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P. PETERSON
AERIAL PROPULSION
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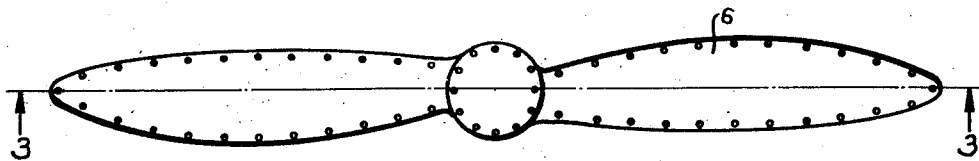


Fig. 1

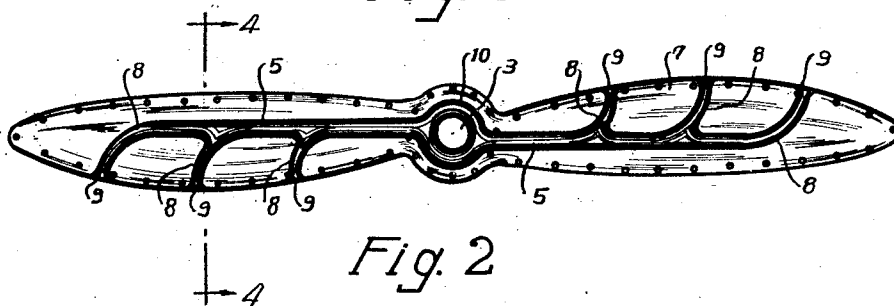


Fig. 2

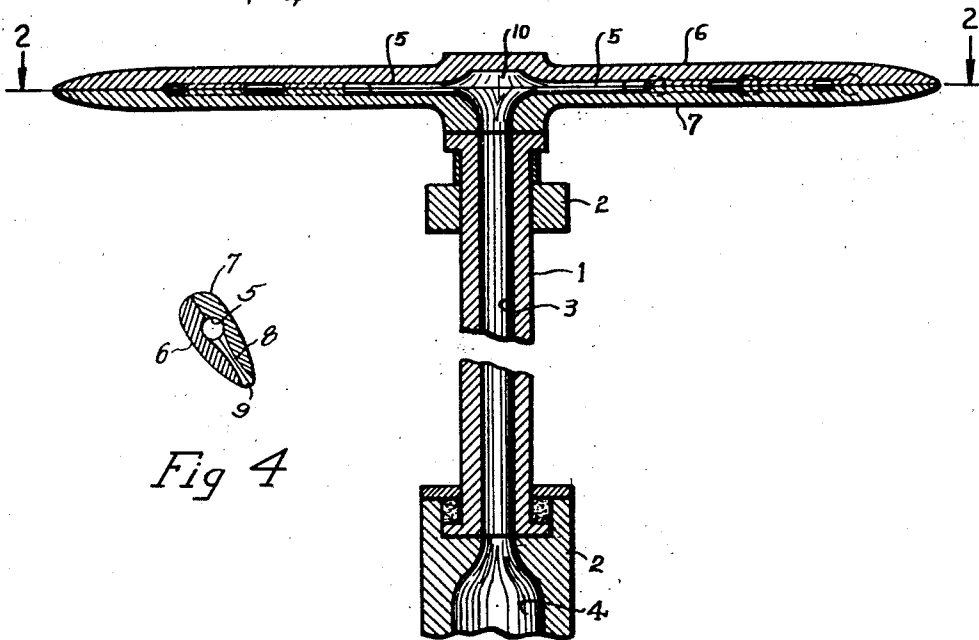


Fig. 3

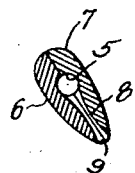


Fig. 4

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AERIAL PROPULSION.

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This invention relates to aeronautics and more particularly to the construction of a propeller and the means for operating the same to be applied in aerial propulsion.

5 With the developments of the gas engine it became possible on account of the light weight of the engine proper and fuel therefor to successfully operate flying machines of both heavier than air, and lighter than
10 air types. Both of these types of flying machines have become highly developed with the use of the gas engine but an electric ignition system is required as a part of their means of propulsion.

15 An aeroplane depending upon the ignition system of its engine for the operation of its propelling means becomes useless and dangerous should anything happen to the ignition system to cause it to fail to function
20 properly. The army aeroplane has become a recognized unit for both combat and defense purposes in the armies of the world, and a recent discovery in the electrical art has made it possible to disorganize or render
25 inoperative ignition system such as employed in the present day aeroplanes, the effect of which can be transmitted to a great distance and in time of war would render aeroplanes employing the present type of
30 gas engine with ignition system, unable to operate against the possessor of such new discovery.

It is an object of this invention to provide a means for propelling aeroplanes which
35 will operate independently of electric ignition, or other employment of electrical power, so that an aeroplane equipped with this invention will not be affected in its operation by any means which would ordinarily affect an aeroplane driven by a power
40 depending upon some form of electricity in its propelling means.

With the development of the gas engine in the automobile industry, the steam engine has also been reduced in weight and
45 with the present day water tube boiler producing steam from an oil or hydrocarbon flame the weight of the fuel required for the operation of such a steam engine has been correspondingly greatly reduced. This
50 invention contemplates the employment of an oil burning steam engine for producing the power required to operate an aeroplane of either lighter than air or heavier than
55 air type.

While the preferred form of this inven-

tion is illustrated upon the accompanying set of drawings, yet it is to be understood that minor detail changes may be made therein without departing from the scope
60 thereof.

Figure 1 is a view in side elevation of a preferred form of aeroplane propeller constructed in accordance with this invention.

Figure 2 is a similar view with the outer
65 blade removed.

Figure 3 is a central horizontal sectional view taken on the line 3—3 of Figure 1, with parts broken away, and illustrating the connections between the propeller and the
70 source of driving power.

Figure 4 is a view in transverse section taken upon the line 4—4 on Figure 2.

This invention contemplates the omission of the conventional steam engine employing
75 pistons reciprocating in steam cylinders for applying power to the driving shaft of the propeller by utilizing steam under high pressure to apply the driving power directly to the propeller. In carrying out this inven-
80 tion, the shaft 1 carrying the propeller is mounted in the customary bearings 2 upon the framework of the aeroplane and is formed with a central passage 3 there-
85 through, the inner or end farthest from the propeller being directly connected to the source 4 of steam under high pressure. The propeller carried on the free end of the shaft is of the conventional approved form and it is preferably made of metal having
90 a central hollow portion 5 connecting with the central bore 3 in the driving shaft and extending into each blade. It is preferable to construct the propeller of two plates, 6
95 and 7, as shown in Figures 2 and 3, secured to each other with steam tight joints by the use of gaskets or other packing, not shown, and held together with series of bolts about the periphery of the plates and hub. The
100 conduits or hollow portions 5 in communication with the source of steam under high pressure through the propeller shaft are preferably constructed in the manner shown in Figure 2, that is, the conduit in each
105 blade being provided with a plurality of tangential branches 8 extending through the rear edge of each blade. These tangential branches are reduced in cross section as they approach the edge of the blade and are then provided with enlarging funnel shaped dis-
110 charge openings 9 to the atmosphere, forming steam nozzles, whereby the impact of the

steam under high pressure against the surrounding atmosphere will impart rotation to the propeller blades of sufficient rapidity to propel the aeroplane in the manner desired.

5 It is preferable to construct the conduits 5 and branches 8 circular in cross section and to taper the conduits slightly as they progress outward away from the cylindrical
10 chamber 10 in the hub of the propeller communicating with the bore of the hollow driving shaft, and each of the tangential branches are preferably decreased in diameter toward the nozzles 9 in such a relation
15 that the steam will issue therefrom at substantially the same pressure from each nozzle,

and the branches are arranged tangential to the main conduit 5 in order that there be as little resistance as possible offered to the passage of the steam therethrough.

What I claim is:

An aeroplane propeller comprising two separable plates secured to each other having a steam conduit in each blade and a chamber in the hub closed on one side and
25 adapted to open into the propeller shaft on the other, and tangential branches from said conduits leading to the rear edges of the propeller blades each having a restricted portion opening into an enlarging funnel discharge nozzle on the edge of the blade.

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