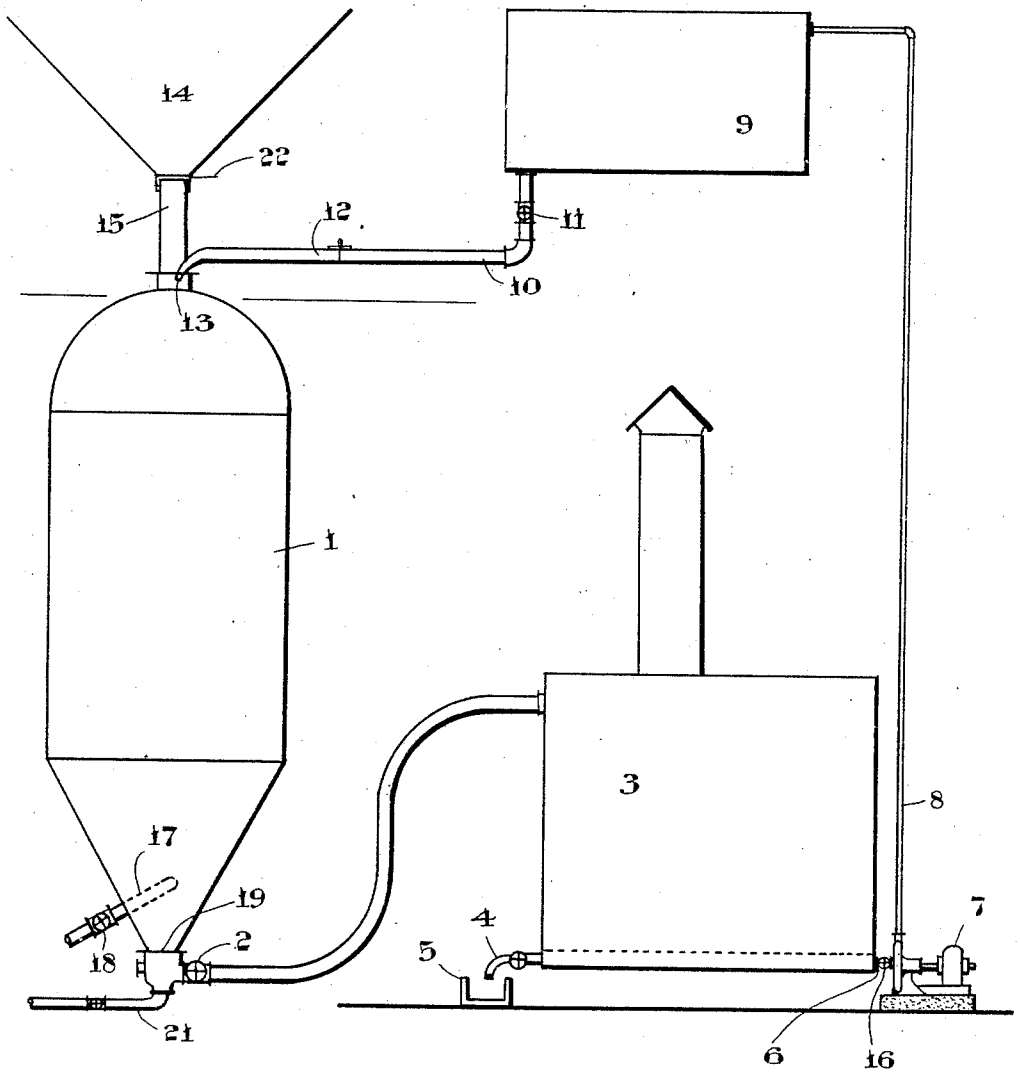
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METHOD OF COOKING SULPHITE PULP

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METHOD OF COOKING SULPHITE PULP.

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This invention relates to new and useful improvements in the method of cooking sulphite pulp and particularly to the method of feeding wood chips to the digester and the object of the invention is to provide a very efficient method of producing sulphite pulp with the minimum amount of expense in labour and cooking fluids such as acid and steam.

Another object is to provide a method which will ensure an even cooking of the pulp or wood chips within the digester or cooking vessel.

A further object is to provide a method of packing the wood chips within the digester, so that the capacity of the digester or amount of cooking material therein will show a decided increase when compared with the method at present in use.

A still further object is to provide a method of cooking sulphite pulp in which a high percentage of the heat energy used in the cooking will be recovered and used to increase the efficiency of the digester and the quality and quantity of pulp produced.

Further objects and advantages of the invention will be apparent to those familiar with the art, from the following description.

In my invention, I make use of the hot liquor blown from the digester with the pulp after it is cooked, to preheat the wood chips as they are being fed into the digester. This preheating and soaking of the chips tends to increase the quality of the cook as well as washing them into position in the digester, thereby ensuring their closest possible packing.

In the drawing, I have shown one form of apparatus which may be used in my improved method of cooking sulphite pulp.

Referring more particularly to the drawing, 1 designates a digester of ordinary construction, the lower end of which is provided with a discharge valve 2, which is connected to a blow pit 3. The blow pit is provided with a valve controlled drain cock 4, which leads into a discharge trough 5. Also connected to the lower end of the blow pit is the inlet pipe 6 of a pump 7, the outlet 8 from which is connected to a storage tank or reservoir 9. Depending from the underside of the tank 9 is the pipe 10, which may be provided with a control valve 11 and a removable connection shown diagrammatically and designated 12. The free end 13 of said pipe is so positioned that it will enter the top of the digester when the cover (not shown) is removed. A chip bin or hopper 14 is positioned above the level of the digester and communicates therewith by means of the pipe or chute 15. A valve 16 may be positioned in the inlet pipe to the pump, so that liquor may be prevented from flowing thereinto when drain cock 4 is in operation. The end 13 of the pipe is so positioned that it will impregnate the wood chips with liquor from the storage tank as they pass into the digester. A drain pipe 17 may be provided at the bottom of the digester and suitable controlling means, such as the valve 18 may be provided therein. The discharge end 19 of the digester may also be provided with a passageway which may be used for feeding steam, and acid to the digester after the digester is filled with chips. I have shown an inlet pipe 21 to the digester for the admission of the acid and steam and this may be connected to any suitable sources of supply (not shown). The drawing is only diagrammatic and various modifications may be made in the positioning of the valves and the piping without departing from the spirit of the invention. The liquor from the storage tank is shown as gravity fed, but a force feed, such as a pump, may be used to feed the liquor to the digester. This is not shown but any of the well known types of pumps may be used to force the liquor into the digester. Another modification may be made in that the storage tank may be eliminated and the liquor pumped direct from the blow pit into the digester. A gate or sliding valve 22 may be provided to regulate the flow of chips from the chip bin or hopper 14. The method of operation is as follows, consisting of at the completion of the cooking operation the digester charge, the cooked pulp and hot liquor is blow from the digester into the blow pit through the operation of valve 2 which is then closed again. The hot liquor as it drains off from the pulp is withdrawn from the blow pit and pumped into the reservoir or storage tank. The top of the digester is opened and the free end of the pipe 10 placed above or into said opening. The gate valve in the chip bin and the valve in the pipe 10 are simultaneously opened. The valve in the drain pipe 17 is also opened. In this way the chips are washed into position in the digester, thus ensuring their closest possible packing. They are also

raised in temperature to that of the liquor with which they are in contact and which should be approximately 100° C. This heating further facilitates the packing of the chips and in this way further increases the quantity of chips which may be introduced into the digester per charge. The liquor may pass on through the chips and be discharged through the open drain. When a suitable quantity of chips are within the digester, valves 11, 18 and 22 are closed and the cover (not shown), is fitted to the top of the digester to close same. As a result of these operations approximately 15% of the total heat used in the cooking operation may be regenerated and about 15% more chips may be packed into the digester than would be the case if the chips had been fed into the digester cold and by gravity alone, as is usually done at the present time in plants of this class. The increased quantity of chips when fed into the digester in the manner herein disclosed, is uniformly heated to a temperature approximating the temperature of the liquor which is about 100° C., without the expenditure of any fresh steam. To complete the cooking of the charge, strong cooking acid and steam are then introduced to the digester.

From this disclosure the simplicity of the operation will be apparent and great savings are made possible in the time taken to prepare a charge and to bring same to its cooked condition.

Having thus described my invention, what I claim is:—

1. In a sulphite cooking process, the method of feeding wood chips into the cooking vessel, consisting of feeding into the vessel through the same opening, a quantity of heated liquor simultaneously with a quantity of wood chips to soak and wash the chips into position.

2. In a sulphite cooking process, the method of feeding wood chips into the cooking vessel, consisting of feeding a quantity of previously used hot liquor and a quantity of chips into the vessel through the same opening, in such a manner that the chips are soaked and washed as they pass into the vessel and also packed closely within the vessel in their soaked condition by the excess liquor passing into the vessel.

3. In a sulphite pulp cooking process, the method of feeding wood chips into the cooking vessel, consisting in utilizing the discharged liquor from a previous cooking, operation for preheating and washing the wood chips into position within the vessel.

4. In a sulphite pulp cooking process, the method of feeding wood chips into the cooking vessel or digester consisting of utilizing the hot liquor blown from the digester with the cooked charge, and redirecting the said hot liquor to the top of the digester and feeding same into the digester simultaneously with the wood chips for a second charge.

5. In a sulphite pulp cooking process, the method of feeding wood chips to a cooking vessel or digester, consisting of blowing hot liquor and cooked pulp into a blow pit, draining off the hot liquor from the blow pit and pumping it into a reservoir, and simultaneously feeding wood chips and the hot liquor into the top of the digester and draining off the hot liquor from the digester.

6. In a sulphite pulp cooking process, the method of feeding wood chips to a cooking vessel or digester, consisting of utilizing the hot liquor blown from the digester with a cooked charge, to uniformly preheat and wash into position wood chips fed thereinto for a second charge and allowing said liquor to drain off from the bottom of the digester.

In witness whereof, I have hereunto set my hand.

GEORGE H. TOMLINSON.