A gas attenuator for an ejector using high-pressure gaseous medium from an outflow nozzle comprising a substantially cylindrical tube surrounding the nozzle and having an external lining of sound absorbing material, the tube being at least partially perforated. The external lining of the tube is enclosed in a casing of perforated metal and the tube extends from the inlet throat of the ejector rearwardly around the nozzle. The tube may terminate immediately beyond the nozzle, may be extended substantially therebeyond, or may project outside of the ejector and communicate with the surrounding atmosphere.

This invention relates to an ejector for transporting gases by utilizing steam or another gaseous medium of a relatively high pressure as driving medium, which ejector comprises an inlet port connected to the gas conduit in question, a mixing port with a softly rounded inlet, a diffuser-shaped outlet port and a supply line for the driving medium provided with an outflow nozzle opening into the ejector.

In practice as well as ventilation technology normally fans are employed for the industrial transport of gases. If the gas to be transported has a high temperature, the fans require in many cases very much space, because the volume of the gas increases with rising temperature and the specific weight of the gas decreases, whereby the available pressure head of a certain given fan is lowered. Moreover, regard must be paid to pressure losses and possible pressure recovery, when the ducts are mounted before and after the fan, which in many cases can increase the space requirement for a fan to a substantial degree.

In view of the space requirement, therefore, it was considered in several cases more suitable to use an ejector instead of a fan. Usually the ejector can be arranged as a part in a straight gas duct and, thus, requires only little space.

The ejector can be given smaller dimensions, when a drive medium with high speed is used, for example steam with a pressure of 3 at g or higher. In certain cases it can be necessary, in view of the space requirement, to apply very high steam pressures, for example directly from a boiler with a pressure of 50 at g or higher.

The efficiency degree of an ejector is lower than that of a fan, but this difference can be compensated for in many cases by the differences in costs for the different types of energy carriers utilized, in this case electricity, and the kinetic energy of the steam. When the fan or the ejector is used only for a short period of the year, the operation costs can be disregarded compared with the initial capital expenditure. The latter is lower for the ejector, in many cases only a fraction of that of the fan, particularly if the fan requires the building volume to be increased, which is the case with so-called starting ejectors versus corresponding fans for soda recovery units in the cellulose industry.
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3. A medium jet prior to its braking by means admixed with the gas being transported. As the sound also spreads backwardly in relation to the direction of the drive medium jet, it may be suitable to add an extension to the sound trap as designated with broken lines at 7a in FIG. 1. The tube 7 may be perforated entirely or partially, and to the outside of its lining of sound absorbing material is attached an outer casing 9 of perforated sheet metal.

In certain cases it may be motivated to design a tube 17 as a complete ejector with inlet portion, mixing portion 15 and diffusor 16, as it appears from the embodiment of the invention shown in FIG. 2. In this embodiment the outflow portion 16 of the tube 17 is provided with a contracted outflow opening 10. The tube 17 is imperforate in the mixing portion 15, and the outer lining 18 is enclosed in a perforated casing 19.

In certain cases it may be suitable to apply a gas other than the gas transported, for example air, as a complementary drive medium. In that case the sound trap, which acts as primary ejector, is mounted so, as appears from FIG. 3, that its inlet end communicates directly with the surrounding atmosphere. The outer lining 28 is a casing 29 which is perforated only in the area within the inlet portion of the ejector.

The three drawing figures show the solution in principle for different embodiments of the invention, but the constructional design of the details comprised therein can, of course, be varied in several ways without departing from the idea of the invention.

I claim:

1. Ejector for the transport of gases from a conduit by using a gaseous medium of a relatively high pressure as drive medium, said ejector comprising an inlet portion connected to the gas conduit, a mixing portion with a softly rounded inlet, a diffusor-shaped outflow portion and a supply line for the drive medium provided with an outflow nozzle opening into the ejector, characterized in that concentrically around the outflow nozzle for the drive medium there is mounted a substantially cylindric tube provided on its outside with a lining of sound absorbing material and acting as a sound trap and primary ejector.

2. An ejector according to claim 1, characterized in that the tube acting as sound trap is at least partially perforated.

3. An ejector according to claim 1, characterized in that the sound absorbing material on the outside of the tube is provided with an outer casing of perforated sheet metal.

4. An ejector according to claim 1, characterized in that the tube acting as sound trap is constructed as a complete ejector, provided with a contracted outflow opening.

5. An ejector according to claim 1, characterized in that the tube acting as sound trap communicates at its inlet end directly with the surrounding atmosphere.

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