

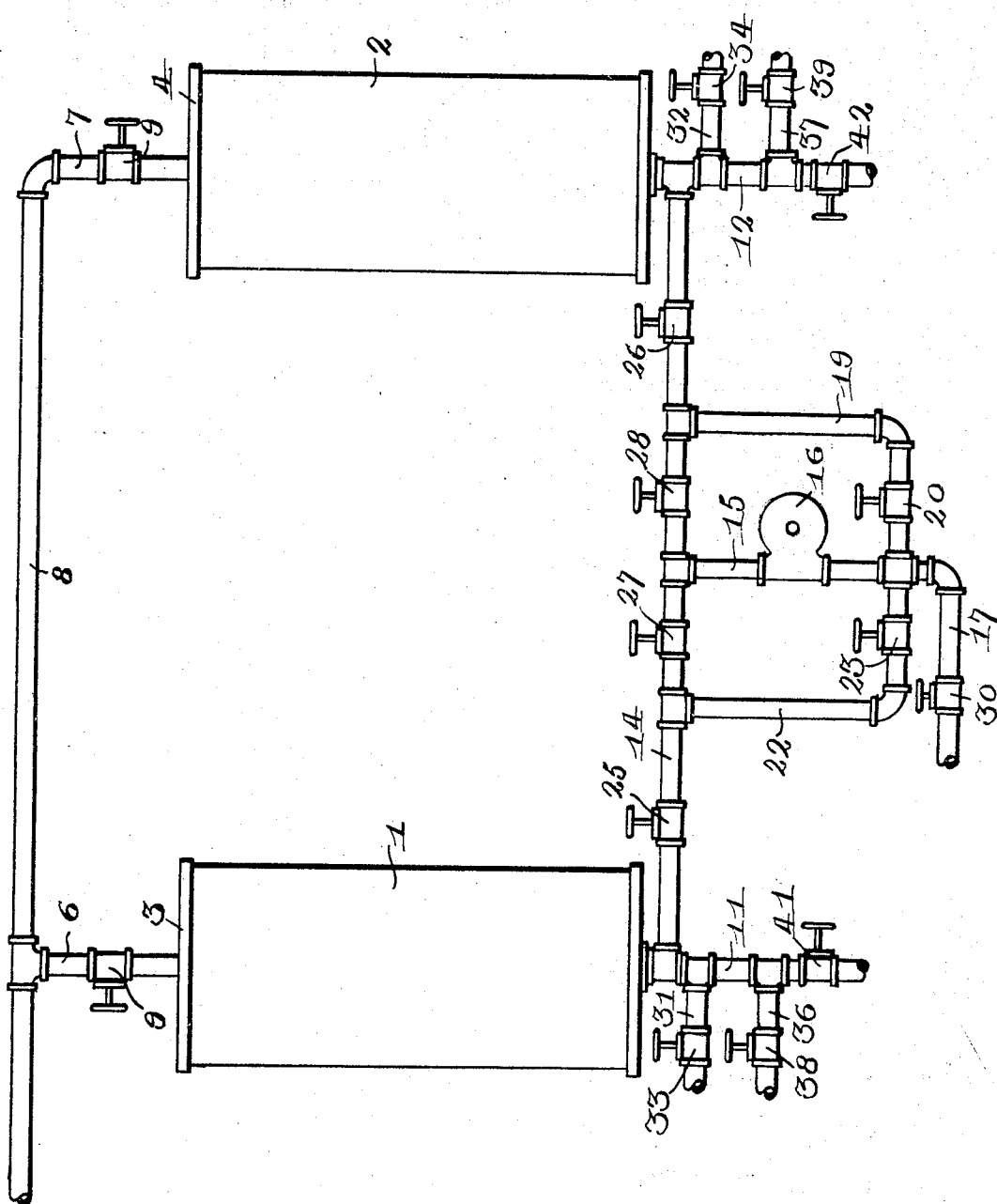
Oct. 2, 1934.

L. B. DECKER

1,975,255

PROCESS OF TREATING WOOD

Filed March 1, 1932



Leemuel B. Decker Inventor

By *Marion H. Marion*
Attorneys

UNITED STATES PATENT OFFICE

1,975,255

PROCESS OF TREATING WOOD

Lemuel B. Decker, Kenogami, Quebec, Canada

Application March 1, 1932, Serial No. 596,107

3 Claims. (Cl. 92—7)

The present invention relates to a process of and apparatus for treating wood and particularly for treating wood in block form to be employed in the manufacture of wood pulp.

5 This application is a continuation in part of my United States application Serial No. 440,111 filed March 29, 1930, entitled "Process and apparatus for manufacturing wood pulp".

10 An important object of the invention is the provision of a process and apparatus whereby wood blocks will be pre-heated prior to subjecting the same to an impregnating treatment.

A further object of the invention is the provision of a process and apparatus whereby the 15 treating liquor will be transferred from one vessel upon completion of an impregnating treatment to a second vessel in order to pre-heat wood blocks disposed in the latter.

20 Another object of the invention is the provision of a process and apparatus adapted to effect an economy in the preliminary treatment of blocks in the manufacture of wood pulp.

Other objects and advantages of the invention will become apparent as the description progresses. 25

In the accompanying drawing forming a part of this specification and in which like reference characters are employed to designate corresponding parts throughout the same:

30 The figure diagrammatically illustrates an apparatus capable of carrying out the invention.

Referring to the drawing, wherein for the purpose of illustration is shown a preferred embodiment of the invention, the numerals 1 and 2 designate a pair of complementary wood block treating vessels. To the top of the vessels 1 and 2 are connected covers 3 and 4 which are removable during the charging and discharging of the vessels. 35

40 To the top of the vessels are connected upwardly projecting branch conduits 6 and 7 each of which connects with a horizontally extending header conduit 8. In each of the branch conduits 6 and 7 is mounted a control valve 9.

45 To the bottom of the vessels 1 and 2 are connected downwardly projecting discharge conduits 11 and 12. Extending horizontally between and connecting with the conduits 11 and 12 is a transversely projecting conduit 14.

50 Connected to the central portion of the conduit 14 is a depending conduit 15 having operatively associated therewith a pump 16. The lower portion of the depending conduit 15 connects with a horizontally extending pipe line 17.

To one side of the conduit 14 is connected the upper end of an angular by-pass branch 19 while the lower inner end thereof connects with the conduit 15 below the pump 16. In the branch 19 is disposed a control valve 20. At the other side 60 of the conduit 14 is connected a similar angular by-pass 22 whose lower inner end also connects with the pipe 15. The movement of fluid through the by-pass branch 22 is controlled by a valve 23. Valves 25 and 26 are connected in the conduit 65 14 between the connection of each by-pass branch and the discharge conduits 11 and 12. Similar valves 27 and 28 are disposed between the connections of the by-pass lines and the central pump line 15 in the conduit 14. A valve 30 is also 70 mounted in the horizontal line 17.

To the intermediate portions of the discharge pipes 11 and 12 are connected branch pipes 31 and 32 equipped with control valves 33 and 34. Additional branch conduits 36 and 37 are con- 75 nected with the depending pipes 11 and 12 and are equipped with control valves 38 and 39. Below the connection of the pipe lines 36 and 37 the depending pipes 11 and 12 are provided with valves 41 and 42. 80

In carrying out the process, the cover of one of the vessels is removed, as for instance the cover 4 of the vessel 2, and the vessel is charged with wood, as for instance, wood blocks of suitable size for grinding such as logs or billets. Upon 85 completion of the charging operation the cover 4 is restored to its closing position.

Prior to the block charging operation, the control valves associated with the vessel 2 are preferably closed. Thereafter, the valves 26, 28 and 90 30 are opened and the pump 16 operated so that a treating liquor is injected into the bottom of the vessel from a storage tank through the conduits 14, 15 and 17.

The blocks are subjected to an impregnating 95 treatment in the treating liquor. This may be accomplished by heating the liquor through the medium of steam which may be admitted through the pipes 12 and 37 by opening the valve 39. During the treating operation an overflow relief may 100 be effected by opening the valve 9 so that the overflow will be discharged through the branch 7 and the header 8.

When the block treating operation is completed, the valves 9 and 39 are closed. The valves 105 26, 20, 27 and 25 are then opened and the pump 16 actuated so as to transfer the liquor remaining in the vessel 2, after completion of the impregnating treatment, into the vessel 1, which has been charged with wood blocks during the opera- 110

tion of the treatment in the complementary digester 2.

The heated liquor transferred from the vessel 2 is thus utilized to pre-heat the blocks in the vessel 1.

After the heat of the utilized liquor has been efficiently consumed in the vessel 1, the valve 41 is opened and the heating liquor is removed through the pipe 11 from the vessel 1.

The valve 41 is then closed and the valves 25, 27 and 30 opened so that fresh liquor can be injected into the block filled vessel 1 through the operation of the pump 16. The blocks in the vessel 1 are thereafter treated in the manner previously described and the cycle of operations, which followed the treatment of the blocks in the vessel 2, is repeated.

By thus transferring the treating liquor from one treating vessel, after the completion of the treatment therein, to a complementary vessel connected in battery therewith to pre-heat the blocks with which the second vessel has been charged, I effect a substantial economy in cost of operation, since the utilization of the heat retained in the previously employed liquor will result in reduction of the heat required to effect the further treatment of the blocks.

Water or other fluid, for cleansing the blocks or other purposes may be admitted to the respective vessels through the branch pipes 31 and 32 and the flow therethrough controlled by the valves 33 and 34.

It is to be understood that the form of my invention herein shown and described is to be taken as a preferred example of the same, and that various changes as to the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:—

1. The process of treating wood blocks in the manufacture of pulp which consists in softening the blocks in a heated liquor, transferring the heated liquor from the treating vessel, after the completion of the treatment, into an adjacent vessel charged with wood blocks to initially heat the wood blocks in the latter prior to softening the same, and subsequently grinding the wood blocks thus treated.

2. The process of treating wood blocks in log form for the manufacture of pulp which consists in charging one vessel of a battery with wood blocks, introducing a treating liquor into the vessel and subjecting the blocks to a heat treatment therein, transferring the heated liquor retained in the vessel, after completion of the treatment directly to a complementary vessel charged with blocks, heating the blocks in the latter vessel by the liquid transferred thereto, removing the liquor from the last mentioned vessel after the heating treatment, introducing a treating liquor therein, and treating the blocks in the said last mentioned vessel.

3. The process of treating wood blocks for the manufacture of pulp which consists in charging one vessel of a battery, with wood blocks, introducing a treating liquor into the vessel and subjecting the blocks to a heat treatment therein, transferring the heated liquor retained in the vessel, after completion of the treatment, to a complementary vessel charged with blocks, heating the blocks in the latter vessel by the liquid transferred thereto, removing the liquor from the last mentioned vessel after the heating treatment, introducing a treating liquor therein, impregnating the blocks in the said last mentioned vessel, and grinding the blocks.

LEMUEL B. DECKER.