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BY A. P. C.

J. MERCIER
FLUID MIXING APPARATUS
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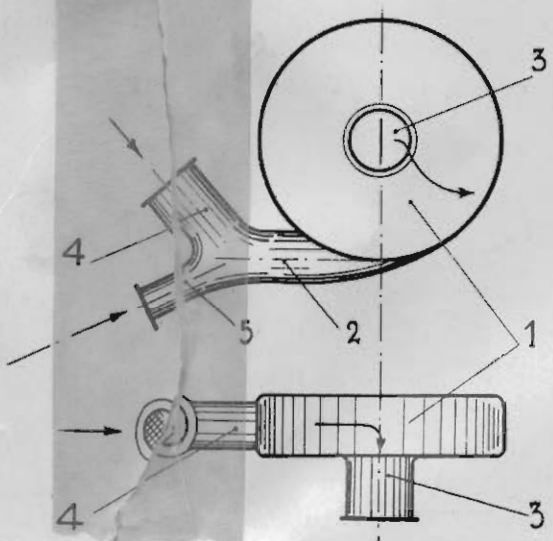

FIG.1

FIG.2

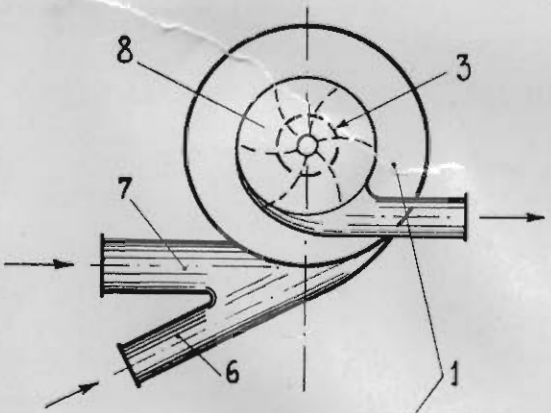

FIG.3

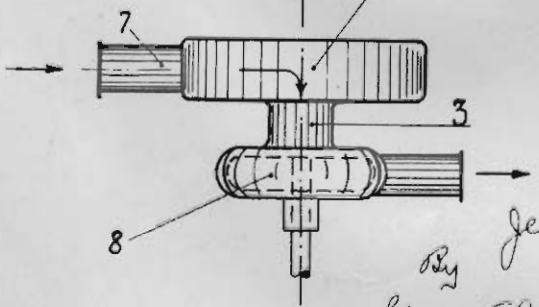

FIG.4

Inventor
Jean Mercier
By
Singer, Elkort & Stern & Carlberg
attys.

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ALIEN PROPERTY CUSTODIAN

FLUID MIXING APPARATUS

Jean Mercier, Paris, France; vested in the Alien Property Custodian

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The present invention relates to apparatus for mixing fluids together.

The chief object of the present invention is to provide an apparatus of this kind which is better adapted to meet the requirements of practice than the fluid mixing apparatus used for the same purpose up to the present time, and in particular to obtain a static apparatus, that is to say an apparatus which effects the mixing at the fluids without having recourse to moving parts.

According to an essential feature of the present invention, the mixing of the fluids is obtained by the action of the fluids themselves, due to the eddies and whirlwinds which are produced in the flow of said fluids, as a consequence of the changes of direction they undergo between the inlet and the outlet of the apparatus, and also of the form of the mixing chamber.

In a more specific manner, the apparatus according to the invention includes a hollow body forming a chamber of rounded section, for instance of the shape of a flat cylinder, with a tangential inlet opening into the periphery of said chamber, and an outlet transverse to the rounded sections of said chamber, for instance extending along the axis of said cylinder.

The fluids are admitted with a high velocity into said chamber through the tangential inlet. They move with a whirlwind motion in the chamber and are compelled to flow out from the chamber in a direction transverse (preferably perpendicular or substantially so) to their initial direction when entering the mixing chamber. Consequently, these fluids are subjected to the action of eddies which thoroughly mix them together.

If the gases or liquids to be mixed together are not already at a high velocity prior to their entering the apparatus, means must be provided for producing this velocity.

Other features of the present invention will result from the following detailed description of some specific embodiments thereof.

Preferred embodiments of the present invention will be hereinafter described, with reference to the accompanying drawings, given merely by way of example, and in which:

Fig. 1 is a diagrammatic elevational view of a mixing apparatus made according to an embodiment of the invention;

Fig. 2 is a plan view corresponding to Fig. 1;

Fig. 3 is a view, similar to Fig. 1, showing another embodiment of the invention;

Fig. 4 is a plan view corresponding to Fig. 3.

As shown by Fig. 1, the mixing apparatus according to the invention includes a hollow cylindrical casing 1 forming, on the inside thereof, a chamber of any suitable (cylindrical or other) rounded section. This casing is provided with a tangential inlet 2, to which two fluids are fed through pipes 4 and 5, respectively. The outlet from this chamber is constituted by a pipe 3 transverse (perpendicular in the embodiment illustrated) to the rounded sections of chamber 1 and to tangential inlet 2.

The fluids admitted tangentially along the periphery of chamber 1 move with a whirlwind motion along the inner cylindrical wall of said chamber. As they can flow out only through outlet pipe 3 which extends in a direction at right angles to inlet 2, eddies are produced, which ensure a thorough mixing of the fluids.

The embodiment of Figs. 3 and 4 is similar to that of Figs. 1 and 2, with the difference that two distinct inlets 6 and 7 are provided for the fluids to be mixed together, both of these inlets opening tangentially into the mixing body.

Furthermore, pump means may be provided, if necessary, as shown at 8, for imparting a high velocity to the fluids flowing through the apparatus. Of course, if the fluids to be mixed together are already under pressure before entering the apparatus, such pump means are unnecessary.

It will be noted that the form of the sections of the mixing chamber 1 by parallel planes parallel to the direction of the inlet is not limited according to the invention, provided that these sections are rounded so as to permit a high velocity of the fluids gyrating inside the apparatus. Of course, the shape will be chosen (in view of theoretical or practical data) so as to increase the stirring in the chamber. It has been found that high drops of pressure improve the working of the apparatus.

Likewise the shape of the cross sections of mixing chamber 1 by planes at right angles to inlet 2 may be chosen at will. It has been found that a flat shape of this chamber is advantageous.

In a general manner, while I have, in the above description, disclosed what I deem to be practical and efficient embodiments of the present invention, it should be well understood that I do not wish to be limited thereto as there might be changes made in the arrangement, disposition and form of the parts without departing from the principle of the present invention.

JEAN MERCIER.