

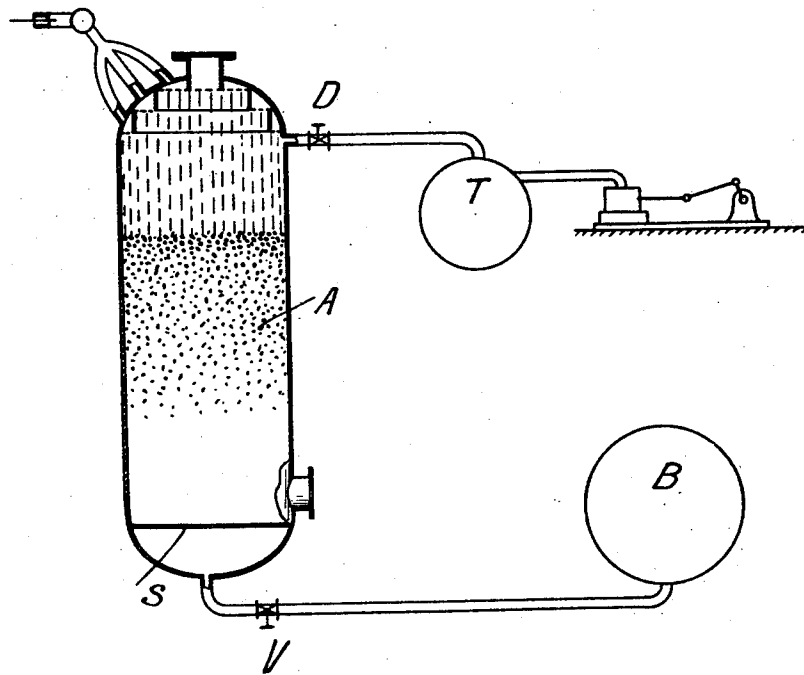
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PROCESS OF REMOVING LIQUOR FROM WOOD PULP DIGESTERS

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PROCESS OF REMOVING LIQUOR FROM WOOD PULP DIGESTERS

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The present invention relates to a process for washing away the liquor from the wood pulp digester after the termination of the digesting process. In case the washing liquid has a temperature which is lower than the temperature of the contents of the digester, the addition of the new liquid will have the effect of causing condensation, pressure reduction and accordingly evaporation of the liquor which is present in the digester.

In most cases this will have the effect of reducing the thermal efficiency of the process, as a certain quantity of heat is utilized for unnecessary evaporation instead of directly heating of the added liquid without evaporation.

The present invention has for its object to avoid this drawback, and this object is attained in accordance with the invention by connecting the upper part (the steam space of the digester) with a source of indifferent pressure gas such as air, by means of which it is possible to regulate the pressure in the digester independent of heat supply and heat consumption in such a manner that the addition of liquid at a lower temperature will not cause evaporation of the hotter liquid (liquor) in the digester.

The supply conduit for the indifferent pressure gas may be controlled by hand or may also be controlled automatically from a pressure relay connected with the interior of the digester and by means of which it is possible at all times to maintain independent of the temperature conditions a constant pressure, which varies in accordance with a prescribed scale.

As an example of the process in accordance with the invention reference should be had to the diagrammatic drawing and to the following description thereof.

A sulfate digester A, in which the digesting process has been terminated, is supposed to contain wood pulp and liquor at a temperature of 170° C. at a pressure of approximately 8 kg./cm.². The digester is provided with a bottom sieve S.

When the valve V below the sieve is opened the liquor is blown out to the vessel B at a temperature of 170° C. In this manner

the quantity of liquor which may be liberated from the wood fibres at once is removed.

In order to wash out the rest of the liquor it is necessary to introduce washing or leaching liquid, and for the sake of simplicity it is presumed that there is introduced in the digester water at a temperature of 100° C., which is spread through sieve D in form of a shower on the surface of the wood pulp.

This water at a temperature of 100° C. obviously will cause condensation of the steam in the upper space of the digester and after a certain time interval the liquor absorbed in the pulp will begin to evaporate owing to the pressure reduction caused by the condensation, and the temperature of said liquor will thereby be reduced owing to the heat consumed by the evaporation.

If however the steam space at the top of the digester be connected with a source of pressure air such as vessel T at a pressure of 8 kg./cm.², the pressure in the digester will be maintained by means of the pressure air during the condensation of the steam.

Accordingly the washing or leaching water introduced at a temperature of 100° C. will successively be substituted for the remaining liquor having a temperature of 170° C. and at last this remaining liquor will be removed to vessel B at full temperature, whereas at the same time the contents of the digester will have been washed clear of liquor and be filled with pulp and water at a temperature of 100° C. In other words the only heat exchange that takes place will be the inconsiderable transmission of heat in the zone separating the liquor and the washing water.

If so desired first amount of washing water at 100° C. may be removed in the same manner by means of cold water maintaining the same pressure in order to obtain a quicker removal of the hot water.

The washing water at 100° C. more or less mixed with liquor which is removed in this manner may be stored in a separate tank in order to be utilized in further operations.

In accordance with the present process there is obtained a good thermal efficiency (no depression of temperature) and an effi-

cient removal of the liquor, which again means economy with regard to chemicals.

Instead of using pure water at 100° C. it may be advantageous to use as washing liquid
5 a thin solution of chemicals which has a beneficent effect on the efficiency of the washing process. When this washing liquid is afterwards removed in the manner specified
10 by means of clean cold water in order to be utilized for further operations no loss of chemicals will take place.

Claim:

A process for removing digesting liquor from wood pulp digesters after termination
15 of the digesting process, by introduction of washing or leaching liquid, characterized by that washing liquid having a temperature lower than the temperature prevailing in the interior of the digester is introduced into
20 the upper part of the digester together with an indifferent pressure gas for the purpose of maintaining in the interior of the digester a substantially constant pressure during the washing process.

25 In testimony whereof I affix my signature.
EINAR MORTERUD.

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