

(No Model.)

N. K. MORRIS & J. W. BAILEY.
METHOD OF PRODUCING WHITE LEAD.

No. 493,106.

Patented Mar. 7, 1893.

FIG. 1.

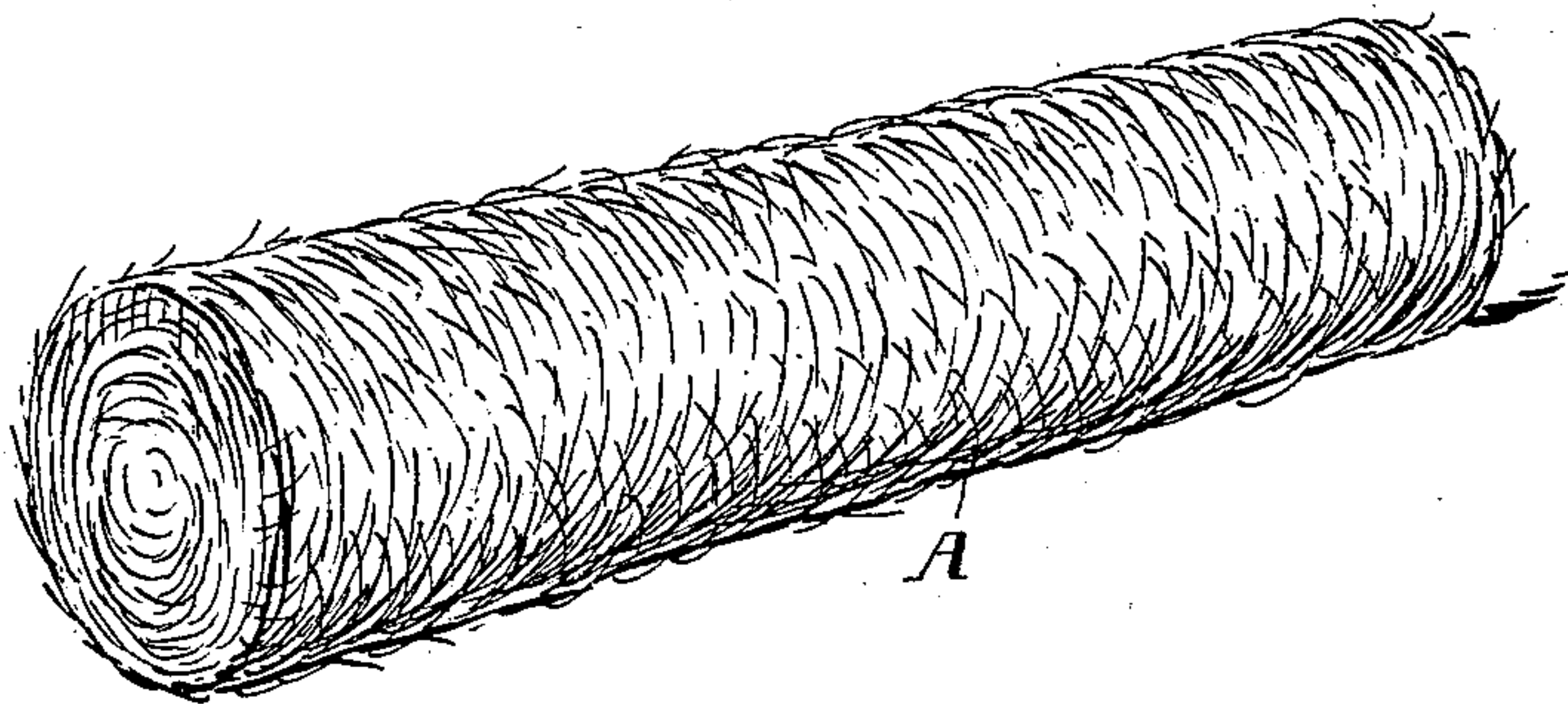
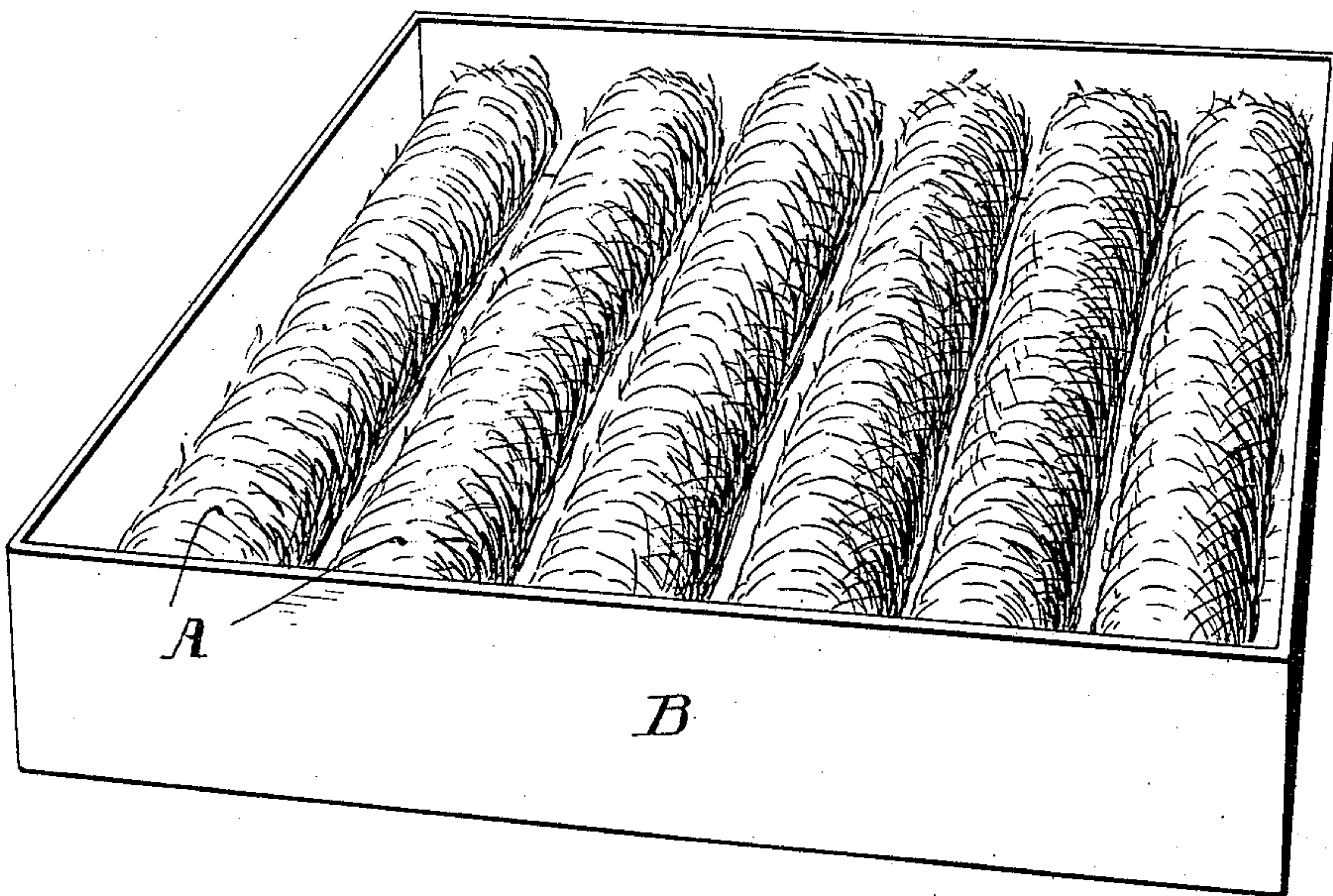


FIG. 2.



WITNESSES:

A. E. Paige
James H. Bell

INVENTORS

N. K. Morris and J. W. Bailey
By Hollingsworth & Maly
Attorneys

UNITED STATES PATENT OFFICE.

NORMAN K. MORRIS AND JOHN W. BAILEY, OF DENVER, COLORADO.

METHOD OF PRODUCING WHITE LEAD.

SPECIFICATION forming part of Letters Patent No. 493,106, dated March 7, 1893.

Application filed January 3, 1893. Serial No. 457,141. (No specimens.)

To all whom it may concern:

Be it known that we, NORMAN K. MORRIS and JOHN W. BAILEY, both of Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Methods of Producing White Lead, whereof the following is a specification, reference being had to the accompanying drawings.

Our invention relates to the so called corroding processes wherein metallic lead is exposed to the action of acetic acid and of carbonic acid gas in the presence of aqueous moisture, whereby carbonate of lead in combination with hydrate of lead is obtained.

The chief objects of our invention are to obtain a uniform product of extreme natural comminution, to shorten the time necessary for the corrosion of the metallic lead, and to insure the completeness of such corrosion, thereby avoiding the presence of uncorroded particles of metallic lead which would require removal.

In Letters Patent of the United States No. 467,041, dated January 12, 1892, and granted to the above-named Norman K. Morris, the advantages of using lead in fibrous form have been pointed out and a process and apparatus for the manufacture of lead fiber have been patented; and in Letters Patent of the United States No. 467,042, dated January 12, 1892, we have described a method and apparatus for producing white lead, wherein such lead fiber is preferably employed.

Our present improvement consists in an organized method of presenting the lead fiber to the corroding agents, and while we refer to the method of producing fiber and the method of corrosion set forth in said patents respectively, as proper for use in connection with our present improvements, we do not limit our claim thereto, since the present invention may be used advantageously in connection with other generally analogous processes.

The lead fiber to which we refer consists of threads of metallic lead, substantially like hairs, and generally in a condition more or less matted together. If such fiber in mats or large flat sheets be subjected to the corroding process, we find that the caking of the white lead in a dry, or partly dry condition, upon the outer surface, delays the process, and that the ma-

terial is liable to crush itself down by its own weight as corrosion proceeds, so that the bottom layers may become more condensed or compacted than is desirable for the attack of the carbonic acid, thus further interfering with the rapidity and completeness of corrosion and uniformity of the product.

To the avoidance of these difficulties, our invention consists in organizing the lead fiber into independent masses sufficiently coherent to be self sustaining, but not substantially compacted. Said masses present substantially a minimum of exterior surface which is liable to cake, and a maximum of internal porosity whereby the necessary retention of acid and aqueous moisture is obtained throughout the mass. Thus any injurious effect of drying up and caking is prevented, and the utmost uniformity and completeness of corrosion are obtained.

We form the lead fibers preferably into cylindrical masses of from three to six inches in diameter and from twelve to eighteen inches in length. This can readily be done by hand, only so much pressure being used upon the exterior of the cylinders as is necessary to give them definite form, and care being taken not to unduly condense or compact the fiber.

In Figure 1, of the accompanying drawings, A represents a fair illustration, in perspective, of such a cylinder of fiber as is above referred to, and Fig. 2 represents, in perspective, a series or group of cylinders arranged in the drawer or box B, in which they are exposed within the corroding chamber.

We then dip the cylinders into dilute acetic acid, say one part of thirty-six per cent. acetic acid and seven parts of water, and upon the removal from the acid solution we permit the cylinders to drain somewhat, so that the surplus liquid may escape. The cylinders thus charged with dilute acid are then exposed for a short time say from fifteen minutes to an hour to the air, after which they are placed in the corroding chamber, which is preferably constructed as set forth in United States Letters Patent No. 467,042, though, as before stated, we do not restrict ourselves to this particular apparatus. Carbonic acid gas and aqueous vapor are then admitted to the chamber and the process of corrosion is carried on to completion. We find that under these circumstances

complete corrosion usually proceeds from the interior of the cylinders outward, and that they are sufficiently coherent to preserve, in a great measure, their organized form until the conversion is substantially accomplished. Moreover, the quantity of caked material is reduced to a minimum and the product, as a whole, is of a creamy consistency resulting from its exceedingly fine comminution.

Having thus described our invention, we claim—

1. The hereinbefore described improvement in the method of producing white lead, which consists in forming lead fiber into independent masses, coherent but not substantially compressed, and exposing said masses to the

action of acetic acid, carbonic acid and aqueous vapor, substantially as set forth.

2. The hereinbefore described improvement in the method of producing white lead, which consists in forming lead fiber into independent masses, coherent but not substantially compressed, charging said masses with dilute acetic acid by dipping, and exposing the charged masses to the action of carbonic acid and aqueous vapor, substantially as set forth.

NORMAN K. MORRIS.
JOHN W. BAILEY.

Witnesses:

JAMES H. BELL,
G. HERBERT JENKINS.