

COMMISSIONER'S DECISION

UNOBVIOUS: Combination of Known Elements.

The useful advantage of increasing wear-life without loss of color sharpness, by providing color depth in the flooring using a transparent binder as well as a color coated transparent filler particles, is not suggested by the binders and fillers as used in the prior art. An essential step required by the prior art was eliminated, and binder transparency was not an essential element in the prior art.

FINAL ACTION: Reversed.

This decision deals with a request for review by the Commissioner of Patents of the Examiner's Final Action dated March 2, 1973 on application 013,797. This application was filed on March 1, 1968 in the name of Charles R. Lea and refers to a "Flooring With Decorative Filler."

This application relates to polymeric resin flooring containing colored decorative granules. Claim 1 refers to translucent granules coated with a pigmented insoluble ceramic composition, and the granules are homogeneously distributed throughout a transparent synthetic binder.

In the prosecution terminated by the Final Action the examiner rejected the application in that the subject matter is obvious in view of the prior art.

References Applied:

British Patent		
934,628	Aug. 21, 1963	Monaghan
United States Patent		
1,486,208	Mar. 11, 1924	Weber

In the Final Action the Examiner stated in part:

The Monaghan et al patent discloses compositions suitable for use as surfacings for floors and other surfaces comprising a liquid resin binder, mixed with a suitable

filler such as quartz, said filler having a surface coating derived from an organic silicate or the like; said patent further discloses the appropriate particle sizes of the filler as being between 10 mesh and 240 mesh according to British Standard Specification Number 410, 1943, corresponding to 1.676 and 0.066 mm. respectively.

The Weber patent discloses a method of colouring terrazzo flooring, surfacing or the like, and the article produced thereby. The flooring composition according to Weber comprises a mouldable cement or other base, having embedded therein any natural transparent or semitransparent chips of material such as quartz, marble, mica spar or the like, said chips being coated with a suitable paint or pigment mixture. Weber's stated objective is to preserve the appearance of transparency of depth of the terrazzo floor or surfacing thus produced.

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The use of colour coated translucent mineral granules in a fluid binder for a continuous, seamless decorative floor is known, and has been taught by Monaghan et al, and Weber.

The colour coating of mineral granules or the like is not new. Both the Monaghan et al, and the Weber patents disclose colour coating of mineral granules with an adherent siliceous surface coating derived from an organic silicate or an incompletely polymerized polymer thereof, or the like. The applicant points out on page 4, lines 19-23 of the disclosure, that "the base mineral granules are prepared and coated in accordance with the conventional techniques...".

The use of transparent synthetic organic polymers as a binder in floor compositions has been known. Monaghan et al discloses a liquid cross-linkable resin binder such as unsaturated polyester resins, polyurethane intermediates, and epoxy resins. Applicant points out on page 1, last paragraph of the disclosure: "resin flooring, particularly cured-in-situ seamless flooring formed from polymeric resins, has recently come into wide usage". Further, on page 3, lines 8-11, the disclosure states: "the preparation and formulation of resins, as well as the application to flooring, is well known to those skilled in the art".

Translucent mineral granules have been used in flooring. Monaghan et al discloses typical fillers such as quartz, sand, diatomite, etc. Some of these fillers are translucent. Weber specifies that "any natural transparent or semi-transparent material may be used, as marble, quartz, mica spar, or the like."

The choice of particle size of the fillers depends on the thickness of the floor to be made, and is usually left to the discretion of the person skilled in the art. Moreover, Monaghan et al disclose particle sizes in their patent, which particle sizes encompass the range claimed and disclosed by the applicant, i.e. between 0.066-1.676 mm compared with applicant's sizes between 0.4-1.7 mm, as detailed above.

The applicant in his response dated June 4, 1973 to the Final Action stated in part:

It is further submitted that the cited British Patent 934,628 Monaghan et al does not disclose or render obvious the applicant's decorative flooring composition. Firstly, in its broader aspect, this reference does not require the use of a pigment, see page 2, lines 34 - 54. In the examples described in this reference, a pigment is added to the filler component which is mixed with the organic silicate. However, the exemplified fillers are very finely divided (e.g. 200 mesh silica in Example I, or 200 mesh barytes in Example II); thus, the filler is too fine to be provided with a colored (i.e. pigmented) silicate coating. Furthermore it would seem clear that the sand, silica, emery grit, barytes, etc. disclosed in the Examples serve no decorative function and are probably added simply to provide wear resistance.

The mixing and compounding procedure described in the British reference will not localize the pigment in the organic silicate coating on the filler particles. Unlike the applicant's invention, a pigmented silicate composition is not tumbled with rock granules. The filler particles of the British reference, even if provided with discrete silicate coatings, are not dried and/or fired to fix the pigment in the silicate. It must be assumed that the chrome green (Example I) or iron oxide (Example II) pigment migrates to or becomes admixed with the resin binder. This reasoning is borne out by the fact that the broad description and Examples of the British reference do not explicitly mention a granule with a color coating consisting of a pigmented ceramic composition. The ultimate destination of the pigment phase (in the silicate only? in the binder? in both?) is not specified. In the applicant's invention, the resin binder is transparent and substantially colorless. In the flooring of Example I of the reference, both the filler and the binder probably would appear to be green, while in reference Example II, both would be more or less reddish, the red colors being modified slightly by titanium dioxide.

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In the applicant's submission therefore, neither of the cited references approaches the subject matter of the claimed invention. Nor is it proper to reject the applicant's claims on a combination of these references, since the suggestion to combine the teachings of the two references does not arise from the references themselves, but only becomes obvious in view of the applicant's own disclosure. Nowhere in the references is there any appreciation that the applicant's unique and novel flooring composition can be produced by utilizing a transparent synthetic organic polymer having embedded therein translucent mineral granules coated in a pigmented insoluble ceramic coloring composition.

The question to be decided is whether the applicant has made a patentable advance in the art over the prior art. Claim 1 reads:

A durable decorative floor comprising a flooring substrate having adhered thereto a continuous, seamless, layer of a transparent synthetic organic polymer having homogeneously distributed therethrough, translucent mineral granules less than 2 mm. in size having a color coating thereon, said color coating comprising a pigmented insoluble ceramic composition.

The Weber patent relates to methods of coloring white transparent crushed marble, silica, or the like, for making colored art marble, terraza, or the like.

An object of Weber's invention is that, "...the appearance of transparency of depth be preserved..." but it is a prerequisite that this is accomplished by cutting down the top surface of the floor to remove the colored surface of the top portion of the chips. The elimination of the surface coloring on the top portion of the chips gives the "depth" perspective to the floor. There is no result as promised unless the chips are cut to expose their transparency. The colored chips, which may be transparent or semitransparent, are set in an opaque cement base, and if desired this cement may be colored. Claim 1 of the Weber patent reads:

The herein described method consisting in moulding independent and artificially colored chips into an article form, and then finishing the surface of the article by removing the coloring from those portions of the chips at such surface.

The Monaghan invention relating to, "...improved filler materials and to compositions containing such material," is addressed to the problem of maximum chip filler for maximum wear. The disclosure on page 1, beginning line 60 column 2, reads: "Generally speaking any filler can be treated so as to have an adherent siliceous coating. Typical fillers are sand, quartz, tripoli, diatomite and asbestos, though carbon in the form of carbon black, coke or charcoal and other fillers such as wood flour, cork and ground coconut shell may also be treated". While it is true that some forms of quartz may be translucent, the transparency of the filler is of no concern in the Monaghan invention.

Also in the Monaghan reference the siliceous coating of the chips was essential to absorb water from the chips and for maximum wear. Furthermore, there is no mention of the chips having a color coating consisting of an insoluble pigmented ceramic composition, and it is immaterial whether the cross linked binder is clear or opaque. In any case the transparency of the binder is not revelent to the object of Monaghan's invention. It is also probable that the chrome green (Example I), or iron oxide (Example II) pigments migrate to, or become admixed with, the resin binder. Claim 1 of this patent reads:

A composition suitable for covering floors, decks, and the like surfaces which comprises a liquid cross-linkable resin binder mixed with particles of filler having an adherent siliceous surface coating derived from an organic silicate or an incompletely polymerised polymer thereof.

The applicant states that he has overcome a defect in previous flooring of the same general type. The disclosure, page 1 beginning at line 25 reads: "When these granules are used as a flooring aggregate however, the color coating may be abraded or worn off in heavy traffic areas, exposing the dark base rock. This results in a dark mottled-appearing floor in areas of heavy traffic."

In line with this, the object of the present application is stated on page 2, beginning at line 7, in the following terms:

As the floors of this invention are abraded or worn out to expose the base rock on the granules, the flooring not only does not darken, but there is a beneficial tendency of the floors to retain the original coloring by virtue of transmission of the color characteristics from the embedded side of the granules through the transparent or translucent rock. Thus the wear life of the floors, without the sacrifice of the color sharpness, is greatly increased. The dimensional stability, chemical resistance, and color stability of the floors are greatly improved by the use of such granules as compared to, for example, plastic chips used as inserts. The decorative effects provided by the granules of this invention are the most substantial when the granules are used in flooring formed from transparent resins, and such resins are thus preferred.

For convenience Claim 1 will be repeated here:

"A durable decorative floor comprising a flooring substrate having adhered thereto a continuous, seamless, layer of a transparent synthetic organic polymer having homogeneously distributed therethrough, translucent mineral granules less than 2 mm. in size having a color coating thereon, said color coating comprising a pigmented insoluble ceramic composition."

This claim is specific to: a transparent synthetic organic polymer binder, having homogeneously distributed therethrough translucent mineral granules of a specific size and having a color coating thereon comprising a pigmented insoluble ceramic composition.

In the present application there is no requirement, or indeed any need, for the step of cutting or grinding the floor, which is a necessary step in the Weber invention to make it operative.

In Weber, as previously mentioned, it is the "cut chips or granules" that produce the "appearance of depth" to the floor.

In the present application the "appearance of depth" is instantaneous upon manufacture, and is produced by the colored granules which reflect through the transparent binder. Furthermore, the granules are coated with a color coating of a pigmented insoluble ceramic composition. As the floor of the present application wears, the top of some of the granules is worn off, and it is only then that it is in anyway similar to the Weber flooring. But, nevertheless, it is still distinguishable from Weber, since the color transmission takes place at the same time both through the transparent binder itself, as well as through the worn granules.

The Monaghan patent discloses little if anything to overcome the problem of "a dark mottled-appearing floor," which the applicant has solved.

An objective described in the Monaghan reference was to use maximum filler in his flooring to produce maximum wear. One of the many fillers mentioned was quartz and it is agreed that some forms of quartz are translucent. It is also known that quartz varies in color from white to black, see "Lange's Handbook of Chemistry", Ninth Edition (1956) at page 186.

If Monaghan has selected quartz as his filler, it would no doubt contain some translucent granules, however it would be mixed with and masked by non-translucent granules of quartz. He would not obtain the result claimed by the applicant, because the inclusion of quartz outside the translucent range would not give the promised result. The applicant, on the other hand, has purposefully selected and claimed translucent and only translucent filler granules, including quartzite or other varieties of translucent quartz.

The Monaghan flooring, may or may not utilize a transparent binder in the finished product (this point was previously discussed), but the reference neither indicates nor recognizes the need for a transparent binder, and it was immaterial whether the granules were opaque or translucent.

In the present application the applicant has specifically selected a particular binder and a particular selection of filler granules. That the fillers and binder used by the applicant appear separately, and may in some instances be partially combined in the cited patents is not denied, but the practical utility produced by the particular combination in the applicants' floor covering is not suggested in either of the patents.

The applicant claims that he has increased the "wear life of floors without the sacrifice of color sharpness." The evidence before the Board provided in the application, the affidavit from the inventor, and the color photographic exhibit forming part of his response indicate that this in fact has been accomplished. That is, discoloration with wear is reduced, thus increasing the usable life of the flooring. This is clearly shown in the photographic exhibit submitted by the applicant. In the exhibit four samples were made identical except for the filler granules. In Sample A, which represents the subject matter of this application, translucent quartzite granules and a transparent binder were used. It shows that wear life will be extended with much less sacrifice in color sharpness than that shown in the other exhibits.

The Board is satisfied that the subject matter of claim 1 represents a patentable advance over the disclosure and teachings of the patents cited, whether taken separately or combined. Claims 2 to 11, which are dependent on claim 1, are allowable for the same reasons as that given for claim 1.

The Board therefore recommends that the Final Action refusing the application for want of subject matter be withdrawn.


J.F. Hughes
Assistant Chairman
Patent Appeal Board

I concur with the findings of the Patent Appeal Board.

Accordingly, I withdraw the Final Action and return the application to the examiner for resumption of prosecution.

Decision accordingly,

A handwritten signature in dark ink, appearing to read 'A.M. Laidlaw', with a horizontal line extending from the end of the signature.

A.M. Laidlaw
Commissioner of Patents

Signed and dated in
Hull, Quebec this
28th day of January, 1974

Agent for Applicant

Smart & Biggar,
Ottawa, Ontario.