A. PEUGEOT, T. HUBER & H. DE LOSTALOT.

TWO-STROKE CYCLE MOTOR.

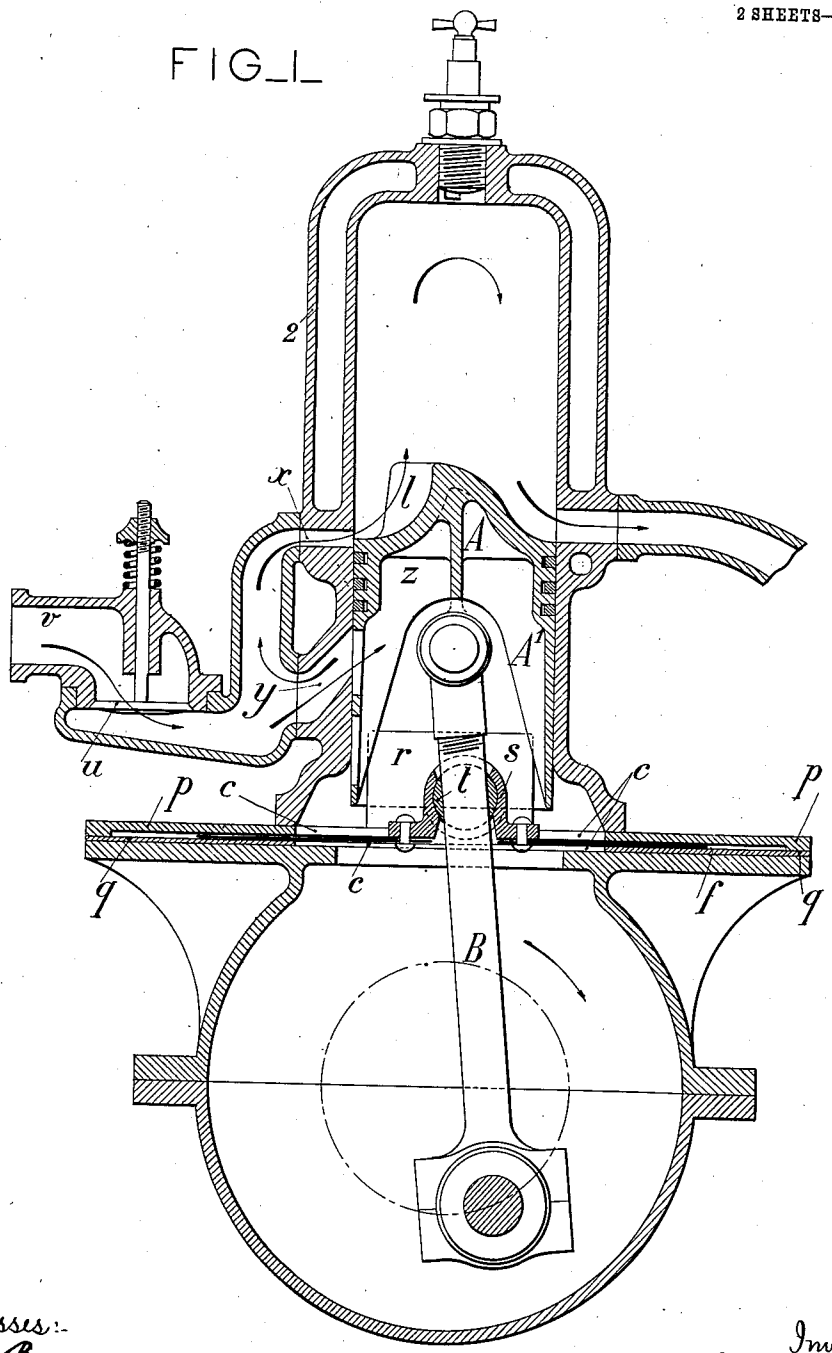
APPLICATION FILED FEB. 10, 1908.

961,315.

Patented June 14, 1910.

2 SHEETS—SHEET 1.

FIG_1_



Witnesses:-
M.B. Raymond
L. Basset

Inventors
Armand Peugeot
Tony Huber
Henri de Lostalot
by Osmmnx
their Attorneys

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2 SHEETS—SHEET 2.

FIG_2_

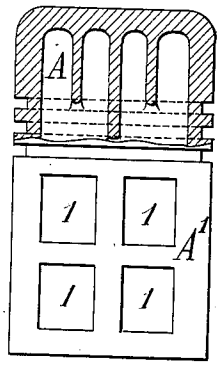


FIG_3_

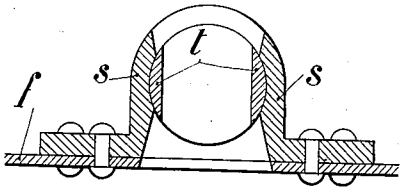


FIG_4_

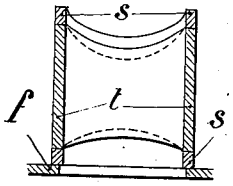


FIG_6_

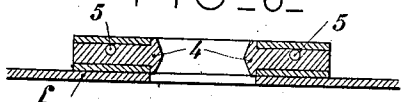


FIG_5_

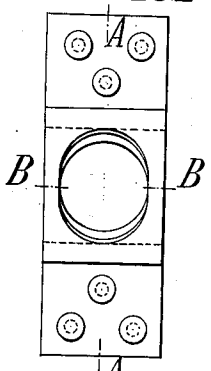


FIG_7_

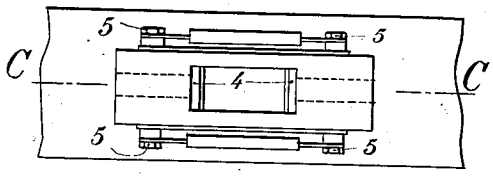


FIG_8_

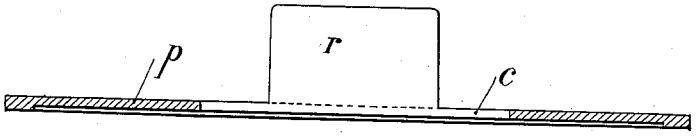


FIG_9_

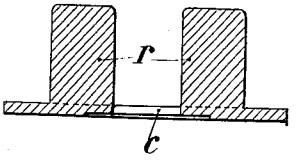
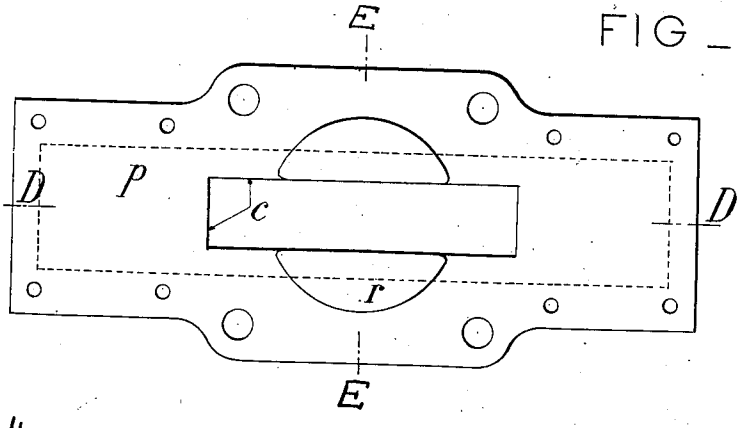


FIG_10_



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Tony Huber
Henri de Lostalot
by
their Attorney

UNITED STATES PATENT OFFICE.

ARMAND PEUGEOT, TONY HUBER, AND HENRI DE LOSTALOT, OF BILLANCOURT, FRANCE.

TWO-STROKE CYCLE-MOTOR.

961,315. Specification of Letters Patent. **Patented June 14, 1910.**

Application filed February 10, 1908. Serial No. 415,144.

To all whom it may concern:

Be it known that we, ARMAND PEUGEOT, TONY HUBER, and HENRI DE LOSTALOT, citizens of the Republic of France, residing at 56 Rue du Vieux Pont de Sèvres, Billancourt, Seine, in the Republic of France, have invented certain new and useful Improvements in Two-Stroke Cycle-Motors, of which the following is a specification.

This invention relates to improvements in two stroke cycle motors of the kind in which the cylinder is closed by a sliding shutter which allows the connecting rod to be articulated directly to the piston while utilizing the capacity of the cylinder between the piston and the sliding shutter as a compression chamber for the fresh gas.

One of the improvements consists in arranging on the supports of the sliding closure, interposed between the cylinder and casing two fixed metal bodies which reduce the capacity of the chamber formed between the piston at its bottom position and the said slide. By this means, a better initial compression of the fresh gases admitted is obtained without supplementary mechanism, which insures a more rapid and complete evacuation of the burned gases and at the same time an increase in the volume of fresh gas admitted per stroke.

Another improvement consists in insuring the preliminary admission of the fresh gases directly into the hollow piston, which is done by means of an inclined passage which conducts the gases through apertures arranged in series in the lateral wall of the tubular prolongation of the piston. By preventing the admission of the gas at the lower edge of the piston, the sliding closure can be arranged immediately below the piston when in its lowest position. Consequently the capacity of the preliminary compression chamber is further reduced and waste spaces are avoided. Moreover, the arrangement of this passage is such that the fresh gases are directly projected under the upper face of the piston, and energetically cool the said piston and render it quite practicable to use aluminium or analogous metal for the piston.

By these improvements the efficiency of the motor is appreciably increased.

The motor can be further simplified by substituting for the rotary joint, which makes a tight passage for the rod through the sliding closure, a plane, sliding joint in which the parts liable to be worn are easily replaceable.

The annexed drawing illustrates the invention, in which—

Figure 1 is a section of the entire motor. Fig. 2 shows the piston, partly in section and partly in elevation; Fig. 3 is a section of the rotary joint, on the line A A of Fig. 5. Fig. 4 is a section of the rotary joint on the line B B of Fig. 5. Fig. 5 is a plan view of the rotary joint. Fig. 6 is a section of the plane, sliding joint on the line C C of Fig. 7. Fig. 7 is a plan of the plane, sliding joint. Figs. 8 and 9 are sections of the supporting plate of the sliding closure, on the lines D D and E E of Fig. 10 respectively. Fig. 10 is a plan of the supporting plate of the sliding closure.

The supporting plates p and q form a kind of flat box in which the sliding plate f is movable, which is thus perfectly guided; the said plates each have a rectangular slot c which allows of the movements of the rod B. On the plate p, cast integral therewith, two metallic bodies r are so arranged as to partly fill the interior of the casing A^1 when the piston A is in its lower position. On the plate f is riveted the casing s which incloses the boss t in which oscillates the rod B. The plate p is thus situated immediately below the lower edge of the piston when in its lowest position, leaving between the two a very small clearance. The supply of gases entering at v is controlled by an automatically opening admission valve u; and is divided passing through two passages x and y, one of which opens obliquely into the cylinder. The piston is provided with a projection l and with ribs z, which greatly facilitate the cooling thereof. The piston wall A^1 has apertures 1 so arranged that at the proper moment they arrive opposite the orifice of the passage y in the cylinder. In the example shown in the drawing, the cylinder is provided with a double casing 2 for the circulation of water for cooling. The action is the same as with the known construction but the results sought for are obtained in a more complete manner. Owing to the reduction of the preliminary compression chamber, owing to the provision of the bodies r and from the close arrangement of the sliding closure relatively to the lower edge of the piston in its lowest position a

better initial compression is obtained and consequently a better evacuation of the burned gases, and a larger volume of gas admitted per stroke. Moreover the method of introduction of the fresh gas into the piston insures the energetic cooling of the same and allows of the entirely practical utilization of pistons of aluminium or metal having analogous properties. Finally, the lightness and simplicity of the motor may be increased as has been stated, by using instead of the rotary joint shown in Figs. 1, 3, 4, 5, the plane, sliding joint shown in Figs. 6 and 7.

With this device the connecting rod of rectangular cross-section used bears against both heads of V-shaped surface of two small pieces 4 easily removable and replaceable in case of wear, for which purpose it is sufficient to unscrew and remove the bolts and screws 5 which hold them. The rod being constantly in contact with these pieces during its movement, the joint, though, of simple construction is very tight. Instead of the flat joint, the cylindrical joint *t* moving in the cylindrical bearing *s* can be used.

Having now described our invention, what we claim as new and desire to secure by Letters Patent is:

In a motor of the character described, the combination with a vertical cylinder, of an apertured piston adapted to divide the same into a compression chamber and an explosion chamber, there being a horizontal admission port leading to the explosion chamber and an upwardly inclined port leading to, and serving as an inlet and outlet for, the compression chamber, said inclined port being adapted to direct gases entering the compression chamber through the apertures in the piston against the piston on the suction stroke of the latter, means whereby said ports communicate and are adapted to transfer gases from the compression chamber to the explosion chamber, a pair of superposed supporting plates at the lower end of said cylinder, a pair of filler blocks mounted on the upper supporting plate and projecting into the cylinder, a plate mounted to slide between said supporting plates, a casing fixed to said sliding plate, a boss rotatable in said casing, and a connecting rod pivoted to the piston and passing through the boss.

In testimony whereof we have affixed our signatures in presence of two witnesses.

ARMAND PEUGEOT.
TONY HUBER.
HENRI DE LOSTALOT.

Witnesses:
H. C. COXE,
ANTOINE LAVOIS.