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UNITED STATES PATENT OFFICE

2,320,438

CEMENTING MACHINE

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11 Claims. (Cl. 91—47)

This invention relates to a cementing machine of the type illustrated in my various patents as, for instance, No. 1,960,341, dated May 29, 1934, No. 2,098,101, dated November 2, 1937, wherein a horizontal grid having a level top surface is elevated from a low position where it is completely submerged in a bath of suitable liquid cement to an elevated position wherein the top of the grid is above the cement and is adapted to receive an article and to deposit cement on the contacting face of the article. Such a type of cementing machine has found wide usage, for instance, in shoe factories for applying cement to various parts of the shoe as, for instance, sock linings, vamps, soles, and the like.

The grid is composed of a plurality of laterally-spaced, straight plates disposed on edge, each having a toothed upper surface that carries dots of cement to the contacting article. The grid plates are strung on rods running through the end parts thereof and are spaced apart on the rods, the rods being connected with a suitable structure for raising and lowering the grid.

Prior to the present invention, the grid bars have been formed from brass strips which are milled to provide the teeth and are drilled at their end parts to receive the supporting rods. After the milling and drilling operations, the burs have to be removed and the rods carefully straightened. This involves a considerable expenditure of expensive hand labor. The spacing of the bars on the supporting rods heretofore has been effected by separate spacer members turned from rod stock and separately strung on the rods between the bars. The usual grid contains 53 grid bars and hence requires two supporting rods and 108 spacer members, all of which have to be laboriously assembled upon the rods. It frequently happens that a workman finds that a spacer member has been omitted, thus necessitating disassembly of many bars and spacer members in order to insert the missing member. The hand labor involved in the manufacture and assembly of such a grid is a substantial portion of the entire cost of the grid.

With some types of articles, it is necessary not only to apply adhesive in a series of spaced dots distributed over a face of the article, but also to apply a substantially continuous line of adhesive to an edge part of the article. This is accomplished by placing compressible rubber inserts between certain of the grid bars, or by inserting a flexible band between selected bars and the teeth thereof, as illustrated in my Patent No. 1,960,341, dated May 29, 1934, the top face of the insert carrying cement to the article over an area as extensive as the face of the insert. The use of these inserts tends to bend the grid bars intermediate their ends, which is objectionable, and hence necessitates some intermediate lateral support for the bars. If a support were provided in the same manner as the support for the end of the bars, an additional rod and an additional 54 loose spacer members would be necessary.

An object of the present invention is in the elimination of the above noted objections by providing a grid formed of grid bars which are preformed completely between accurate dies, as by being die cast of some suitable material and hence are formed accurately to shape and are straight and wherein each bar has spacer members integral with it both at the end parts and at the intermediate part, the cast or preformed bar and the end spacer members integral with the bar having holes therethrough for the insertion of the supporting rods while the intermediate integral spacing member can be solid, the spacer members of the adjacent bars on the supporting rods abutting against each other to maintain the predetermined spacing between the bars and the intermediate spacing members also being in engagement with each other to prevent bending of the bars when inserts are used.

A further object is the provision of a cementing grid having grid bars with spacer members integrally formed with said bars.

A yet further object of the invention is the provision of a cementing grid consisting of a plurality of cement depositing bars supported at their end parts on rods which pass through the bars, the intermediate parts of said bars having contacting, laterally-projecting, integral, spacing projections that prevent lateral deflection of the bars.

Another object is generally to improve the construction of cementing machines.

Fig. 1 is a plan view of a cementing machine embodying the present invention.

Fig. 2 is a sectional view of the machine of Fig. 1 taken along line 2—2 of Fig. 1.

Fig. 3 is a side elevation of a grid bar.

Fig. 4 is a sectional view taken along line 4—4 of Fig. 3 and showing the construction of the integral grid bar and end spacing member.

Fig. 5 is a section taken along line 5—5 of Fig. 3 and illustrating the construction of the integral grid bar and intermediate spacing projection or member.

The cementing machine herein illustrated as embodying the present invention comprises an

tions, the lateral projections of one bar engaging the next adjacent bar whereby to maintain said bars in spaced relation on said rods, said bars also having integral therewith and intermediate of their ends other lateral projections, said lateral projections of one bar engaging the next adjacent bar and said intermediate lateral projections preventing lateral deflection of said bars.

5. In a cementing machine of the type wherein a horizontal grid is raised vertically from a submerged position in a bath of cement to an elevated cement-applying position, a grid comprising end supporting brackets, end bars fixed to said brackets, a plurality of horizontally-disposed edgewise-arranged laterally-spaced grid bars disposed between said end bars, supporting rods passed through the ends of said end parts of said grid bars for supporting them, said rods being carried by said end bars, said grid bars having integral therewith lateral spacing projections at the end parts thereof through which said rods are passed, a projection of one bar engaging the next adjacent bar and maintaining the bars in predetermined spaced relation, and means on said supporting rods for forcing said bars and projections in pressure engagement.

6. In a cementing machine of the type wherein a horizontal grid is raised vertically from a submerged position in a bath of cement to an elevated cement-applying position, a grid composed of a plurality of horizontal edgewise-disposed laterally-spaced cement-applying bars, supporting rods passed through the end parts of said bars, said bars having integral therewith pairs of opposed oppositely-extending spacing projections extended in opposite directions laterally of said bars, said pairs of projections having openings therethrough through which said supporting bars are extended, the projections of one bar engaging the corresponding projections of the next adjacent bars to maintain said bars in a predetermined spaced relation.

7. In a cementing machine of the type wherein a horizontal grid is raised vertically from a submerged position in a bath of cement to an elevated cement-applying position, a grid composed of a plurality of horizontal edgewise-disposed laterally-spaced cement-applying bars, supporting rods passed through the end parts of said bars, means surrounding said rods and interposed between and integral with said bars maintaining them in spaced relation on said rods, said bars having intermediate their ends pairs of spacing projections extended in opposite directions from the opposite faces of said bars, said projection of one bar engaging the projection of the next adjacent bar to maintain the intermediate part of said bars spaced and to prevent lateral deflection of said bars.

8. In a cementing machine of the type wherein a horizontal grid is raised vertically from a submerged position in a bath of cement to an elevated cement-applying position, a grid composed of horizontal end bars, a plurality of horizontal edgewise-disposed laterally-spaced cement-applying bars disposed between said end bars, supporting rods passed through the end parts of said end bars and said cement-applying bars, means including said supporting rods for clamping said end bars and said grid bars together, means integral with said grid bars and surrounding said supporting rods for maintaing said bars in spaced relation, said grid bars intermediate their lengths each having a pair of spacing projections extended in opposite directions from the faces of the bars, a projection of one bar engaging a projection of the next adjacent bar, and a projection of each of the endmost grid bars bearing against the confronting end bar and maintaining said grid bars against lateral deflection.

9. A grid bar for a cementing machine of the type employing a vertically-movable horizontal cement-applying grid which rises from a submerged position in a cement bath to an elevated cement-applying position, said grid bar comprising a straight bar preformed with pairs of integral oppositely-extending opposed spacing projections at the end parts of the bar, the pairs of projections having rod passages therethrough, the bar also being preformed with a pair of integral bosses extending in opposite directions from opposite faces of the intermediate part of the bar.

10. A grid bar for a cementing machine of the type employing a vertically-movable horizontal cement-applying grid which rises from a submerged position in a cement bath to an elevated cement-applying position, said grid bar comprising a straight bar preformed with pairs of integral oppositely-extending opposed spacing projections at the end parts of the bar, the bar also being preformed with a pair of integral bosses extending in opposite directions from opposite faces of the intermediate part of the bar, the bar having preformed supporting-rod passages therethrough.

11. A grid bar for a cementing machine of the type employing a vertically-movable horizontal cement-applying grid which rises from a submerged position in a cement bath to an elevated cement-applying position, said grid bar comprising a straight bar preformed with integral lateral bar-spacing projections at the end and the intermediate part of the bar and the bar also having preformed supporting-rod passages therethrough.

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PHOTOGRAPHIC SENSITIZER

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No Drawing. Application August 24, 1940, Serial No. 354,116. In Germany October 5, 1939

5 Claims. (Cl. 260—240)

This invention relates to photographic sensitizers.

In U. S. P. 2,289,300 of which the present application is a continuation in part, we have disclosed a method of sensitizing photographic silver halide emulsions, whereby carbocyanines (trimethinecyanines) are incorporated in the emulsion or in an emulsion layer at any stage in its production. These carbocyanines contain the benzimid-azole ring with or without substituents on one or both sides of the polymethine chain. These sensitizing dyestuffs are characterized by a very steep falling-away of the sensitizing curve and have pronounced definite and limited positions of the sensitizing region.

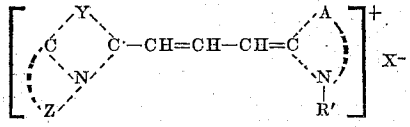
It is one object of our invention to provide emulsions having sensitizing curves which fall-away steeply and also have pronounced definite and limited positions of the sensitizing region.

A further object is the provision of unsymmetrical trimethinecyanines containing at least one benzimid-azole ring.

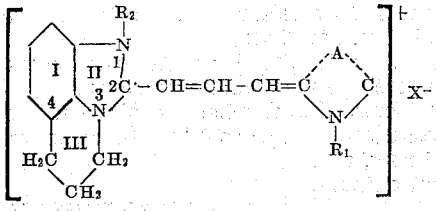
A still further object is to provide trimethinecyanines with a benzimid-azole ring which contains at the nitrogen atom in 1-position alkyl-, aralkyl- or aryl groups and a hydrogenated ring fused to the nitrogen atom in 3-position and the carbon atom in 4-position.

Other objects of our invention will appear from the description following hereinafter.

It has been found that unsymmetrical carbocyanines (trimethinecyanines) are especially suited for the sensitizing of orthochromatic emulsions instead of the dyestuffs of said U. S. Patent 2,289,300. These unsymmetrical carbocyanine dyestuffs contain a benzimidazole ring, to which is linked on the nitrogen atom in 3-position and on the carbon atom in 4-position a hydrogenated ring. The new sensitizers have the following general formula:



or, more specifically, the following formula:



in which:

A represents the atoms necessary to complete a heterocyclic ring system of the type usual in cyanine dyes for instance

oxazole-, oxazoline rings,
thiazole-, thiazoline rings,
selenazole-, selenazoline rings,
indole ring,
quinoline ring,

if necessary, condensed with a benzene ring and other ring systems.

Y represents the number of atoms necessary to complete a benzamidazole nucleus, Z represents the number of alkylene groups necessary to complete a 6-membered hydrogenated ring.

R_1=alkyl or aralkyl.

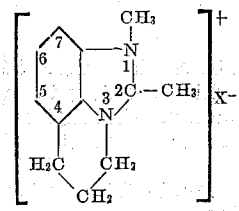
R_2=alkyl-, aryl or aralkyl.

X=an anion or acid radical, such as Cl, Br, J, SO_4, ClO_4, p-toluene-sulfate.

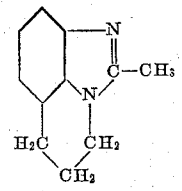
The benzene rings of both ring systems and the hydrogenated ring may carry one or more substituents, such as alkyl, aralkyl, aryl, alkoxy or halogens.

These dyestuffs like the dyestuffs of said U. S. P. 2,289,300 are characterized by a very steep falling-away of the sensitizing curve towards the region of long waves and by a pronounced and limited position of the sensitizing region. With regard to the falling-away of the sensitizing curve they are even superior to the sensitizing dyestuffs of the above-mentioned copending application. Still greater security against dark-room light is guaranteed in this way.

The dyestuffs are produced according to the methods of U. S. patent application Ser. No. 237,475, filed October 28, 1938, whereby the quaternary alkylate of the 2-methyl-3,4-trimethyleneben zimidazole of the general formula



which may be substituted as above, is employed for the condensation instead of the quaternary N-alkyl-2-methylbenzimidazole. The quaternary ammonium salts are produced from the benzimidazole base in a manner known per se. The simple base, the 2-methyl-3,4-trimethylenebenzimidazole of the formula



is obtained according to "Berichte 24," page 2051.