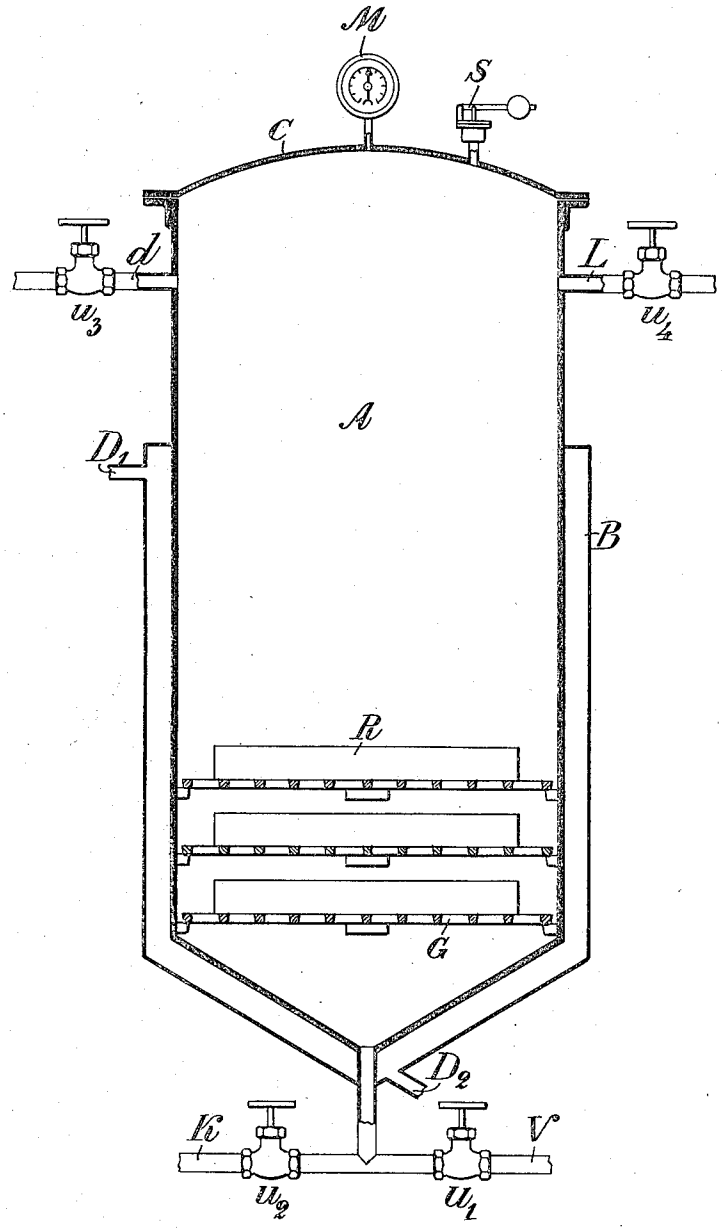
L. PETERSEN-HVIID.

PROCESS OF TREATING WOVEN TEXTILE BELTS.

APPLICATION FILED SEPT. 30, 1918.

1,310,867. Patented July 22, 1919.



Inventor

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PROCESS OF TREATING WOVEN TEXTILE BELTS.

1,310,867. Specification of Letters Patent. Patented July 22, 1919.

Application filed September 30, 1918. Serial No. 256,364.

To all whom it may concern:

Be it known that I, LAURITZ PETERSEN-HVIID, a chemical engineer, subject of the King of Denmark, residing at Copenhagen, Vestervoldgade 86, Denmark, have invented certain new and useful Improvements in Processes of Treating Woven Textile Belts, of which the following is a specification.

It is a well known fact that woven textile belts have the defect of being highly hygroscopic. Attempts have been made in different ways to overcome this objectionable feature, especially by impregnating the belts with various fillers, of which linseed oil, asphalt, balata and the like are the most common ones.

It has been proposed to subject the belt to a washing-out treatment before being impregnated, so that the finished belt is first washed out and dried and then impregnated. This procedure, however, has the disadvantage of requiring two separate treatments, as the washing and impregnation cannot be performed by one operation, and the process will, consequently, be elaborate and expensive. Moreover, there is the conspicuous disadvantage that the texture, by being permeated a second time with a fluid and thereafter dried, will "work" so that the impregnating substance will be displaced on the fibers.

The object of the present invention is to relieve the defects above indicated, and this has been attained, partly by causing the washing, drying and impregnating treatments to be performed by a single operation, the impregnating step being carried out first, partly by leaving the impregnating substance in an elastic state until the completion of the treatment and thereby causing it to be evenly and equally dispersed in the fibers.

In the drawing is shown a diagrammatic sectional view of an apparatus by means of which the improved process can be carried out.

Referring to said drawing, A is an iron tank, which may be provided in its interior with removable grids G, or the like, on which the rolls of belting R can be placed. The tank A is provided with a removable cover C which fits in an air-tight manner on the top of the tank. The greater part of the tank A is surrounded by a steam jacket B with a steam supply pipe D′, and outlet pipe D^2. Moreover, the tank A is further provided with a supply pipe *d* leading into the interior of the tank and connected to a source of steam and also to a source of impregnating liquid, both not shown, a vacuum pipe L connected to a suitable suction pump or to an air compressor and a vacuum gage M and safety valve S, as well as with draw-off pipes K and V for the liquid and for any condensate which may form in the tank. The several pipes, V, K, *d* and L are provided, respectively, with regulating valves u', u^2, u^3 and u^4.

The process is carried out as follows:

The woven textile belts are placed in the tank A, in which the impregnating operation is to take place, and a vacuum is then created therein, the valve u^4 being opened and shut again when the pressure has fallen the necessary extent. The impregnating substance or filler, dissolved in benzol, benzene or the like, is then supplied, the valve u^3 being opened, and if possible an excess pressure is applied on the liquid, and finally the superfluous liquid is drawn off through pipe K. Thereupon steam of a suitable temperature and pressure is supplied to the tank through the pipe *d*, which will quickly evaporate the solvent, which has been used and which is left in the belts. The solvent vapors, as well as the steam, are then drawn out through the pipe K which leads to a condenser, whereafter the solvent will be separated from the water.

The steam and the high temperature to which the belts are subjected will at the same time drive out and vaporize the hygroscopic substances contained in the belts, and the spaces thus exhausted will be filled by the impregnating liquid. Hence it follows that the impregnating action is only completed when the fibers of the belts have assumed their final form.

The tank A is now heated to such a temperature that all moisture can easily be removed by creating a vacuum.

The belts will thus be perfectly dry.

Belts produced according to this process are in no way influenced by moisture, they being completely impregnated; and as the various steps are performed without removing the belts, and as the belts do not require any special manipulation and the solvent of the impregnating substance is recovered it will easily be understood that this process

is economical and can be carried out at small expense.

I claim as my invention:

The proces of treating woven textile belting, which consists in initially impregnating the belting while in a vacuum with a liquid filler containing a solvent; relieving the vacuum and drawing off the superfluous liquid; subjecting the impregnated belting to the direct action of steam at a suitable temperature and pressure to vaporize the solvent contained in the liquid filler and to drive out the hygroscopic substances contained in the belting, thereby permitting said liquid to fill the spaces from which said hygroscopic substances were driven out; drawing off the vapors and steam; and then drying the belting under heat and vacuum; substantially as described.

In testimony whereof I have affixed my signature.

LAURITZ PETERSEN-HVIID.

Witnesses:

E. WEILPKOW,

CHARLES UNDE.