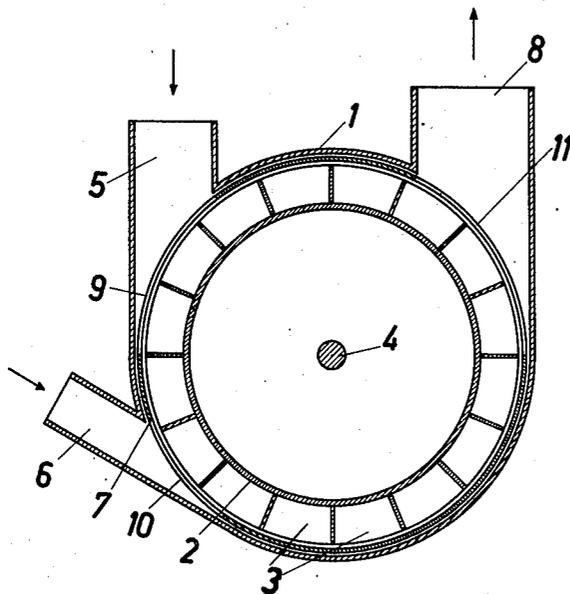


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MIXING DEVICE FOR GASES

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MIXING DEVICE FOR GASES

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3 Claims. (Cl. 48—187)

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This invention relates to an apparatus by means of which different gaseous matters, in which term is included air, can be mixed in the simplest manner, preferably in any desired regulated quantity ratio which, after regulation, the mixture remains constant.

According to this invention the apparatus consists of a rotatable element or wheel mounted on a shaft in a cylindrical casing, and provided with a series of open end pockets or chambers to receive gaseous fluids to be mixed. The casing is provided with a plurality of openings for the introduction of gaseous fluids to the pockets and an outlet opening for the discharge of the mixed fluid. Communicating with the fluid inlet openings are tangentially arranged pipes, while a similarly arranged pipe communicates with the discharge outlet. The gas admission pipes and the mixture discharge pipe lie in the plane of said wheel. The admission of gaseous matters is effected under pressure and/or under suction through the separate admission pipes into the chambers of the wheel in which a thorough turbulence and intimate mixing take place, so that a definite quantity of a thoroughly mixed product leaves the wheel chambers. The quantity of the gas mixture discharged from the chambers as well as its mixing ratio can be varied by varying the pressure under which the gaseous matters are admitted or by varying the cross section of the admission ports from the admission pipes. For the last mentioned purpose a cylinder can be disposed within the cylindrical casing, which cylinder is provided with transverse slots and is rotatable independently of the wheel coaxially to the latter. By the turning of the cylinder the width of the entrance ports from the admission pipes to the chambers of the wheel can be varied. Alternatively the quantity of mixture discharged can be adapted to requirements by varying the speed of rotation of the wheel.

By way of example an embodiment of a mixing device according to the invention is shown on the accompanying drawing.

In the drawing, the sole figure is a section of the apparatus.

In the casing 1 the wheel 2, equipped on its circumference with chambers 3, is journaled about the axis 4. Two gas supply pipes 5, 6 issue tangentially into the casing; for example a gas is introduced under pressure through the pipe 5, and air through the pipe 6. The discharge of the mixture takes place through a pipe 8. A cylinder 7 is provided within the casing 1 so as to envelop

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the wheel 2 circumferentially, which cylinder is rotatable about the same axis 4 independently of the wheel and has ports 9, 10 and 11, respectively, at the loci of the supply pipes 5, 6 and the discharge pipe 8.

By turning the said cylinder 7 the cross section for the admission to the chambers in the wheel 2 is varied, and thereby the quantity of the mixture and/or its composition is controlled.

The device described works extraordinarily accurately and uniformly, and delivers constantly mixtures of equal composition and in equal quantities as long as the conditions are left unchanged. It is therefore particularly suitable for plants in which a constant gas-air mixture is a condition of a good permanent function.

I claim:

1. A mixer for gaseous fluids comprising a cylindrical casing, an element rotatably mounted in the casing, including a plurality of spaced radially disposed spaced apart fins forming open pockets, tangential inlets formed in the casing for fluids to be mixed in the pockets, and an outlet communicating with the interior of the casing for the exit of the mixed fluids.

2. A mixer for gaseous fluids comprising a cylindrical casing, a rotatable element mounted in the casing said element having a series of radially disposed spaced apart fins at the periphery forming a series of open pockets, a plurality of spaced apart tangential inlets formed in the casing to introduce fluids under pressure to the pockets to mix said fluids, pressure of the fluid introduced in the pockets and against the fins rotating the element, and an outlet opening formed in the casing for the outlet of the mixed gases after the pockets have passed the inlet openings.

3. A mixer for gaseous fluids as defined in claim 2, wherein a valve is interposed between the rotating element and the casing to control the volume of fluid introduced to the pockets and escaping through the outlet opening.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

| Number | Name | Date |
|-----------|-----------|---------------|
| 409,719 | White | Aug. 27, 1889 |
| 1,547,324 | Hiles | July 28, 1925 |
| 1,625,543 | Hutchison | Apr. 19, 1927 |