

UNITED STATES PATENT OFFICE.

DAVID J. OGILVY, OF CINCINNATI, OHIO.

PROCESS OF MAKING INK.

SPECIFICATION forming part of Letters Patent No. 657,179, dated September 4, 1900.

Application filed September 25, 1897. Serial No. 653,071. (No specimens.)

To all whom it may concern:

Be it known that I, DAVID J. OGILVY, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Processes of Manufacturing Printing-Inks and Paints, of which the following is a full, clear, and exact description.

My improvements relate to certain novel methods of manufacturing printing-inks and paints wherein the customary slow and tedious process of grinding the ingredients is dispensed with and the various pigments may be thoroughly mixed and incorporated with the varnish or other medium most easily and effectively.

My improved process consists, essentially, in the heating of the various ingredients, either separately or when combined, to such a high degree of temperature as to practically destroy the viscosity of the mass and render it capable of being readily and easily strained.

In the manufacture of printing-inks and paints it is essential that the various pigments shall be thoroughly and perfectly mixed and incorporated with the varnishes or oils employed, and the method usually adopted in this particular has been to grind the mixture of pigment and varnish in suitable grinding-mills until the desired comminution has been attained. It has also been sought in other ways to obtain the same result—for example, as shown in my prior patent, No. 587,852, of August 10, 1897—by the injection into the mixture of superheated steam, and thus to thoroughly mix and agitate the mass to obtain the desired result without grinding. It has been impossible heretofore, however, to mix the ingredients in the ordinary way by a mere agitation and stirring of the mass in a mechanical way by beaters and stirrers, and it is the purpose of my invention to enable the manufacturer to produce a perfectly-mixed and smooth printing-ink by merely mechanically stirring the mass without grinding, and thus to save a large amount of time, labor, and expense. This I accomplish by first reducing to a minimum the viscosity of the oils or varnishes employed by heating same to the necessary high degree, then mixing and agitating by mechanical stirrers, and then

straining the product, while at the same time maintaining the high temperature of the mass to prevent the reappearance of viscosity until the manufacture is complete.

To carry out my invention, I provide a suitable vessel of any desired shape or capacity, and into this vessel I first deposit an alloy consisting of, say, one-third lead and two-thirds tin, which alloy becomes liquid at about 360° Fahrenheit. The amount of alloy deposited is sufficient to cover the bottom of the vessel to the depth of several inches, and for the manufacture of, say, black ink I then place in the vessel the quantity of mixture desired, consisting of about ninety per cent. heavy rosin-oil and ten per cent. carbon-black. The contents of the vessel is then heated by the direct application of heat from an ordinary furnace. At the same time the heat is applied the contents of the vessel are thoroughly stirred and agitated by revolving paddles or stirrers in any well-known way, thereby scattering the hot metal through the mass and at the same time leaving a cushion of metal on the bottom of the vessel. The mixture becomes quickly heated, and when a temperature of from 350° to 450° Fahrenheit is reached and the thorough agitation by the paddles has been kept up during the heating the mixture will be in condition to be strained.

The degree of heat needed will depend somewhat on the character or the ink dealt with, and should a somewhat-lower temperature than 350° be all that is required the melting-point of the bath can be easily lowered by adding bismuth, and when it is necessary to raise the temperature over 400° the alloy can be cheapened by a larger per cent. of lead. When inks, paints, and the like of other color than black are required, other pigments, in connection with other vehicles, are used in the well-known proportions, such as are now used when the pigments are ground up in the suitable viscous vehicle or medium.

While I prefer to employ a metallic bath, as above set forth, and for the heavy pigments such metallic bath is quite necessary, for lamp or carbon blacks a saline bath may be used, about the best and cheapest bath being a saturated solution of calcium or magnesium chlorid, boiling at about 300° Fahrenheit, and when the saline bath is used it is preferable

to have somewhat greater depth of fluid than with the metallic bath. The action of the metallic and saline baths is about the same in both cases, they acting as a cushion between the hot bottom of the vessel and the mixture which floats on the agitated surface, thereby preventing scorching and caking, as is the usual result when inks or paints are heated by direct fire. The smooth easily-flowing liquid without being allowed to cool is poured off, passed through the meshes of fine gauze or other suitable strainer, and allowed to cool, and it is then ready for use, the salt solution readily separating therefrom and the fusible alloy remaining in the vessel. To prevent the liquid from cooling too rapidly while straining, and thus becoming too viscid and sticky for proper straining, this last step in the process is preferably conducted in a closed vessel in which the surrounding atmosphere is kept hot by a current of hot air, and to assist in the straining and accelerate the process a current of hot air may preferably be forced through the strainer by suitable exhaust apparatus.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The process of manufacturing printers' ink and paint, which consists in heating the mixture of the required proportions of pigment and vehicle in a proper vessel to a sufficiently-high degree for the purpose specified, agitating the mass while the temperature is maintained and then straining same in said heated condition, substantially as described.

2. The process of manufacturing printers' ink and paint, which consists in heating the ingredients separately to a sufficiently-high degree for the purpose specified, then mixing same in the proper proportions in a suitable vessel, agitating the mixture while the temperature is maintained, and then straining the same in said heated condition, substantially as described.

3. The process of manufacturing printers' ink and paint, which consists in heating the mixture of the required proportions of pigment and vehicle in a proper receptacle, in connection with some medium substantially as described to prevent caking and hardening of the mass, agitating the mixture when a sufficiently-high degree of temperature is attained for the purpose specified, then straining the same in a heated condition, substantially as described.

4. The process of manufacturing printers' ink and paint, which consists in heating the mixture of the required proportions of pigment and vehicle in a proper receptacle, in connection with some readily-fusible alloy as described, to prevent caking or hardening of the mass, agitating the mixture when a sufficiently-high degree of temperature is attained for the purpose specified, and then straining the same in said heated condition, substantially as described.

DAVID J. OGILVY.

Witnesses:

GEORGE HEIDMAN,
HARVEY G. EDWARDS.