

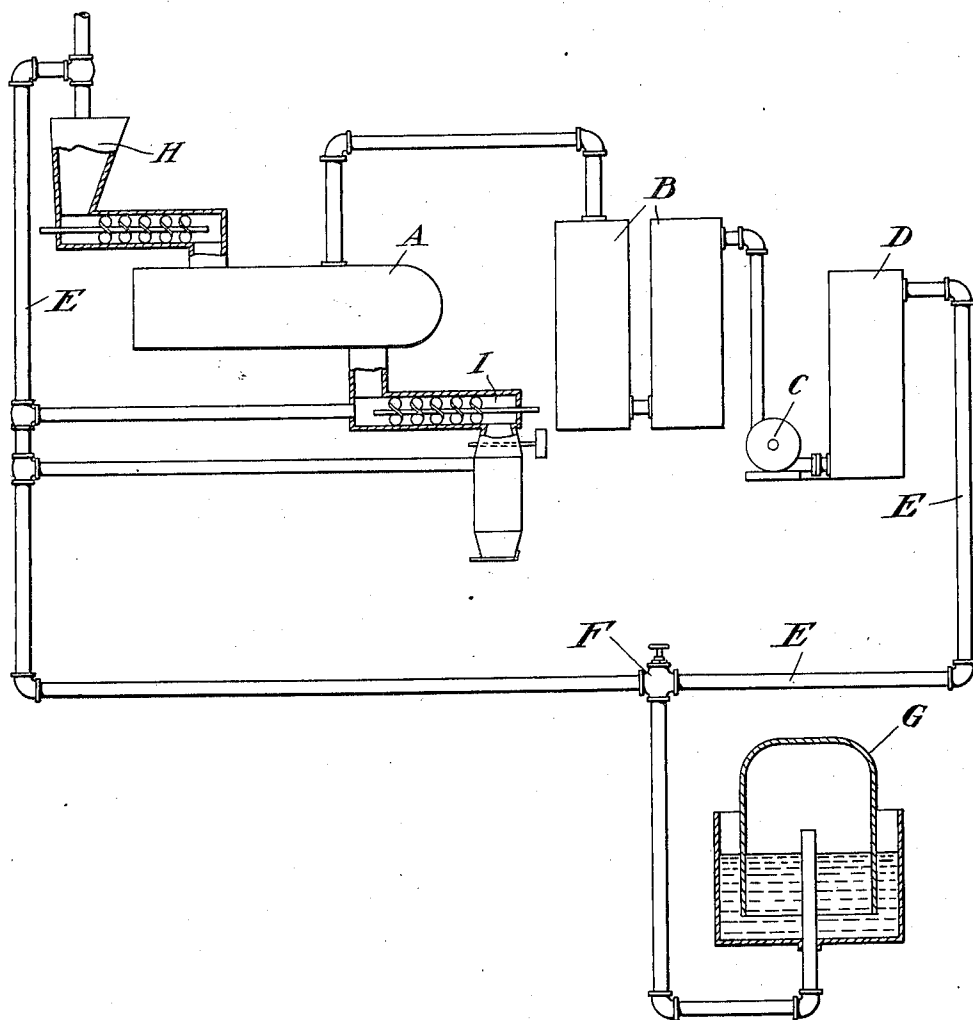
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RECOVERY OF NITROGEN AND ACETONE FROM VINASSES

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RECOVERY OF NITROGEN AND ACETONE FROM VINASSES

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This invention relates to a process for the recovery of nitrogen and acetone from distillery vinasses and the like, in which these products are subjected to a pyrogenous distillation with addition of an alkaline-earth metal base.

It has previously been proposed to carry out the said pyrogenous distillation in vacuo or under reduced pressure, such as an absolute pressure of about 60 millimetres of mercury, and at a temperature of from 500 to 700° C.

The present invention has for its object the suppression of the drawbacks involved by a pyrogenous distillation when the latter is carried out under a very reduced pressure, more particularly of the difficulties of construction and operation of the apparatus working under such a reduced pressure. Moreover, the invention enables to increase the output in the by-products which it is desired to obtain, reduces the duration of the treatment and allows of conducting the operation in a continuous manner.

This invention consists in subjecting the vinasses to a pyrogenous distillation in the presence of an excess of an alkaline-earth metal base in a current of non-oxidizing gases at a pressure approaching or higher than the atmospheric pressure and at a temperature below 600° C.

Particularly favourable results are obtained when the pyrogenous distillation is carried out in a current of nitrogen, or oxide of carbon, or hydrogen, or methane, these gases being saturated or not with water vapour.

The base used for the pyrogenous distillation is preferably lime and its amount preferably exceeds 50 per cent of the weight of vinasses subjected to distillation.

Another characteristic feature of the present invention is that use is made as the gaseous current suitable for the distillation, of the gases obtained from the pyrogenous distillation of the vinasses after recovery of the useful by-products: ketones, ammonia, amines, etc.

The accompanying drawing illustrates diagrammatically and by way of example

one mode of arrangement of apparatus permitting to carry the invention into effect.

Referring to the drawing, A is the distillation oven or retort, B are refrigerating apparatus, C is a pump or exhauster, D is an absorbing apparatus, for acetone for instance, E is the return piping of the gases to the distilling apparatus, F is a valve allowing the excess of gases produced to be sent to a gasholder G; H represents the feeding devices for the initial mixture and I represents the discharge apparatus for the residues.

The latter are carbonaceous substances which can be used as a decolourizing agent.

It is seen from the accompanying drawing that the operation may be carried out in a continuous manner.

The mixing of vinasse to be treated and lime or the like is effected preferably before the distillation operation, and preferably at a temperature of 100° C. An alkaline-earth metal carbonate, such as calcium carbonate, or residues from a previous distillation, or a hygroscopic substance such as saw-dust, may be added together with the lime.

Example.—1,000 kilos of vinasses at 40° Bé. are mixed with 700 kilos of lime and with 300 kilos of saw-dust or with 300 kilos of residues from a previous operation. The mixture thus obtained is subjected to a pyrogenous distillation by progressive heating inside a metallic retort provided with mechanical stirring means, until a temperature of about 350° C. is reached. During the whole operation, a circulation of washed gases obtained from the distilling operation itself is maintained, at a pressure slightly higher than the atmospheric pressure.

80 or 90% of the nitrogen of the vinasse is recovered in the form of ammonia or of cyanurable amines, also 1.50% of acetone of boiling point lower than 65° C., 0.5% of higher ketones and a residue containing about 10% of a very light carbon having decolourizing properties.

I claim:

1. A process for the recovery of nitrogen and acetone from vinasses, comprising subjecting the vinasses to a pyrogenous continu-

ous distillation in a distilling apparatus in the presence of an excess of alkaline earth metal base (over 50% of the weight of vinasses) at a pressure substantially equal to the atmospheric pressure and at a temperature below 600° C., thus producing a distillate, subjecting the distillate to a treatment for the recovery of nitrogen and acetone and for the separation of non-oxidizing gases at a comparatively low temperature, sending the non-oxidizing gases at a comparatively low temperature back into the distilling apparatus, as set forth.

2. A process for the recovery of nitrogen and acetone from vinasses, comprising subjecting the vinasses to a pyrogenous continuous distillation in a distilling apparatus in the presence of an excess of alkaline earth metal base (over 50% of the weight of vinasses) at a pressure substantially equal to the atmospheric pressure and at a temperature below 600° C., thus producing a distillate, subjecting the distillate to a treatment for the recovery of nitrogen and acetone and for the separation of non-oxidizing gases at a comparatively low temperature, saturating the gases with water vapour, and sending them at a comparatively low temperature back into the distilling apparatus, as set forth.

3. A process for the recovery of nitrogen and acetone from vinasses, comprising subjecting the vinasses to a pyrogenous continuous distillation in a distilling apparatus in the presence of an excess of alkaline earth metal base (over 50% of the weight of vinasses), and of a hygroscopic substance, thus producing a distillate, subjecting the distillate to a treatment for the recovery of nitrogen and acetone and for the separation of non-oxidizing gases at a comparatively low temperature, saturating the gases with water vapour, and sending them at a comparatively low temperature back into the distilling apparatus, as set forth.

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