Feb. 3. 1925. 1,525,187

A. INDLEKOFER

INTERNAL COMBUSTION ENGINE

Filed Aug. 3, 1923

FIG. 1.

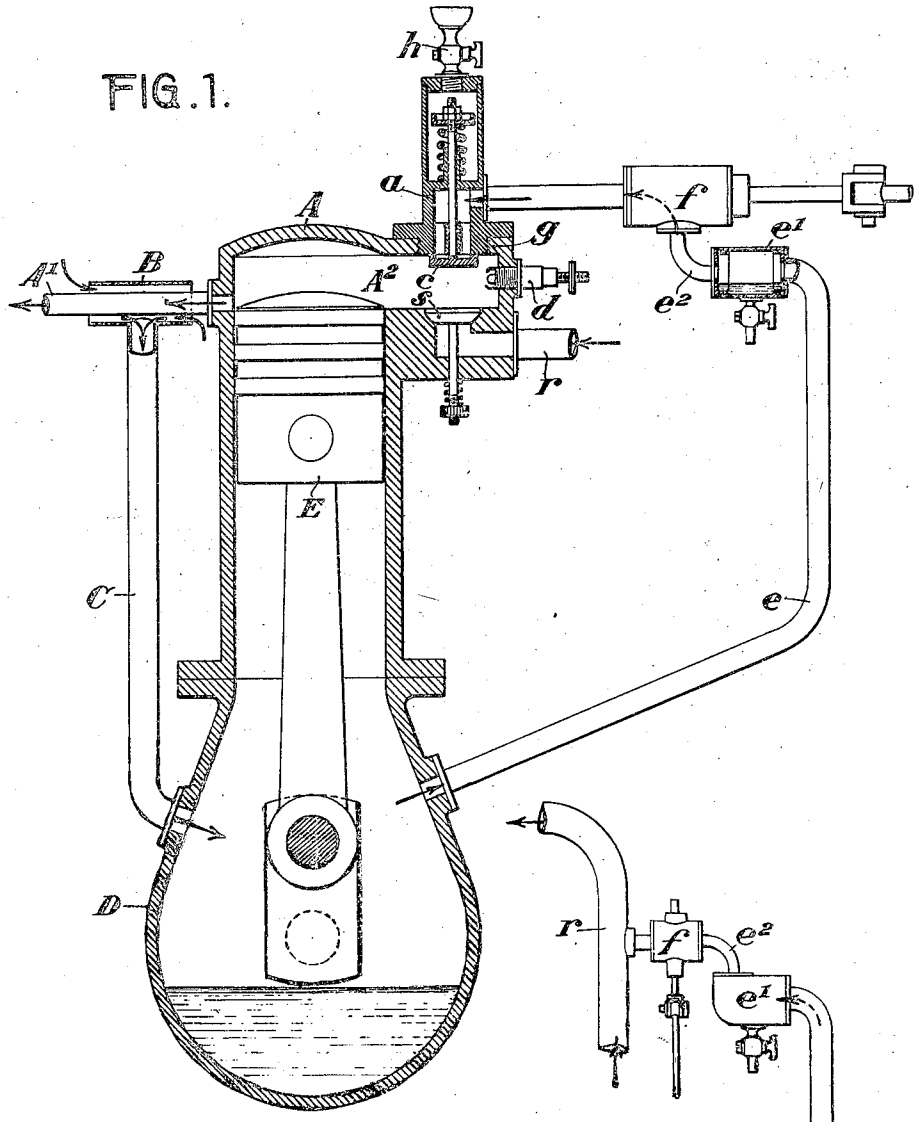


FIG. 2.

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UNITED STATES PATENT OFFICE.

ADOLF INDLEKOFER, OF BASEL, SWITZERLAND.

INTERNAL-COMBUSTION ENGINE.

Application filed August 3, 1923. Serial No. 655,534.

To all whom it may concern:

Be it known that I, ADOLF INDLEKOFER, a German citizen, residing at Basel, Switzerland, have invented new and useful Improvements Relating to Internal-Combustion Engines, of which the following is a full, clear, and exact specification.

The invention relates to an apparatus for effecting economy in fuel consumption in the operation of internal combustion engines.

According to the present invention small particles of the oil contained in the crank case of an internal combustion engine are transformed by means of heated air into a highly gaseous condition. The oil vapour thus formed is withdrawn from the crank casing under the suction action of the piston of the motor and ignited with the mixture of fuel and air delivered from the carburettor, thereby effecting a considerable saving in the fuel consumption.

The apparatus provided for this purpose, comprises an air inlet casing or housing heated by the exhaust gases of the engine, a conduit from this casing to the crank casing of the motor and a delivery pipe leading from the crank case to the explosion chamber of the motor preferably provided with an oil extracting and collecting device.

In the accompanying drawings:

Figure 1 is a view in sectional elevation of a simple form of apparatus embodying the invention;

Figure 2 being a detail view of a portion of the apparatus shown in Figure 1, illustrating a modification.

Referring now to the drawings: the exhaust pipe A^1 of the motor cylinder A is shown surrounded by an open ended casing B in communication with the atmosphere at both ends. A pipe C connects the interior of this casing with the crank casing D of the motor in which a certain quantity of lubricating oil is always present. The crank case D is also connected by a pipe *e* with an oil extracting and collecting device e^1, which constitutes in the pipe *e* a sudden enlargement for removing the heavy particles of oil. A pipe e^2 leads from the oil extracting device e^1 to a regulating device *f* the latter of which is connected by a pipe to a valve casing *a* mounted upon the motor cylinder. The interior of the valve casing *a* is in communication with the combustion space past a valve *c* the latter of which is arranged to open automatically upon the suction stroke of the motor piston E but otherwise to be held on its seat *g* formed in the wall of the combustion chamber. In the combustion chamber A^2 a sparking plug *d* is provided and to this chamber past a valve *s* is also connected a pipe *r* leading from the carburettor (not shown).

During the operation of the above described apparatus the lubricating oil in the crank casing D is constantly agitated and distributed by means of the rotating crank, thus reducing a portion of the oil to a highly gaseous condition with very finely divided particles in suspension. The heated air flowing through the pipe C from the casing B the latter of which as stated above is traversed by the exhaust pipe A^1 strikes this gaseous mixture which at the same time mingles with the hot gases which may pass during the compression stroke between the piston E and the wall of the cylinder A. Under the heating action, the particles of oil are transformed into a highly gaseous or vapourous condition. During the suction stroke of the piston E the valve *c* in the valve casing *a* will be opened so that the oil vapour formed in the crank casing D is drawn through the pipe connection *e*, e^1, e^2. As this vapourous mixture passes through the oil extracting device e^1, the heavier particles of oil therein are separated from the body of the mixture by reason of their reduced speed, and collecting in the device may be drawn off from time to time. The pure oil vapour continues its course and passes through the pipe connection e^2 extending from the oil extracting device e^1 to the regulating device *f* and thence to the explosion chamber A^2 of the cylinder A past the valve *c*, where it is mixed with the fuel admitted through the valve *s* and is exploded in the usual way. Thereby, not only is economy in fuel effected but the action of the explosion on the piston E of the mixture of fuel and air produced by the carburettor and flowing through the pipe *r* is correspondingly increased.

In the arrangement shown in Figure 1 the valve casing *a* is shown provided with a receptacle formed like a lubricating device and provided with a controlling cock *h* through which petrol may be supplied for cleaning the valve guide, and benzine for starting the motor.

In the modification illustrated in Figure

2, the pipe connection e^2 is connected to the oil extracting device e^1 as in the case already described but the pipe e^2 opens into the pipe r leading from the carburettor to the explosion chamber of the motor. In this construction the valve casing a and the valve c are rendered unnecessary. As the oil vapour assists the action of the explosion an economy is achieved regardless of the character of the spirit employed which may be petrol or other spirit.

What I claim is:

In internal combustion engines, a motor cylinder with means for admission of combustible mixture, a crank case with an oil bath, an air supply casing connected to said crank case for admitting air thereto in intimate contact with oil, means for heating air in said air supply casing, an air admission device near the combustion chamber of the motor cylinder, a connecting pipe between said crank case and air admission device to admit oil impregnated air therefrom to said combustion chamber and a regulating device within said connecting pipe to regulate the flow of fluid therethrough, substantially as and for the purpose described.

In witness whereof I have hereunto signed my name this 18th day of July, 1923, in the presence of two subscribing witnesses.

ADOLF INDLEKOFER.

Witnesses:

Jo. Sütterbli,

Lucien Buard.