

N^o 16,270



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Date of Application, 13th Aug., 1901

Complete Specification Left, 1st Mar., 1902—Accepted, 13th Aug., 1902

PROVISIONAL SPECIFICATION.

“Improvements relating to Explosion Motors”

I, CHARLES SCHAUDEL, of 50 Rue de Eurenne, Bordeaux, in the Republic of France, Engineer, do hereby declare the nature of this invention to be as follows:—

This invention relates to an improved explosion motor.

5. In order that the nature of my invention may be understood, I have represented my improved motor in the accompanying drawings, in which:

Figure 1 is a vertical section through the motor, and

Figure 2 is a horizontal section.

10 The motor has a cycle of four phases. It constitutes with its speed changing and clutch mechanism an indeformable block.

It consists essentially of one or more cylinders m in which is displaced a piston c driving by means of a connecting rod b a cranked shaft v which is provided upon one side with a fly wheel n and upon the other with a pinion a^1 constantly meshing with a toothed crown b^1 having twice as many teeth as the pinion a^1 .

15 Owing to the ratio of these gear wheels, the shaft b upon which is fixed the toothed crown b^1 rotates at half the velocity of the crank shaft v ; the object of this arrangement being to utilise this shaft for operating the exhaust valves.

For this purpose the shaft b is provided with one or more cams j k^1 lifting each in rotation a rod actuating the exhaust valves of the motor.

20 The shaft b is square for a portion of its length so that it may carry with it in its rotation, the sleeve carrying the pinions e^1 c^1 . In this sleeve is formed a groove by means of which it may be caused to advance or recede by either causing e^1 to engage with f^1 or c^1 with d by which means the first or the second speed is obtained.

25 The driven pinions f^1 , d are keyed and maintained by the nut g upon the shaft a carrying the male friction cone or disc of aluminium which is bolted upon the disc u of the shaft a . This shaft terminates at one of its extremities in a square upon which is adapted to slide a sleeve m^1 upon one of the faces of which are formed very strong teeth which enter notches formed in
30 the face of the pinion a^1 mounted upon the crank shaft v . In this manner, the crank shaft v and the shaft a which carries the friction disc, are rigidly connected one with the other; this corresponds to the high speed.

Backward travel is obtained by means of a pinion arranged above e^1 , f^1 and which it is only necessary to draw towards the motor in order to cause it to engage
35 with e^1 upon one side and f^1 on the other.

There are therefore three speeds for forward travel and a backward travel which combined with the alteration which may be effected by accelerating or retarding the ignition and by the regulation of the carburation, permit of maintaining the velocity of the friction disc at all the intermediate speeds.

40 The friction cone or disc F is adapted to engage with the female member h fixed upon the sleeve carrying the chain wheel k which drives the rear axle directly.

A spring r lodged within the shaft a maintains the two cones engaged without exerting any thrust upon the shafts, because the effort which it produces
45 upon one side, in exerting traction upon the rod t is cancelled by that which it exerts by pulling upon the nut s of the shaft a .

[Price 8d.]

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Disengagement is effected by means of the part h^1 upon which is fixed a sheet metal pedal and a bronze washer outside the eye e of the gear case.

Upon the eye e of the gear case are cast two inclined planes v^1 , the lower of which is shewn in dotted lines in the drawing. The part h^1 is also furnished with two internal inclined planes which fit in those upon the eye e , so that by depressing the pedal the part h^1 is caused to rotate. The inclined planes mount one upon the other; consequently the friction cone F recedes and disengagement is effected.

When the part h^1 has reached the top of the inclined plane, it is able to continue to rotate without the male friction disc receding; this is utilised in order to produce braking of the friction disc h .

During the disengagement, the thrust of the spring is exerted upon the rod t ; this is compensated for by causing the rod t to pass through the shaft a and bear upon the crank shaft v .

Ignition is effected by means of a contact which constantly rubs upon a lateral face of the pinion b^1 upon which are formed a hollow and a boss which effect the contact for producing ignition in the right hand or left hand cylinders.

Dated this 13th day of August 1901.

HASELTINE, LAKE & Co.

45 Southampton Buildings, London, W.C. Agents for the Applicant.

COMPLETE SPECIFICATION.

"Improvements relating to Explosion Motors"

I, CHARLES SCHAUDEL, of 50 Rue de Eurenne, Bordeaux, in the Republic of France, Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to an improved explosion motor.

In order that the nature of my invention may be readily and clearly understood, I have represented my improved motor in the drawings accompanying my Provisional Specification in which:—

Figure 1 is a vertical section through the motor, and

Figure 2 is a horizontal section partly in elevation.

The motor has a cycle of four phases. It constitutes with its speed changing and clutch mechanism an indeformable block.

It consists essentially of one or more cylinders m in which is displaced a piston c driving by means of a connecting rod b a crank shaft v which is provided upon one side with a fly wheel n and upon the other with a pinion a^1 constantly meshing with a toothed crown b^1 having twice as many teeth as the pinion a^1 .

Owing to the ratio of these gear wheels, the shaft b upon which is fixed the toothed crown b^1 is rotated at half the velocity of the crank shaft v , the object of this arrangement being to utilise this shaft for operating the exhaust valves.

For this purpose the shaft b is provided with one or more cams j k^1 lifting each in rotation a rod actuating the exhaust valves of the motor.

The shaft b is square for a portion of its length so that it may carry with it in its rotation, the sleeve carrying the pinions e^1 c^1 . In this sleeve is formed a groove by means of which it may be caused to advance or recede by either causing e^1 to engage with f^1 or c^1 with d , by which means the first or the second speed is obtained.

The driven pinions f^1 , d are keyed and maintained by the nut g upon the shaft a carrying the male friction cone or disc F^1 of aluminium which is bolted

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upon the disc u of the shaft a . This shaft terminates at one of its extremities in a square portion upon which is adapted to slide a sleeve m^1 upon one of the faces of which are formed very strong teeth which enter notches formed in the face of the pinion a^1 mounted upon the crank shaft v . In this manner, the crank shaft v and the shaft a which carries the friction disc, are rigidly connected one with the other; this corresponds to the high speed.

Backward travel is obtained by means of an intermediate pinion (not shown) arranged between the pinions e^1 f^1 in such a manner that it may becaused to mesh with both these latter at the same time, thus rotating them in the same direction.

There are therefore three speeds for forward travel and a backward travel which combined with the alteration which may be effected by accelerating or retarding the ignition and by the regulation of the carburation, permit of maintaining the velocity of the friction disc at all the intermediate speeds, thus obviating heating, wear in the friction leather, and all abrupt shocks when starting the motor at a low speed. The friction cone F is adapted to engage with the female member h fixed upon the sleeve carrying the chain wheel k .

The spring r presses at one end upon the nut s in the end of the hollow shaft a upon which revolves the chain wheel sleeve and at the other end upon a collar on the rod t revolvably connected with the female member h by the nut o and by this means the two friction members are caused to engage.

The member F rotates constantly with the crank shaft of the motor and in order to effect the disengagement of the two friction members the disc or collar u to which the member F is secured, is provided with the clutch h^1 having two helicoidal inclined planes arranged to contact with the inclined planes v^1 on the gear case. When this mechanism is to be operated the clutch h^1 is rotated by suitable means and thereby caused to engage its inclined surfaces with those on the gear case and when further rotated to draw back the cone r^1 by the disc u ; the spring r being further compressed but the end of rod t coming in contact with the crank shaft, the cone h will be left free.

Ignition is effected by means of a contact which constantly rubs upon a lateral face of the pinion b^1 upon which are formed a hollow and a boss which effect the contact for producing ignition in the right hand or left hand cylinders.

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:—

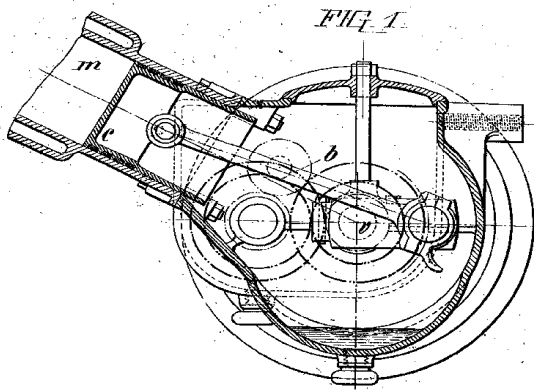
A petroleum motor characterized by the fact that for the purpose of obtaining three different speeds, the shaft a , at one extremity of the crank shaft v , is fitted with a toothed wheel having spur teeth as well as lateral teeth in gear with a clutch sleeve m^1 which also has teeth and is fixed upon the square of the shaft a when necessary to provide the highest speed, and that for obtaining the other two speeds, one displaces on the square b of the shaft operating the exhaust valve, a sleeve fitted with two toothed wheels e^1 e^2 in such a manner as to bring into gear either the wheel e^1 with the toothed wheel f^1 situated on the shaft a , or the wheel e^2 with the toothed wheel d situated on the same shaft a ; the square being actuated by the toothed wheel a^1 which gears constantly with the toothed wheel situated on the shaft b substantially as described.

Dated this 1st day of March 1902.

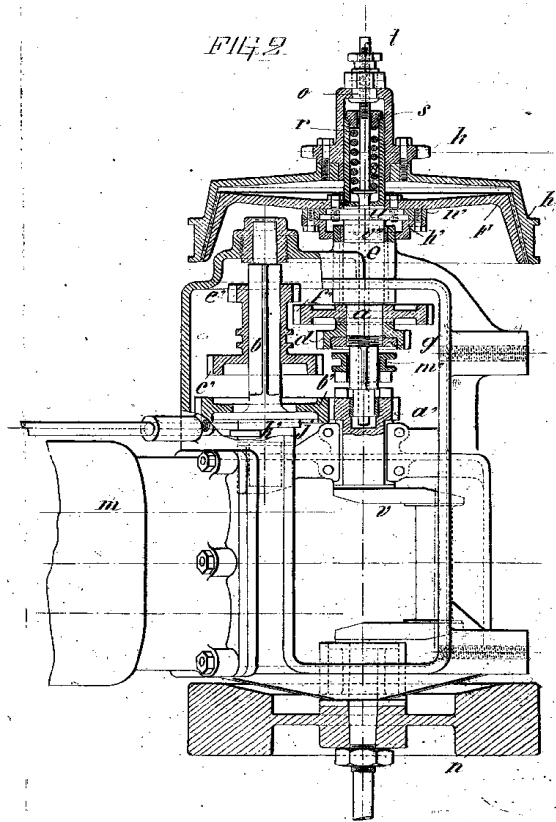
HASELTINE, LAKE & Co.

45 Southampton Buildings, London, W.C. Agents for the Applicant.

SHEET 1.



(2 SHEETS)
SHEET 2.



[This Drawing is a reproduction of the Original on a reduced scale.]

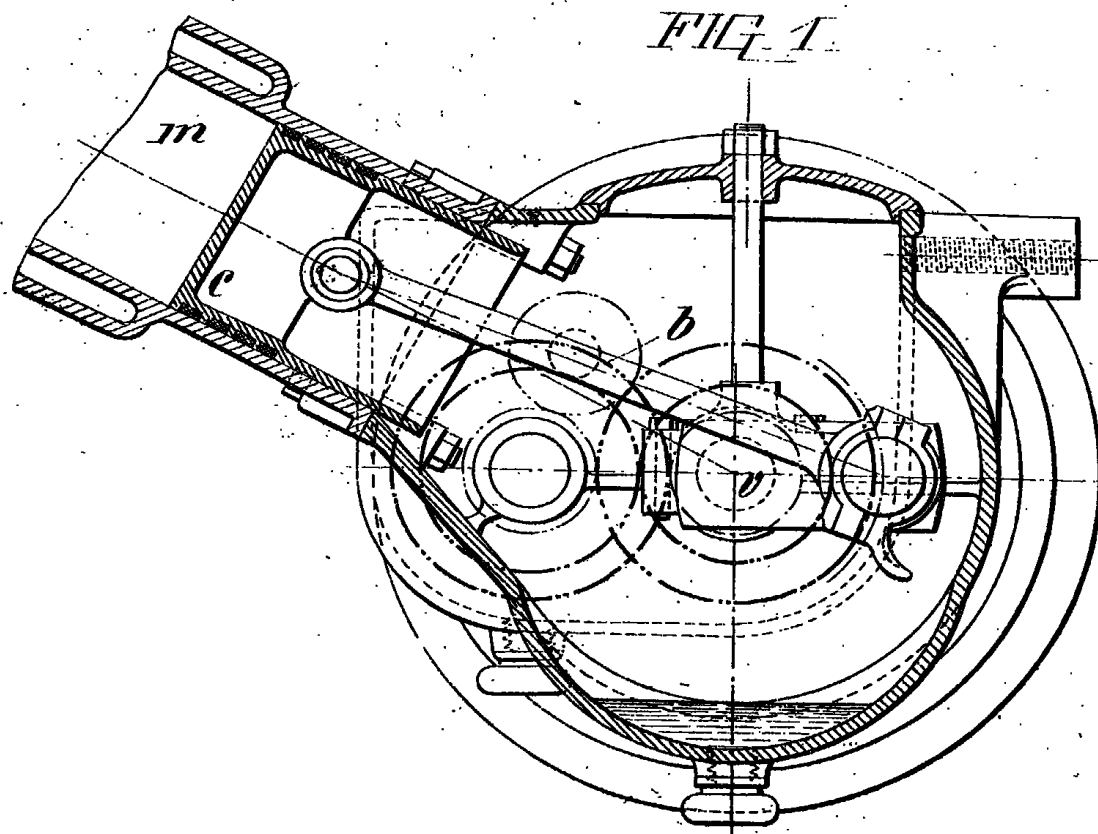
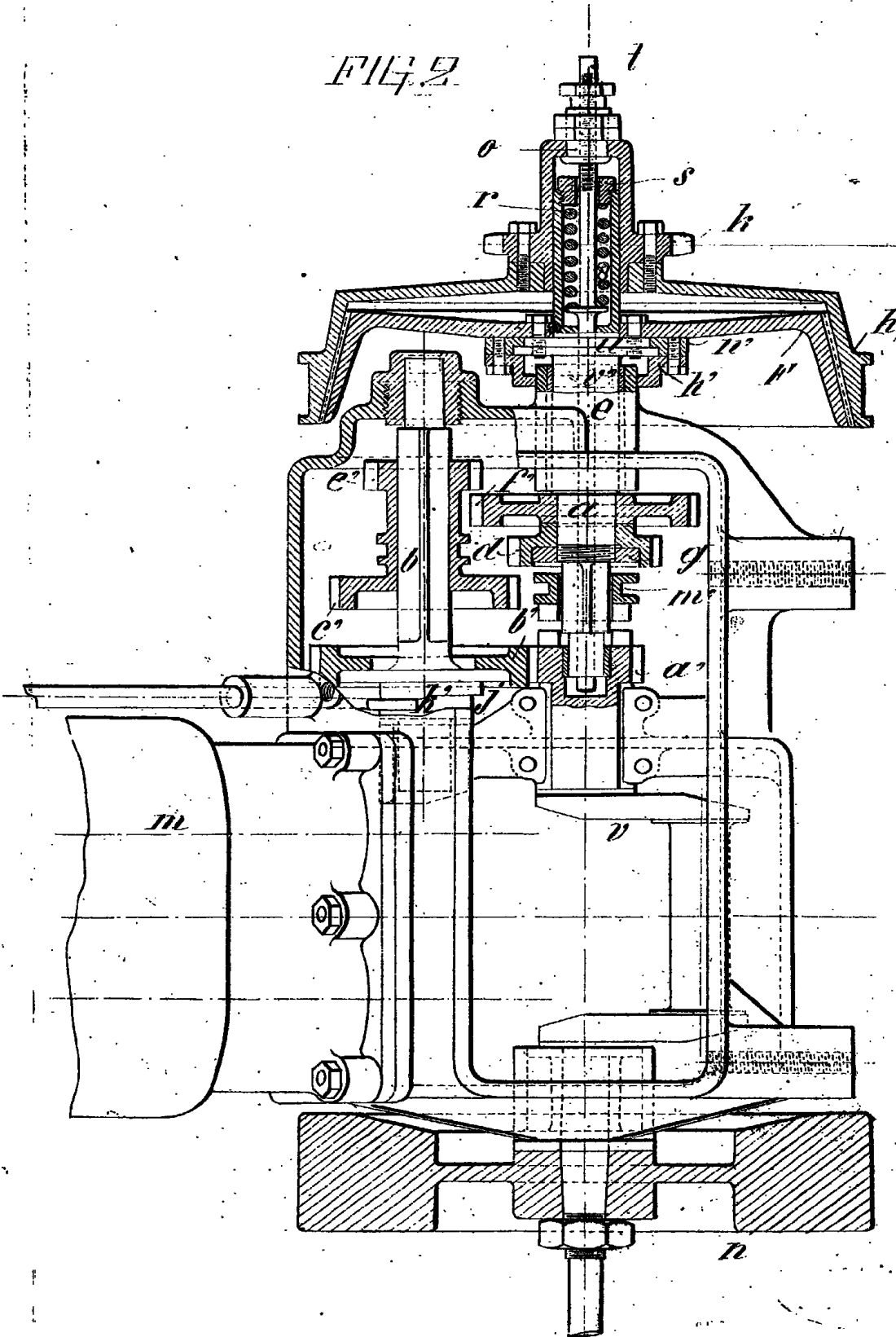


FIG 2



[This Drawing is a reproduction of the Original on a reduced scale]