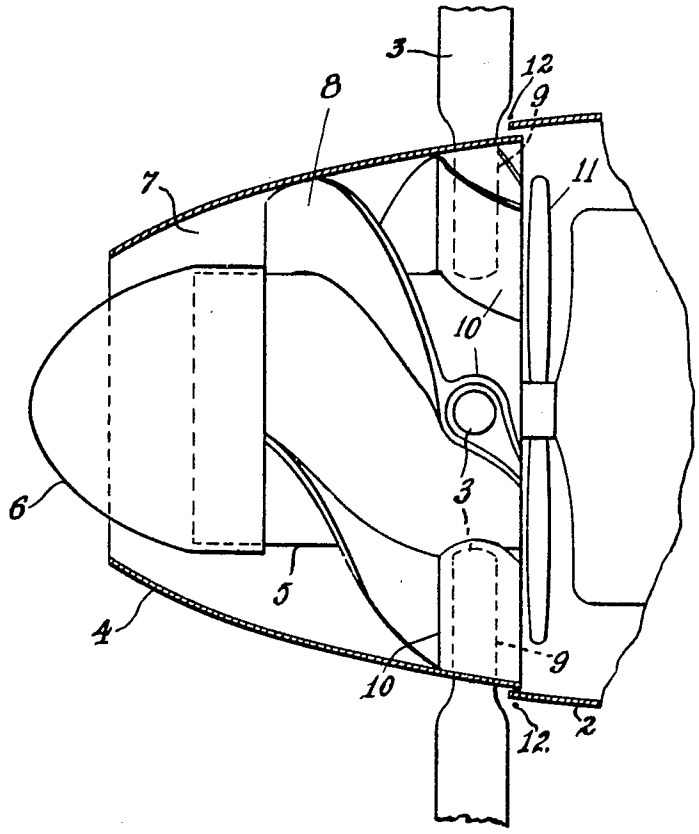
Sept. 28, 1943. R. RAMSHORN 2,330,622

GUIDING AND CONTROLLING DEVICE FOR COWLINGS

Filed March 27, 1940



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Patented Sept. 28, 1943

2,330,622

UNITED STATES PATENT OFFICE

2,330,622

GUIDING AND CONTROLLING DEVICE FOR COWLINGS

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Application March 27, 1940, Serial No. 326,140
In Germany April 1, 1939

5 Claims. (Cl. 123—171)

The invention relates to means for guiding and controlling the air entering the fairing or engine cowling of air-cooled internal combustion engines, particularly for aircraft, preferably radial engines.

An object of this invention is to provide an improved cowling which not only has a favorable external aerodynamic shape, but also improves the guiding of cooling air within the cowling.

Another object of this invention is to provide an improved cowling having reduced air resistance and which, at the same time, carries cooling air back to the engine without production of unfavorable and disturbing eddies and vortices.

A further object of this invention is the provision of an engine cowling having a section rotating with the propeller blades and constructed with an improved, adjustable cooling air inlet opening.

A more specific object of this invention is the provision of an engine cowling for aeroplanes, having a section rotatable with the propeller, and constructed with internal air-accelerating baffles for supplying cooling air to the engine.

These and other features of the invention will be best understood and appreciated from the following description of a preferred embodiment thereof described for purposes of illustration and shown in the accompanying drawing, in which:

The single figure is a longitudinal view, partially in cross-section, of the forward part of an engine cowling in accordance with the present invention.

The engine cowling arranged symmetrically with respect to the longitudinal axis 1 of the engine (not shown), includes a stationary cowling part 2 surrounding the cylinders and the part 4 rotating with the propeller blades 3. A cylindrical wall 5 is mounted co-axially within the part 4. A cap 6, capable of being displaced in the direction of axis 1 for controlling the inlet cross-sectional area of the annular conduit 7 defined by the cowling part 4 and the wall 5, is slidably mounted on the said wall 5. The baffles 8 and the supporting blades 10 surrounding the blade butt ends 9 serve at the same time to interconnect and mutually support the walls 4 and 5 of the annular conduit 7. The baffles 8 and the blades 10 are preferably arranged obliquely to the longitudinal axis 1 in such a manner that they also serve as blowers, thus effecting an acceleration of the air entering the cowling 4 and permitting a reduction of the power to be delivered to the fan 11. The fan 11, of course, can also be omitted.

In this manner, according to the invention all parts are of low air resistance and of suitable construction, and the blade butt ends 9, well-faired, revolve in a directed air current, so that a far-reaching reduction of the profile drag and thus a remarkable increase in efficiency is obtained, which results in an increase of speed of the vehicle in question. In this respect, further, it has proved advantageous if the stationary part 2 of the cowling somewhat overlaps the part 4 in order that the pressure still existing in the boundary layer as far as possible compensate the interior pressure, and no formation of vortices or thickening of the boundary layer by the escaping air occurs at the point 12.

Although no means have been illustrated effecting movement of the cap 6 for adjusting the cross-sectional area of the air inlet, it will be obvious to those skilled in this art that this adjustment may be effected manually by means of suitable linkages or the like, or, using well-known apparatus, automatically by a suitable regulator responsive to engine temperature or, if desired, in accordance with charging pressure. The particular means for bringing about adjustment of the cap 6 does not, however, form part of the present invention, and accordingly will not be described or illustrated in detail.

Having described an illustrative embodiment of the invention, it is pointed out that various changes and modifications therein may be made without departing from the invention, it being intended that the patent shall cover, by suitable expression in the appended claims, all features of patentable novelty existing in the invention disclosed, as illustrated by the embodiment described.

I claim:

1. In a cowling for engine-driven aircraft, the combination of a first stationary cowling section adapted to surround the engine proper, a propeller adapted to be driven by the engine, and a second cowling section rotatable with said propeller and positioned forwardly of said first cowling section, said second cowling section including a stream-lined outer wall open at both ends, surrounding and extending forwardly of the propeller butt ends, an inner cylindrical wall coaxial with and spaced from said outer wall to form an annular air-guiding space between the two walls, and baffles in said annular space interconnecting the two walls, said baffles being so shaped as to assist in directing the oncoming air rearwardly through said annular space to said engine.

2. The combination according to claim 1, in which said baffles comprise suitably shaped plates covering that portion of the propeller butt ends in the annular space between said walls.

3. The combination according to claim 1, in which said baffles are shaped as air-accelerating blades.

4. The combination according to claim 1, in combination with baffling air-guiding blades surrounding that portion of the propeller butt ends in the annular space between said walls, said baffles and said air-guiding blades being shaped as air-accelerating blades.

5. The combination according to claim 1, in combination with a stream-lined cap slidably adjustable upon and closing the forward end of said inner cylindrical wall for varying the cross-sectional area of the air inlet opening formed at the forward end of the two walls.

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