Oct. 7, 1930. A. DUCLOUX 1,777,554

PROCESS AND APPARATUS FOR IMPROVING EXPLOSIVE MIXTURES FOR INTERNAL COMBUSTION ENGINES AND OTHER PURPOSES

Filed May 3, 1927

Fig. 1

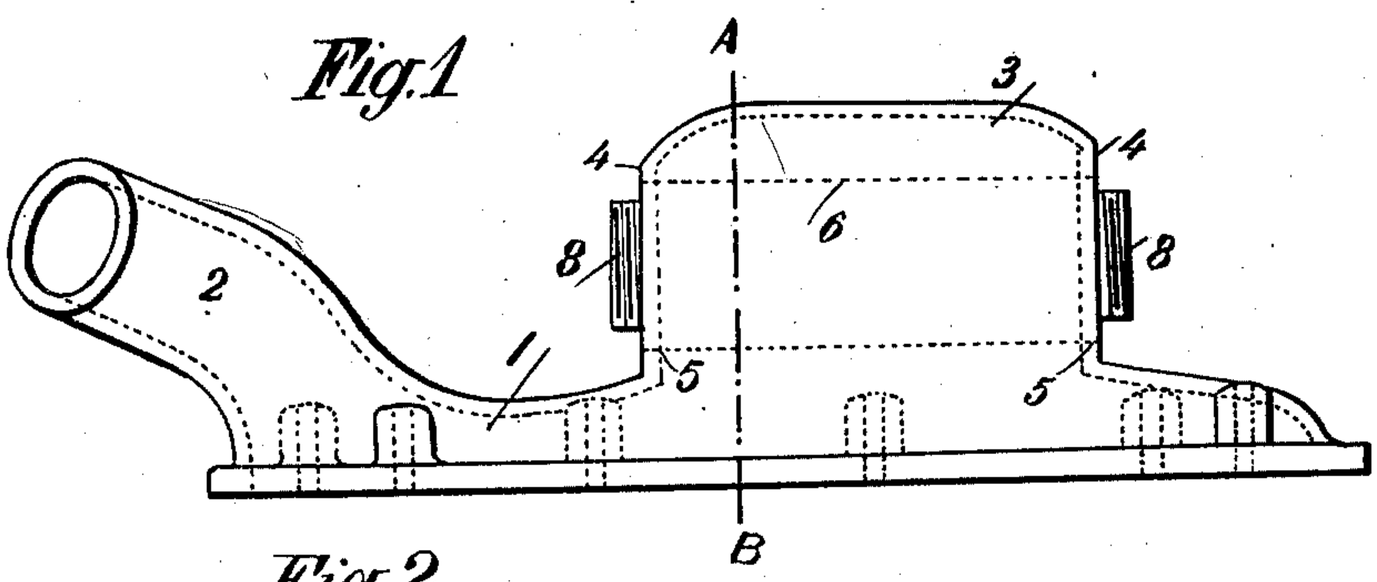


Fig. 2

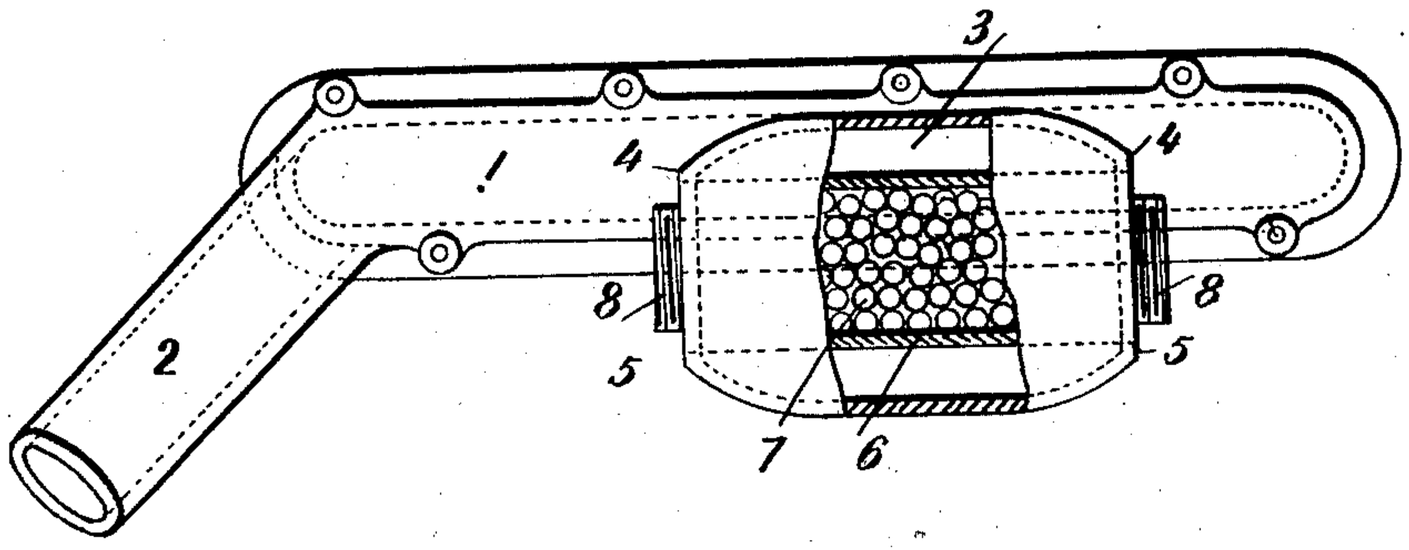
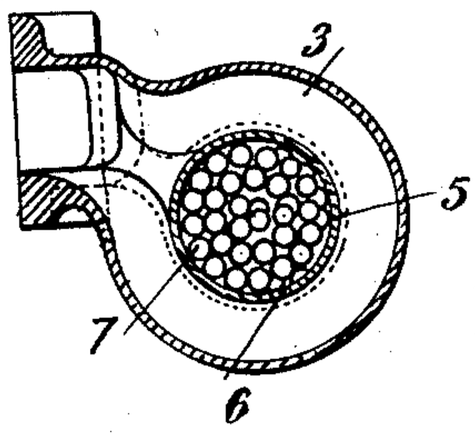


Fig. 3



INVENTOR

ALBERT DUCLOUX

Arthur C. Brown

HIS ATTORNEY

Patented Oct. 7, 1930

1,777,554

UNITED STATES PATENT OFFICE

ALBERT DUCLOUX, OF LEVALLOIS-PERRET, FRANCE

PROCESS AND APPARATUS FOR IMPROVING EXPLOSIVE MIXTURES FOR INTERNAL-COMBUSTION ENGINES AND OTHER PURPOSES

Application filed May 3, 1927, Serial No. 188,603, and in France May 7, 1926.

My invention relates to a process for bettering the out-put of explosive mixtures utilized in internal combustion engines in which the explosive mixture is preheated between the time it leaves the carburetor and the time it enters the engine cylinder, and to the specific apparatus for putting said process into practice.

The invention has for an object to improve such a process by combining with the preheating step an enriching and a chemical transformation of the gaseous mixture.

Another object of the invention is to provide an apparatus for enabling the process to be carried out in connection with internal combustion engines now in use.

In the accompanying drawing—

Fig. 1 is a view in elevation of the apparatus;

Fig. 2 is a plan view of the same; and

Fig. 3 is a section along the line A—B of Fig. 1.

Before proceeding with a description of my apparatus the process will first be described. By heating an explosive mixture such as, a mixture of gasoline, benzol, alcohol or other similar hydrocarbons with air or analogous hydrocarbon mixtures, in the presence of certain substances I am able to obtain a mixture which is not only very hot when ignited but also very rich in methane, hexane, heptane or analogous gases.

The substances suitable for producing this enriching and chemical transformation of the carbureted mixture are ores rich in rare earth, metal oxides or oxides of rare earth such as titane, zirconium, thorium, scandium, yttrium, lanthane, cerium, praseodyme, neodyme, samarium, gadolinium, terbium, erbium, tullium, ytterbium or other radioactive substances.

These substances may be employed alone or in combination and mixed or not with powdered metal such as iron, nickel, or manganese, for example.

By thus heating the explosive mixture in the presence of said bodies or substances I am able to considerably increase the effect of the explosion of the explosive mixture due to the heated radioactive elements present.

The process may be adapted without danger to produce self-ignition and a rational economy as well as a high output of the fuel which is used.

My process is particularly adapted to be used with all the fuels used in motors and produces a very noticeable economy in consumption, and an increase in the output without damage to the motor.

The chemicals above mentioned may be employed in different proportions but I prefer to use the following:

10% monazite or thorite (ore with high content), 2% thorium oxide, 40% asbestos, 48% talc or chlorite (without or with the addition of powdered iron, nickel or manganese).

A mixture of talc, and chlorite or asbestos may be had by using potstone.

The oxide of thorium in the formula might be replaced by an oxide of the metals above mentioned (titane, zirconium, etc.). The amount of oxide employed might also be varied from 2% to 15% according to the substances employed.

In preparing the elements in question it is necessary to cook the mixture above with great precaution to avoid obtaining too great a porosity as well as its vitrification, the latter preventing any action of the oxides of rare earth. The heating is preferably carried on in the manner in which porcelain is fired, taking the same precautions but not forcing the fire quite as far.

The apparatus for carrying this process into practice will now be described with reference to the accompanying drawing.

In the drawing 1 represents the ordinary type of well known exhaust manifold of an internal combustion engine attached thereto by means of lugs and bolts. Said manifold is furnished with the usual exhaust pipe 2. Cast integrally on the side of the manifold 1 is a chamber 3, the ends 4 of which are provided with openings 5. On the interior of said chamber 3 is disposed a receptacle 6 of cylindrical form and adapted to receive the enriching and chemical transforming elements 7 which may be those above mentioned. This receptacle 6 is preferably provided with

air-tight joints where it projects through the openings 5. The exhaust gases from the engine in passing through the manifold 1 circle around the receptacle 6 by penetrating the chamber and preheat the elements 7 enclosed in said receptacle.

Each end of the receptacle 6 is threaded to receive a connection to the carburetor on one end and a connection to the motor cylinders on the other which may be pipes of any appropriate form.

Many variations in my process and apparatus may be made by those skilled in the art without departing from my invention, since

What I claim is—

1. The process for increasing the effectiveness of a carbureted mixture in an internal combustion engine including confining a mixture including substantially 10% monazite and thorite ore, 2% oxide of thorium and 48% chlorite, heating the mixture, and passing a carbureted fuel mixture through the confined mixture to preheat and enrich the fuel mixture on its way to the engine.

2. The process for increasing the effectiveness of a hydrocarbon mixture in an internal combustion engine including confining a mixture comprising monazite, an oxide of a metal, asbestos, talc, chlorite, and powdered metal, heating the confined mixture, and passing the hydrocarbon mixture through the confined mixture to chemically transform and enrich the hydrocarbon mixture on its way to the engine.

3. The process for increasing the effectiveness of a carbureted fuel mixture in an internal combustion engine including confining a mixture including substantially 10 per cent of a mineral containing thorium, a relatively small per cent of an oxide of a radioactive metal, and a relatively large percentage of an inert substance, heating the mixture, and passing the carbureted fuel mixture through the heated confined mixture for chemically transforming and enriching the fuel mixture on its way to the engine.

In testimony whereof I have affixed my signature.

ALBERT DUCLOUX.