No. 789,673. PATENTED MAY 9, 1905.

H. RICHTER.

MIXING DEVICE FOR INTERNAL COMBUSTION ENGINES.

APPLICATION FILED AUG. 23, 1904.

Fig. I.

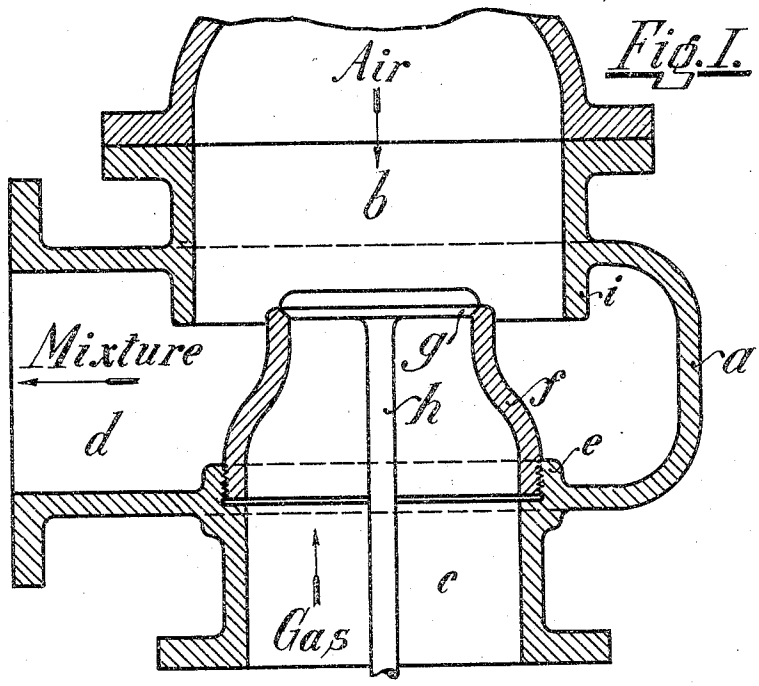
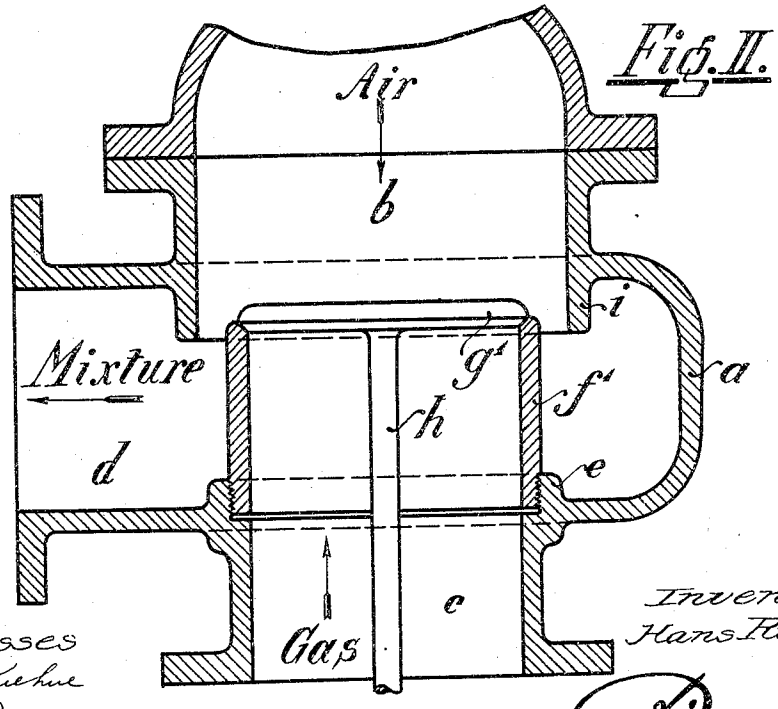


Fig. II.



Witnesses
H. M. Kuehne
J. P. Newman.

Inventor
Hans Richter
By Richards & Co.
Attorneys

No. 789,673. Patented May 9, 1905.

UNITED STATES PATENT OFFICE.

HANS RICHTER, OF NUREMBERG, GERMANY, ASSIGNOR TO THE FIRM OF VEREINIGTE MASCHINENFABRIK AUGSBURG UND MASCHINENBAU-GESELLSCHAFT NÜRNBERG A. G., OF NUREMBERG, GERMANY.

MIXING DEVICE FOR INTERNAL-COMBUSTION ENGINES.

SPECIFICATION forming part of Letters Patent No. 789,673, dated May 9, 1905.

Application filed August 23, 1904. Serial No. 221,864.

To all whom it may concern:

Be it known that I, HANS RICHTER, director, a subject of the German Emperor, residing at Nuremberg, Bavaria, Germany, have invented new and useful Improvements in Mixing Devices for Internal-Combustion Engines, of which the following is a specification.

If it may be desired to feed internal-combustion engines with gases of greatly-varying calorific value, and thus, according to the nature of the gas used, with greatly-varying quantities of air, the arrangements at present in use for regulating the proportions of the mixture of gas and air do not suffice. In such cases it is necessary to employ mixing devices in which the right proportion of the gas drawn in and the air to be mixed therewith can be adjusted to direct different cases by varying the area or section of the inflows at the narrowest parts—for example, at the gas-valve. Care must, however, be taken that the sum of the two areas or sections remains constant, as otherwise the output of the combustion-engine when fed with the different kinds of gas would be subject to large fluctuations.

The present invention relates to a mixing device which fulfils the conditions just mentioned.

The gas-valve is located in the air-inlet, and it, together with its seat, is changeable. If, for example, in place of a small gas-valve and seating a larger valve, with its corresponding seating, is inserted, the area or section of the inflow of air is correspondingly diminished as the area of the gas-inflow is increased, so that the sum of these two areas or sections will remain constant.

On the accompanying drawings a mixing device arranged according to the invention is represented in Figure 1 with a small gas-valve and in Fig. 2 with a large gas-valve, both figures being in longitudinal section.

The casing *a* is provided above with an air-inlet *b* and below with a gas-inlet *c*, while the mixture flows out through the lateral outlet *d*. The inlets *b* and *c* are arranged so as to have their axes in one and the same straight line. A flange *e* is provided on the inner edge of the inlet *c*, and into this flange the valve-seating *b* of the gas-valve *g* is secured by screw or other means. The valve-spindle *h* is operated in any suitable way. The inlet *b* is also provided in its inner edge with a flange *i*, which preferably projects somewhat over the valve *g*. In connection with this mixing device there are several valve-seatings *f f'* and several valves *g g'* provided, each of which corresponds to a different kind of gas which may be used for feeding the combustion-engine. Supposing, for example, a gas of comparatively low calorific value be used, a large gas-valve with correspondingly large seating will be used, and, vice versa, should a gas of high calorific value be employed a small gas-valve with corresponding seating will be used. It is therefore possible by the present invention to adjust the proportions of gas and air within wide limits, while at the same time the sum of the areas or sections of the gas and air inflows always remains constant.

It will be obvious that the mixing device can be so arranged that the air and gas do not enter from different sides, but from the same side of the casing, or, if desired, a double-seated gas-valve might be employed.

I declare that what I claim is—

A mixing device having a mixing-chamber, an air-inlet, a gas-inlet, a valve-seat removably secured to said gas-inlet, said valve-seat projecting into the mouth of the air-inlet and a changeable valve normally resting on said seat.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HANS RICHTER.

Witnesses:
MARTIN OFFENBACHER,
GEORGE E. BALDWIN.