This invention relates to stains, particularly stains for use in connection with staining wood, articles, such as wood articles, stained with such compositions, various types of compositions including such stain bases, such as wood fillers, lacquers, etc., articles carrying such compositions, and methods of producing such stains and articles.

The present application is a continuation in part of application Serial No. 465,054, entitled "Wood stains", filed November 5, 1929.

That prior specification is particularly directed to developments in the art producing new types of wood stains having properties of the greatest moment in the wood staining art. As there pointed out the wood stains of the prior art may be classified in three general classes, first, the oil type, second the oil type, and third, the spirit type. Each of these classes of prior art stains possess many undesirable features and attributes. The water stains which generally consist of aqueous solutions of water-soluble aniline dyes, applied to the desired surface in any desired way as by brushing, due to the presence of the water-soluble aniline dyes were non-bleeding and non-fading, but such water stains very undesirably affected the grain of the wood by causing grain raising. Such grain raising is particularly undesirable because it requires the application of the usual wash coat of a shellac solution in order to enable the sanding operation to be satisfactorily applied in order to remove the raised grain. This grain-raising effect of the water stain is a particularly undesirable feature of such prior art water stains, and seriously militated against their effectiveness. Another important defect of such water stains was the fact that they had indifferent penetration, the dye remaining substantially on the top surface of the wood instead of impregnating the fibers. In spite of these defects and deficiencies of the prior art water stains, they probably constitute the bulk of stains used in that prior art, prior to the invention in applicant's companion application identified above. This wide use of water stains was due to the fact that they were substantially non-bleeding and non-fading, attributes that were of prime importance in the wood staining art.

The oil stains while offering certain features of advantage as compared with water stains, displayed other disadvantageous characteristics. In general, they may be stated to consist of a hydrocarbon solution of an aniline dye base, treated, such as by maceration or other admixture with a fatty acid such as oleic or stearic acid to make the dye soluble in the stated hydrocarbon, such as benzol, toluol or a petroleum distillate. The oil stains have the desirable property of penetrating into the wood surface, but they are open to a number of very material objections. Owing to the preliminary treatment given the dyes to render them available in the oil stain compositions, the resulting product is not light fast, and is subject to the so-called bleeding effect. Thus before a final topcoat of varnish or lacquer could be applied over the wood stained with the oil stains, an intermediate sealing coat of some kind, such as shellac, had to be applied. This was essential as otherwise the solvents of the varnish or lacquer will cause the bleeding effect referred to due to the stain penetrating into the varnish or lacquer composition. Further the presence of any excess of fatty acid in such oil stain compositions effects the practicability and the durability of the surface finish, producing such undesirable features as retarded drying and checking.

The spirit stains constituting the last of the prior art classes utilize aniline dye bases treated to be soluble in alcohol. They have not gone into very extensive use because they are subject to such undesirable qualities as lack of penetration into the wood surface, and lack of permanency of color due to fading qualities similar to those noted above in connection with the oil-type stains. Further the spirit stains are also subject to the bleeding defect, and in many instances also give rise to grain raising.

Accordingly it will be seen that each of the prior art types of stains are open to a number of objections, which have militated against their practicability and utilization in the prior art, and none of those prior art stain compositions is free from objectionable qualities for reasons pointed out above. In the prior application above identified, an entirely new type of stain has been produced possessing every desirable attribute for wood staining purposes, with freedom from the defects of the several classes of prior art wood stains noted above. These so-called "permanent stains" produced under the prior application possess the desirable attributes of penetration of the wood surface to which they are applied without producing any substantial grain raising, and at the same time exhibiting non-fading and non-bleeding properties. The production of penetrating stains that are non-bleeding and non-grain raising, was effected for the first time in the art in connec-
tion with such compositions as those outlined in the prior application above identified.

The present invention also includes the production of wood stains which have the property of penetrating the wood surface to which they are applied without any substantial grain raising, which possess substantial non-fading and non-bleeding properties, continuing such subject matter from that prior application, together with modifications of importance in the wood stain art.

Other objects and advantages include the production of combination stain and filler compositions, lacquer compositions, shading stains, etc., utilizing fundamental principles of this character.

Still further objects and advantages will appear from the more detailed description set forth below, it being understood, however, that this more detailed description is given by way of illustration only and not by way of limitation, since various changes may be made therein by those skilled in the art without departing from the scope and spirit of this invention.

In carrying out this invention we are more particularly concerned with the utilization of solutions of water-soluble aniline dyes. Water-soluble aniline dyes are preferably utilized because of their light stability and non-fading characteristics. While many of the solvent vehicles described below may be utilized desirably under special circumstances with oil and spirit soluble dyes, earth colors, etc., more desirably the water-soluble aniline dyes are utilized because of their desirable properties, particularly for wood staining compositions. Further we may note that we are particularly concerned with solutions of such water-soluble aniline dyes. These various dyes may be employed under special circumstances in the form of dispersions, emulsions, pastes, etc., as the wood stain composition per se is primarily made up of a solution of the water-soluble aniline dye.

As examples of water-soluble aniline dyes that may be employed in producing staining compositions under the present invention we may note the 4523 Negro black NBR conc., No. 4523 Negro black conc., acid black 10 BN conc., and nigrosine O, 3753; as reds, Azo Rubine EX conc., amacid brilliant croceine 3 BA conc., Azo Rubine X, croceine scarlet MOO conc.; as orange, orange A conc., and orange Y; as yellow, fast wool, yellow 3GL, and fast light yellow 2-2; as browns, Resorcine brown and Resorcine brown RO 2079; as green, alkali green 2 GO, and acid green 03442; as grey, nigrosine 02 F powder. While this list of dyes referred to above is exemplary, the list actually given is comprehensive enough to permit the making of practically every common stain desired.

As indicated, these dyes are most desirably employed in solution, and the nature of the solvents, dilluents and vehicles employed materially influences the characteristics of the compositions, and the utilities to which they may be put.

As pointed out in the prior application, the most satisfactory class of solvents are those of the ether alcohol and specifically glycer alcohol. As illustrative of the characteristics of ether alcohols and particularly the glycer ethyl ethers, attention is particularly directed to such compounds as mono-methyl ether of diethylene glycol, diethylene glycol monoethyl ether, and monomethyl ether of ethylene glycol.

The solubility of aniline dyes in various solvents is not the same for all solvents, so that the solvent or solvent vehicle chosen must be determined in connection with the particular type of dye that is to be employed.

Diethylene glycol monoethyl ether is a particularly valuable solvent, since all of the desirable water-soluble aniline dyes used for wood stains appear to be soluble in this material. Mono- butyl ether of diethylene glycol is also an excellent solvent for use in the present invention, but its solvent properties with respect to the black aniline dyes, particularly of the nigrosine type, is less marked than that of diethylene glycol monooethyl ether itself. Monoethyl ether of ethylene glycol is also a desirable solvent, but unlike monomethyl ether of diethylene glycol does not have as great a solvent action on the blacks as does diethylene glycol monoethyl ether. Diethylene glycol monoethyl ether is consequently looked upon as the best solvent for utilization in connection with the present invention, particularly in the production of wood stains.

While the ether alcohols, particularly the glycol ethers as represented by diethylene glycol monomethyl ether are particularly important solvents, as pointed out in the prior application, for utilization of these solutions of water-soluble aniline dyes, other solvent vehicles particularly for use with particular water-soluble aniline dyes where the solubility is sufficient for the purposes in hand. Some of these additional substances, as specified below, have general solvent properties for the water-soluble aniline dyes, while others have restricted solvent action and may dissolve some of the water-soluble aniline dyes satisfactorily for utilization, without substantial solvent action or sufficient solvent action on others of the water-soluble aniline dye class. Consequently, it is necessary where the chosen solvent has limited solubility for certain of these aniline dyes, to choose such solvents as are available for the particular dyes to be employed. Further as will be pointed out below in considering a number of these solvents, they frequently exhibit utilities for specialized purposes that have particular importance in special fields.

Triethanolamine may be particularly mentioned as a very desirable solvent for the water-soluble aniline dyes. In fact, its solvent properties toward the water-soluble aniline colors in general, may be compared with that of diethylene glycol monomethyl ether noted above. While the solvent effects of triethanolamine on the water-soluble aniline colors is comparable with diethylene glycol monomethyl ether as noted, it is not as desirable a material to employ in the production of wood stains for example, due to certain specific characteristics, such as its tendency to leave a greasy residue, and its extremely slow rate of evaporation. However, where triethanolamine is utilized in the production of wood stains in accordance with the present invention, and in accordance with principles set forth below, the characteristics of the final composition may be compensated for by the addition of rapidly volatilizing ingredients that improve the properties of the composition. Triethanolamine may, therefore, be substituted for diethylene glycol monomethyl ether in some of the wood stain compositions specified below. In comparing the class of ether alcohols and noted that due to the faster rate of evaporation, with the diethylene-glycol mono-ethyl ether types of wood stains set forth below, one can safely recoat in as short a time as one-half hour, whereas with the triethanolamine compositions a much longer time is required, and the greatest safety is obtained by not recoating until the next
the user himself into the final composition by the addition of added ingredients, such as for example the methanol and toluol ingredients referred to below, or other substituents of equivalent characteristics.

The concentration of the dye in the high boiling point solvent or other of the solvents set forth above, may be made as desired, so that a definite strength solution is produced to which the other ingredients may be added in controlled amounts to produce the final wood stain or other composition sought.

Preferably, however, under these circumstances where the compositions being manufactured and sold consist of the dye and high boiling point solvent, the concentration of the dye in the solvent is desirably increased materially beyond that required for a wood stain, so that upon dilution with stated ingredients, the final wood stain composition is obtained.

In this way, dispersions, emulsions and pastes of the dye with other components may be produced, whether the additional components be the high boiling point solvents, low boiling point ingredients such as rapidly volatile solubilizing ingredients and water eliminators, or other solvents, diluents and vehicles, so long as the quantities of such liquids present, are not sufficient to convert the dye into a true solution. In this way, the concentration of the dye in the vehicle may be made as desired, and a very concentrated composition produced either in the form of a dispersion, emulsion or paste, which may be diluted with other ingredients to be utilized for wood stain or other purposes as set forth above. Thus any of the stated dyes set forth above may be utilized with diethylene glycol monoethyl ether, for example, the proportions of ingredients being such that there is insufficient diethylene glycol monoethyl ether present to dissolve all of the dye, and the amount of dye present being sufficient to yield a paste upon intimate incorporation of the ingredients. This material makes a paste which upon dilution with other ingredients may be converted directly into a wood stain for example. As a matter of fact, the treatment of the dye with the diethylene glycol monoethyl ether alone for the production of such types of materials is desirable because it has been found that some of the more difficultly soluble dyes upon standing in contact with such high boiling solvents as diethylene glycol monoethyl ether and other of the ingredients set forth above, are more readily converted into soluble form and are more readily converted into the final solution upon addition of the more volatile ingredients, etc. As exemplary of proportions to be utilized in producing such pastes, dispersions and emulsions in which the dye is not completely in solution in the vehicle present, there may be used amounts in excess of those set forth below in connection with the wood stain composition, beyond the limits of solubility of the dye in the stated vehicle.

As exemplary of other types of useful solutions of the dyes in single component vehicles, reference may be made to compositions containing the stated water-soluble dyes, particularly the so-called acid dyes, any of which referred to above may be employed, in solution in highly volatile ingredients for the purpose of producing compositions having particular utilities under limited circumstances. Within this class of compositions we may mention the so-called shading stains. Shading stains are employed for application to a particular spot where a deficiency of color ex-
ists, and are not usually employed for use over the entire surface of the work. Such shading stains are frequently spot sprayed at the particular points desired. They may be applied and frequently used either over filler or over sealer and lacquer coats, or between the sealer and lacquer coats. Thus when a first coat of lacquer has been applied, the gloss of this coat naturally reveals any slight imperfections in color which may have been missed in the staining and filling operations. The use of a shading stain may be employed therefore to correct such slight imperfections by spot spraying as referred to above. For such shading stains any of the water-soluble dyes referred to above may be utilized in highly volatile components many of which are set forth below in connection with other compositions. The alcohol type of solvents may desirably be employed, and among these synthetic methanol is particularly satisfactory in making up a shading stain. Synthetic methanol has been found to have highly satisfactory solubility for some of the water-soluble anilines, for resorcine brown and some of the greys. Its solubility on some of the reds is slight, and it exhibits practically no solubility on the other water-soluble anilines than those discussed above. Hence for solubility of the synthetic methanol for the greys and browns and for a trace of red when required, gives a range satisfactory to fill the necessities for the ordinary purposes for which shading stains are employed. While the synthetic methanol solution of the stated water-soluble aniline dyes as stated above, is particularly emphasized for use as a shading stain, it is possible also to utilize solutions of these dyes in ether of the more volatile solvents set forth below for analogous purposes. These shading stains which may also be employed as blending stains, are particularly effective for the purposes stated because of their rapid drying, and their ready application and use over filler, sealer and lacquer coats.

While various types of special solutions, emulsions, dispersions and pastes as described above, may be employed for particular purposes, by far the most important utility of these compositions is in the production of wood stains that are light fast and penetrating, and which are non-fading, non-bleeding and non-grain raising. In the production of such stains, composite solvent vehicles are employed, which include not alone the high boiling point solvents set forth above, particularly solvents of the character of the glycol ethers, such as diethylene glycol monoethyl ether, and also such components as triethanolamine in view of the solubility of a wide range of such water-soluble aniline dyes in such stated solvents, but also including rapidly volatilizing ingredients. The vehicle employed should be a penetrating vehicle and the term "penetrant vehicle" is used herein to cover that characteristic of these wood stain compositions containing water-soluble aniline dyes in solution in composite solvent vehicles that penetrate and carry the dyes substantially into the wood, instead of merely to deposit it upon the surface of the wood only as in the case of water stains. The vehicle in carrying the stain or dye into the wood and below the mere surface portion thereof should subsequently evaporate and rapidly leaving the pores of the wood impregnated with the stain. Furthermore, the penetrant vehicles should exhibit a proper evaporation curve to dispel all of the components including the high boiling components such as diethylene glycol monoethyl ether and other ingredients, and any moisture present. Compositions exhibiting such smooth evaporation curves are particularly desirable in this connection and well illustrated by some of the preferred composite vehicles set forth below.

The compositions should not exhibit any undesirable hygroscopic effect, and the action of the solvent vehicle should be such as to distribute the stain desirably over the top layer of the wood and through the water filler in order to secure uniformity of color, but penetration should not be so great as to result in substantial waste of dye or uneven deposit of color on the surface. As noted above, one of the most important components of such solvent vehicles for the production of wood stains are the high boiling liquids of the ether alcohol group, particularly the glycol ethers as represented by diethylene glycol mono-ethyl ether, monobutyl ether of diethylene glycol, monomethyl ether of ethylene glycol, and mono-propyl ether of ethylene glycol referred to above. The diethylene-glycol mono-ethyl ether being preferred in this group because of its solvent action on practically the entire range of water-soluble aniline dyes. The production of wood stains of penetrating light-fast characteristics, that are substantially non-bleeding, and non-grain raising, may, therefore, be exemplified by the glycol ether solutions of the water-soluble aniline dyes. These compositions as noted above produce an excellent stain base, but for use for wood stains are preferably utilized with additional solvent and vehicle ingredients particularly to overcome slow drying and hygroscopic properties of such high boiling materials as diethylene glycol mono-ethyl ether and other of the solvents referred to. The choice of such additional solvents, diluents and vehicles involves a consideration of the factors referred to above, including the production of smooth evaporation curves, securing penetration of the dye to the desired extent, uniform drying over the surface of the wood article treated, and light fast, non-fading, non-bleeding properties, and particularly the absence of grain raising characteristics. Further solvents, diluents and vehicles utilized should preferably be relatively inexpensive so that the products may be commercially practicable for wide use. Desirably the solvents, vehicles or diluents should be miscible with the dye solutions to yield homogeneous compositions. The yield of water eliminant properties in the composition is particularly desirable in order to give resistance to moisture retention.

The production of wood stains will be particularly emphasized by three component vehicles acting as a solvent vehicle for the water-soluble aniline dyes referred to above. The high boiling solvents will be exemplified in the use of diethylene glycol monoethyl ether, which is considered by far the best of the high boiling solvents for use in the production of wood stains. The class generally of glycol ethers is preferred in this connection, but the trialkyl amines, such as triethanolamine, may also be specifically referred to, triethanolamine probably being the widest range solvent for the class of water-soluble aniline dyes referred to other than the glycol ethers, particularly such as diethylene glycol monoethyl ether.

Of the other components desirably utilized, components are chosen which increase the rapidity of drying and setting of the composition. Among these then may be mentioned the aliphatic alcohols such as methyl and ethyl alcohols, ...
ketones such as acetone, and the esters of the aliphatic alcohols, particularly the fatty acid esters such as ethyl acetate, etc. Methyl alcohol or synthetic methanol is a particularly valuable ingredient for use in this connection. An additional ingredient is desirably employed in the composition selected from the group including hydrocarbon distillates, particularly the coal tar distillates, petroleum distillates, benzol, toluol, solvent naphtha, the xylois, ethyl benzene, etc. Toluol is particularly useful in this connection. Many of the esters referred to in the group of components above, including such esters as butyl propionate and butyl acetate are exemplary of materials also having water eliminant properties, but such materials, as these esters being slower drying and more expensive, are more desirably substituted by such components as hydrocarbons, particularly toluol. Petroleum distillates available on the market within limited ranges of boiling points suggested as substitutes for toluol may be employed, but toluol has been found to be a particularly desirable ingredient in these compositions.

Both of these groups of materials, particularly the aliphatic alcohols and the hydrocarbon distillates and their equivalents aid in the penetration and evaporation and other desirable effects sought in these wood stain compositions.

One of the most desirable composite solvents for use in the production of these wood stains includes the following, the parts being by volume: 1 part diethylene glycol monoethyl ether 5 parts methyl alcohol 5 parts toluol. Such composite solvent vehicles are utilized for solution of the particular dye desired. These composite solvent vehicles themselves are, of course, utilizable as articles of commerce, and may be sold for use to dye manufacturers or to wood stain users.

A solvent vehicle of the character set forth above may for example be used to dissolve from 1 ounce of dye per gallon of vehicle to higher amounts, depending on the solubility of the dye and other factors. The amount of dye utilized depends upon the type of dye, its degree of concentration, and of course the depth of color required in the particular stain. Further the strength of the dye stain may be varied, for example, by the amount of diethylene glycol monoethyl ether utilized.

In making up compositions utilizing such composite vehicles, it has been found preferable to allow the aniline dye, particularly when of the less soluble characters, such as the nigrosines, to stand with the diethylene glycol monoethyl ether until solution is obtained, after which the other ingredients may be added. And preferably also it has been found desirable after solution has been obtained in the diethylene glycol monoethyl ether to add the alcoholic ingredients, such as the methyl alcohol before the addition of the toluol since the diethylene glycol monoethyl ether with the methanol appears to exert a very desirable solvent action on the dye.

The solution of the chosen dye in the vehicle set forth above gives an excellent wood stain having desirable drying properties and rapidity of setting, a proper evaporation curve, etc. The proportions of solvents and ingredients in this composite solvent may, of course, be varied within substantial limits, and of course various combinations of stated ingredients may be utilized, and equivalents employed for the materials set forth in this particular composition.

5 To increase the dye strength of the stain composition when desired, there may be employed: 3 parts diethylene glycol monoethyl ether 3 parts toluol 4 parts methanol 4 parts toluol

This composite solvent mixture may be used in connection with 3, and in some cases 4, ounces of the aniline dye per gallon of the composite solvent. Other mixtures include 1 or 2 parts by volume of diethylene glycol monoethyl ether to 9 parts toluol and 5 parts methanol. But it should again be noted that these compositions are given merely by way of illustration to exemplify very desirable types of stain compositions that may be utilized for that purpose; and as noted above, these additional solvents and the rapidly drying ingredients, such as methanol, water eliminants, etc., may be substituted by other ingredients or combinations of stained ingredients may be employed.

The following will illustrate the application of such stain compositions to wood, particularly to emphasize the simplified methods which result from the utilization of the present compositions.

In treating an open grain wood, for example, such as oak, the wood may be stained and then the stain allowed to dry. Following this a filler, such as a silk filler may be rubbed in, and following the filling treatment a lacquer or varnish may be applied. In treating a close grain wood, such as birch for example, the stain may be applied to the wood article and then allowed to dry, following which the lacquer or varnish or other finishing coating composition may be applied. Thus it is seen that not only are the staining methods considerably simplified and made more economical by the use of the stain compositions of the present invention, but stains are obtained which are substantially light fast and consequently do not fade, which stains are further non-bleeding, which stains further penetrate into the wood and give uniform staining operation, and which furthermore do not raise the grain of the wood. Stains possessing all of these characteristics it is believed have been produced for the first time in the art by the use which has been applied to the utilization of the present compositions as those set forth herein.

It may be well to consider some of the functions which these ingredients exhibit in these wood stain compositions that enable the new results to be obtained. But in giving such explanations as those set forth immediately below, it should be understood that these considerations are not intended to be limiting, because the results obtained by the utilization of the compositions set forth herein have been demonstrated in practice, and it is immaterial whether the explanations given below are accepted. The diethylene glycol monoethyl ether solution of the dye, of itself, is rather slow drying and hygroscopic, so that it does not give the best type of material for direct use as a wood stain. Consequently although the diethylene-glycol mono-ethyl ether is primarily the color carrier and exhibits a certain degree of penetration, of itself, it does not give the preferred wood stain compositions. Even with the inclusion of toluol in the diethylene glycol monoethyl ether solution of the dye, there is a tendency to gather moisture, and the composition is still rather slow drying, and there may be some tendency, in some cases to raising the grain of the wood. The inclusion, therefore, of the aliphatic alcohol, particularly the methanol gives the most desirable result. The action appears to take
place as follows. The stain is diffused over the surface of the wood; the alcohol passes off into the air; the toluol remains as a baffle plate to the absorption of the diethylene glycol monoethyl ether is soaking up by absorption into the fibers of the wood. At the start of this absorption action, the color is still held in solution by the remaining diethylene glycol monoethyl ether, and when this latter evaporates finally, the color has been deposited into the wood as a dye, without any residue of coloring matter, as would be the case with water stain. Thus there is a very even distribution of the color, both through the under fiber and on the top layer of the wood. This leads to the uniformity of color effect which is obtained by these stain compositions, and also marks substantial economy in the use of the color. Further it appears that the effectiveness of the color action in the diethylene glycol monoethyl ether penetrating wood stain is very much greater than in any of the other stains of the prior art where much of the stain is wasted, either by too deep penetration, or more particularly by uneven deposition of color on the surface where it is too thickly deposited at some point. Furthermore, it should be noted that more deposit on the surface as was obtained with many of the prior art stains does not give the brilliancy or lustre effect, or bring out the grain of the wood which is desired in high grade wood staining, and which is secured by the present stains. These stains may be noted produced under the present invention stain both by absorption and absorption, so that uniform effects are obtained with woods that may vary considerably in their very nature.

The specific example set forth above utilizing methanol, toluol and diethylene glycol monoethyl ether in the proportions of 9:6:1 parts by volume for solution of 1 ounce, for example, of aniline dye may be referred to as a typical formula for what may be denominated a single strength solution. More concentrated solutions may desirably be manufactured as stock solutions to be kept on hand for dilution to the final desired strength. Thus a "triple strength solution" may be made up from the following formula:

| 50 ounces methanol |
| 32 ounces toluol |
| 24 ounces diethylene glycol monoethyl ether |
| 3 ounces aniline dye to 1 gallon of above mixture |

Or weaker solutions may be made if desired, and a typical formula for a double strength solution would be:

| 2 ounces of aniline in a gallon of |
| 9 parts methanol |
| 5 parts toluol |
| 2 parts diethylene glycol monoethyl ether |

The single strength solvent mixture given above instead of carrying 1 ounce of aniline may be made to carry nearly 6 ounces if desired; the double strength solution can be made to carry nearly 3 ounces of aniline if desired, and the triple strength can be made to carry nearly 7 ounces. If for any reason the content is deemed necessary, the amount of diethylene glycol monoethyl ether can be increased and a ratio of 2 parts methanol to 1 part diethylene glycol monoethyl ether utilized for dilution.

When triple strength solutions of the basic colors are utilized for stock, such mixtures are usually too strong for ordinary use, and they may be reduced to desired strength by dilution with a thinner, which may consist for example of 2 parts methanol 1 part toluol. This practice enables the stocking of triple strength solutions for example and subsequent dilution, so that the minimum amount of stock may be kept on hand. Or of course, the triple strength solutions may be utilized as articles of commerce and sold to the same users for dilution and reduction by the user. The maintenance of triple strength stock solutions in basic colors enables these to be mixed as desired to produce particular shades and hues alike to single and double strength solutions.

In the use of these stains, high lighting operations may be performed immediately after the initial staining of the wood, either by the heavier application of the stain in use, or by the use of another gun in the same spray booth connected to a permanent penetrating stain of the desired color or intensity. As pointed out above, wood stain compositions produced under this invention exhibit no substantial grain raising properties. While some of the lower aliphatic alcohols such as methyl and ethyl alcohols by themselves if directly applied to wood produce grain raising in the same way that water does, the presence of other components avoids any grain raising effects in the compositions set forth herein. Similarly grain raising effects due to the presence of such components as diethylene glycol may be avoided in the same way by the presence of other components in the solvent vehicle.

Instead of using one of the solvents such as diethylene glycol monoethyl ether or triethanolamine, which is a complete solvent for the dyes referred to, a composition may be utilized employing some of the other solvents such as monoethyl ether of ethylene glycol or monomethyl ether of ethylene glycol, and these may be employed with some of the dyes which are not completely soluble therein, by the utilization of a small amount of water to obtain complete solution of the dye. While such water-containing compositions are not preferred, they may be utilized as set forth, and the choice of water eliminants and other volatile ingredients may be made in accordance with the literature set forth above, to secure an evaporation curve of desirable characteristics, which will also remove the water present in the compositions without grain raising effects.

Further it should be noted that while three component solvent vehicles are particularly emphasized above for the production of the most desirable types of permanent stains, two component vehicles may be employed, such as for example diethylene glycol monoethyl ether and methanol. Thus a stain of one of the dyes in solution in diethylene glycol monoethyl ether and methanol may be desirably employed as a practical stain under limited conditions, the main difficulty being that in humid weather there is considerable sensitiveness to grain raising. The inclusion of toluol in the composition in accordance with greater aniline content is deemed necessary, the amount of diethylene glycol monoethyl ether can be increased and a ratio of 2 parts methanol to 1 part diethylene glycol monoethyl ether utilized for dilution.

For some particular purposes, in the utilization of wood stains, it may be desirable to check the penetration of the stain into the wood. The degree of penetration is usually too strong for ordinary use, and they may be reduced to desired strength by dilution with a thinner, which may consist for example of 2 parts methanol 1 part toluol. This practice enables the stocking of triple strength solutions for example and subsequent dilution, so that the minimum amount of stock may be kept on hand. Or of course, the triple strength solutions may be utilized as articles of commerce and sold to the same users for dilution and reduction by the user. The maintenance of triple strength stock solutions in basic colors enables these to be mixed as desired to produce particular shades and hues alike to single and double strength solutions.
tion of film-forming components, such as resins, either natural or synthetic, but preferably the latter, nitrocellulose, etc. Nitrocellulose lacquer compositions are particularly desirable in this connection. Thus when it is desired to check the penetration on end wood and carved wood sections, a lacquer may be added to the wood stain composition utilizing, for example, nitrocellulose. Or nitrocellulose may be dissolved up directly in the wood stain composition to the desired extent and for the same purpose either with or without additional solvents, diluents and vehicles. The degree of penetration secured under such circumstances may be readily controlled by the proportion of film-forming component, such as nitrocellulose that is included in the composition.

On the other hand the water-soluble aniline dyes either of themselves or in the wood stain bases or wood stain compositions set forth above may be added to or incorporated with cellulose ester or ether solutions and lacquers, as well as other types of lacquers particularly those containing solvents of the nature of alcohols and hydrocarbons, in order to produce lacquers having light fast colors. Color dipping lacquers may be produced in this way. The nitrocellulose lacquer or cellulose ester or ether solution may be combined with the wood stain composition as set forth above, or the cellulose derivative may be dissolved in the wood stain composition. As noted above, sufficient nitrocellulose or other cellulose derivative may be incorporated in the composition to prevent any penetration of the dye into the wood surface where these compositions are applied directly to the wood surface, or the amount of nitrocellulose may be limited to secure penetration to a limited extent in the under wood surface. Of course, such lacquers may be applied directly to the wood surfaces, or more desirably as in usual practice, the lacquers may be applied over other base coatings, such as sealers, etc. Particularly it should be noted that the lacquer compositions including the water soluble aniline dyes may desirably be employed as top coats over wood stained with the present stains, or after the application of combination stain and filler compositions as set forth below. Where complementary dyes are employed in the lacquer solution to those employed in the initial wood stain or stain and filler compositions, a materially heightened effect of depth is secured in this way.

Most important effects are secured by the utilization of lacquer coatings over the wood stain compositions of the present invention as compared with prior art practice. In view of the properties of these wood stain compositions as set forth above, the lacquers may be applied directly over such wood stain compositions without securing bleeding, and further the lacquering operation may be carried out in a relatively short time after the application of the initial wood stain composition—a result which cannot be obtained in the prior art where very substantial periods of time must elapse before the application of lacquer coatings, and in which sealing coats are required as set forth above in order to avoid bleeding.

One particular utilization of nitrocellulose type compositions containing these water-soluble aniline dyes may be mentioned, and this is the finger nail enamel field. In this connection, nitrocellulose lacquer, when employed, the art is essentially distinct from the ordinary nitrocellulose lacquer art, because when coating compositions of the nitrocellulose type are ordinarily employed for coating articles of manufacture, they must possess certain properties yielding non-blushed smooth coatings, which considerations are of secondary character in finger nail enamels. Consequently, it is possible to produce finger nail enamels under the present disclosure using cellulose derivatives, such as nitrocellulose, with water-soluble aniline dyes, all in part, dissolved in a solvent vehicle, which of itself would not be satisfactory for ordinary nitrocellulose lacquer type coatings, but which is eminently suited for finger nail enamel use. Thus the synthetic methanol solution of the water-soluble aniline dyes set forth above for use as a shading stain, may be converted into a finger nail enamel by the inclusion of nitrocellulose. Such a composition is very rapid drying and gives a satisfactory finger nail enamel. Of course, the compositions may be more complex and may include the glycols, ethers as set forth above, particularly utilizing the latter as color carrying agents for the water-soluble aniline, the glycol ethers of course also being very desirable solvents for the cellulose derivatives, particularly nitrocellulose. Thus a composition containing dioctyl ethylene glycol, ethyl ether or other glycol ether with methanol, nitrocellulose and a water-soluble aniline dye may very desirably be used as a finger nail enamel. Any of these finger nail enamels are particularly desirable because they do not change in color and do not turn brown (a very undesirable characteristic of prior art finger nail enamels); they do not fade badly or quickly or completely lose their color, and they yield a very satisfactory coating of intense color when this is desired.

Another field of development possible under the present invention is in the use of combination stains and fillers for the treatment of wood surfaces. Thus light fast combination stain and fillers free from the defects of prior art compositions enabling staining and filling to be accomplished in a single operation is possible under the present invention.

Any of the ordinary wood filler materials, such as silex, corn flour or corn starch, wood flour, etc., may be incorporated in such combination stains and fillers, the incorporation being made with a permanent stain composition in accordance with the examples given above. It is possible in producing combination stain and fillers in accordance with the present invention to eliminate the presence of oxidizable oils, such as the drying oils from such compositions, and to produce the combination stain and filler without the utilization of any oxidizable or drying oil. Such combination stains and fillers omitting any drying oils are particularly important, since it eliminates the oxidizing action that must take place when the drying oils are present. This enables the application of other top coats over the stained and filled wood surface in a much shorter period of time than is at all possible with compositions containing the drying oils. Further the oxidation of the drying oils always results in poor adhesion of lacquer, and introduces other difficulties such as splitting, blistering, etc. The wiping off times with these combination stains and fillers are also within the period necessary for commercial operation. While, therefore, under the present invention, combination stains and fillers eliminating the use of any drying oil is obtainable, the combination stains and fillers produced by the use of drying...
oils are also included, and an example thereof is given below. In the combination stain and fillers omitting drying oils, the initial filler pastes which are included with the stain components in the development of the final products are desirably made up using resins, either natural or synthetic, such as dammar, resin, ebon, or synthetic phthalic-glyceride resins, particularly the phthalic-glyceride resins which include in their constitution glyceride oils, or the fatty acids derived from such glyceride oils. The following example illustrates the production of an excellent combination stain and filler, with no drying oil utilized in the composition.

A filler paste is first prepared as follows:

- 13 ounces (weight) fine silica
- 3 ounces (weight) corn starch
- 1/2 ounce (weight) wood flour
- 9 ounces (liquid) dewaxed dammar solution
- 1 ounce (liquid) diethylene glycol monoethyl ether butyl lactate

The dewaxed dammar solution may be made by dissolving natural dammar resin in a mixture of ethyl acetate, ethyl alcohol, methyl alcohol and toluol, and the composition then allowed to stand and settle, the wax naturally present in the dammar being completely precipitated, and the clear dammar solution secured by decanting or equivalent process. This is merely exemplary of the production of a dewaxed dammar for use in this connection.

The combination of fine silicas, corn starch and wood flour is particularly effective in these wood fillers.

The permanent combination stain and filler, which also exhibits sealing properties, is then made as follows:

- ¼th ounce (weight) orange water-soluble aniline dye
- 3/8th ounce (weight) black nigrosine soluble aniline dye
- 2/3 ounces (liquid) diethylene glycol monomethyl ether butyl lactate
- 14 ounces (weight) filler paste
- ¼th ounce (weight) Van Dyke brown
- ¼ ounce (liquid) butyl acetate
- 2 ounces (liquid) methanol
- 1 ounce (liquid) toluol

These ingredients may be combined in any desirable way, one such method including the solution of the dyes in the carbitol, the incorporation of the filler paste and pigment with the butyl lactate, followed by incorporation of the methanol and toluol, and the final addition of the diethylene glycol monomethyl ether solution of the dyes.

This composition utilizing dewaxed dammar solution is particularly useful as it exhibits excellent sealing properties to subsequent coats of lacquer or other finishing coatings. That is, where ordinary filler exerts a great deal of suction on finishing coats or material, which is usually offset by the use of intermediate coats of shellac or other similar types of sealing compositions, the particular composition set forth above resists each suction to a degree which for many finishes makes it practical to eliminate the expense and operation of the customary sealing coat.

In these compositions and the specific compositions set forth above, various substitutions may be made. In lieu of the dammar solution, polymerized China wood oil or a varnish made from either rosin, ester gum or various synthetic resins in combination with polymerized China wood oil by the cooking process, may be employed. In lieu of butyl lactate, other components may be used, and particularly reference may be made to the use of cresote oil in lieu of the butyl lactate. The use of such components as cresote oil and butyl lactate in these formulations exhibit a very novel and desirable effect. When a cresote oil containing composition filler is applied to wood by either brush or spray, the physical performance appears to be something of the following: first there seems to be a separation of the solvent, then evaporation occurs. A portion of it penetrates in combination with other solvents, and yet another portion seems to cling on the top of the filler which is drying. This top surface portion is best described as greasy-like in its nature. It holds the filler "open" by retaining its natural tendency to dry fast and to cake into a hard mass. When the wiping off operation of the excess filler occurs, this fact is important because it makes the filler slide, as though the pigments were lubricated, and thus permits efficient cleaning up which is of very practical importance. Such desirable qualities are imparted to the filler by these materials, such as cresote oil of relatively very low cost. And the lubricity function thus secured while somewhat impairing ideal filling, gives the very satisfactions a very satisfactory filling job for ordinary purposes. Similarly in connection with butyl lactate, this has an excellent activity in these compositions, although it is somewhat higher in point of cost. Butyl lactate holds the filler open in a practical and desirable manner, permits of wiping off with tapping 55 licking of the pigment in the pores of the wood, and blends in nicely over coats of lacquer or finishing material applied on the filled surface. The fact that it is compatible with the lacquer or other finishing material is of great importance in preventing defective finishes. Further the butyl lactate appears to assist to some extent by partially dissolving and holding in better solution certain of the typical water-soluble aniline colors that go to make up the coloring matter of the combination stain and filler. It has that fair solubility for brown and yellow resins partially soluble, black slightly soluble, and other colors, such as dark red and orange, of poor solubility, although it does exert some action on them. Due, therefore, to the solubility action of the butyl lactate, it is possible to reduce the normal amount of diethylene glycol monomethyl ether by the assistance rendered through the partial solvent action of the butyl lactate.

In lieu of the cresote oil referred to above, other liquids of similar character, such as rosin oil, may be utilized, but their action is not so desirable because they have a tendency to interfere with good adhesion of subsequently applied lacquer or varnish coats.

As exemplary of a combination stain and filler produced utilizing a drying oil, there may be mentioned the production of a paste of polymerized China wood oil, either with or without combination with resins, the paste being made up from such material together with silice, and desirably also corn starch employing inert pigments, typical of which there may be mentioned Van Dyke brown, ferrite yellow, the umbers and the siennas, together with wood flour as a fourth ingredient of this combination. Of this combination of materials, the corn starch may constitute 10% of the entire pigment combination, and the inert pigments from 10 to 25% thereof. Slate
and china clay may also be employed as such pigment element of the filler paste, although the china clay has a peculiar tendency to bubble when lacquer is applied. A plasticizer is also utilized in such compositions, tricresyl phosphate being satisfactory. The plasticizer is incorporated with the paste referred to, and this is then reduced with a stain reducer, such as 2 parts methanol to 1 part toluol. Finally the color carrier, diethylene glycol monoethyl ether, is incorporated carrying the desired aniline colors in the proportion of 4 to 6 ounces of aniline color to a quart of diethylene glycol monoethyl ether. The admixture of these ingredients, preferably in the order specified, gives the finished product.

Certain considerations of a general character may be noted in this connection. The earth pigments are desirably employed to reduce the cost, to give added color, and most important to prevent any graying out in the pores caused by the action of the lacquer on the silic, which is naturally gray white in color. The corn starch may desirably be employed, because it helps to bind the colorants to the silk and for the most part no toning is required, but if this is considered desirable, it may be accomplished by the addition of a small amount of oil and the permanent stain referred to above.

The wood flour is desirably employed as a component of these fillers to retard drying and to keep the surface moist for a longer wipe-off. Plasticizers like the tricresyl phosphate mentioned above are desirably included in the composition in order to improve the elasticity thereof, and also because here too this ingredient extends the drying time for wiping off.

As pointed out above, butyl lactate and creosote oil are also desirable ingredients employed as set forth above, because they too tend to keep the film open during the drying operation.

Several of these features are particularly important in connection with combination stain and fillers, or other types of fillers that do not contain a drying oil. The drying oil types of fillers have longer drying periods, whereas the types of fillers set forth above omitting any drying oil, are much more rapidly drying. With these non-drying oil containing fillers, it is necessary to secure a sufficiently long drying period to enable the wiping off to be satisfactorily carried out. This has been eminently accomplished in connection with the fillers described above, and the particular components that may be desirably utilized in this connection, although it should be noted that they are exemplary and are not intended to be limiting. Another important feature is the fact that the fillers of the character set forth above, particularly those carrying the gum type solutions, if such gum solutions are replaced by solutions of dewaxed shellac, for example, fillers are obtained having excellent sealing properties, which is particularly desirable in holding subsequent coats of lacquer as topcoats and other similar types of finishing sealer combinations are well exemplified by the combination stain and filler given above using the dewaxed dammar solution, and other gum and lacquer type preparations.

Habitating satisfactory sealing properties, and may therefore be used as sealer coats.

Some of the important features that may be emphasized in connection with these combination stain and fillers, and also combination stain and fillers which may also be used as sealers, are the following: the staining, filling and sealing operations may thus be carried out in a single step, leaving the surface directly ready for the building coat. These compositions are, of course, light fast, and do not raise the grain of the wood. They may be brushed, sprayed or applied by dipping. Applied like ordinary oil type fillers, they may be wiped in a very short period. They may be coated with shellac, lacquer sealers, or body lacquers the same day, or overnight, although in emergencies such overcoats may be applied in a relatively few minutes. They insure proper adhesion of lacquer which is impossible with oil filler, certainly on a commercial scale. Much more uniform effects are obtained than with water stains, followed by oil filler, in accordance with preferred practice of the prior art, and for the most part no toning is required, but if this is decided upon may be accomplished by toning immediately with the permanent stains referred to above. These combination stains and fillers will cover a great deal more surface than the ordinary oil filler. The components remain in suspension, requiring little stirring. Far better impregnation of the wood is obtained than with the prior art types of oil fillers, due primarily to penetration. They hold out overcoats much better than does the prior art type of oil filler, this being the sealing feature particularly referred to above. They do not bleed into lacquer or varnish.

It is pointed out above that a particularly valuable feature of the wood stains and combination wood stains and fillers produced in accordance with the present invention lies in the fact that they may be utilized, and topcoats of lacquer and varnish and of other types may be directly applied without bleeding and other undesirable properties, and without requiring the use of intermediate sealing coats. Of course, if desired intermediate sealing coats of one type and another may be employed. But they are not necessary for reasons discussed above.

To illustrate various features by specific compositions as explained above in the foregoing remarks, the following specific examples may be taken as exemplary.

A stain containing triethanolamine may be made from the following components:

- 36 ounces methanol
- 16 ounces toluol
- 12 ounces triethanolamine

These parts are by volume, and the stated amounts may be utilized for solution of 1½ ounces by weight of a stated water-soluble dye.

The following illustrates a wood stain utilizing a small amount of water in the composition, the water content being insufficient to cause substantial grain raising in view of the other components of the mixture:

- 36 ounces methanol
- 16 ounces toluol
- 11 ounces diethylene glycol monoethyl ether
- 1 ounce water

The proportions stated above are by volume, and are utilized with 1½ ounces of weight of the desired water-soluble dye. In compound solutions, the mixture as stated above, the dye may be cut in the water, the diethylene glycol monoethyl ether
then added, followed by additions of the methanol and toluol.

In exemplifying the use of these dye solutions with lacquers to produce colored lacquers, it has been pointed out that the amount of film-forming ingredient, whether it be a synthetic resin or a cellulose derivative, may be utilized to determine the extent of penetration of the dye into a wood surface when used thereon. Of course, in the usual case where a coating composition is desired, substantial penetration of the dye is not sought, and the discussion above enables the production of lacquers of various types as coating compositions. In such nitrocellulose lacquers for example, any of the ingredients ordinarily employed as solvent vehicles or diluents may be utilized, provided that they are compatible with the dyes employed in the solutions. As illustrative of such ingredients, there may be utilized the aliphatic alcohols, such as methyl, ethyl, propyl butyl, isobutyl, and amyl, ketones, such as acetone, the esters of the aliphatic alcohols, and particularly the fatty acid esters of such materials, such as ethyl acetate, butyl acetate, amyl acetate, etc., plasticizers and softeners, such as ethyl phthalate, butyl phthalate, dibutyl phthalate, triphenyl phosphate, tricresyl phosphate, etc., in such nitrocellulose lacquers and other types of compositions for coating purposes, there may also be included resinous ingredients, including the various resins both natural and synthetic, such as the natural resins, resin, dammar, congo, and the chemically modified natural resins, including resin acetylated congo, etc. The synthetic resins include the phenol-formaldehyde types of resins, cumarone resins, vinyl resins, phthalic-glyceride types of resins, etc. In such cases, the resins chosen should be compatible with the cellulose ester of the composition, and of course should not precipitate out the dye components to any substantial extent in the particular formulas employed. The phthalic-glyceride resins are exemplary of synthetic resins that are compatible with the nitrocellulose and the other elements of the composition. Among the phthalic-glyceride types of resins there may be specifically mentioned the phthalic-glyceride resins produced with a fatty oil component, either the oil itself, or fatty acids derived from the oils, such fatty oil component being tied up in the resin molecule. Fatty acids of the drying oils are particularly desirable as combined elements in such phthalic-glyceride resins.

Dyed lacquers produced in accordance with the present invention may desirably be used for coating various articles of manufacture whether such articles are made of wood, metal, glass, paper, fabric, leather, etc., and the dyed lacquers of the present invention may represent one of several costs applied to such articles, the dyed lacquer being a topcoat applied over other initial coats, or the dyed lacquers of the present invention may be intermediate coats with other coats applied above them. The following will exemplify a dipping lacquer produced in accordance with the present invention:

- 12 ounces methanol
- 10 ounces toluol
- 9 ounces xylol
- 8 ounces amyl acetate
- 8 ounces butyl alcohol
- 1 ounce castor oil
- 16 ounces gum solution

The above components are given in parts by volume. The gum solution is a solution of a glycerin-phthalate resin in coal tar solvents. With such vehicle, there may be employed 8 ounces by weight of nitrated cotton, such for example as the alcohol-soluble variety, and for the dye component there may be used 2 ounces by volume of a permanent stain composition produced as set forth above. The above components are incorporated together to produce a dipping lacquer.

While lacquers in the nature of coating compositions may thus be desirably produced as explained above, a particular feature of the present invention lies in the inclusion of a limited amount of lacquer or other film-forming ingredient to check partial penetration of the stain. As exemplary of a particular composition to be employed in this connection, we may utilize the following:

- 27 ounces methanol
- 12 ounces toluol
- 9 ounces diethylene glycol monoethyl ether

This vehicle may be employed in the parts given by volume with horrified ounces by weight of water-soluble dye and 16 ounces by volume of nitrocellulose lacquer. The nitrocellulose lacquer may consist of 10 ounces of nitrated cotton to 1 gallon of lacquer solvents and diluents, no resin or plasticizer being present in the composition.

As exemplary of other types of compositions that may be employed as set forth hereinabove for use as finger nail enamel compositions, there may be noted specifically the use of 12 ounces of a clear lacquer, such as is standard for finger nail clear lacquer, with 47 1/2 ounces of water-soluble dye, dissolved in 6 ounces of monomethyl ether of ethylene glycol.

Or another type of finger nail enamel composition might be made from 7 parts of a standard finger nail lacquer, with 1 part of permanent stain.

As further exemplary of a combination stain and filler, the following composition may be employed:

- By weight 8 ounces fine silex
- 12 ounces medium silex
- 3 ounces corn starch
- 2 ounces dry color

By measure 14 1/2 ounces gum solution

- 12 ounces methanol
- 5 ounces butyl lactate
- 10 ounces refined coal tar naphtha
- 3 ounces rape seed oil

By weight 1 ounce water-soluble dye

By measure 10 ounces diethylene glycol monoethyl ether

This combination of ingredients incorporated together as explained above in the production of combination stain and fillers gives an excellent combination stain and filler.

Having thus set forth my invention, I claim:

1. A wood stain containing a water-soluble aniline dye in solution in a penetrating composite vehicle containing a high boiling organic solvent for the dye and a compatible low boiling organic component, the ingredients being present in portions to yield a wood stain of light fast, non-fading composition raising properties and not bleeding into lacquer and varnish topcoats.

2. A wood stain as set forth in claim 1 containing triethanolamine as the dye solvent.

3. A wood stain as set forth in claim 1 containing mono-ethyl ether of ethylene glycol as the dye solvent.
4. A stain base composition capable upon dilution of yielding a wood stain, said base containing a water-soluble aniline dye and a high boiling organic solvent therefor, said composition being adapted upon dilution with methanol and toluol to yield a penetrating wood stain of light fast, non-fading non-grain raising properties and not bleeding into lacquer and varnish topcoats.

5. A stain base composition capable upon dilution of yielding a wood stain, said base containing a water-soluble aniline dye and a triethanolamine solvent therefor, adapted upon dilution with methanol and toluol of yielding a wood stain that is substantially light fast, non-fading, non-grain raising, and not bleeding into lacquer and varnish topcoats.

6. A wood stain containing a water-soluble aniline dye in a penetrant composite vehicle containing a high boiling point solvent for the dye, said solvent being selected from the group of ether alcohols including glycol ethers and glycerol ethers; and glycerol, alkylene glycols, butyl lactate, triethanolamine, liquid chlorinated derivatives of diphenyl, and sulphur treated oils and sulphonated oils, and a compatible rapidly volatilizing component selected from the group of aliphatic alcohols, ketones, esters of the aliphatic alcohols, benzol, toluol, xylol, ethyl benzene, hydrocarbon distillates, solvent naphtha, and coal tar distillates, the components being present in proportions to yield a substantially light fast, penetrating, non-bleeding, non-grain raising stain.

7. A shading stain consisting of a water-soluble acid aniline dye in solution in a rapidly volatilizing organic solvent.

8. A wood stain base containing a light-fast aniline dye in solution in a vehicle containing a component selected from the group containing glycol ethers and triethanolamine.

9. As a wood stain: a water soluble acid dye in solution in a volatile penetrating organic vehicle.

10. A dye in organic dispersion comprising a dye material normally insoluble in the common organic solvents, a member of a group consisting of ethylene glycols and alkyl ethers of the ethylene glycols and a common organic solvent as a dispersion medium.

11. A dye in organic dispersion as defined in claim 10, in which the dispersion medium is selected from a group consisting of alcohols and members of the benzene series of hydrocarbons.

12. A dye in organic dispersion as defined in claim 10, in which the dispersion medium is an alcohol.

13. As a dye in organic dispersion as defined in claim 10, in which the dispersion medium is benzene.

14. A dye in organic dispersion as defined in claim 10, in which the dispersion medium is a lower alcohol.

15. A dye in organic dispersion as defined in claim 10, in which the dispersion medium is a member of the benzene series of hydrocarbons.

16. A process of preparing a dye in organic dispersion which comprises mixing a dye material normally insoluble in the common organic solvents with a member of a group consisting of the ethylene glycols and alkyl ethers of the ethylene glycols and diluting with a common organic solvent as a dispersion medium.

17. A process of producing a dye in organic dispersion as defined in claim 16, in which the dispersion medium is selected from a group consisting of alcohols and members of the benzene series of hydrocarbons.

18. A process of producing dyes in organic dispersion as defined in claim 16, in which the dispersion medium is an alcohol.

19. A process of producing dyes in organic dispersion as defined in claim 16, in which the dispersion medium is benzene.

20. A process of producing dyes in organic dispersion as defined in claim 16, in which the dispersion medium is a lower alcohol.

21. A process of producing dyes in organic dispersion as defined in claim 16, in which the dispersion medium is a member of the benzene series of hydrocarbons.

22. A composition adapted for the production of wood stains upon dispersion with a common organic solvent, said composition consisting of a dye material normally insoluble in the common organic solvents, and a member of a group consisting of ethylene glycols and alkyl ethers of the ethylene glycols.

23. A dye in organic dispersion comprising a water-soluble aniline dye, a volatile organic solvent therefor, a rapidly volatilizing organic non-solvent component, the materials being present in proportions to yield a rapidly drying and setting composition constituting a substantially light-fast, penetrating, non-bleeding, non-grain raising wood stain.

24. A combination wood stain and filler comprising a dye material normally insoluble in the common organic solvents, a member of a group consisting of ethylene glycols and alkyl ethers of the ethylene glycols, a common organic solvent as a dispersion medium, and a wood filler.

25. A combination wood stain and filler comprising a water-soluble aniline dye, a volatile organic solvent therefor, a rapidly volatilizing organic non-solvent component, and a wood filler, the components being present in proportions to yield a substantially rapid drying and setting composition.