

December 22nd, 1939

AIR MAIL

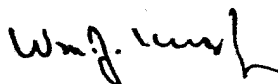
Mr. James W. Laist
Pennie, Davis, Marvin and Edmonds
165 Broadway
New York, New York

Dear Sir:-

I am returning attached the revised affidavit which accompanied your letter of December 19th.

I believe your revision of this affidavit correctly describes the improvement. The affidavit has been completed by filling in the blank spaces and by having it executed for filing.

Very truly yours,



Wm. J. Knox
White Lead Plant Superintendent

WJK/mm
encl.

cc:Mr. F. O. Case

Mr. F. Laist /

N11314

PNYC00008459

IN THE UNITED STATES PATENT OFFICE

In re application of)
)
GUNNARD E. JOHNSON and)
REGINALD G. BOWMAN and)
WILLIAM J. KNOX, JR.)

METHOD OF PRODUCING WHITE LEAD

Serial No. 178,352)
)
Filed December 6, 1932)
)
Div. 56 - Room 4725)

AFFIDAVIT

STATE OF INDIANA)
 ss:
COUNTY OF LAKE)

William J. Knox, Jr., being duly sworn deposes
and says:

I am one of the applicants in the above-mentioned
application.

I am employed by the International Smelting and
Refining Co., and I am thoroughly familiar with the White
Lead Plant of that Company at East Chicago, Indiana, where
white lead is produced electrolytically. I am and have been
for the past 14 years Superintendent in charge of this
White Lead Plant.

Since the invention described and claimed in the
above-mentioned application was made, it has been employed
in the White Lead Plant and has resulted in considerable
savings as compared with the processes previously employed
there, including the process described in United States
patent No. 1,845,713, and in the production of a superior
white lead product.

Variations in the chemical composition of white
lead pigment have a marked effect on the oil-absorption or

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oil-taking property of such pigments. The magnitude of this effect is shown in the following table, in which is set forth the oil-absorption or oil-taking property of the pigment as determined by the three methods most commonly used by paint technologists in determining the amount of oil required to produce a paint of brushing consistency.

	Product "A"	Product "B"	Product "C"
Analysis - Percent CO ₂	11.15	11.75	12.40
" PbCO ₃	67.70	71.20	75.30
" Pb(OH) ₂	32.30	28.81	24.80
Primary Oil Absorption (gms/100cc)	13.5	11.5	8.5
Consistency (Stromer- Krebbs Units 35% oil)	9.2K	9. N	7.4N
Flow (Gardner flow meter, 35% oil)	2.2"	2.75"	3.6"

Up until the time the invention described in the above-mentioned application was made and put into use, the CO₂ content of the white lead product produced at the White Lead Plant varied in normal operation of the plant from 11.40% to 12.10%. The CO₂ content of the white lead product made at the White Lead Plant since the said invention was there put into use varies in normal operation of the plant from 11.72% to 11.76%. This product is more uniform than and hence superior to the product formerly made. The process by which the improved product is made differs from the process by which the former product was made only in that the method described in the above-mentioned application for controlling composition of the white lead product has been substituted for the methods previously employed, among which was the method of exact neutralization or accurate deficient carbonation described in United States patent No. 1,845,713.

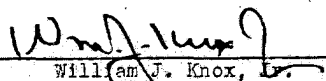
According to the process of the United States patent No. 1,845,713, a considerable period of time was

required to effect adjustment of the composition of the white lead product. This period, which amounted on an average to about 50 minutes, was a result of the time required for the following chain of events to take place before actual adjustment of the composition of the product could occur: -

(1) Titration of catholyte at frequent intervals. (2) Adjustment of carbonation fan damper to increase or decrease degree of carbonation of catholyte. (3) Time required to displace old catholyte in storage tanks, piping, and cells by new catholyte of adjusted carbonate-to-hydroxide ratio. (4) Time of adjustment of composition of anolyte by flow of catholyte ions of new ratio from catholyte to anolyte compartment of cell. In accordance with the method described in the above-mentioned application, steps (2), (3) and (4) set forth above are eliminated, as it is only necessary to change the setting of one valve to vary the volume of alkaline solution flowing into the anolyte and so to adjust the bicarbonate ion concentration of the anolyte, and thereby to adjust the composition of the white lead product. Moreover, the number of control titrations that are required have been greatly reduced. As a result of these savings the period required to effect adjustment of the composition of the white lead product has been reduced to about 8 minutes on the average.

The method of the invention described in the above-mentioned application has resulted in substantial operating savings. For example, to control operation of a tank room containing forty-eight cells by the process described in United States patent No. 1,845,713 required one circulation man, one titration man, and two cell men. Under

the method described in the above-mentioned application only
one circulation man and one cell man are required to control
operation of the same tank room.



William J. Knox, Jr.

Subscribed and sworn to before me this 21st day
of December, 1939.

Notary Public