



COMPUTERIZED STAND FOR THE PREPARATION OF A MIXTURE OF FLAMMABLE/TOXIC/ASPHYXIATING GASES

Patent of invention nr. A 00807/ 2019

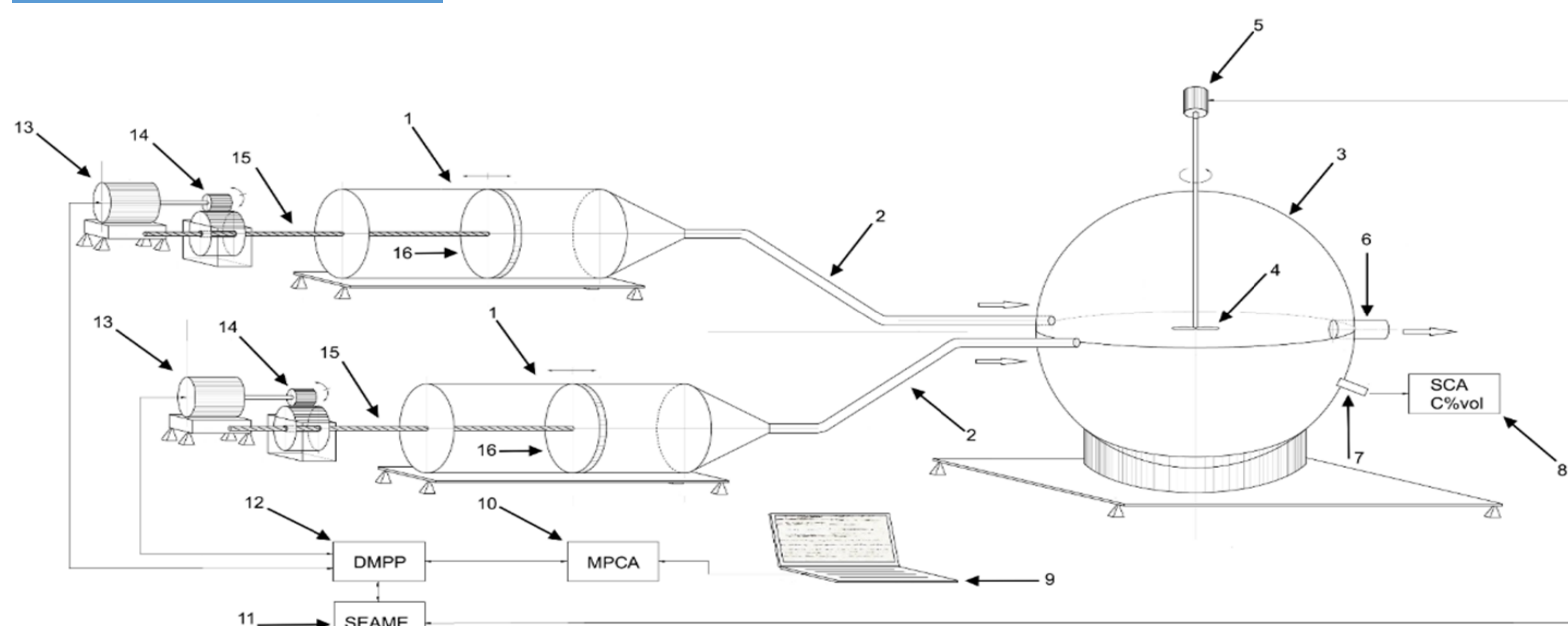
Authors:

Șimon-Marinică Adrian Bogdan, Găman George Artur, Ghicioi Emilian, Pupăzan Gheorghe Daniel, Găman Angelica-Nicoleta, Păsculescu Vlad Mihai, Vlasin Nicolae-Ioan, Laszlo Robert, Burian Constantin Sorin, Florea Gheorghe-Daniel, Prodan Maria, Cioclea Doru, Șuvar Marius Cornel, Vass Zoltan, Moldovan Lucian, Simion Alexandru Florin

Summary of the invention

The invention relates to a computerized stand for the preparation of a mixture of flammable/toxic/explosive gases, with the purpose of obtaining gas mixtures at concentrations in the explosive range. The operating principle of the stand is based on mixing two volumetric flows, controlled by programmable microprocessors, at which the gases are stored and circulated at atmospheric pressure with the aid of cylindrical injectors, driven by stepper motors so that the gas circuit does not require valves and at the outlet there is a homogenization chamber with agitator and dedicated flammable/toxic/explosive sensor to confirm the programmed concentration.

Prototype design



Hardware controllers

Inside the injector cylinders [1] we can find gases A and B at a known concentration. The initial volume of the cylinders being 10 cubic decimeters with an inside diameter of 1 decimeter, were the gases flow into the circuit without valves [2] and reach into the homogenization chamber [3], where the agitator propeller [4], driven by an electric motor [5], performs the homogenization. Then the mixture is discharged for use through the outlet nozzle [6], at the required concentration verified with the sensor [7], which transmits a signal to the mixture concentration display system [8]. This concentration value is first programmed by means of the computer [9] communicating unambiguously with the microprocessor [10] for the control of the mixer, respectively the control of the driver [12] and stepper electric motors [13], which are supplied with electricity from the multiple electric source [11].

With the help of mechanical couplings [14] and the mechanical assembly [15] the rotational motion is transformed into a translation motion so that the actuated injectors pistons [16] are actuated to obtain the discharged volumes, according to the predetermined calculation program, introduced into the mixing and homogenization chamber.

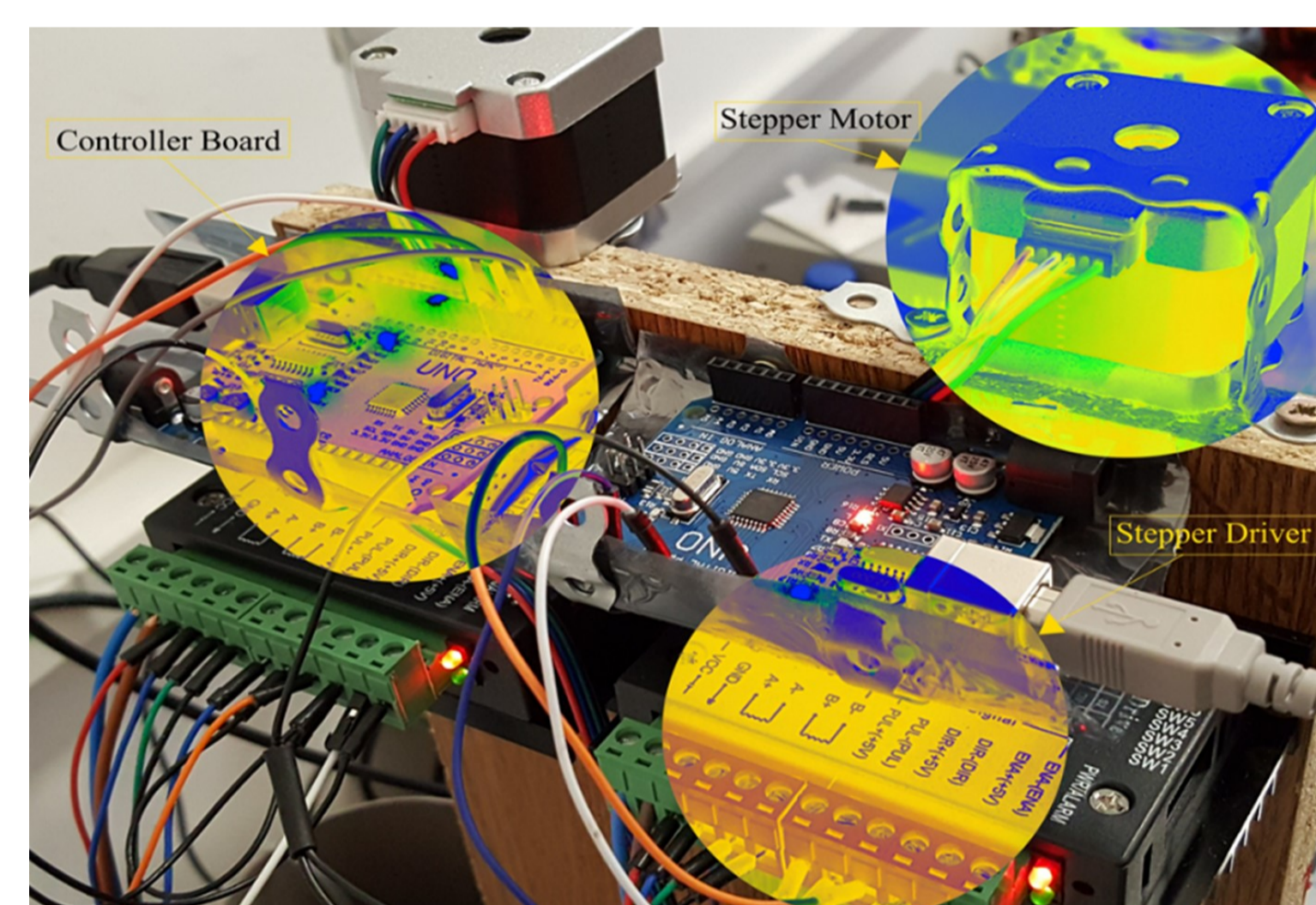


Fig. no. 1. Gas mixer at work

Contact: Adrian Bogdan Simon-Marinică,
email: bogdan.simon@insemex.ro