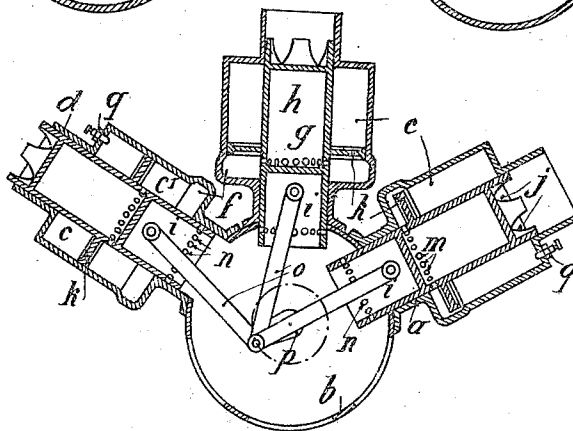
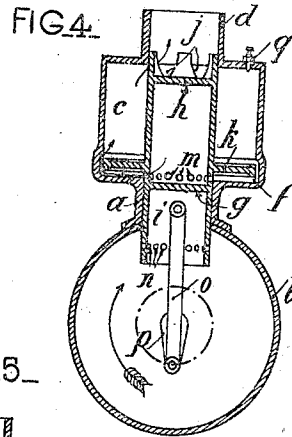
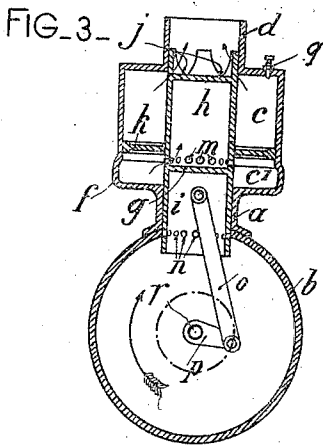
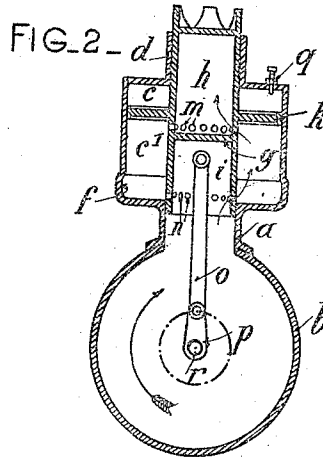
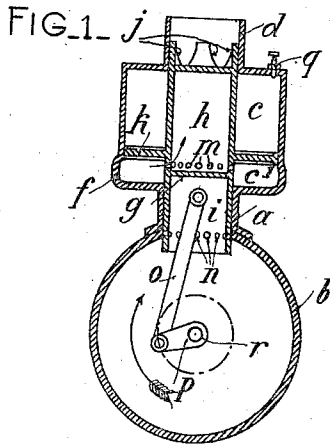


L. L. A. SEGUIN.
EXPLOSION MOTOR.
APPLICATION FILED JUNE 30, 1910.

984,033.

Patented Feb. 14, 1911.



WITNESSES

W. P. Burt
John A. Percival

INVENTOR

Louis Lazare Auguste Seguin
BY John Hallam White

ATTY.

UNITED STATES PATENT OFFICE.

LOUIS LAZARE AUGUSTE SEGUIN, OF PARIS, FRANCE, ASSIGNOR TO SOCIETE DES
MOTEURS GNOME, OF PARIS, FRANCE.

EXPLOSION-MOTOR.

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To all whom it may concern:

Be it known that I, LOUIS LAZARE AUGUSTE SEGUIN, a citizen of France, residing at 49 Rue Laffitte, Paris, in the Republic of France, have invented new and useful Improvements in Explosion-Motors, of which the following is a specification.

This invention relates to improvements in explosion motors.

In the improved motor the distribution is effected by the piston and valves are dispensed with. In the motor, which can naturally comprise any number of cylinders, each cylinder is provided with a middle part or waist of larger bore or internal diameter than the two end parts of said cylinder which is provided with a stepped piston formed by a central tubular part which is guided in the parts of small diameter of the cylinder, and carrying at an intermediate point of its length an exterior annular crown or piston proper, the diameter of which corresponds to the large bore of the cylinder and on which the explosions act. The central tubular part of the piston is divided by a partition into two chambers of which one is closed at its extremity and is provided with guide wings while the other is open to provide a passage for the fresh gases. The distribution is effected by ports provided in the sides of these two chambers, by an annular channel formed at one of the extremities of the enlarged middle part of the cylinder and by orifices or spaces between the guide wings.

A motor of this improved type has great advantages when it is in the form of a motor with radial cylinders.

In the annexed drawing: Figures 1, 2, 3, and 4 show diagrammatically and in section a mono-cylindrical motor according to the invention, the piston is shown occupying four different positions in the cylinder. Fig. 5 shows diagrammatically in partial vertical section the application of the invention to a motor with radial cylinders.

Each cylinder of the motor comprises a lower chamber *a* communicating by one of its extremities with the casing *b* by which the explosive mixture is introduced. Above the chamber *a* is a middle part of larger bore *c* *c'* and an upper chamber *d* of the same bore as the chamber *a*. The middle chamber has at the bottom a circumferential

channel *f*. In this cylinder works a piston formed by a central tubular part divided by a partition *g* into two chambers *h* and *i*. The upper chamber *h* is closed at its upper extremity and carries guide wings between which are orifices *j* and which have movement in the part *d* of the cylinder.

The chamber *i* is open at the bottom to allow the fresh gases to enter therein. This central tubular part of the piston carries exteriorly above the partition *g* a crown *k* which constitutes the piston proper on which the explosions act and which divides the middle part of the cylinder into two chambers *c* *c'*. The upper chamber *h* of the piston communicates with the chamber *c'* of the cylinder by openings *m* and the part *i* of the piston has below a series of openings *n*.

o designates the rod connected to the crank *p*.

q designates a sparking plug mounted in the chamber *c*.

The action is as follows: In the position shown in Fig. 1, the annular chamber *c* is full of the combustible mixture. The crank turning in the direction of the arrow, the piston rises and compresses this mixture. At the same time the aggregate capacity of the chamber *c'* and chamber *h*, which communicate by means of the openings *m*, increases, owing to the fact that the volume of *c'* increases and a vacuum tends to form there. When the piston reaches the top of its stroke (Fig. 2) the mixture in *a* is compressed and ready to be fired and as the openings *n* come into communication with the chamber *c'* the carbureted air introduced from the casing, for instance through a bore *r* in the motor shaft is drawn by the suction in *c'* and *h* into these chambers to establish the balance. At this moment a spark is produced at the plug *q* the gases compressed in *c* ignite and the explosion drives the piston downward to produce the action of the motor. Toward the end of this movement the orifices *j* are unmasked (Fig. 3) and the burned gases contained in *c* escape by the open chamber *d* of the cylinder while the crown or piston *k* drives back the fresh gases present in *c'* through the openings *m* into the chamber *h*. The aggregate space *c'* *h*, diminishes, these fresh compressed gases are in *h*. At the end of the

stroke, the crown or piston *h* uncovers the channel or annular opening *f* while the orifices *j* are always open, so that the compressed carbureted gas in *h* and in *c*¹, sweep out the burned gases which are remaining in *c* (Fig. 4) and supersede them, which terminates the cycle, which is effected during a single rotation of the crank. When the piston rises again the carbureted gas present in *c* is compressed, a vacuum is produced in *c*¹ and in *h* and the same operations are repeated in the same order as above described. As can be seen the two stroke cycle is obtained with tight cylinders and a complete expulsion of burned gases. Further the valves are dispensed with and the construction of the motor considerably simplified.

In motors with radial cylinders as diagrammatically represented in Fig. 5, for an equal size of motor, greater power can be obtained than with motors of the same kind employed up to the present, as the enlargement of the middle parts of the cylinders permits pistons of larger diameter to be used thus obtaining a motor of larger cylinder bore, by utilizing to the best advantage the space which lies between two neighboring cylinders and which increases in proportion to the distance from the center of the motor by reason of the radial disposition of the cylinders.

Having now described my invention, what

I claim as new and desire to secure by Letters Patent is:

A two cycle explosion motor comprising in combination a cylinder having a middle part of larger bore than the two extreme parts, an annular channel formed at the lower end of the middle part, a casing with which the cylinder communicates, means for feeding carbureted air to said casing, a stepped piston formed by a central tubular part guided in the parts of small diameter of the cylinder and carrying at a point intermediate of its length an exterior crown or piston proper the diameter of which corresponds to the larger bore of the cylinder, a partition dividing the central tubular part of the piston into two chambers of which one is closed at its extremity, guide wings formed at the upper end of the central tubular part and having orifices or spaces between them, orifices formed at the bottom of the closed chamber of the central tubular part of the piston, and orifices formed at the lower end of the piston, substantially as described and for the purpose set forth.

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

LOUIS LAZARE AUGUSTE SEGUN.

Witnesses:

ANTOINE LAVOIX,
H. C. COXE.