

UNITED STATES PATENT OFFICE.

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PAINT COMPOUND OR MIXTURE.

SPECIFICATION forming part of Letters Patent No. 702,176, dated June 10, 1902.

Application filed December 16, 1899. Serial No. 740,576. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM N. BLAKEMAN, Jr., of the borough of Manhattan, in the city, county, and State of New York, have invented
5 a new and useful Paint Compound or Mixture, which invention is fully set forth in the following specification.

The object of this invention is to adapt the non-drying fatty oils for use in the manufacture of paints by so combining them with
10 pigments and driers that the combinations formed when applied as paints will exhibit drying qualities and produce more economical and satisfactory results than the mix-
15 tures now in use.

The drying of oil combined with a pigment when spread as a paint is owing to three actions—namely, an increase of surface area exposed, the absorption of oxygen, and the
20 formation of a metallic soap—and my investigations have led me to believe that the formation of metallic soap is the first step, the character of the soap formed, whether a hard soap or soft soap, being also of the highest
25 importance. These facts have been overlooked in all previous attempts to dry the non-drying fatty oils in combination with a pigment, the result being continuous failure,
30 it being necessary to the drying of a paint that the pigment shall assist in forming a hard insoluble soap with its oil vehicle. Lead oxids and salts, iron oxids and salts, and some
35 others, in the proportions in which they can be used in paints, form soft soaps with the non-drying fatty oils, and hence in all previous attempts to dry and harden the non-drying oils the persistent use of white lead as a pigment has defeated the drying. Suc-
40 cessive investigators have been led into this error because white lead possesses the characteristic of body or spreading power in such a preëminent degree that heretofore it has been found necessary to use sufficient white lead in all pigment mixtures to give body or
45 spreading power to the paint, but in case of non-drying oils being used as the vehicle the white lead when employed in the usual manner to give body has defeated the drying.

I have discovered that by first treating a
50 pigment in the manner hereinafter described and then incorporating this treated pigment

in a non-drying fatty oil drying properties will be imparted to the oil, so that the paint produced will dry satisfactorily. Any pigment that has a tendency to form a soft soap
55 when used in a non-drying oil will have this tendency considerably reduced if treated as hereinafter described; but in forming the paint compound or mixture constituting my invention I prefer to reject such pigments
60 and to use a treated pigment that will form or assist in forming a hard soap with a non-drying oil. If the pigment selected be deficient in body or spreading power, I may impart to it this characteristic, as well as drying
65 properties, before incorporating it in the oil.

The non-drying fatty oils at present falling within the economical scope of my invention are cotton-oil, sunflower-oil, corn-oil, and the like, and the pigments which may be used are
70 preferably such metallic and earthy oxids and salts as will form a hard soap with the oil vehicle, the pigment which I have found the most suitable being oxid of zinc or zinc-white.

In making the paint compound constitut-
75 ing my invention I prefer first to incorporate a drier with the pigment before grinding it in its oil vehicle. Many substances are available for use as driers; but having in mind simplicity and economy of manipulation and
80 the most satisfactory commercial results I prefer to employ some of the metallic or earthy oxids or salts—for example, manganese salts and aluminium salts. I have discovered that some driers, notably the various
85 salts of manganese, will perform the triple function of assisting or accelerating the formation of a hard metallic soap, of giving “body in oil” to the pigment, and of imparting oxygen to the paint, and hence I prefer
90 to employ such agents in carrying out my invention. Selecting cotton-seed oil as the oil-vehicle and zinc-white as a pigment adapted to form a hard metallic soap therewith, I impart drying properties, as well as body or
95 spreading power, to the pigment by incorporating therewith a small proportion—say one and one-half per cent.—of a manganese salt, such as sulfate of manganese. The manganese sulfate is preferably dissolved
100 in a volatile vehicle—water, for example—and the pigment then saturated with the

solution and the water then evaporated. If one hundred parts of pigment so treated be ground in one hundred parts of cotton-seed oil, a paint will be produced which will dry in a satisfactory manner, the drying being hastened if the usual quantity of commercial drier be added to the paint. In order to produce a still more satisfactory and quicker-drying paint, the pigment may be treated with a reduced proportion of manganese sulfate—say three-fourths of one per cent.—and then ground in a mixture of seventy parts of cotton-oil and thirty parts of linseed-oil, and the paint so produced will dry satisfactorily, and if the usual quantity of commercial drier be added it will dry in five hours. The drying and hardening of the paint compound may be hastened still further by using a non-drying oil, which has been previously treated, so as to cause it to assist in producing a quicker-drying result when the pigment is ground therein, and this treatment of the oil I prefer to effect by boiling or heating the oil in the presence of an oxidizer or drier. Any suitable oxidizer or drier employed in the boiling of oils may be used; but I have found the oxids and salts of manganese and zinc well adapted for this purpose. If cotton-oil be selected, manganese black oxid will be found well suited as an oxidizer, twelve to fifteen parts of oxid in granular form to one hundred parts of oil being a good proportion. The heat may be from 250° to 300° Fahrenheit for a long exposure or from 350° to 380° Fahrenheit for a shorter exposure, care being taken not to carry the heat to incipient decomposition, for if the glycerids be greatly disturbed the oil will flock. When the oil has assumed a greenish color and grown perceptibly thicker, it will be found to be in a satisfactory condition, although the action may be carried still further by prolonged heating. In this operation the manganese oxid yields oxygen to the oil and a portion of it remains dissolved in the oil and acts as a drier. In boiling or heating sunflower-oil ten or twelve parts of manganese oxid will be sufficient, but corn-oil will require fifteen parts or more. In all cases much better results are effected if the manganese oxid be added in small quantity at a time.

The proportions above given of driers, pigments, and oil vehicles may be varied as required by the character of the substances used and the nature of the result desired.

The driers used in forming the paint compound herein described may be any animal, vegetable, metallic, or mineral substance that will perform the function of imparting drying or hardening properties to the paint; but for incorporation with the pigment I prefer to employ, as above stated, some of the metallic or earthy oxids and salts, such as the acetate, sulfate, borate and benzoate of manganese and the hydrated oxid of aluminium. For treating the non-drying oil the peroxid or lower oxids of manganese will give good re-

sults, and when it is desired to add an additional drier to the paint the ordinary commercial drier will suffice.

I do not herein claim the process of making my improved paint compound, as such process is claimed in another application, filed by me on the 2d day of January, 1900, bearing the Serial No. 59.

Having thus fully described my invention, I claim—

1. A paint compound or mixture composed of a non-drying fatty oil; and a pigment having a drier incorporated therewith prior to its being ground in the oil.

2. A paint compound or mixture composed of a non-drying fatty oil; a pigment having a drier incorporated therewith prior to its being ground in the oil; and a drying oil.

3. A paint compound or mixture composed of a non-drying fatty oil; a pigment having a drier incorporated therewith prior to its being ground in the oil; a drying oil; and an additional drier.

4. A paint compound or mixture composed of a non-drying fatty oil treated with an oxidizer; and a pigment having a drier incorporated therewith prior to its being ground in the oil.

5. A paint compound or mixture composed of a non-drying fatty oil treated with an oxidizer; a pigment having a drier incorporated therewith prior to its being ground in the oil; and a drying oil.

6. A paint compound or mixture composed of a non-drying fatty oil treated with an oxidizer; a pigment having a drier incorporated therewith prior to its being ground in the oil; a drying oil; and an additional drier.

7. A paint compound or mixture composed of a non-drying fatty oil; and a pigment having a manganese salt incorporated therewith prior to its being ground in the oil.

8. A paint compound or mixture composed of a non-drying fatty oil treated with an oxid of manganese; and a pigment having a manganese salt incorporated therewith prior to its being ground in the oil.

9. A paint compound or mixture composed of a non-drying fatty oil; and a zinc-white pigment having a drier incorporated therewith prior to its being ground in the oil.

10. A paint compound or mixture composed of a non-drying fatty oil treated with an oxidizer; and a zinc-white pigment having a drier incorporated therewith prior to its being ground in the oil.

11. A paint compound or mixture composed of a non-drying fatty oil; a zinc-white pigment having a drier incorporated therewith prior to its being ground in the oil; and a drying oil.

12. A paint compound or mixture composed of a non-drying fatty oil; and a zinc-white pigment having a manganese salt incorporated therewith prior to its being ground in the oil.

13. A paint compound or mixture composed

of a non-drying fatty oil treated with an oxidizer; and a zinc-white pigment having a manganese salt incorporated therewith prior to its being ground in the oil.

5 14. A paint compound or mixture composed of a non-drying fatty oil treated with an oxidizer of manganese; and a zinc-white pigment having a manganese salt incorporated therewith prior to its being ground in the oil.

10 15. A paint compound or mixture composed of cotton-seed oil; and a zinc-white pigment having a drier incorporated therewith prior to its being ground in the oil.

15 16. A paint compound or mixture composed of cotton-seed oil; and a zinc-white pigment having a salt of manganese incorporated therewith prior to its being ground in the oil.

17. A paint compound or mixture composed

of cotton-seed oil treated with an oxidizer; and a zinc-white pigment having a drier incorporated therewith prior to its being ground in the oil. 20

18. A paint compound or mixture composed of cotton-seed oil treated with an oxidizer; and a zinc-white pigment having a manganese salt incorporated therewith prior to its being ground in the oil. 25

19. A paint compound or mixture composed of cotton-seed oil; a zinc-white pigment having a drier incorporated therewith prior to its being ground in the oil; and a drying oil. 30

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Witnesses:

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