

**CLASS 503, RECORD RECEIVER HAVING PLURAL INTERACTIVE LEAVES OR A COLORLESS COLOR FORMER, METHOD OF USE, OR DEVELOPER THEREFOR**

**SECTION I - CLASS DEFINITION**

Material which is used to form a visible record by a reactive or interactive, usually chemical or physico-chemical, phenomenon or a method of using such a material to form a record. The formation phenomenon is one of the following: (a) The chemical decomposition of a colorless substance to form a substance having color; (b) the chemical combination of two or more colorless chemical moieties to produce a substance having color; (c) The further chemical change of (a) or (b) above, to form a color different from an original color; and (d) The chemical or physico-chemical complementarity between the bottom surface of one sheet of a record receiver and the top surface of an adjacent sheet with which the first sheet is associated.

Generally, the phenomenon in cases (a) through (d) is thought about by the application to the record receiver of heat and/or pressure in the areas to be "marked".

**SECTION II - REFERENCES TO OTHER CLASSES**

**SEE OR SEARCH CLASS:**

- 346, Recorders, subclasses 134+ for record receivers of other type and the definitions to that subclass for the identity of other classes or subclasses where other record receivers may be placed.
- 427, Coating Processes, appropriate subclasses for a method of making a record receiver as herein, by coating substrate, and especially subclasses 213.3+ for a process of making a solid microcapsule by coating.
- 428, Stock Material or Miscellaneous Articles, subclasses 402.2+ and 402.24 for composite microcapsules; and subclasses 411.1+ for composite material in general, many of which may be used in or as record receivers; see especially subclasses 488.1+ for so-called "carbon paper", and some other paper coated with transferable material.
- 430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, appropriate subclass for radiation-sensitive (photos:graphic) materials in general, including those intended to be used for making a record by imagewise

exposure to a radiant heat source, e.g., a laser. Where a receiver is claimed which can function due to conductive imagewise heating or radiant imagewise heating, the patent is classified in Class 430 and cross-referenced here (Class 503).

- 462, Books, Strips, and Leaves for Manifolding, see especially subclasses 17+, 55+ and 66+ for plural leaf paper sets including transfers and receiving sheets.

**SUBCLASSES**

**200 HAVING A COLORLESS COLOR FORMER, DEVELOPER THEREFORE OR METHOD OF USE:**

Material which is used to form a visible record by causing a substance to react chemically to form a color where there was no color, or to form a different color from the original, or a method of using such material.

- (1) Note. Usually the color change occurs when a colorless chemical entity, called a "color former" is brought to a different state of electronic equilibrium by contacting the entity with a "developer generally are kept separate on the unused recording material, for example, by confining each reactant to a different, mating surface of a plurality of sheets, by confining one or more of the reactants to "microcapsules", etc. The reactants are brought into contact by the application of pressure, heat, etc., to localized areas of the recording material.

**SEE OR SEARCH CLASS:**

- 8, Bleaching and Dyeing; Fluid Treatment and Chemical Modification of Textiles and Fibers, subclasses 636+ for a dye composition in general.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 4.1+ for a liquid encapsulation process to make a microcapsule.
- 428, Stock Material or Miscellaneous Articles, subclasses 402.2+ and 402.24 for microcapsules with liquid and solid cores respectively. However, if the core material is disclosed to be an expanding (blowing) agent see Class

521, subclass 50, (4) Note for a limitation to those subclasses.

**201 Method of use, kit or combined with marking instrument or organ:**

This subclass is indented under subclass 200. Subject matter, directed to a method of using a recording material of the present type; such recording material in combination with other articles which may at one time or another be used with material; or such material in combination with an instrument or part of the human body which can transmit the energy, for example, heat, pressure, etc., needed to cause recording to take place.

**SEE OR SEARCH CLASS:**

206, Special Receptacle or Package, subclasses 223+ for an assemblage or kit in general.

400, Typewriting Machines, subclasses 237+ for a typewriter ribbon, whether claimed in combination with a typewriter or not.

**202 Color developed by mere decomposition of color-former:**

This subclass is indented under subclass 200. Subject matter in which the color-former is such that breaking up the color-former molecule (e.g., by ionization, etc.) is sufficient to form a color without the need for the color-former molecule or fragment of it to react with another molecule.

**203 Duplicating master:**

This subclass is indented under subclass 200. Subject matter wherein the product is such that it can be used to produce further copies of the record by a "printing", that is, a nonphotos:graphic, technique.

**SEE OR SEARCH CLASS:**

101, Printing, subclass 112 and 127+ for stencil plates; subclasses 453+ and 463.1+ for lithos:graphic printing plates and elements, and 368+ for printing members.

430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, appropriate subclasses for light sensitive materials suitable for

imagewise reproduction of visible materials and especially subclass 5 for a radiation mask and/or a method of making it.

**204 Plural colors or plural diverse systems:**

This subclass is indented under subclass 200. Subject matter in which the final recording is in two or more colors, other than the color of the background, or two or more distinct shades of a single "color" or in which the recording takes place by using two or more different color-producing systems; e.g., a pressure responsive system plus a heat-responsive system; a carbonless system plus a "carbon paper" type system, etc.

(1) Note. This subclass does not provide for a mere mixture of color formers and/or developers.

**205 Having a color desensitizer:**

This subclass is indented under subclass 200. Subject matter wherein a named substance which chemically deactivates one or both of the reactants is employed to reduce, extinguish or prevent the formation of a colored substance.

**SEE OR SEARCH THIS CLASS, SUBCLASS:**

214, for a recording material wherein color formation is prevented by the use of a named physical barrier, e.g., microcapsules to isolate the reactants.

**206 Component noncoextensive with substrate:**

This subclass is indented under subclass 200. Subject matter wherein one layer of the recording material does not entirely cover an adjacent layer of the material.

(1) Note. This subclass provides for those materials which have color-forming or development reagents on only a portion of a sheet of wherein certain portions are masked.

**207 Having nonreactant particles or defined size:**

This subclass is indented under subclass 200. Subject matter in which the recording material contains particles, other than merely color-former particles or developer particles, which

- particles are designated as having a particular relative or absolute size.
- (1) Note. The size-designated particles often are larger than any reactive particles in the recording material, so that they may serve to protect reactive particles from unwanted contact, e.g., “stilt” particles, etc.
- 208 Having constituent defined in terms of melting temperature:**  
This subclass is indented under subclass 200. Subject matter wherein a composition which makes up part of the recording material has, as one of its constituents, a compound or mixture or macromolecule which is characterized by its melting temperature.
- (1) Note. The recording material included herein generally are those designed for color development in response to localized heating, for example, by an electric stylus.
- 209 Having nonchromogenic liquid spread-control or transfer-improving agent or component, color modifier, stabilizer or preservative:**  
This subclass is indented under subclass 200. Subject matter which contains a substance, other than that which reacts to form a color, which can affect (a) the spreading of a liquid constituent of the recording material, (b) the transfer of a constituent from one part, or (c) the darkness, lightness, or other visual property of the final colored mark, or prevent changes in the mark in the finished record.
- 210 Heavy metal reactant:**  
This subclass is indented under subclass 200. Subject matter in which the color is developed by a chemical change in a compound containing a metal having a specific gravity greater than 4.0.
- (1) Note. Excluded here, by the definition of “heavy metal”, are the alkali metals, the alkaline earth metals, magnesium and aluminum.
- 211 Metal of atomic number 22 - 30:**  
This subclass is indented under subclass 210. Subject matter wherein the metal is titanium, vanadium, chromium, manganese, iron, cobalt, nickel, copper or zinc.
- 212 Zinc:**  
This subclass is indented under subclass 211. Subject matter in which the heavy metal is zinc.
- 213 Identified solvent or dispersant for color-former other than mere mineral oil:**  
This subclass is indented under subclass 200. Subject matter in which the color-former is dissolved or dispersed in a named mineral oil having an additive or in a liquid other than mineral oil named in the claims.
- 214 Identified reactant isolating material or capsule wall material or binder resin:**  
This subclass is indented under subclass 200. Subject matter in which the finely-divided color-former masses and/or the developer particles are protected from contact with other materials by use of a material named in the claims; are enclosed or encapsulated by a material named in the claims or are held to each other or to 9 other substances by a material named in the claims.
- 215 Synthetic resin capsule walls:**  
This subclass is indented under subclass 214. Subject matter in which the composition of a synthetic resin which serves to encapsulate a reactant is named.
- 216 Identified organic electron acceptor (developer) other than phenolic resin:**  
This subclass is indented under subclass 200. Subject matter in which a claim names an organic material (other than a synthetic resin made from a mixture which includes phenol) which organic material has acid characteristics sufficient to bring out the color of a color-former contacted therewith.
- 217 And identified color-former:**  
This subclass is indented under subclass 216. Subject matter in which a claim names a substance which, under the influence of contact with the developer, changes from colorless or

otherwise ineffective for to a colored form or other state suitable for recording information.

**218 Identified color-former:**

This subclass is indented under subclass 200. Subject matter wherein a substance is named in the claims which changes from a colored form or other state suitable for recording information.

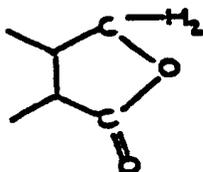
**219 And identified inorganic electron acceptor (developer) other than mere clay:**

This subclass is indented under subclass 218. Subject matter in which a claim names an inorganic material other than clay, which has acid characteristics sufficient to bring out the color-former contacted therewith.

- (1) Note. This subclass provides for clay which has been subjected to a specified treatment to alter or enhance its activity or characteristics.

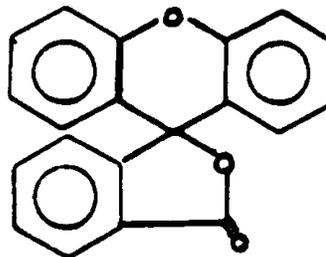
**220 Furanone moiety-containing:**

This subclass is indented under subclass 218. Subject matter wherein the color-former contains the phthalide or furanone moiety, viz.:



**221 Fluoran or derivative:**

This subclass is indented under subclass 200. Subject matter wherein the color-former is O-phenolphthalien anhydride (dihydroxydiphenyl phthalide anhydride) or compound derived from it by substitution for a hydrogen.



**222 Molecule having plural fluorans or more than three rings fused together:**

This subclass is indented under subclass 221. Subject matter in which the color former compound has in its molecule two or more fluoran moieties, or has a polycyclo ring system in which a ring shares two of its carbon atoms with one other ring, and two more of its carbons with second other ring.

**223 Azole moiety-containing:**

This subclass is indented under subclass 218. Subject matter which contain the moiety



**224 Polyphenylmethane moiety-containing:**

This subclass is indented under subclass 218. Subject matter in which the color-former molecule has a single acyclic carbon atom between at least two benzene rings.

**225 Identified electron acceptor (developer):**

This subclass is indented under subclass 200. Subject matter in which a claim names a material which has acid characteristics sufficient to bring out the color of a color-former contacted therewith.

**226 Spatial relationship specified between color-former and developer:**

This subclass is indented under subclass 200. Subject matter wherein the relative distance between color-former and developer is specified; e.g., both in the same layer, on opposite sides of the same carrier sheet, etc.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

214, for a recording material of this type having a named material keeping the color-former and the developer apart.

**227 HAVING PLURAL INTERACTIVE LEAVES:**

Material which is used to form a visible record comprising plural leaves so associated that the bottom surface of a top leaf, so as to produce a mark, usually upon the application of pressure in a direction normal to the plane of the leaves.

- (1) Note. The interaction may comprise any chemical or physical phenomenon and is usually dependent upon the complementarity of the composition or physical characteristics of the facing surfaces; in the usual case a frangible transfer surface on one sheet mates with the adhesive surface of a receiver sheet.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

200, for similar subject matter where one of the said surfaces provides a colorless color-forming material for development by a reactant material in said other surface.

END