to be easily incorporated in a tetrahydrothiophene production unit, because it treats only the vent gases. It thus consumes little energy and uses a simple device.
[0021] Said extraction also makes it possible to reduce the amount of vent gases to be treated by incineration and makes it possible to greatly reduce the release of sulfur dioxide into the atmosphere.
[0022] The process for the production of tetrahydrothiophene according to the invention is thus more economical and exhibits a better productivity, while at the same time being more environmentally friendly.

Brief description of the invention

[0023] Thus, one aspect of the present disclosure is a process for the production of tetrahydrothiophene comprising the following successive stages:
a) reaction of 1,4-butanediol in the presence of hydrogen sulfide (H_2S), in the gas phase, in the presence of at least one catalyst, to form a stream (A) comprising tetrahydrothiophene, water and possibly unreacted hydrogen sulfide;
b) condensation of the stream (A) to obtain a stream (B) rich in tetrahydrothiophene and vent gases (C) containing the noncondensables possibly formed on conclusion of stage a);
c) at least one stage of purification, preferably by decanting, of the stream (B) with separation of the aqueous phase, of the organic phase constituting the stream (D) and of the vent gases (E);
d) optionally at least one distillation of the stream (D) to isolate the tetrahydrothiophene from the vent gases (F);
e) recovery of the tetrahydrothiophene isolated in stage c) and optionally in stage d),
it being possible for stages b) and c) to be successive or simultaneous,
f) gas-liquid extraction by means of a column, fed by one or more gas streams (G) comprising the vent gases (C) and/or the vent gases (E) and possibly the vent gases (F) and by a liquid stream of 1,4-butanediol, to form, at the column outlet, a gas stream (H) and a liquid stream (I) comprising enriched 1,4-butanediol;
g) recycling of all or part of the stream (I) to the reaction a).
[0023a] Another aspect of the present disclosure is a use of a gas-liquid extraction device in a process for the production of tetrahydrothiophene, as defined above, for the recovery and the recycling of the vent gases produced after purification of the crude reaction product.

Brief description of the figure
[0024] [Fig. 1] is a diagram of the device implementing the claimed process.

Detailed description of the invention

[0025] Other characteristics, aspects, objects and advantages of the present invention will become even more clearly apparent on reading the description which follows.
[0026] It is specified that the expressions “from ... to ...” and “of between ... and ...” used in the present description should be understood as including each of the limits mentioned.
[0027] The term “enriched 1,4-butanediol” is understood to mean the 1,4-butanediol obtained after the gas-liquid extraction according to the invention, that is to say obtained after