J. COWLEY AND R. C. DILS.

AUXILIARY POWER DEVICE.

APPLICATION FILED FEB. 6, 1918.

1,344,582. Patented June 22, 1920.

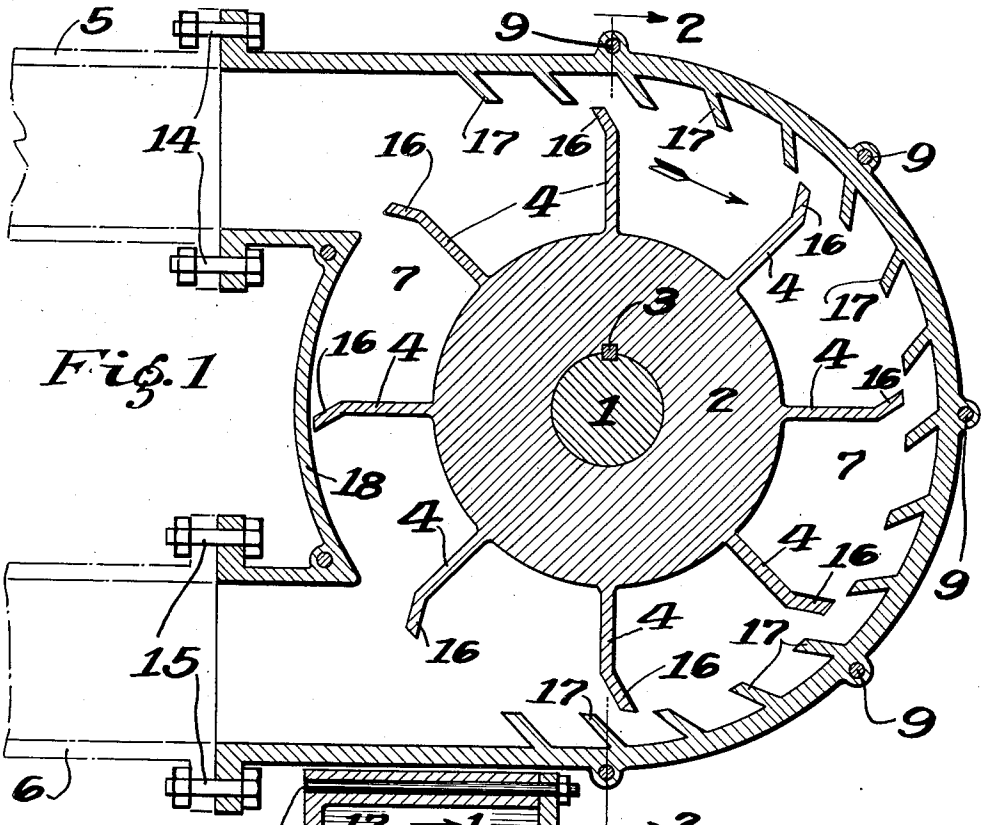


Fig. 1

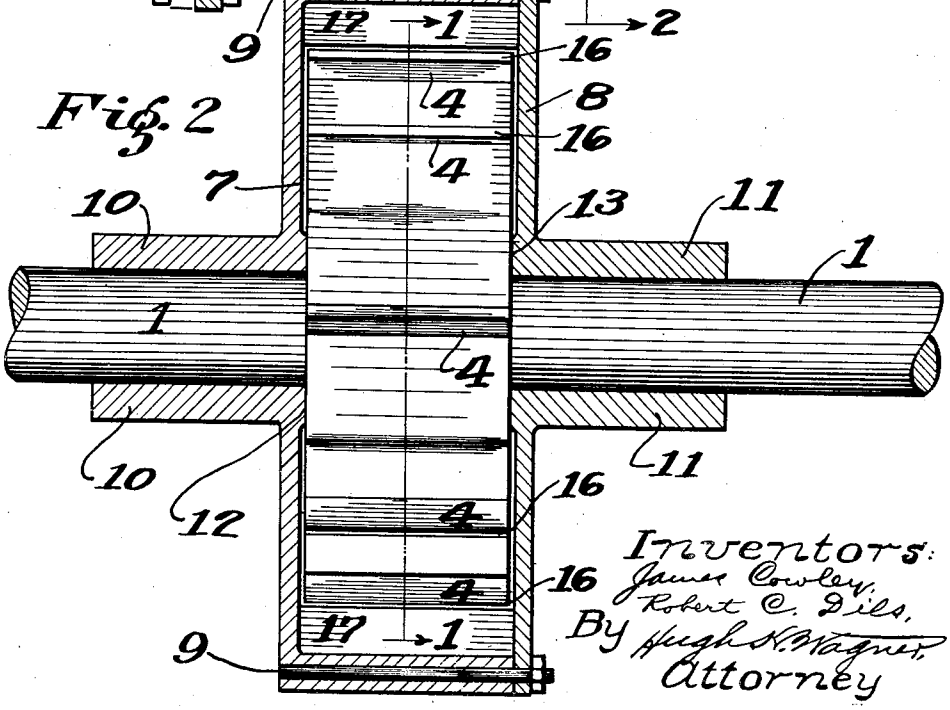


Fig. 2

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UNITED STATES PATENT OFFICE.

JAMES COWLEY AND ROBERT C. DILS, OF ST. LOUIS, MISSOURI.

AUXILIARY-POWER DEVICE.

1,344,582. Specification of Letters Patent. Patented June 22, 1920.

Application filed February 6, 1918. Serial No. 215,692.

To all whom it may concern:

Be it known that we, JAMES COWLEY and ROBERT C. DILS, citizens of the United States, residing at the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Auxiliary-Power Devices, of which the following is a specification.

This invention relates to internal combustion engines, and has for its object the utilization of the escape of the products of combustion through the exhaust for the purpose of increasing the power of the engine. This is accomplished by mounting a turbine (preferably of the direct impulse type) upon or in connection with the main drive-shaft and by locating the said turbine in the path of travel of the said gases between the exhaust pipe and the exhaust outlet or in the said exhaust pipe.

In the accompanying drawings, forming part of this specification, in which like numbers of reference denote like parts wherever they occur,

Figure 1 is a sectional view on the line 1—1 in Fig. 2; and

Fig. 2 is a sectional view on the line 2—2 in Fig. 1.

Upon the main drive-shaft 1 of the engine (or any other shaft to be driven) is mounted a rotary member 2, which is preferably keyed or splined thereto, as at 3.

The said rotary member 2 is provided with wings 4, which project outwardly therefrom and into the path of travel between exhaust pipe 5 and exhaust outlet 6, or between two parts of the said exhaust pipe.

A housing 7 incloses the said member 2 and its wings 4, a cap 8 being attached thereto by screw-studs 9. Shaft 1 loosely revolves within sleeves 10 and 11, the bosses 12 and 13 of which, respectively, closely engage the sides of member 2.

The housing 7 is attached to exhaust pipe 5 by bolts 14 and to exhaust outlet 6 by bolts 15 in the way shown in the drawings or in any other suitable manner.

Each wing 4 is provided with a bent portion 16, in order that the gases in exhausting will more firmly grip the said wings. Baffle-plates 17 prevent the return of the said gases and direct them forward in the direction shown by the arrow in Fig. 1, thus pressing on wings or blades 4 and forcing the rotation of member 2 and with it shaft 1. As shaft 1 is otherwise propelled this gives an increase of power. There is barely clearance between baffle-plates 17 and the bent parts 16 of wings 4. This is true as between the said parts 16 and the part 18 of the housing 7, which close fit at the point 18 prevents back-pressure upon the engine.

The gases are expelled with considerable force from the cylinders of the engine into pipe 5, and this force adapts the same to propel the rotatable member 2.

Having thus described this invention, we hereby reserve the benefit of all changes in form, arrangement, order, or use of parts, as it is evident that many minor changes may be made therein without departing from the spirit of this invention or the scope of the following claim.

We claim:

In combination with an engine-exhaust outlet, an exhaust delivery element, a housing having an inlet and an outlet communicating with said exhaust delivery, said inlet and exhaust being located on the same wall of the housing, a shaft having connection with the engine, a turbine in the housing and mounted on said shaft carrying radial peripherally disposed blades having their outer portions disposed rearwardly, the opposite sides of the housing having bearing bosses on their inner sides for spacing the blades slightly from the adjacent portions of said housing sides, forwardly-disposed oblique blades carried on the rear wall of the housing starting at a point in proximity to the inlet and finishing at a point in proximity to said outlet and adapted for coöperation with the blades of the turbine for insuring passage of the exhaust gases in but one direction, the forward wall of the housing being arranged rearwardly of the outlet and affording only sufficient clearance for the blades on the turbine to allow free rotation of the latter, whereby to prevent return of exhaust gases and the resultant back pressure on the engine.

In testimony whereof we hereunto affix our signatures.

JAMES COWLEY.
ROBERT C. DILS.