L. BLÉRIOT.

RADIATOR FOR FLYING MACHINE MOTORS.

APPLICATION FILED MAR. 25, 1909.

967,712. Patented Aug. 16, 1910.

Fig. 1.

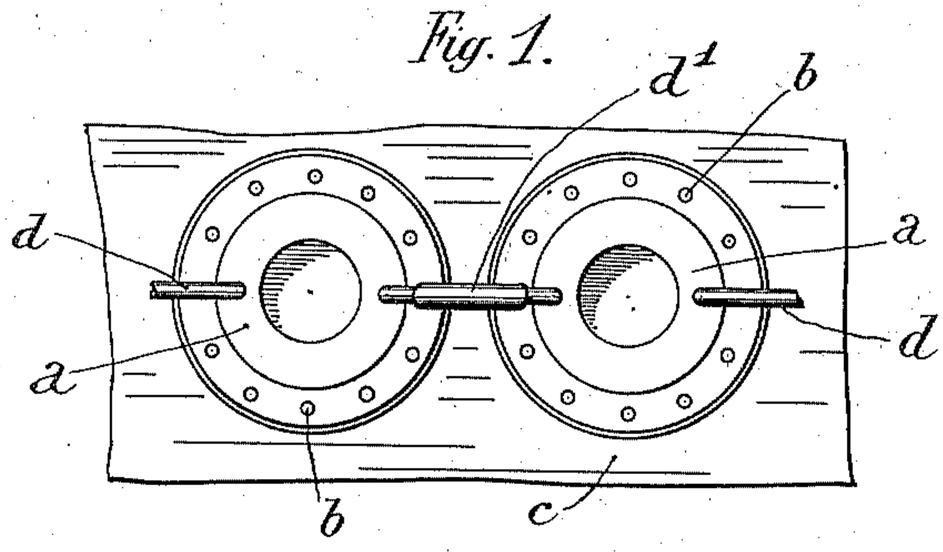


Fig. 2.

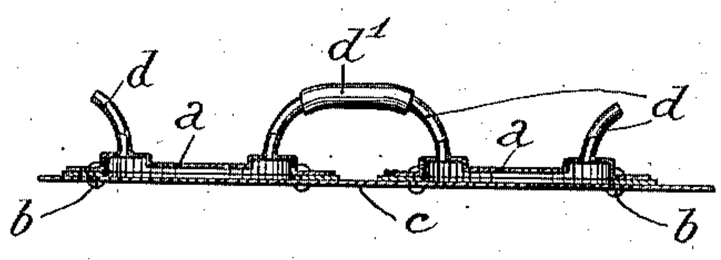


Fig. 3.

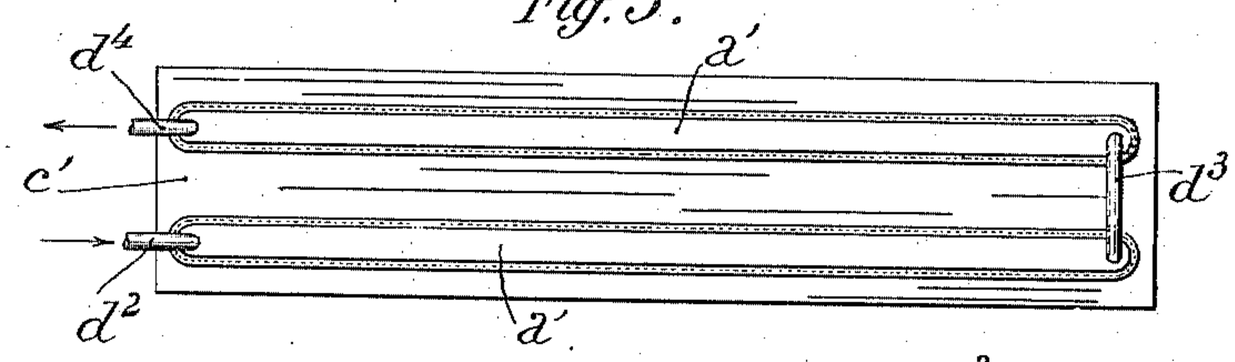


Fig. 4.

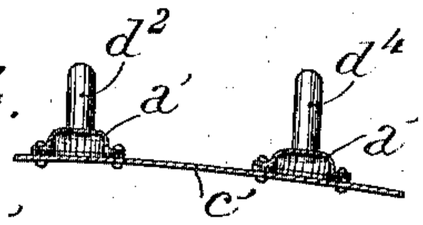


Fig. 5.

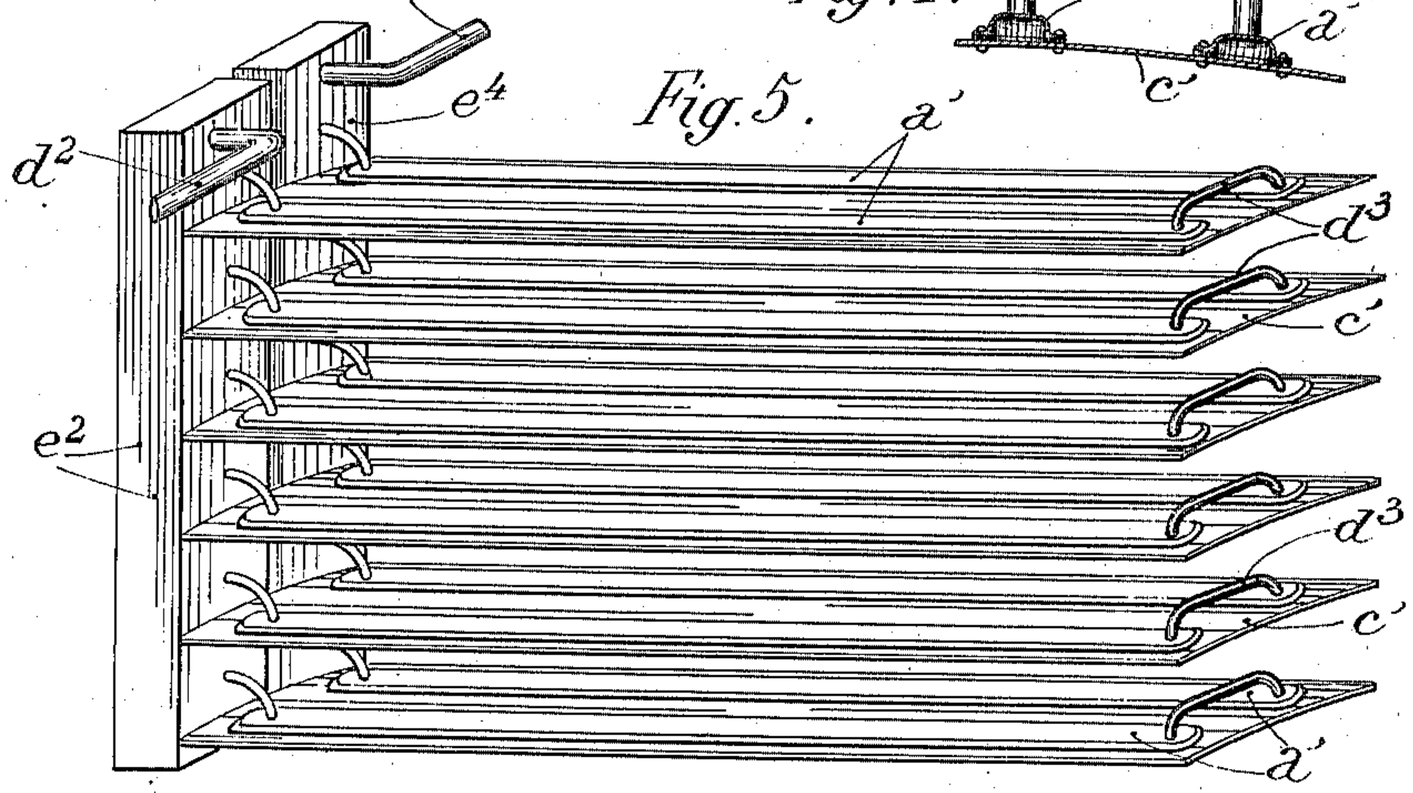
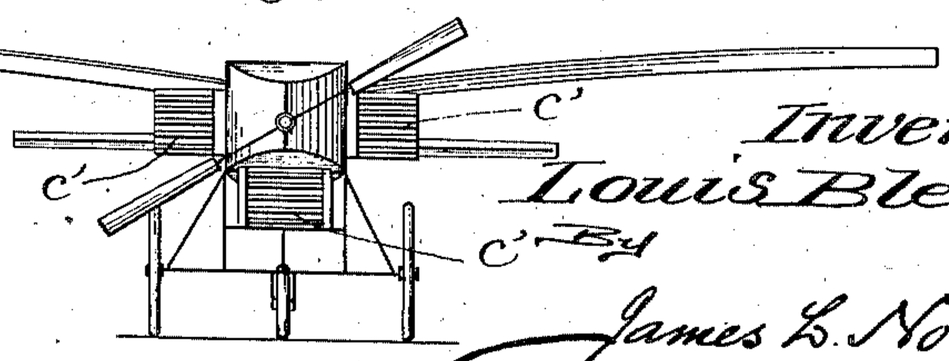


Fig. 6.



Witnesses:

W. B. Keelan

C. J. Kesler

Inventor

Louis Blériot

By

James L. Norris.

Atty

UNITED STATES PATENT OFFICE.

LOUIS BLÉRIOT, OF NEUILLY-SUR-SEINE, FRANCE.

RADIATOR FOR FLYING-MACHINE MOTORS.

967,712. Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed March 25, 1909. Serial No. 485,790.

To all whom it may concern:

Be it known that I, LOUIS BLÉRIOT, engineer, a citizen of the French Republic, residing at 56 boulevard Maillot, Neuilly-sur-Seine, France, have invented certain new and useful Improvements in Radiators for Flying-Machine Motors, of which the following is a specification.

This invention relates to improvements in the cooling of the circulating water or other fluid in motors of dirigible balloons, aeroplanes and similar apparatus, and consists in using for the said cooling either the usual surfaces of the apparatus in question, or additional surfaces suitable for contributing to the support of the apparatus. It becomes possible therefore, to remove simultaneously all the disadvantages inherent in the usual cooling systems, both from the point of view of their installation and the resistance which they offer to the movement of the same apparatus.

In order that the invention may be clearly understood reference may be had to the accompanying drawings in which two constructions of the invention are illustrated.

Figures 1 and 2 are respectively plan and longitudinal section of a part of the first of the said constructions which is more particularly suitable for the use of ordinary cooling surfaces. Figs. 3 and 4 are respectively plan and cross-section, the latter on an enlarged scale, of one of the elements comprised in the second of the said constructions, which is more particularly suitable for the utilization of additional supporting surfaces for cooling. Fig. 5 shows in perspective a radiator designed in accordance with the same construction. Fig. 6 finally shows diagrammatically in front elevation an aeroplane provided with radiators of the kind shown in Fig. 5.

The construction shown in Figs. 1 and 2 comprises a series of capsules, annular crowns or cups a of the shape shown in the drawing or of any other suitable shape, secured in any suitable manner, for instance by means of rivets b, with or without interposition of packing joints or rings, to a flexible sheet c which may advantageously be a thin aluminum sheet, the said cups being connected together by means of branches d and flexible unions d'. Owing to that arrangement all the cups a and the whole of the sheet c constitute a thoroughly flexible system which can be utilized for lining the whole or part of the usual surfaces (body, wings, etc.) in place of paper or fabric.

The construction shown in Figs. 3 and 4 is similar to the first, with the exception that the cups a are replaced therein by elongated parts a' arranged in pairs, so as to form complete cooling elements with the sheet c' which is of considerable thickness, so that it may be used for a supporting surface and with inlet branches d^2, connection branches d^3 and outlet branches d^4. The system is then utilized advantageously by arranging it as shown in Figs. 5 and 6, that is to say, by superposing a certain number of elements such as those mentioned and shown in Figs. 3 and 4 mounted either fixedly or movably about a certain axis, and adding to them tanks which can be constituted advantageously of two vertical boxes e^2 and e^4, arranged with their longer sides adjacent and parallel, one of them being connected to the inlet branches d^2 and the other to the outlet branches d^4 of the various elements. In that way an excellent circulation can be obtained.

It must be understood that the expression "circulation water" used in the beginning of this description, is intended to comprise not only cooling water of explosion engines, but also feed water of steam engines.

It is obvious that the invention is not in any way limited to the construction described, and that it comprises all possible variations.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. The combination with a supporting surface of aerial machines of a series of cooling and circulation members secured to said surface, the latter forming a common wall for the members, and providing for inclosed circulation spaces, connections between the members, means whereby water may be conducted from the motor of the machine to flow successively through the members, and means for returning the water to the motor.

2. In an aerial machine, the combination with one or more flexible sheets, of a cooling device for the circulation water of the motor, comprising a series of interconnected cups arranged on each sheet, the latter forming a common wall for the cups, means for con-

ducting water from the motor to flow through the cups and means for returning the water to the motor.

3. In an aerial machine, the combination with one or more flexible sheets, of a cooling device for the circulation water of the motor comprising a series of interconnected annular cups, means for conducting water from the motor to flow through the cups, and means for returning the water to the motor.

4. In an aerial machine, the combination with a plurality of sheets, of a cooling device for the circulation water of the motor comprising a series of interconnected cooling and circulation members arranged on each sheet, the latter forming a common wall for the members, and a pair of tanks, one of which serves as a reservoir on and connected to the admission side of the cooling device and the other of which serves as a reservoir on and connected to the escape side of the cooling device.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LOUIS BLÉRIOT.

Witnesses:
H. C. Coxe,
Armand Rane.