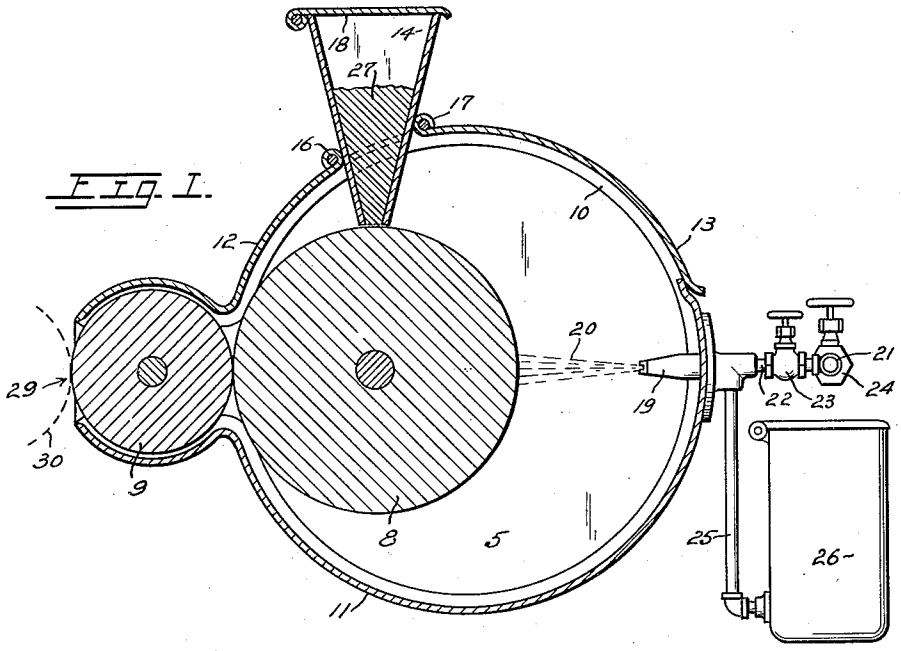
Dec. 22, 1931. M. W. CANFIELD 1,837,702

APPARATUS FOR APPLYING INKING MATERIALS

Filed Dec. 14, 1929

Fig. 1.



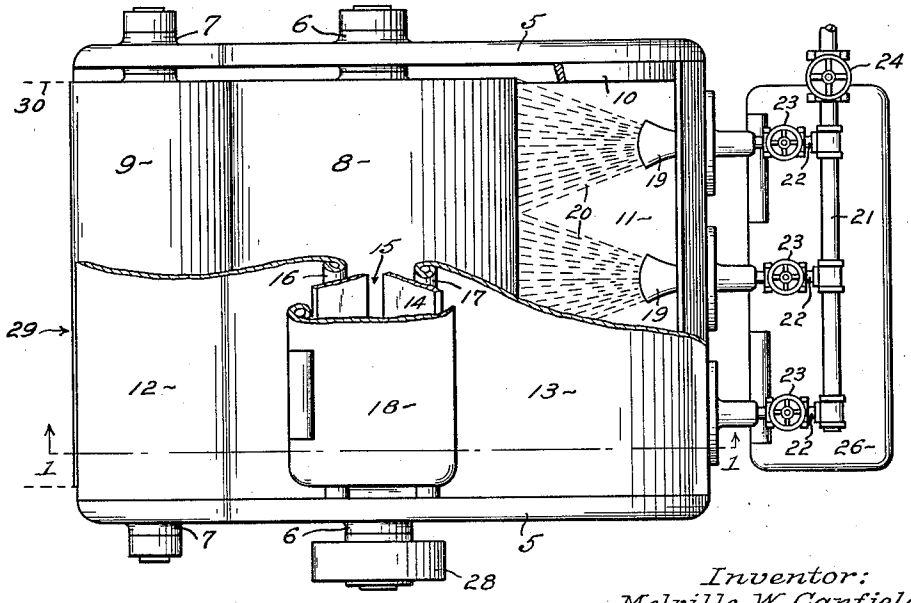


Fig. 2.

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UNITED STATES PATENT OFFICE

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APPARATUS FOR APPLYING INKING MATERIALS

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In this specification, and the accompanying drawings, I shall describe and show a preferred form of my invention, and specifically mention certain of its more important objects. I do not limit myself to the forms disclosed, since various changes and adaptations may be made therein without departing from the essence of my invention as hereinafter claimed; and objects and advantages, other than those specifically mentioned, are included within its scope.

My invention relates to means for utilizing inking materials that contain highly volatile ingredients, such as lacquers. Its principal objects include: first, to provide improved means for tempering such materials, either continuously or periodically; second, to afford a method for reducing or preventing volatilization of said ingredients; and, third, to supply simple and relatively inexpensive apparatus for accomplishing the above purposes.

My objects are attained in the manner illustrated in the accompanying drawings, in which:—

Figure 1 illustrates a manner of utilizing my invention, and apparatus therefor in sectional elevation; and,

Figure 2 is a plan view of the above apparatus, with certain parts broken away for convenience of disclosure.

The section of Figure 1 is taken on the line 1—1 of Fig. 2. Similar reference numerals refer to similar parts throughout both views.

My invention will be found to be particularly useful in connection with the use of printing materials containing a large proportion of volatile ingredients, such as lacquers. In the use of such materials, it often is extremely difficult or impossible to keep the consistency suitable for use long enough to make the proper application. Thus if it were attempted to use lacquers on ordinary printing rollers, in the manner that ordinary printing ink is now used, the lacquers would harden upon the surfaces of the rollers before it could be applied to the work. Even if acceptable results could be accomplished in this way, so far as the work itself is concerned, the lacquer would harden and gradually build up upon the surface of the rollers, until they ceased to function properly.

In my invention I make use of the principle of keeping the printing material in an atmosphere that is artificially charged with the vapors of the volatile ingredients of the material, until it is ready for application to the work. This not only prevents volatilization, but the principle may be extended to provide a method for tempering the material.

Passing to a detailed description of my process, I have indicated in the drawings a method whereby lacquer and similar material may be employed, in lieu of regular printing inks, in ordinary printing operations.

In the drawings I have indicated the opposed ends of the apparatus housing at 5. These ends are provided with bearings 6 and 7, rotatably supporting the distributing roller 8 and application roller 9 respectively. The housing ends 5 are also provided with internal flanges 10, to support the shell of the housing. This shell is specially shaped to conform to the outlines of the application roller and to provide space surrounding the distributing roller. It comprises the bottom plate 11, and covers 12 and 13.

Above the distributing roller is a material fount 14, of V-shaped cross-section, having a slot 15 at the bottom extending longitudinally from end to end of the distributing roller. This fount is supported by end-frames 5 of the housing; and, in turn, it supports shell covers 12 and 13. These are hinged to the sides of the fount at 16 and 17 respectively. The fount itself is provided with a hinged cover 18.

A series of nozzles 19 extend through the right-hand side of the shell. These are adapted to direct fan-shaped sprays 20 against the surface of distributing roller 8, so as to produce as nearly as possible a uniform effect thereon. I prefer to operate such sprays by means of compressed air supplied through pipe 21 and branch pipes 22. In such case there is a valve 23 in each of the branch pipes,

for individual regulation of the nozzle supplied thereby; and a valve 24 in the main air line, for regulation of all of the nozzles as a set. These spray devices take their liquid supply, through suction pipes 25, from a reservoir 26.

The operation of the above described apparatus is as follows:—

Printing material, such as lacquer in a liquid or semi-liquid form, is introduced into the fount 14, as shown at 27. Gravity feeds this downwardly upon distributing roller 8, which is immediately below slot 15 of the fount. The distributing roller is rotated by any suitable means, as by the pulley 28; and the application roller 9 is arranged to be rotated by its frictional contact with roller 8, both rollers preferably being made of slightly yielding material. If the printing material 27 is kept from drying, or changing its consistency unduly, it will thus become uniformly distributed over the surface of application roller 9. The left-hand portion of the periphery of this roller is exposed through a narrow parallel sided aperture in the housing, as indicated in the drawings at 29, and an inking roller or equivalent device (indicated by dotted lines 30) can be pressed thereagainst to transfer the printing material from surface of roller 9 to the work.

Since the rollers 8 and 9 are almost completely enclosed in the manner described, sprays 20 may be operated in such a manner as to maintain an atmosphere surrounding the rollers that is practically saturated with the vapors of the volatile ingredients contained in the printing material. This being the case, there is very little tendency for the printing material to change its consistency because of its being spread over the surfaces of the rollers. However, the left-hand side of roller 9 is exposed to the air, and evaporation from this portion of the surface is uncompensated otherwise than by the impingement of sprays 20 directly upon the material, while upon the distributing roller.

It will be obvious that the above apparatus can be so adjusted as to maintain a practically constant consistency of the printing material at the point 29 of the application roller, where it is delivered for printing purposes.

Valves 23 are adapted to maintain a proper adjustment of the operating relationship between spray nozzles 19; and valve 24 may be adjusted, so as to maintain constant the whole amount of spray introduced into the casing. This valve may either be hand-adjusted, so as to maintain a continuous performance of nozzles 19; or the operation of the nozzles may be made intermittent by means of an automatic valve, (not shown). Such a valve could be connected to the operating mechanism in any suitable way adapted to produce the result desired. It could replace valve 24, or be installed in series therewith.

The liquid contained in reservoir 26 is a mixture, in proper proportions, of the volatile ingredients contained in material 27.

Having thus fully described my invention, in a manner that will be readily understood by those familiar with the art involved, I claim:—

1. Apparatus of the character described, comprising; a substantially closed housing having a straight parallel-sided aperture therethrough; an externally rotatable distributing roller within the housing; a rotatable application roller within the housing opposite the aperture and closely adjacent thereto; means for feeding viscous material upon the periphery of the distributing roller; and means for keeping the atmosphere within the housing charged with vapors of the volatile constituents of said material; the axes of said rollers being parallel to each other and to the sides of said aperture; and the peripheries of the rollers being normally in contact, whereby the application roller may be rotated by the distributing roller.

2. Apparatus of the character described, comprising; a substantially closed housing having a straight parallel-sided aperture therethrough; an externally rotatable distributing roller within the housing; a rotatable application roller within the housing opposite the aperture and closely adjacent thereto; means for feeding viscous material upon the periphery of the distributing roller; and means for spraying volatile liquid constitutents of said material into said housing; the axes of said rollers being parallel to each other and to the sides of said aperture; and the peripheries of the rollers being normally in contact throughout their length, whereby the application roller may be rotated by the distributing roller.

3. Apparatus of the character described, comprising; a substantially closed housing having a straight parallel-sided aperture therethrough; an externally rotatable distributing roller within the housing; a rotatable application roller within the housing opposite the aperture and closely adjacent thereto; means for feeding viscous material upon the periphery of the distributing roller; and means for spraying liquid solvents of said material into said housing and against the periphery of the distributing roller; the axes of said rollers being parallel to each other and to the sides of said aperture; and the peripheries of the rollers being normally in contact throughout their length, whereby the application roller may be rotated by frictional engagement with the distributing roller.

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