R. H. PRICHARD.

PROCESS FOR ENAMELING PLATES AND THE LIKE.

APPLICATION FILED JAN. 9, 1920.

1,381,736.

Patented June 14, 1921.

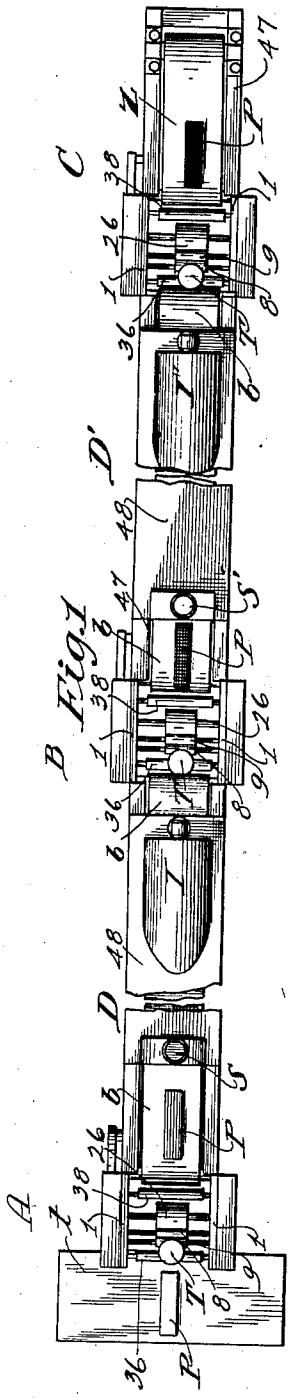


Fig. 1

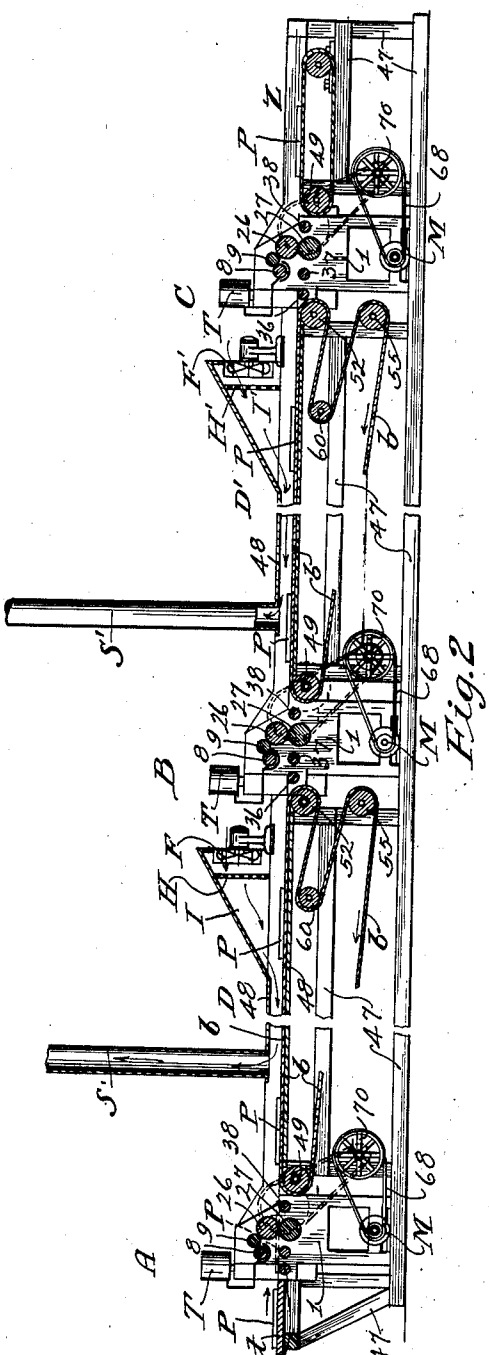


Fig. 2

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UNITED STATES PATENT OFFICE.

ROBERT H. PRICHARD, OF LOS ANGELES, CALIFORNIA.

PROCESS FOR ENAMELING PLATES AND THE LIKE.

1,381,736. Specification of Letters Patent. Patented June 14, 1921.

Application filed January 9, 1920. Serial No. 352,228.

To all whom it may concern:

Be it known that I, ROBERT H. PRICHARD, a citizen of the United States, and a resident of Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Process for Enameling Plates and the like, of which the following is a specification.

My invention relates to and has for its main object the provision of an improved process for successively applying a plurality of coats of enamel to flat articles, such as automobile license plates, in quick order, so that the plates may be rapidly completed, one after the other, with a minimum of time, labor and cost. A machine for this purpose of my invention is disclosed in my application filed Jan. 9, 1920, Serial No. 352,227. Other objects include the provision as different steps in the process of alternate enameling and drying operations; the treatment of the enameled articles by a forced draft after each application where the plates are being moved flatwise of the enamel and prior to the subsequent application in order that the second and subsequent coats of enamel will adhere to the first coat; the frequent heating of the air thus forced into contact with the enameled articles for the purpose of facilitating the drying of the articles; and the final disposition of said articles to points exterior of the machine for carrying out the aforenamed process, where said articles may be subsequently baked in an oven or kiln, for hardening the enamel.

For the purpose of illustrating my new process so that persons skilled in the art may readily understand the several steps thereof, I have shown on the accompanying drawing one practical embodiment of a machine for carrying out the objects of my invention, similar characters of reference being employed throughout the specification and in said drawing for indicating the same and like parts.

In said drawings:

Figure 1 is a plan of a machine of the character stated;

Fig. 2 is a sectional elevation of the same.

The articles P to be enameled are first deposited upon a table *t*, shown at the left hand end of the machine in the drawings and are then fed into an enameling unit A of the machine manually, one after the other. Other enameling units of like character, may be provided, the number depending upon the number of coats of enamel to be applied in each particular case. In the drawings, I have shown two additional units, B and C, and all of the units shown are substantially spaced apart in longitudinal alinement, as indicated.

Intermediate the enameling units A, B and C, I provide drier units of the character shown at D and D′, in the drawings, and at the extreme rear end of the machine, I provide a discharge unit Z for finally disposing of the completed articles.

The enameling units include frame members 1, having enamel distributing rollers 8 and 9 mounted therebetween above the level of the table *t* which receive a continuous supply of enamel from a tank T supported on said frame members. Enameling rollers 26 and 27 are also provided between said frame members, the upper roller 26 having a composition surface for receiving and applying the enamel to the articles P, which are adapted to be fed between the rollers 26 and 27, and said roller being preferably adjustable vertically so as to yield to the thickness of the articles moved thereby. The lower roller 27 is stationarily held as are also a plurality of smaller forwarding rollers 36, 37 and 38 which coöperate with the roller 27 for advancing the articles through the machine units.

Each of the units A, B and C has a separate motor M, which is connected by means of a belt 68 with a driven pulley 70 suitably mounted on an axis transversely of the machine frame 47. The shaft of pulley 70 may be suitably geared to the rollers 8, 9, 26, 27, 36, 37 and 38 for operating all of said elements as may also a roller 49 on the rear side of each of said units over which a belt *b* operates for moving the articles P through the drier units D and D′.

Belts *b*, *b*, operate at their rear ends over pulleys 52, 52, on the front sides of the machine units B and C and also over adjustable pulleys 60, 60, and stationary pulleys 55, 55. It will be observed that a portion of the belts *b*, *b*, are left exposed to view on

each side of the units A, B and C for the purpose of affording access to the plates P as they are ejected from the enameling units, while the major portion of the belts *b*, *b*, are entirely inclosed by means of metallic channels 48, 48, through which said articles are moved in succession and at a substantially slow rate of speed in order to afford ample time for drying.

At the front ends of the channels 48, 48, I provide stacks S and S′, respectively, for producing drafts through the channels 48, the difference in temperature at the different elevations in a room being sufficient for this purpose generally. At the rear ends of the channels 48, I provide air inlets, I and I′, respectively, and at the mouths of the said inlets, I provide electric fans F and F′, respectively, for forcing air from the atmosphere through the channels 48 and upwardly through and from the stacks S and S′. Heating elements H and H′ may also be located at suitable points in front of the fans F and F′ for heating the air thus forced through the channels and said heating elements may be connected with any suitable source of heat, such as electric currents, gas or hot air supply, according to the convenience of the user.

When the third, or final coat of enamel is applied to the articles P, the said articles are fed on to the final discharge belt Z and there inspected for defects, whereupon they are finally disposed upon suitable trays and subsequently baked in an oven for hardening the enamel to a suitable degree for use.

In the use of my process, it will be observed that after applying each coat of enamel the articles are slowly advanced flatwise by means of the belts *b* through the draft or heated zones 48 for a sufficient length of time and distance to effect a preliminary drying of the enamel so as to insure the adhering of a subsequent coat thereto without the necessity of a considerable lapse of time to allow the enamel to dry naturally.

Thus, a maximum amount of enameling may be done in a minimum length of time and great economy will also be effected in the production of enameled plates of the character mentioned.

Finally, it will be readily understood, my improved process is adapted to apply, successively, a number of coats of paint, or enamel, which would ordinarily be separately baked after each coat, in order to afford sufficient covering qualities. The individual application of the successive coats of paint or enamel, in quick order, by means of this machine serves to build up the surfaces enameled and affords the same results as a plurality of separately baked coats of paint.

It will be apparent, however, that the process provided by my machine will not completely dry the paint between the different coats thereof, as in the case of separately baked or dried coats otherwise applied, and this is not desirable. On the other hand, with my machine, each coat is permitted to set only sufficiently to cause the paint to flow and spread evenly over the surface of the metal and to cause the succeeding coat of paint to readily adhere thereto. Thus, though each coat is set sufficiently for the purpose stated, each coat is still in a wet state when the next coat is applied and it is quite possible to wipe the paint from the metal after the application of the final coat. It is quite apparent that with my process and machine the three coats of paint shown and described, or more coats where desired, may be applied to the plates in the same time and with equal results as compared with a single application of paint in the usual and ordinary process.

In the use of my process it will be observed by reference to the drawing that the successive coats of enamel are applied to only one side of the plates at each operation. The plates are then moved continuously from the table *t* through the several enameling and drying units of the machine in horizontal position on the belts *b* with their unpainted surfaces resting upon the belts, and their freshly coated surfaces exposed to the currents of air within the heating chambers. This insures a more proper and quicker drying of the enamel than would otherwise be possible were the plates supported in any other position.

What I claim is:

1. The herein described process for enameling plates and the like which consists in feeding the plates flatwise into an initial enameling unit and automatically moving said plates flatwise and continuously through alternating drying and enameling units thereafter, said drying units including forced draft zones, and finally discharging the plates for further treatment.

2. The herein described process for enameling plates and the like, which consists in alternately applying enamel and passing the sheets flatwise through drying zones in which the sheets are exposed to a forced draft of heated air, and finally discharging them for further treatment.

3. The herein described process for enameling plates and the like, which consists of feeding the plates flatwise into an initial enameling unit, alternately applying enamel and passing the sheets flatwise through drying zones in which the sheets are exposed to a forced draft of heated air, and finally discharging them.

4. The herein described process for enameling plates and the like, which consists in

feeding the plates flatwise into an initial unit, alternately applying successive coats of enamel to one side of the plates and passing the plates flatwise through drying zones in which the plates are exposed to a forced draft of heated air, and finally discharging them.

Signed at Los Angeles, county of Los Angeles, and State of California, this 30th day of December, 1919.

ROBERT H. PRICHARD.

In presence of—
EDYTHE F. PRICHARD,
H. M. BRUNDAGE.