

No. 810,366.

PATENTED JAN. 16, 1906.

P. BARTOLETTI.
ROTARY EXPLOSION ENGINE.

APPLICATION FILED FEB. 3, 1905.

2 SHEETS—SHEET 1.

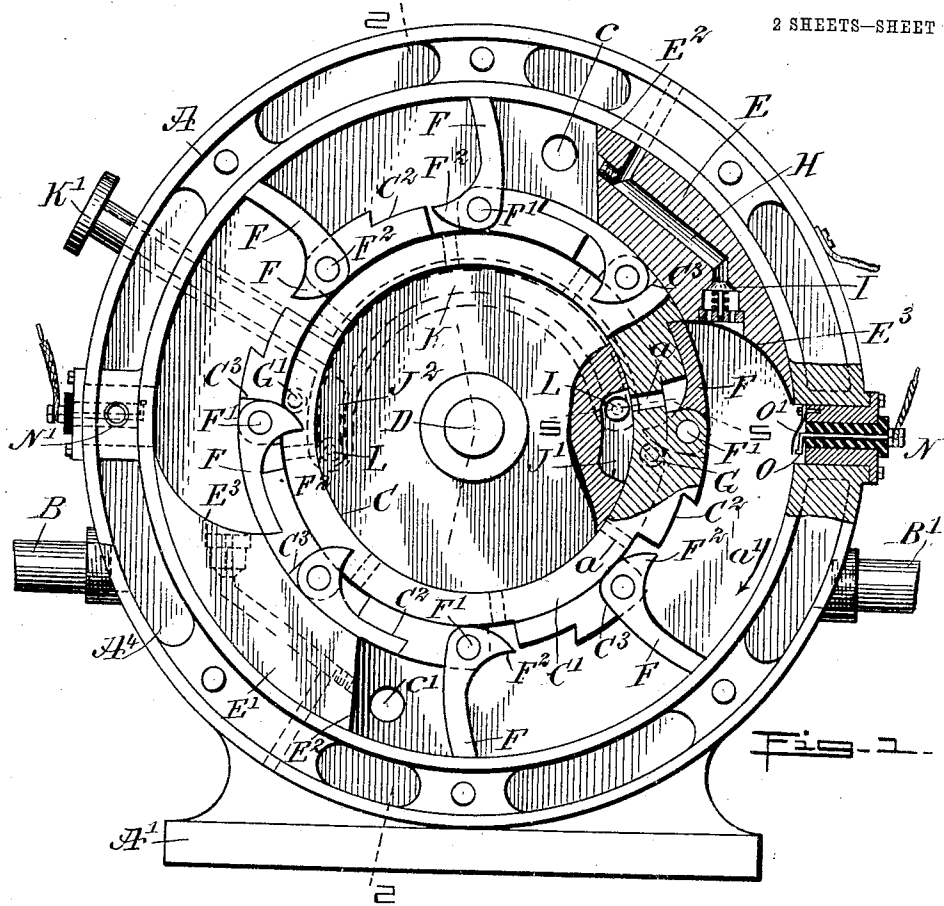


Fig. 1

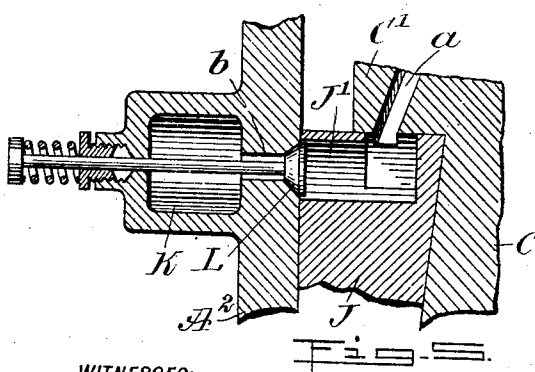


Fig. 5

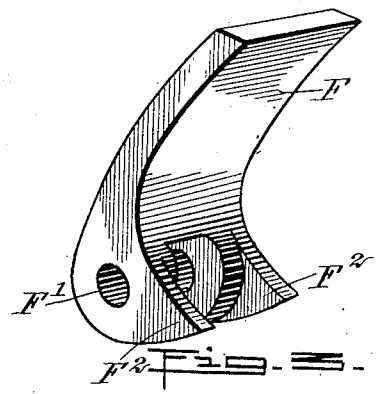


Fig. 6

WITNESSES:
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Resy. Hostin

INVENTOR
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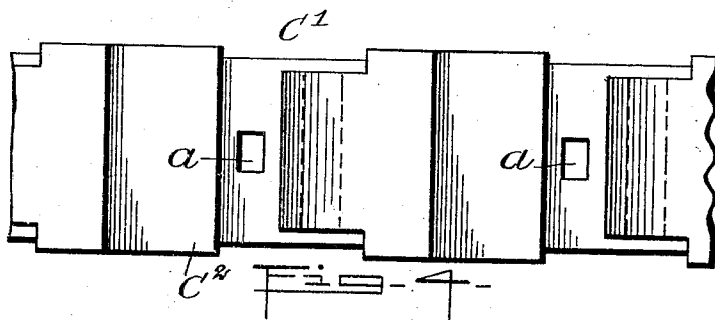
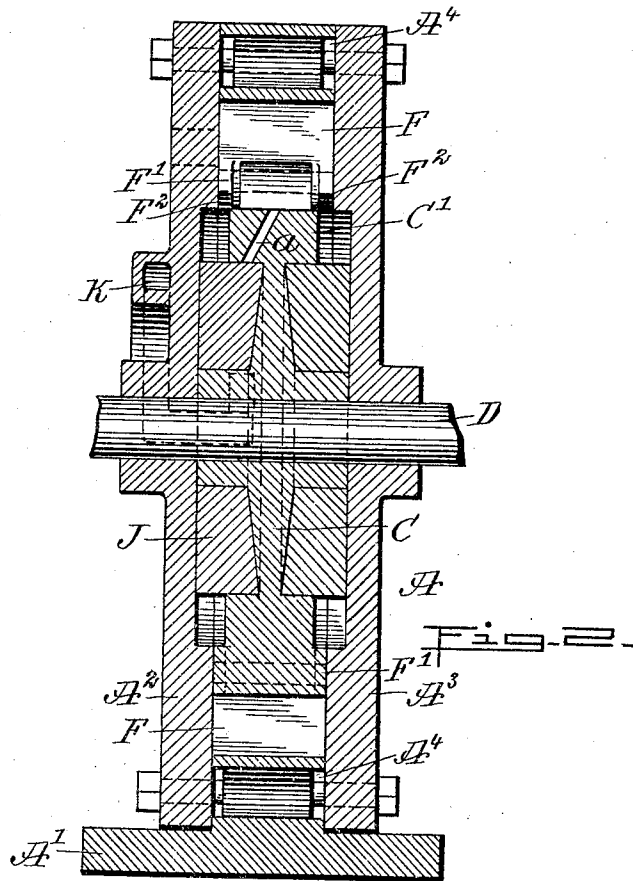
BY *Mum*
ATTORNEYS

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2 SHEETS—SHEET 2.



WITNESSES:
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UNITED STATES PATENT OFFICE.

PETER BARTOLETTI, OF BROWNSVILLE, PENNSYLVANIA.

ROTARY EXPLOSION-ENGINE.

No. 810,366.

Specification of Letters Patent.

Patented Jan. 16, 1906.

Application filed February 3, 1905. Serial No. 243,990.

To all whom it may concern:

Be it known that I, PETER BARTOLETTI, a subject of the King of Italy, and a resident of Brownsville, in the county of Fayette and State of Pennsylvania, have invented a new and Improved Rotary Explosion-Engine, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved rotary explosion-engine arranged to give impulses in quick succession to the piston-heads of the engine with a view to impart a continuous, powerful, and uniform rotary motion to the piston.

The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is an end elevation of the improvement, one of the cylinder-heads being removed and parts being in section. Fig. 2 is a longitudinal sectional elevation of the same on the line 2 2 of Fig. 1. Fig. 3 is a perspective view of one of the piston-heads. Fig. 4 is a plan view of part of the piston, the heads being removed; and Fig. 5 is a sectional plan view of the gas admission, the section being on the line 5 5 of Fig. 1.

The cylinder A of the engine is provided with a base A', cylinder-heads A² and A³, and an annular water-jacket A⁴, connected by a pipe B with a water-supply and connected by a pipe B' with a suitable place of discharge, so that water can circulate through the water-jacket to keep the cylinder cool. In the cylinder A is mounted to turn concentrically a piston C, secured on a shaft D, journaled in suitable bearings in the heads A² and A³ of the cylinder, the shaft being connected in the usual manner with the machinery to be driven.

Within the cylinder A are arranged oppositely-disposed abutments E and E', reaching with their inner ends in contact with the peripheral face of the rim C' of the piston C, and one side E² of each abutment is in the form of an incline and the other or forward side E³ is curved to permit an opening or outward-swinging movement of piston-heads F, fulcramed at F' on the rim C' of the piston C, as plainly illustrated in the drawings.

Each of the piston-heads F is adapted to fold into a recess C², formed in the peripheral face of the rim C', and each piston-head F when swung into an outward or radial position abuts against a shoulder C³ on the rim C' to prevent further opening of the piston-head at the time the outer end thereof is in contact with the inner face of the cylinder A. Each of the piston-heads F is provided at its pivotal portion with heels F², adapted to engage friction-rollers G and G', journaled on the cylinder-heads A² and A³ and located somewhat in advance of the abutments E and E', so that the piston-head F when in a folded position and passing the corresponding abutment E or E' moves with its heels F² in engagement with the corresponding friction-roller G or G', so that the piston-head is swung into an open position immediately in advance of the corresponding abutment E or E'.

In each of the abutments E and E' is arranged an air admission H, extending through the rim of the cylinder A to the outside thereof, and the said air admission H opens into the cylinder A at the forward side E³ of the corresponding abutment E or E'. A check-valve I is arranged in the air admission H to prevent return or outward flow of the gaseous mixture in front of the abutment whenever an explosion takes place.

Gas-chests J are arranged in the cylinder A and are secured to the inner faces of the cylinder-heads A² and A³, the said chests extending under the rim C' of the piston C, the said chests having gas-chambers J' and J², adapted to connect with ports a, formed in the rim C' of the piston C, and opening into the cylinder A at the pivotal ends of the piston-heads F, it being understood that the chambers J' and J² are arranged in advance of the abutments E and E', so that when a port a moves in register with the corresponding chamber J' or J² then gas can pass from this chamber into the cylinder at the time the corresponding cylinder-head F swings into an open position by the action of its heel F² on the friction-roller G or G'. The chambers J' and J² are connected by ports b with a gas-supply chamber K, formed on the cylinder-head A², and this chamber K is connected by a pipe K' with a suitable gas-supply. A check-valve L controls the port b, so as to prevent a return-flow of the gas from the chamber J' to the chamber K when the explosion takes place.

When the engine is in-operation, gas passes

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 into the cylinder in advance of the abutment E or E' by way of the corresponding chamber J' or J² and registering port *a* and air passes into the cylinder to this gas by way of the air admission H, so that an explosive mixture is formed in advance of the abutment E or E' at the time the corresponding piston-head F swings into an open position, and thereby creates sufficient vacuum to draw in the gas and the air behind. In order to ignite this gaseous mixture in the rear of the corresponding piston-head at each abutment E or E', igniting devices N and N' are provided, held in the rim of the cylinder immediately in advance of the forward ends E³ of the abutments E and E'. Each igniting device is in the form of a sparking plug having contacts O and O', of which the contact O' is flexible and normally out of engagement with the contact O, but adapted to be thrown into engagement with the contact O by the piston-head F swinging into an outermost open position when coming in contact with the friction-roller G or G'. When the piston C rotates and the piston-head F finally leaves the contact O', then the latter separates from the fixed contact O, thus producing a spark in the rear of the piston-head F and within the explosive mixture, so that the latter is ignited to give an impulse to the corresponding piston-head F to rotate the piston in the direction of the arrow *a'*.

From the cylinder A lead exhausts *c* and *c'* immediately in the rear of the abutments E and E', so that the products of combustion can pass out of the cylinder immediately previous to the piston-heads F swinging into a closed position when coming in contact at their free ends with the inclined sides E² of the abutments E and E'.

The operation is as follows: When the several parts are in the position illustrated in Fig. 1, then the closed piston-heads F just leaving the abutments E and E' come in contact with the friction-rollers G and G' for the piston-heads to open. At the same time the corresponding ports *a* register with the gas-chambers J' and J², so that gas can pass into the cylinder A from the said chambers immediately in the rear of the opening piston-heads F, and at the same time air passes into the cylinder A and mixes with the said gas to produce explosive mixtures. Each of the explosive mixtures is ignited by the spark from the igniting devices N and N' as soon as the piston-heads F pass the flexible contact O', so that impulses are given to the said piston-heads to rotate the piston in the direction of the arrow *a'*. This operation is repeated for each set of piston-heads as they leave the abutments E and E', so that continuous impulses are given in quick succession to the piston-heads to impart a continuous, powerful, and uniform rotary motion to the piston B and the shaft D.

The products of combustion between adjacent piston-heads are discharged from the cylinder A by way of the exhausts *c* and *c'*, it being understood that at least two of the piston-heads are in an open or outermost position between the abutments E and E' to allow the proper exhaust without interference with the explosive mixture to be ignited at the time.

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

1. A rotary explosion-engine comprising a cylinder, a piston mounted to turn concentrically therein, an abutment in the cylinder, between the peripheral face of the piston and the inner face of the cylinder, piston-heads fulcrumed on the said piston and adapted to fold into recesses in the said peripheral face of the piston, means for opening the piston-heads after passing the abutment, an air admission in the abutment, opening into the cylinder at the forward end of the abutment, and a gas-supply chest held in the cylinder, within the rim of the said piston, somewhat in advance of the said abutment, the said piston having ports adapted to register with the said chest.

2. A rotary explosion-engine comprising a cylinder, a piston mounted to turn concentrically therein, an abutment in the cylinder, between the peripheral face of the piston and the inner face of the cylinder, piston-heads fulcrumed on the said piston and adapted to fold into recesses in the said peripheral face of the piston, means for opening the piston-heads after passing the abutment, an air admission in the abutment, opening into the cylinder at the forward end of the abutment, and a gas-supply chest held in the cylinder, within the rim of the said piston, somewhat in advance of the said abutment, the said piston having ports adapted to register with the said chest, the ports being located in the rear of the pivotal ends of the piston-heads.

3. A rotary explosion-engine comprising a cylinder, a piston mounted to turn concentrically therein, an abutment in the cylinder, between the peripheral face of the piston and the inner face of the cylinder, piston-heads fulcrumed on the said piston and adapted to fold into recesses in the said peripheral face of the piston, means for opening the piston-heads after passing the abutment, an air admission in the abutment, opening into the cylinder at the forward end of the abutment, a gas-supply chest held in the cylinder, within the rim of the said piston, somewhat in advance of the said abutment, the said piston having ports adapted to register with the said chest, and an electric igniting device extending into the cylinder, in advance of the said abutment, the said igniting device having contacts adapted to be closed by the said piston-heads.

4. A rotary explosion-engine comprising a cylinder, a piston mounted to turn concentrically therein, an abutment in the cylinder, between the peripheral face of the piston and the inner face of the cylinder, piston-heads fulcrumed on the said piston and adapted to fold into recesses in the said peripheral face of the piston, means for opening the piston-heads after passing the abutment, an air admission in the abutment, opening into the cylinder at the forward end of the abutment, a gas-supply chest held in the cylinder, within the rim of the said piston, somewhat in advance of the said abutment, the said piston having ports adapted to register with the said chest, and check-valves for the said air admission and the said gas-supply chest.

5. A rotary explosion-engine comprising a cylinder provided with a plurality of spaced abutments, a piston mounted to turn concentrically in the said cylinder and provided

with piston-heads fulcrumed on the rim of the piston and adapted to fold into recesses in the rim on coming in contact with the abutments, means for opening the piston-heads on leaving the abutments, an igniting device in front of each abutment, an exhaust in the rear of each abutment, a valved air admission in each abutment, and a gas-supply chest in the cylinder, provided with spaced connected chambers arranged in advance of the abutments, the said piston having ports in the rear of the piston-heads and adapted to register with the said chambers.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PETER BARTOLETTI.

Witnesses:

THEO. G. HOSTER,
EVERARD BOLTON MARSHALL.