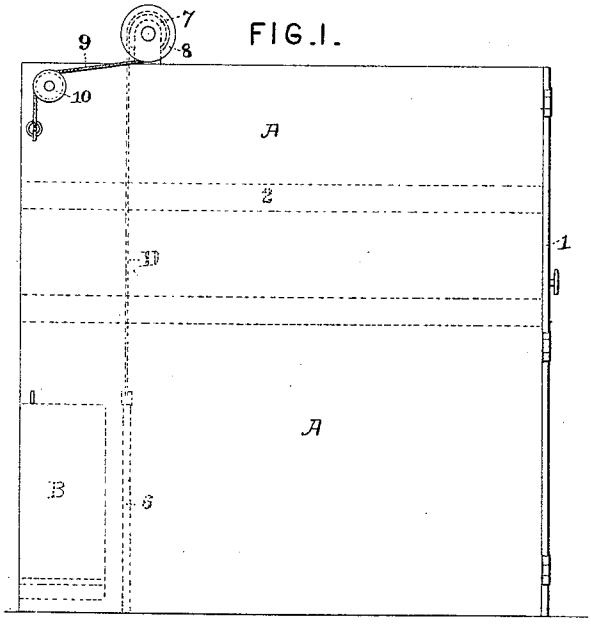
(No Model.)

F. CRANE.

APPARATUS FOR JAPANNING.

No. 350,869. Patented Oct. 12, 1886.

FIG. I.



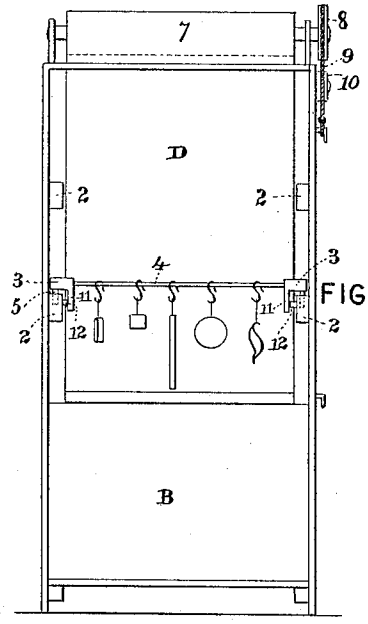


FIG. II.

FIG. III.

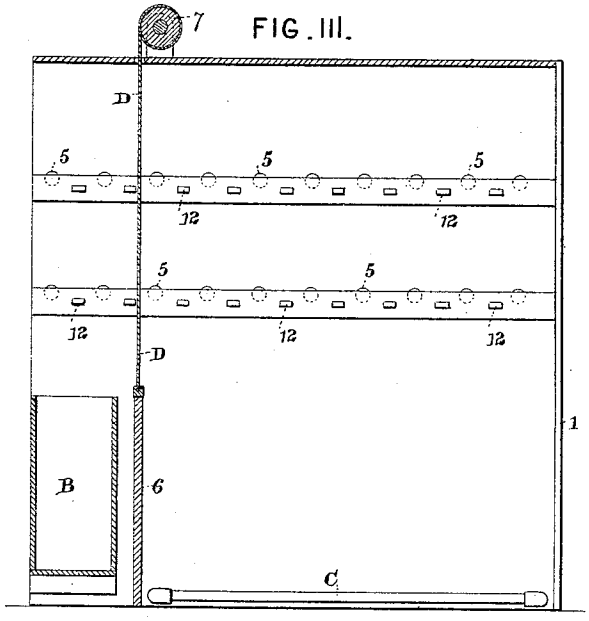


FIG. IV.

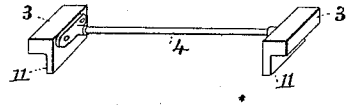


FIG. V.

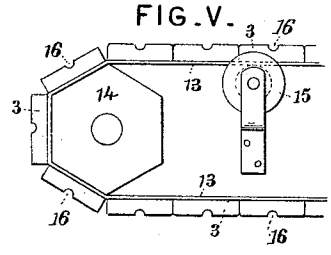
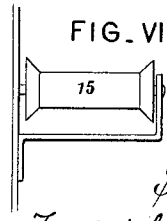


FIG. VI.



Attest:
Geo. T. Smallwood.
Philip A. Mauro

Inventor:
Frederick Crane
by Chas. J. Hedrick
his attorney

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

FREDERICK CRANE, OF SUMMIT, ASSIGNOR TO THE FREDERICK CRANE CHEMICAL COMPANY, OF SPRINGFIELD, NEW JERSEY.

APPARATUS FOR JAPANNING.

SPECIFICATION forming part of Letters Patent No. 350,869, dated October 12, 1886.

Application filed June 26, 1886. Serial No. 206,320. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK CRANE, a citizen of the United States, residing at Summit, county of Union, and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Use in Coating Articles with Enamel, Lacquer, and other Compositions, of which the following specification is a full, clear, and exact description.

This invention relates more particularly to apparatus for use in those processes in which the articles are dipped in a liquid composition, are allowed to drain, and are then dried with or without heat, or in which the articles after dipping and draining are heated to bake the coating or for other purpose, or are otherwise treated while suspended from the rods or other holders.

The liquid composition may be any appropriate enamel, lacquer, japan, varnish, paint, or the like, although it is intended to use the new and improved apparatus especially for applying the liquid enamel or lacquer known and sold as "zapon."

The object of the invention is mainly to facilitate the process by diminishing the labor of handling and to avoid the necessity of exposing the articles after dipping and before the coating has become dry or hard.

The invention consists in an apparatus composed, essentially, of a chamber into which the articles may be introduced at one point, and from which they may be removed at another, supports for upholding the rods or carriers from which the articles are suspended, and permitting the same to be moved through the chamber from the point of introduction to the point of removal, and a vat or other receiver at the point of introduction below the supports for receiving the drainage or surplus liquid from the article when suspended from the rods on said supports. Preferably this vat or drainage-receiver is the dipping-vat or vat holding the composition into which the articles are dipped, so that the surplus composition drains directly back into the dipping-vat.

The improved apparatus enables the articles after dipping and after or while draining to be moved back and their place to be supplied with newly-dipped articles, and afterward to be moved farther back into the chamber, so that the drying or hardening of the coating may take place without any handling or exposure of the articles between the introduction of them newly dipped into the chamber and the removal therefrom of the articles with dried or hardened coating. All the articles in the apparatus can be moved by the attendant at the front of the same as he from time to time inserts a new lot.

Heretofore the articles after dipping were suspended over the dipping-vat or draining-board, and when drained were carried by hand to a separate drying-chamber. This transportation not only involves additional labor, but the coating is liable to become spotted or specked with dust or other foreign substances during the act, and with some liquids to become injured by drafts of air.

The invention also consists in the same apparatus comprising, in addition to the elements, before noted, a steam-coil or other heater for raising the temperature of the chamber, particularly the temperature of that part where the drying or hardening of the coating takes place.

The invention further consists in the same apparatus, with or without a steam coil or heater, having a movable screen for cutting off at the will of the attendant the dipping and draining part of the chamber from the rest, either for confining the heat to the latter or for other purpose.

The invention is not limited to any special form of supports or screens nor to other details, since these may be of any suitable description.

An apparatus without any screen or heating-coil would be within the invention, although an apparatus with one or both of them is specially claimed.

Referring to the accompanying drawings, which form a part of this specification, Figure I is a side elevation, Fig. II a front elevation, and Fig. III a longitudinal central section, of an apparatus constructed in accordance with the invention; Fig. IV, a perspective view of one of the supporting-rods with its carriages; and Figs. V and VI views illustrating another

arrangement of carriages, also within the invention.

The chamber A, as shown, is open at the front end, and is provided with doors 1 at its rear end, although side doors could be used, if desired. On the inside of said chamber, at a suitable height, are ledges 2, which run from front to rear, and, in connection with the carriages 3, form the supports for the rods 4. These ledges have rollers 5 set therein, so that the carriages may move over them with but little friction, and the carriages (in the form of blocks of wood or of other material) are fastened to the ends of the rods; but it is obvious that the rollers could be on the carriages (one or more to each of the carriages) or that the latter could slide on the ledges, and also that the rods need not be fixed to the blocks or carriages; but the arrangement shown is considered the most convenient.

As shown, the carriages 3 are provided each with a flange, 11, which bears against the rollers 12, set in the face of one of the ledges, 2. The end motion of the rods is thus resisted without inconvenient friction. Of course such rollers could be embedded in the side of the chamber A, or end rollers on the carriages could be used, or other known or suitable means for preventing side motions of a carriage could be used for the same purpose. It is not necessary to use any special means to prevent such motion of the rods, as the contact of the carriages with the walls of chamber A will do this.

At the front of the chamber, below the ledges 2, is the dipping-vat B, and behind it the board 6, which may be omitted, if not desired, its sole object being to prevent excessive heating of the vat. Behind this board, on the bottom of the chamber, is a steam coil or radiator, C, for raising the temperature in the drying part of the chamber. To cut off the heat from the front part of the chamber A, where the dipping and draining take place, a screen, D, is provided. It may be a sliding door or of other like form, but it is, as shown, in the form of a curtain suspended from a roller, 7, journaled in bearings on top of the chamber, and provided with a grooved wheel, 8, at one end. The curtain or screen passes through a slot in the top of the chamber and hangs down between the ledges. A cord, 9, is wound upon the wheel 8, to which its inner end is fastened, and runs over a pulley, 10. By pulling upon the cord the roller is turned in the direction to wind up the curtain and thus withdraw it. A ring at the end of the cord can be placed upon a hook or pin on the side of the chamber to hold the roller in place. The weight of the curtain is utilized to unroll it when the cord is released.

The operation is easy to understand. The articles, suspended from a rod in any ordinary or suitable way, are dipped in the liquid in the vat B, and the rod with its load is then raised and the carriages 3, attached to the ends of the rods, are placed upon the ledges 2 near the front thereof, so that the articles hang over the vat B. Another lot of articles is then dipped, and the rod with its load is supported by its carriages being placed and resting upon the ledges 2. The carriages previously placed on the ledges are pushed back into the chamber. With zapon, the articles drain very quickly, and the draining is ordinarily finished by the time a second lot has been dipped; but if the coating-liquid requires longer to drain, the vat or other receiver can easily be made large enough to be under two or more rods when supported upon the ledges, or a dripping-board of suitable width may be used. The carriages 3 are made of such length that the rods are properly spaced thereby. As rods with newly-dipped articles are placed upon the ledges, the rods carrying the articles which have drained are pushed into the drying part of the chamber. Here the coating becomes dry or hard, the operation being assisted by the heat from the radiator C when this is used. At length the rod with its load reaches the rear end of the chamber and is removed through the doors 1, which are thereupon closed again. If the screen D be in use, it is withdrawn in order to allow each rod to enter in its turn the drying part of the chamber.

In Figs. V and VI the carriages or blocks 3 are attached to an endless belt, 13, which runs over pulleys 14 and anti-friction rollers 15. The pulleys and rollers take the place of the ledge and its rollers. Such a belt of blocks or carriages is used on each side of the chamber. The ends of the rods are placed in notches 16 in the blocks or carriages, and the belts are turned as the rods are moved through the chamber.

It is evident that many other modifications could be made without departing from the spirit of the invention.

The dimensions or proportions and materials of the apparatus can be changed as may be desired.

I claim as my invention or discovery—

1. An apparatus for use in coating articles, consisting of a chamber into which the articles may be introduced at one point and from which they may be removed at another, supports which permit the articles to be moved through the chamber, and a vat or receiver in the chamber at the point of introduction of the articles and below the supports therefor, which vat or receiver receives the drainage or surplus liquid from the newly-dipped articles, substantially as described.

2. The combination, with a chamber open at the ends and a dipping-vat at the front end, of the ledges or their specified substitute on the sides of said chamber, the carriages or blocks running on said ledges or the substitute therefor, and the rods upheld by the carriages, substantially as described.

3. An apparatus comprising the draining and drying chamber, the supports extending through the said chamber, the vat in said

chamber at the point of introduction of the articles, and the heater in the drying part of the chamber, substantially as described.

4. The combination, with the draining and drying chamber, the supports in the said chamber, and the vat, of the movable screen for cutting off the drying portion of the chamber from the part containing the vat, substantially as described.

5. An apparatus composed of a draining and drying chamber, supports which permit the articles to be moved through said chamber, a dipping-vat in the front part of said chamber, a heater in the rear part, and a movable screen for cutting off the drying from the dipping and draining part of the chambers, substantially as described.

In testimony whereof I have signed this specification in the presence of two witnesses.

FREDERICK CRANE.

Witnesses:
JOSEPH D. GALLAGHER,
WILLIAM L. FORD.