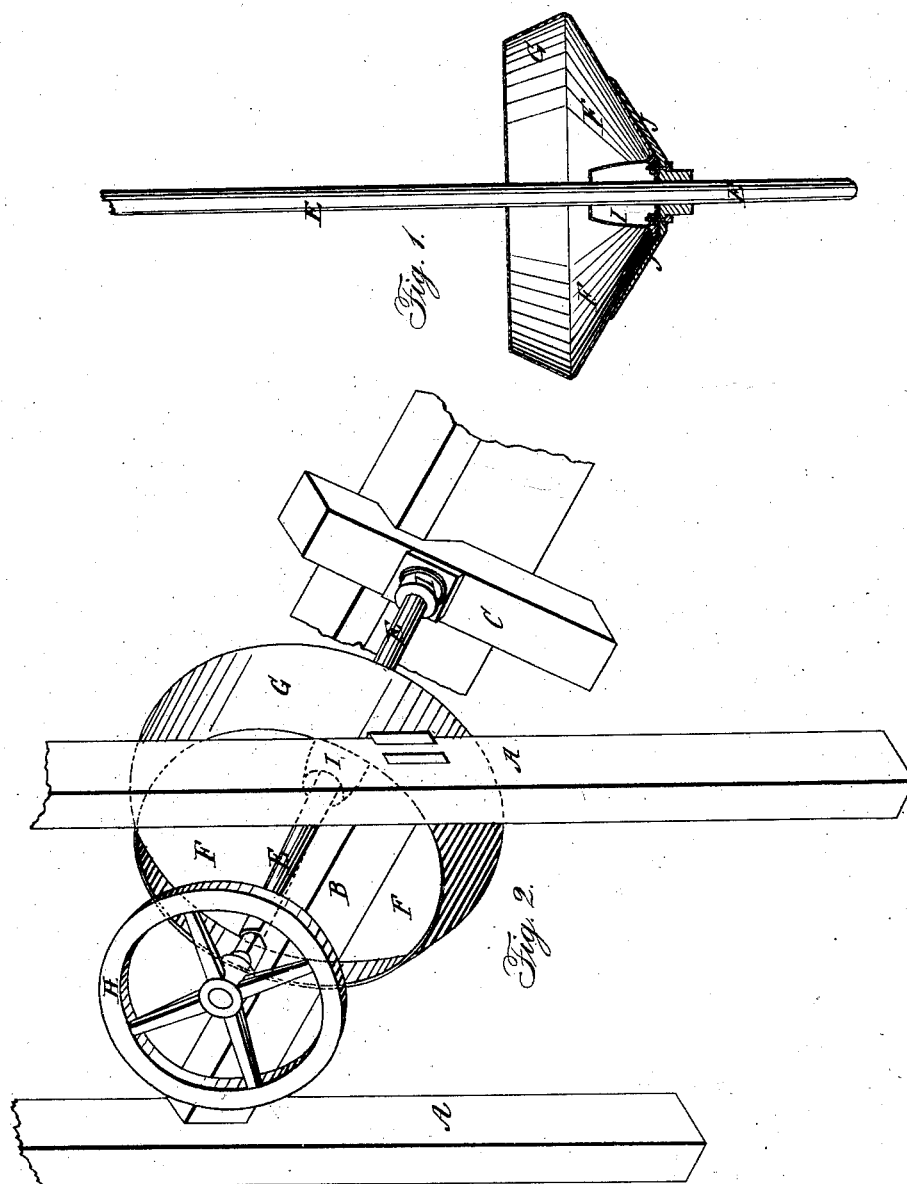


W. CUMBERLAND.
Making White Lead.

No. 767.

Patented June 7, 1838.



UNITED STATES PATENT OFFICE.

WM. CUMBERLAND, OF NEW YORK, N. Y.

MANUFACTURING A WHITE PIGMENT TO BE USED AS A SUBSTITUTE FOR WHITE LEAD.

Specification of Letters Patent No. 767, dated June 7, 1838.

To all whom it may concern:

Be it known that I, WILLIAM CUMBERLAND, of the city of New York, in the State of New York, have invented a new and improved process for manufacturing a white pigment with a basis of lead, to be used as a substitute for white lead for painting when ground in oil or in any other fluid, according to the nature of the work to be performed; and I do hereby declare that the following is a full and exact description thereof.

The first operation in preparing my white pigment is to obtain a protoxid of lead by triturating metallic lead in water, to which, in general, I add a portion of caustic soda, to facilitate the process. This production of a protoxid of lead by trituration is now practised in some manufactories of carbonate of lead, and is not of my invention, but the means which I have adopted of effecting it facilitates the process, and is as follows: I granulate the lead by fusing it, and pouring it into water, in the ordinary way. This lead I put into a triturating vessel, differing in construction from the cylinders usually employed. This vessel is somewhat in the form of a saucer, or bowl, so as to expose a considerable surface to the action of the atmosphere; it may be of cast iron, and of such size as shall adapt it to the quantity of work to be performed. An iron shaft passes through the axis of this vessel, and is attached to it, so that they may revolve together. The shaft is inclined twenty five degrees, more or less, from the perpendicular, and motion is communicated to it in any convenient manner. Into the vessel, so constructed, I put my grandulated lead, with as much water as may be requisite, adding about an ounce of caustic soda to every four or five gallons of water. The revolution of the axis, combined with its inclination and that of the triturating vessel causes the granulated lead to roll over, and thus produces the necessary friction among its particles, and also the requisite exposure to the influence of the atmosphere, in the most advantageous way. This operation is usually kept up for about twelve hours when the oxid of lead which has been found, and which is of a pale yellow color, is separated from the metallic lead, and well washed. During the process portions of water are added to supply any loss by evaporation, or otherwise.

The accompanying drawing represents a machine which I have invented for this purpose. The frame work may be differently constructed, all that is necessary being so to form it that the shaft upon which the triturating vessel is fixed, and with which it revolves, may be placed at an inclination from the perpendicular of from twenty-five to forty-five degrees, more or less.

Figure 1 represents a vertical section of the triturating vessel and its shaft. F, F, is the body of the vessel, which has a rim G at its upper part, sloping inward, to retain the water and lead; the inclination of this part being proportioned to that given to the axis. I is a hub of lead, surrounding the shaft E, E, to prevent the lead from coming into contact with it. J, J, is an iron bed or cup, which serves as a seat for the triturating vessel, supporting it, particularly when made entirely of lead.

In Fig. 2, A A are two upright posts supporting the cross timber B, which sustains the upper end of the shaft E E; there being at its lower end a sill timber C, and step D. A cog or band wheel H, may occupy any situation on the shaft, which may be found most convenient. The shaft need not run through the vessel, but may be supported in a collar, below it. The body of the vessel may be made entirely of lead, or of any other metal, and lined with lead; its form may be varied considerably, it only being necessary that its characteristic properties be carefully preserved.

I have thus given the mode of producing the protoxids which experience has shown to be a very good one, and I believe the best; but I do not limit myself to this particular mode of forming the protoxid, but occasionally take this oxid prepared in any other way, and subject it to the subsequent operations by which the pigment in question is formed. The yellow protoxid, produced as above, or the protoxid obtained in any other way, is to be placed in a vessel, with a considerable quantity of water, and diluted sulfuric acid is then poured among it, agitating the mixture not only during the pouring, but for a considerable space of time, and it will be found that the protoxid of lead will be thereby converted into a white pigment, which is a peculiar sub-sulfate of lead, possessing properties not found in the ordinary sulfate of lead, the

quantity of sulfuric acid required will be about two pounds to every twenty pounds of the oxid. The ordinary sulfate is obtained by precipitating the lead from any
5 of its soluble salts by means of sulfuric acid; as from the acetate or nitrate of that metal; the sulfate so produced will be a white powder, but it will not possess the body, or other properties which fit it to be
10 substituted for the carbonate of lead in painting; while that prepared in the way which I have indicated will be found to possess these properties in an eminent degree.

What I claim, therefore, as my invention, 15 and wish to secure by Letters Patent, is—

1. The above described mode of producing a white pigment with a base of lead, by pouring the sulfuric acid into the mixture of water and the protoxid of lead, in the 20 manner, and for the purposes herein set forth.

2. I also claim the tritulating vessel constructed substantially in the way described.

WILLIAM CUMBERLAND.

Witnesses:

W. THOMPSON,

H. B. ROBERTSON.