

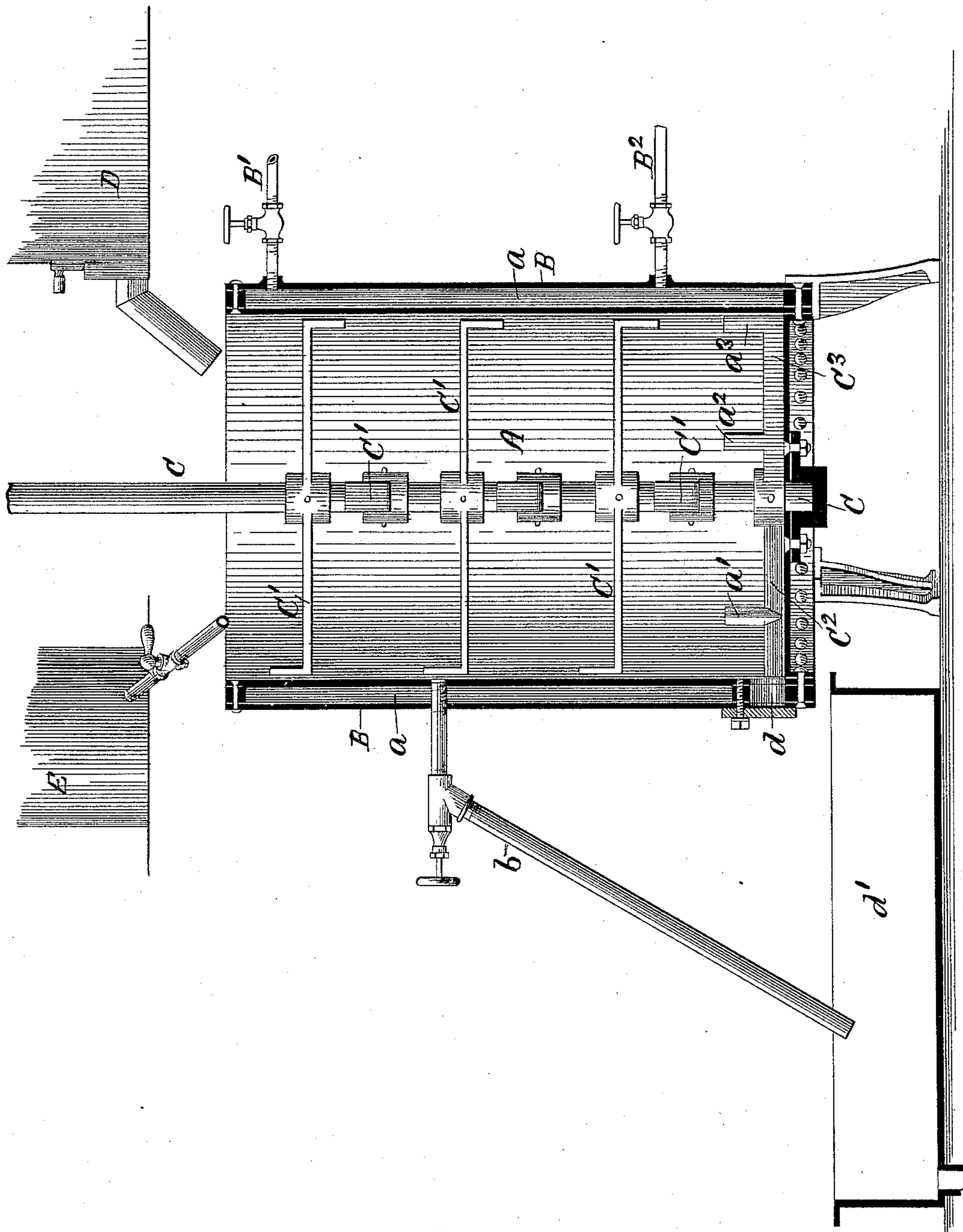
(No Model.)

J. BALDWIN.

PROCESS OF MAKING WHITE LEAD.

No. 401,533.

Patented Apr. 16, 1889.



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# UNITED STATES PATENT OFFICE.

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## PROCESS OF MAKING WHITE LEAD.

SPECIFICATION forming part of Letters Patent No. 401,533, dated April 16, 1889.

Application filed December 4, 1888. Serial No. 292,585. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN BALDWIN, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented or discovered certain new and useful Improvements in the Manufacture of White Lead, of which the following is a full, clear, and exact description, that will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to an improved method or intermediate step in the manufacture of white lead, as will be hereinafter set forth.

The object of this improvement is to dispense with the slow expensive pan-drying part of the present process for the separation of the water from the lead by evaporation preparatory to the addition of the oil in the final step.

The drawing illustrates an apparatus employed in carrying out my improved feature.

Referring to the drawing, A represents a cylindrical vessel open at the top and inclosed by the jacket B, leaving the annular space *a* between the two.

B' is a pipe for conducting steam into the space between the vessel A and its jacket, and B<sup>2</sup> the exhaust-pipe for the escape of the product of condensation. In this vessel the pulp is heated, the oil added, and the body of water separated from the lead.

The vertical shaft C is provided with suitable journal-bearings, and arranged centrally in the vessel or tank A. On this shaft, at intervals, are mounted a number of angular arms, C', placed in a horizontal plane and arranged to alternate at right angles with reference to each other, as shown in the drawing.

Near the lower end of the shaft C and close to the bottom of the tank are mounted the arms C<sup>2</sup> C<sup>3</sup>. The arm C<sup>2</sup> is beveled on the front side to a sharp edge next to the bottom of the tank, and is provided near its longitudinal center with the vertical blade *a'*, beveled from both sides to a sharp edge in front. The companion arm C<sup>3</sup> is provided with the blades *a*<sup>2</sup> *a*<sup>3</sup>, one of which is placed on the extreme outer end of the arm while the other is placed near to the inner end. A front view of the

arm C<sup>2</sup> is shown in the drawing, and of the companion arm C<sup>3</sup> a back view. In rotating through the mass of pulp the path of the blade *a'* will be midway between the companion blades *a*<sup>2</sup> *a*<sup>3</sup>.

The functions of the angular arms are to stir and agitate the pulp, so that the same may be uniformly heated, and the process of adding and mixing the oil greatly facilitated.

The object of providing the lower arms with sharpened edges is to ease and facilitate their movement through the heavier part of the mass of lead pulp, to keep the bottom part of the vessel scraped clean, and to prevent the lead from adhering to the same.

D represents a tank or reservoir into which the pulp is received from the water-grinding part of the process.

In carrying out my improved step or method, a charge of lead pulp is let into the vessel A from the tank D, a due proportion of water accompanying the same. A volume of steam is next admitted to the space between the mixing and separating vessel and its jacket, and the mass heated to a temperature of about 180°, or to as high a degree as can be reached by the use of steam. The stirrers or mixing-arms rotating with the shaft C serve to keep the pulp in an agitated condition, so that the steam heat will permeate the mass throughout alike. When the charge in the vessel A is sufficiently heated, the valve on the oil-tank E is partially opened and the oil allowed to slowly flow into the vessel A, and be gradually and thoroughly incorporated with the lead.

The pulp being heated and subjected to a constant mixing agitation, more quickly and readily takes up and absorbs the required proportion of oil, the water being in the meantime gradually separated from and formed in a body on top of the mass, the lead settling below.

The body of water is drawn off and discharged through the waste-pipe *b* at the proper time. Next, the lead is discharged through the aperture *d* in the lower end of the mixing-vessel into the receptacle *d'*, and is then finally disposed of in the usual manner by subjecting the lead to the last grinding process and then filling the same into merchantable packages.

It is obvious that a tank of any required dimensions or capacity may be used, and any number of stirring or mixing arms mounted on the shaft rotating therein and arranged in  
5 any manner affording the best results and facilitating the work. I therefore do not strictly confine myself to the precise construction and arrangement shown, but may make such departure therefrom as I may deem neces-  
10 sary in practical working.

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

1. As an improved step in the manufacture  
15 of white lead, the method herein described, which consists in grinding the lead with water in the usual manner and transferring the pulp from the mill to a vessel adapted for subjecting the pulp to the action of indirect

steam heat, and then adding the oil gradually 20 while the pulp is in a heated condition, substantially as set forth.

2. As an improved step in the manufacture of white lead, the method herein described, which consists in grinding the lead with wa- 25 ter in the usual manner and transferring the pulp from the mill to a vessel adapted for subjecting the pulp to the action of indirect steam heat and keeping the mass agitated, next adding the oil gradually while the pulp 30 is in a heated condition, then drawing off the water expelled, and finally disposing of the lead in the usual manner, as set forth.

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