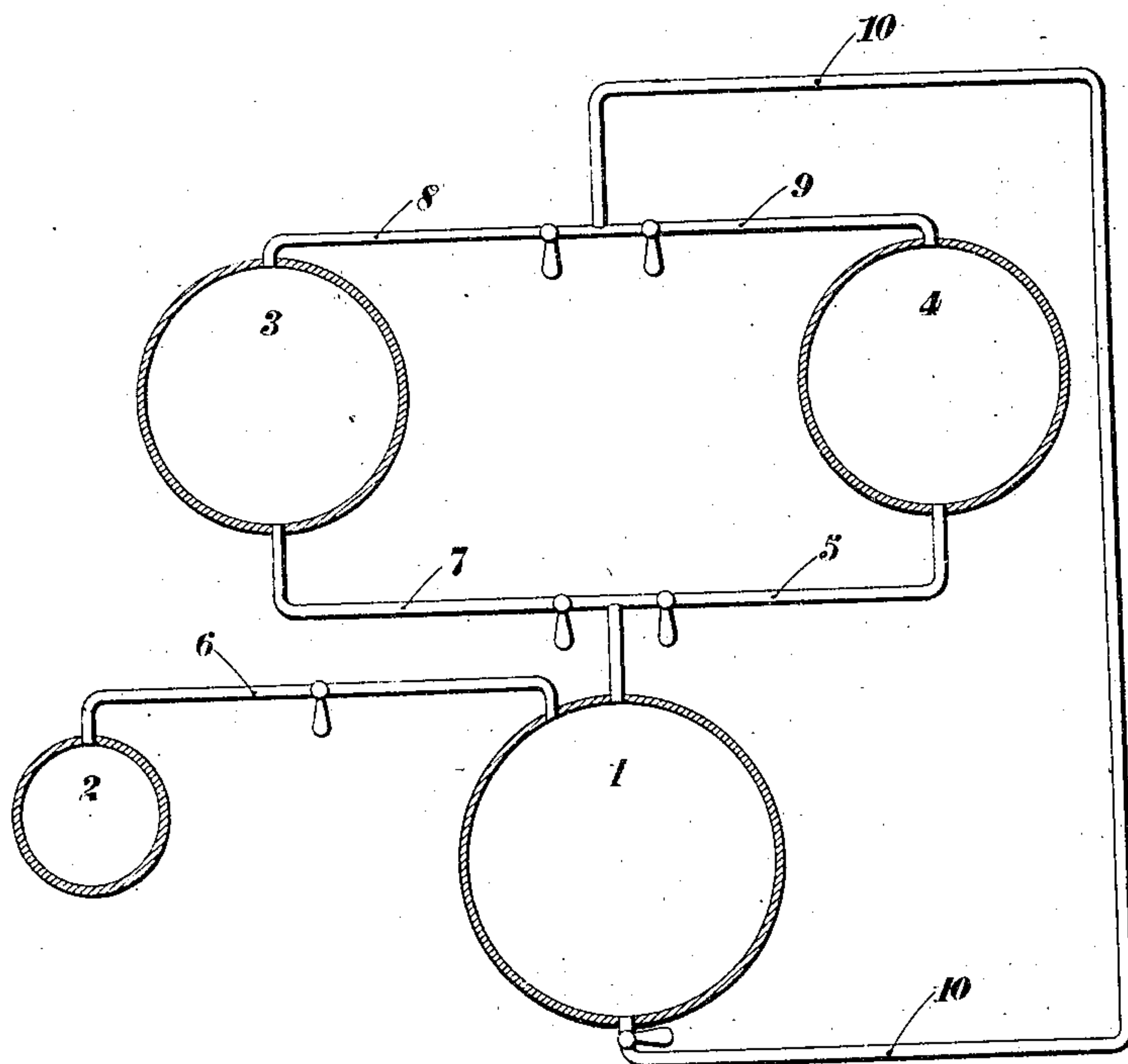


J. CHATEAU & J. MERKLEN.
 PROCESS OF IMPREGNATING WOOD.
 APPLICATION FILED JUNE 5, 1907.

925,292.

Patented June 15, 1909.



Witnesses:

J. B. Kester
C. A. Kester

Inventors

Justin Chateau
Jules Merklen

By James L. Norris

Att'y

UNITED STATES PATENT OFFICE.

JUSTIN CHATEAU AND JULES MERKLEN, OF PARIS, FRANCE.

PROCESS OF IMPREGNATING WOOD.

No. 925,292.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed June 5, 1907. Serial No. 377,436.

To all whom it may concern:

Be it known that we, JUSTIN CHATEAU and JULES MERKLEN, both citizens of the French Republic, residing at Paris, Department of the Seine, France, have invented certain new and useful Improvements in Processes of Impregnating Wood, of which the following is a specification.

The present invention relates to a process permitting of injecting a fluid into porous bodies of all kinds, and in causing this fluid to penetrate throughout the depth of the porous material, while at the same time confining the consumption of impregnating material to as small a quantity as desired.

This process is particularly applicable to the injection of antiseptic liquids into railway sleepers, and the like and it is an application of this kind which will be described by way of example in the following specification.

The accompanying drawing shows, also by way of example, a diagram of an impregnating apparatus permitting the carrying out of the invention.

The method of impregnation termed the "vacuum and pressure process" is known. It consists in arranging the wood inside a chamber in which a vacuum is formed, so as to extract the air and water vapor. When the rarefaction is sufficient, hot creosote is introduced and compressed. The process thus applied can only give an inadequate or very costly impregnation. If the pressure be caused to act for too short a time, the impregnation will be relatively superficial, and will only be complete for a certain distance from the ends of the sleepers. If it is desired to impregnate these sleepers completely, the pressure must be prolonged for a considerable period; the saturation will be good, but with the absorption of a very large quantity of creosote.

In accordance with the invention, a limited quantity of antiseptic is injected by means of the vacuum and pressure process, and however limited it may be, its diffusion in the material is caused by the subsequent action of one or more auxiliary distributing fluids, antiseptic or not, which are themselves supplied under pressure, as hereinafter explained. The wood to be impregnated is placed in a receptacle 1 capable of withstanding a high pressure and raised to the necessary temperature the wood or material being preferably heated sufficiently to vaporize the sap or other moisture contained therein.

This receptacle 1 is exhausted by placing it in communication by means of a pipe 6 with a pneumatic pipe or with a chamber represented at 2, in which a vacuum has previously been formed. The creosote or any other principal antiseptic is contained in another vessel 3, suitably heated and communicating by means of a pipe 7 with the receptacle 1 containing the wood. By means of an apparatus of any suitable kind, the antiseptic liquid is compressed in this receptacle 1 to such a degree as to force a sufficient quantity of the antiseptic fluid into the wood, the impregnation of the latter with the primary antiseptic fluid being interrupted before a complete saturation of the wood with such liquid so that a quantity of the primary antiseptic fluid is absorbed which is a fractional part only of the quantity which the wood is capable of absorbing. The operation is then stopped, and the creosote in excess is extracted from the receptacle 1 through a drain pipe 10 which by means of a branch pipe 8 conducts it to the creosote reservoir 3. It then remains to diffuse the creosote which has been absorbed through the material. To this end the receptacle 1 is filled with an auxiliary fluid which may itself be antiseptic, and which is heated to an appropriate temperature; the principal desideratum as regards the quality of this fluid is that it should be as inexpensive as possible, and it may be for example water, water vapor, air, or a mixture of air and vapor and so on contained in a vessel 4. When this fluid is introduced into the receptacle 1, it is compressed there by any appropriate means. The said fluid, in its turn penetrates the wood as would have been done by the creosote (or other principal antiseptic) if this latter had been maintained under pressure in the cylinder, and it carries the creosote into the material appropriately distributing it at the same time. The receptacle 1 is again drained, for instance by means of the pipe 10 and the wood treated is withdrawn from it.

It will of course be understood that by means of a set of cocks on the different pipes it is possible to effect the operations in an appropriate manner.

One vessel for auxiliary fluids has been above described and represented; several vessels however, of the same kind serving to contain several different fluids for utilization after the injection of the principal antiseptic,

and which would act either in succession or simultaneously, might be made use of.

The foregoing description presents the process in accordance with the invention
5 superimposed on the process termed the vacuum and pressure process. This example has been selected because it is the method most generally employed for the impregnation of railway sleepers, but the diffusion
10 action of auxiliary fluids whether antiseptic or not might be superimposed on the application of all known processes which do not insure a distribution of the antiseptic throughout the entire material, for example
15 ple to the immersion processes or to the following processes: Lebioda, Hulsberg et Cie., Valles et Bastien, Giussani, Rütgers et Cie., and others. The essential means will always consist in arresting the absorption
20 of the principal antiseptic at the moment at which a predetermined mean quantity has been injected, then in distributing the fraction absorbed by means of one or more auxiliary fluids. Finally, as stated at the commencement, it is possible, in an absolutely
25 general manner apart from the application to railway sleepers which has been described (which is also applicable to other wood pieces such as telegraph posts, timber for
30 mines, etc., etc.) by means of the method set forth to impregnate porous materials of all kinds by means of a limited quantity of a principal fluid which is nevertheless distributed throughout the entire mass un-

der the influence of auxiliary fluids compressed to an appropriate pressure. In this manner it is possible for example to produce the penetration of coloring matters into porous materials.

We claim as our invention:

40

The herein described process of preserving porous materials, consisting in introducing the material into a closed receptacle, exhausting the air from such receptacle and
45 subjecting the material to a prolonged vacuum, introducing a primary antiseptic fluid into the receptacle and subjecting such fluid to pressure to force it into the pores of the material, relieving the pressure upon said
50 antiseptic fluid and withdrawing the unabsorbed portion of the fluid from the receptacle after the material has absorbed a fractional quantity of such fluid, and then introducing into the receptacle successively and
55 at intervals auxiliary fluids under successively increasing pressures for diffusing the fractional quantity of antiseptic fluid absorbed by the material throughout the mass of the latter.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

JUSTIN CHATEAU.
JULES MERKLEN.

Witnesses:

EMILE KLOTZ,
H. C. COXE.