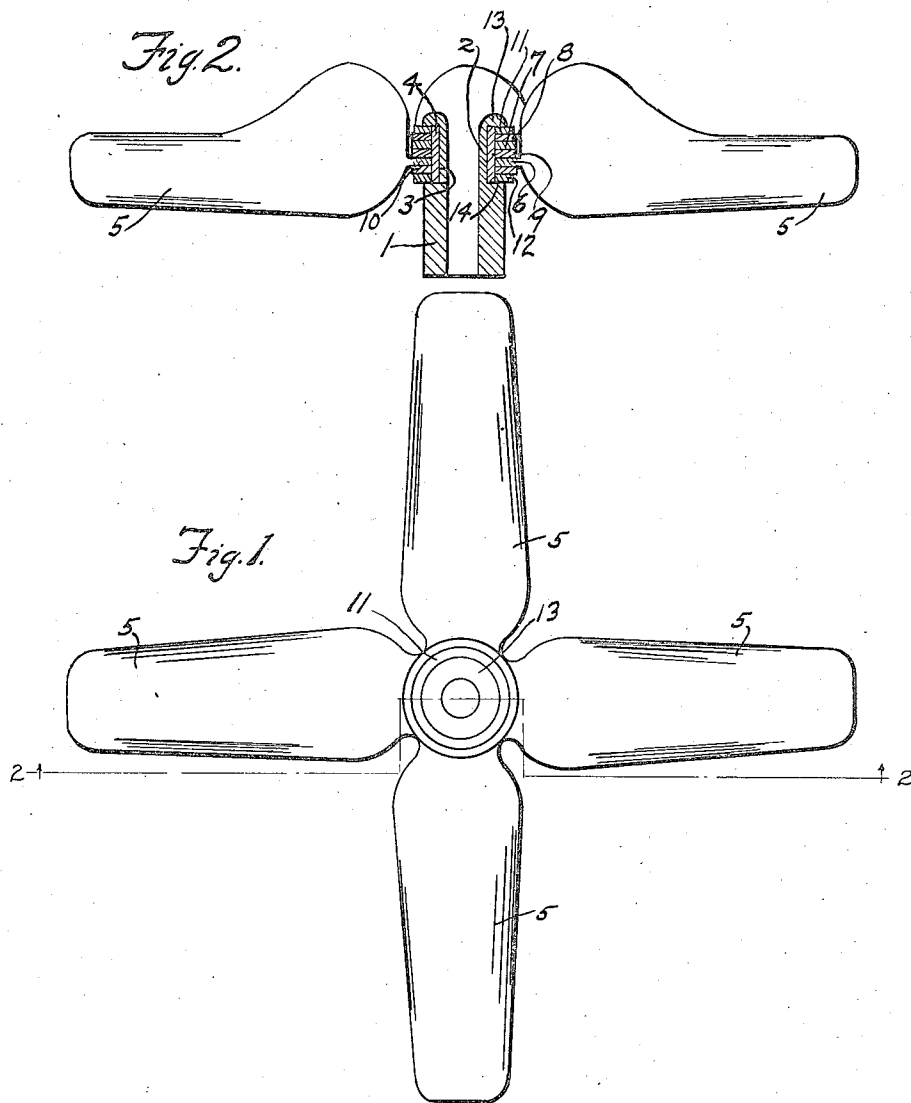
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FLUID PROPELLER

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UNITED STATES PATENT OFFICE.

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FLUID PROPELLER.

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The present invention relates to rotary fluid propellers or fans and other like and similar devices having blades capable of exerting stresses upon fluids when the device is caused to rotate.

It has been noted that when a fan, propeller, or similar device is rapidly rotated there emanates therefrom a sort of metallic sound, ring or tone which seems to be amplified by the blades, the latter also appearing to act as resonators. This sound often becomes monotonous and disagreeable and although the elimination of it has been long desirable, it has remained for the present invention to accomplish such end. It was discovered that if the blades could be sound insulated from the shaft, spindle or rotary hub of the driving mechanism, the objectionable sound could be eliminated.

It is, therefore, among the objects of the invention to provide for separating the blades from the shaft or spindle hub of the driving means so that there will not be a continuity of the material, such as metal, from the shaft to the blades; to provide for insulating the blades from the shaft or spindle, yet have a rigid structure whereby the blades would rotate with the shaft or spindle as one; to so arrange the insulation that one set of blades would be insulated from the other and both sets be at the same time insulated from the shaft or spindle, and to provide such further and other objects, advantages and capabilities as will later appear and are inherently possessed by the invention.

In the drawings showing an illustrative embodiment of the invention, Fig. 1 is a front view of a propeller or fan, and Fig. 2 is a transverse sectional view taken on line 2—2 of Fig. 1.

Referring now more particularly to the drawing showing a preferred embodiment of the invention, the latter is shown as comprising a shaft or spindle 1 having a hub portion 2 reduced in diameter to form an annular recess 3 in which is located a sleeve 4 of sound insulating or deadening material. Extending radially from the shaft 1 are a plurality of blades 5, preferably formed in pairs with the blades of each set arranged diametrically opposite each other and connected in between the blades of each pair by an apertured web such that one pair of

blades has a web 6 and the other pair of blades has a web 7 and alternating with these webs are a number of apertured discs 8, 9 and 10 of suitable sound insulating or deadening material and which serve to insulate the web of one pair of blades from the other as well as washers 11 and 12 arranged at the ends of the sleeve 3 and bearing against shoulders 13 and 14 of the shaft 1. The shoulder 13 is formed after the parts are assembled by spinning or riveting the end of the shaft 1 so as to form the shoulder against the washer 11.

It will be noted that the sleeve 3 is interposed between the webs 6 and 7 of the blades and the portion 2 of the shaft 1 so that there is not a continuity of the metal from the shaft 1 to the blade and whatever sound may be set up in the shaft 1 cannot be transmitted therefrom to the blades and be emitted to the air or other surrounding fluids. The discs 8, 9 and 10 insulate the webs of the blades from each other as well as from the washers 11 and 12.

While I have herein described and upon the drawing shown a preferred embodiment of the invention, it is to be understood that it is not limited to the particular construction, details and arrangement of parts described and shown, but that it also comprehends other constructions, details, and arrangements of parts without departing from the spirit of the invention.

Having thus described my invention, I claim:

1. A sound insulator for fan and propeller blades, comprising an insulating sleeve and disks between the blades and around the hub thereof.

2. A device of the character disclosed, comprising a rotary hub, a sound insulating sleeve secured in the hub, and blades secured to the insulating sleeve whereby transmission of sound between the hub and blades is prevented.

3. A rotary air blower comprising blades and a hub, an insulating sleeve interposed between the hub and blades to provide discontinuity of hub and blade material for eliminating transmission of sound from one to the other.

4. A device of the class disclosed, comprising a rotary spindle, an insulating sleeve on the spindle and rotatable therewith, and

blades on the sleeve and rotatable therewith, whereby the blades are sound insulated from said spindle.

5 5. A device of the character disclosed, comprising a rotary spindle having spaced shoulders, blades between said shoulders, and insulating disks between said blades and said shoulders whereby the blades are out of contact with said spindle.

10 6. A device of the character disclosed comprising a rotary hub having spaced shoulders, insulating discs between said shoulders, blades between said discs and out of contact with said hub.

15 7. A device of the character disclosed, comprising a rotary hub having spaced shoulders, sound insulating discs between said shoulders, blades between said discs, and an insulating sleeve between said hub
20 and said blades and discs whereby sound cannot be transmitted from the hub to the blades.

25 8. In a device of the character disclosed and comprising a rotary shaft having a reduced diameter portion, an insulating sleeve

on said portion, blades having apertured hubs around said sleeve, and apertured insulating discs around said sleeve and alternating with said hubs for insulating said hubs from each other and from the shaft, 30 said sleeve serving to insulate the shaft from said hubs.

9. A fluid propeller comprising a hub, a recess in said hub, a sleeve of sound insulating material in said recess, sound insulating 35 disks, a plurality of blades and the webs of said blades held between said disks.

10. A device of the class described comprising a spindle, a hub, a sleeve of deadening material in said hub, a plurality of radially extending blades, sound insulating 40 disks, webs of said plates held in said disks, said sleeve and disks adapted to isolate any metal contact between blade, spindle and hub so that continuity of sound between said 45 members is prevented.

In witness whereof, I hereunto subscribe my name to this specification.

WILLIAM H. LEINWEBER.