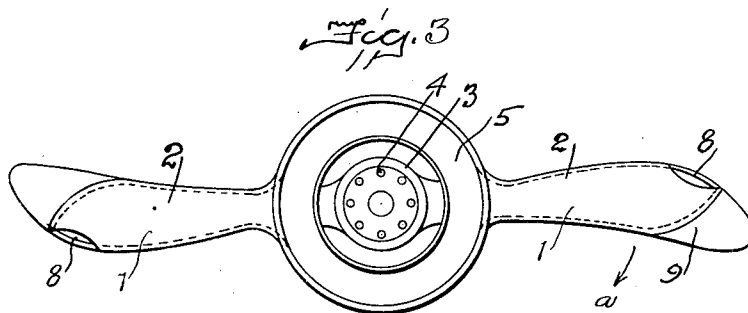
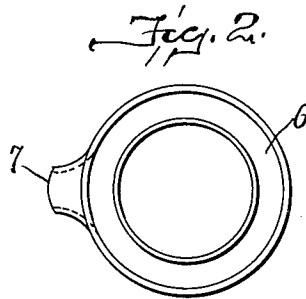
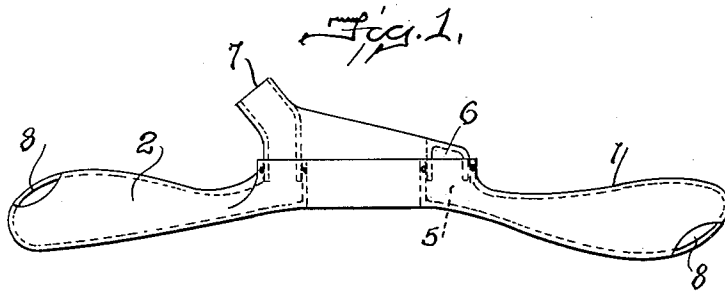


I. K. RYSTEDT.
SILENCER FOR AUTOMOTIVE EQUIPMENT.
APPLICATION FILED OCT. 30, 1920.

1,399,157.

Patented Dec. 6, 1921.



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SILENCER FOR AUTOMOTIVE EQUIPMENT.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, INGEMAR K. RYSTEDT, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Silencers for Automotive Equipment, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to silencers for automotive equipment and in particular to silencers for use on airplane engines.

It is an object of my invention to provide a silencer which will not decrease the power of the engine, but to the contrary will serve to increase its effective power. My invention is adaptable to any type of airplane propeller, either of wood or of metal. It is an object of my invention to provide mechanism which may be readily assembled and disassembled for adjustment, replacement and cleaning.

Referring to the drawings:

Figure 1, is a side elevation of a propeller with the silencer embodied in it;

Fig. 2, is a plan view of the ring constituting the stationary inlet passage way;

Fig. 3, is a front elevation of the propeller with silencer attached.

Referring to the drawings, 1 is a propeller blade of any form of construction. If of wood, the silencer passage ways as at 2 may be attached, or if it is of metal the silencer passage ways may be located within the propeller blade and integral with it. I do not desire to limit myself to any type of propeller or any kind of material.

It will be readily apprehended that I comprehend within my invention all sorts of moving elements and am merely selecting an airplane propeller and airplane structure as a typical embodiment of my invention in one of its present useful applications.

3 is the hub which is attached to the shaft of the engine by bolts 4. 5 is an annular passage way communicating with the blade passage ways at 2. Cooperating with this ring 5 which is integral with the propeller, is another ring member 6 which has an entrance passage way 7 communicating with the exhaust manifold of the engine.

It will be noted that there are exit openings 8 at the end of the passage ways 2. I prefer to locate these exit openings in the

direction opposite to that in which the propeller turns as indicated by the arrow *a*.

It will be understood that in the rapid revolution of the propeller the gases will be drawn out and dissipated at high speed in the surrounding medium of the air so that all sound audible to the ear will be eliminated, no back pressure will be set up in the engine to reduce its power and whatever effect there may be from the spent gases will develop in the power applied to the propeller through impinging upon the surfaces therein.

While I have shown and described certain features as constituting my invention, it will be understood that parts have been shown for purposes of illustration only, and that I do not desire to be limited to such details, as obvious modifications will occur to a person skilled in the art.

Among the uses to which this invention may be applied, in addition to the purposes hereinbefore set forth, should be mentioned its adaptability to the creation or production of a smoke screen, as that term has come to be known and understood in terms of modern warfare. Instead of discharging the exhaust gases the propeller may be, as just stated, utilized by being properly connected with a source of smoke supply so as to take up and distribute the smoke through and by the action of the propeller, thus creating all about the machine a smoke screen.

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

1. In a device of the character described, a hub, a central opening therein, a circumambient channel beyond said central opening, a supply channel in slidable engagement with the first named channel and communicating therewith so as to form a housed passage-way for the passage of fluid from the supply channel to the first named channel, a blade upon the hub and a passage-way therethrough, one end of which communicates with the first mentioned channel from which it receives the fluid and from the other end of which it is discharged into the open air.

2. In a propeller, a plurality of blades carried by a hub, a hub connected to the crank shaft of an engine, passage ways in said blades located longitudinally thereof,

opened at their outer ends and communicating at their inner ends with a supply passage way, a supply passageway consisting of a ring carried by said propeller, a second ring cooperating with the first ring in sliding engagement to form a completely housed passage way, an entrance opening in said second ring whereby gases are conveyed through the rings and the exit passage ways in the blades to the outer air.

3. In a propeller, a plurality of blades carried by a hub, a hub attached to a crank shaft of an engine, a passage way located within each of said blades having its outer end of the blade on the side away from the direction of movement of the blade and its inner end communicating with an annular passage way carried by said propeller, an annular passage way one face of which is closed and the other face of which is open, a cooperating ring having one face open and one face closed adapted to be in sliding engagement with said first mentioned ring to complete an annular passage way and an entrance port in the second ring communicating with the annular passage way so formed whereby gases passing into the entrance passage way pass through the ring

and out the blades on the side away from the direction of movement.

4. In a propeller, a plurality of blades carried by a hub, a hub attached to a crank shaft of an engine, a passage way located within each of said blades having its outer end of the blade on the side away from the direction of movement of the blade and its inner end communicating with an annular passage way carried by said propeller, an annular passage way one face of which is closed and the other face of which is open, a cooperating ring having one face open and one face closed adapted to be in sliding engagement with said first mentioned ring to complete an annular passage way and an entrance port in the second ring communicating with the annular passage way so formed, and a sloping surface on the interior of the exterior end of the passage way in the blade on which the gases may impinge as they make their exit, whereby gases passing into the entrance passage way pass through the ring and out the blades on the side away from the direction of movement.

In testimony whereof, I affix my signature.

INGEMAR K. RYSTEDT.