

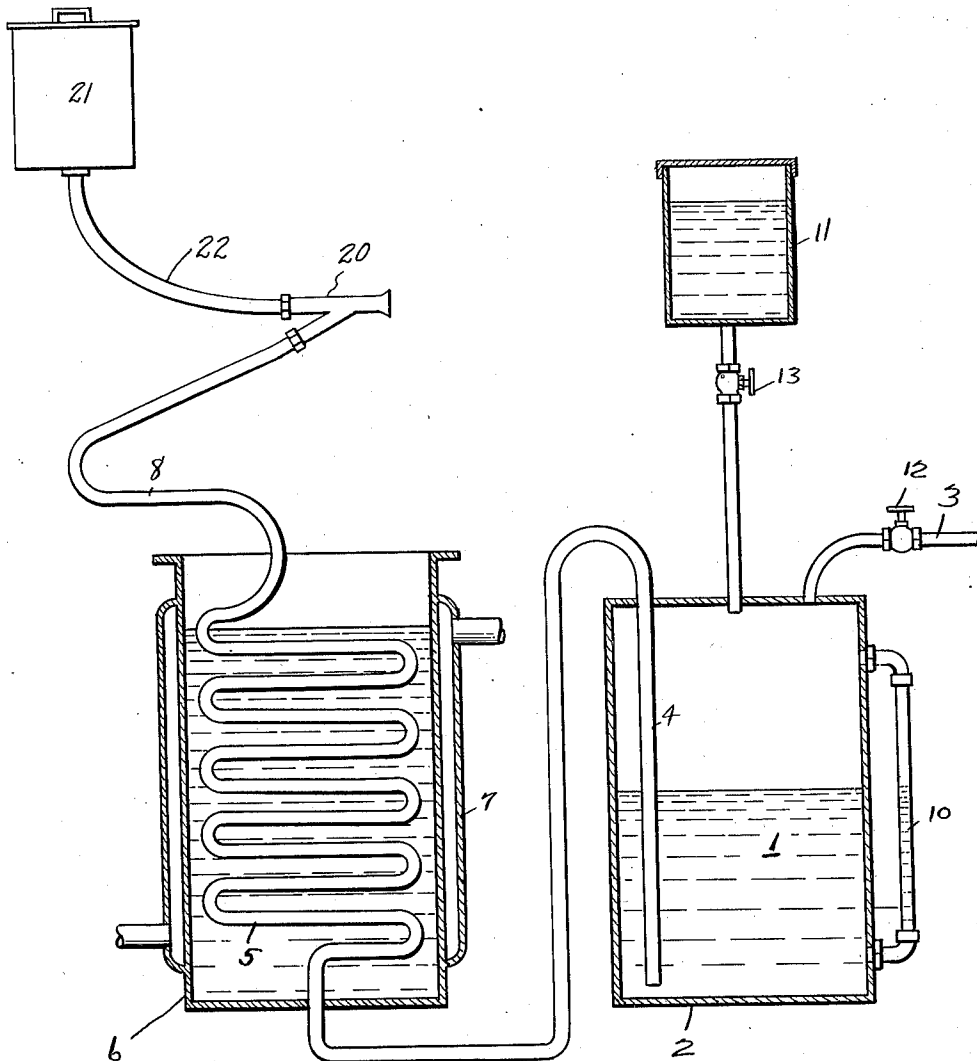
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COATING PROCESS

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COATING PROCESS.

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The present invention relates to improvements in coating processes and particularly to such processes involving the application by spraying or atomizing of coatings of lacquers, varnishes and the like carried or dissolved in volatile solvents.

Among the objects of the invention is to avoid the common difficulty, usually attendant on such processes, of producing a "pebbly" or uneven surface necessitating a rubbing step to produce a smooth polished surface.

Heretofore, the atomization or spraying of such materials has usually been accomplished by means of compressed air and the pebbly effect has been ascribed to the partial evaporation of solvent from some of the droplets in the spray, thereby rendering the spray non-uniform in character, some of the droplets being more concentrated than others.

In Patent No. 1,546,357, issued July 21, 1925, to the present applicant, there is disclosed and claimed a process which obviates the above difficulty, but in which air or other fixed gas saturated with solvent vapor is used as the propellant.

Another object, therefore, of the present process is the elimination of air or other fixed gas for the propellant and along with it certain difficulties which inevitably accompany such use.

With these and other objects in view as will more clearly hereinafter appear, the present process consists broadly in spraying the lacquer or the like with the solvent itself in gaseous form under pressure as the propellant.

Reference should be made to the accompanying drawing, in which the figure illustrates diagrammatically apparatus used in carrying out the process.

In the apparatus illustrated, a body of the solvent 1, such as acetone, butyl alcohol or acetate, or other solvent such as is used in the particular lacquer to be atomized, is put under pressure in a closed tank 2 by means of compressed air from pipe 3 leading from a suitable source.

The air pressure forces the solvent from tank 2 up through pipe 4, leading from near the bottom of tank 2, and to the lower end

of a worm 5 in a vessel 6 containing water or other heat transfer medium, the vessel 6 being provided with heating means, such as steam jacket 7. The liquid solvent from pipe 4 is gasified in worm 5 and passes out of the upper end 8 thereof to the spray apparatus, means being provided, if desired, to heat-insulate the pipe 8 to maintain the gaseous state of the solvent. A conventional representation of the spray gun is indicated at 20 as connected to pipe 8 and through pipe 22 to a tank 21 which contains the lacquer or other coating material.

It will be desirable to provide tank 2 with a liquid level gauge 10 and filling means such as the upper tank 11, suitable valves 12 and 13 being provided for shutting off air pressure and for allowing inflow of liquid respectively.

The temperatures to be maintained in tank 6 will depend upon the nature of the solvent and upon the pressure used and should be maintained somewhat above the dew point of solvent.

The spraying will be conducted in the usual manner, except that the compressed solvent gas will be substituted for the compressed air, several advantages being derived.

In the first place, in the present process, no evaporation of solvent from the sprayed lacquer can take place. Second, there is no chance for the trapping of air in the coating upon the object with the production of roughness. If the gas is trapped, it will merge into the solvent of the lacquer.

Having now described the invention and the preferred method of practicing the same, it is to be understood that the invention is not to be limited to the precise details herein described but only by the scope of the claims which follow.

I claim:

1. The process of coating an object with a material dissolved in a solvent which comprises gasifying additional solvent under pressure and spraying said dissolved material onto the object by means of said gasified solvent as the propellant.

2. The process of coating an object with a material dissolved in a solvent which com-

prises heating additional solvent under pressure to a temperature above the vaporizing point and spraying said dissolved material onto said object by means of the solvent gas so produced. 5

3. The process of coating with lacquers consisting of cellulosic compounds dissolved in volatile organic solvents, which comprises heating a body of such solvent under pressure to a temperature above the evaporating point and spraying said lacquer onto an object by means of the solvent gas so produced. 10

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