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H. FICKERT ET AL
COPYING MODELS
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Fig. 1.

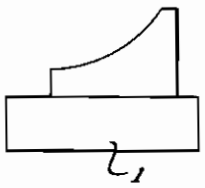


Fig. 2.

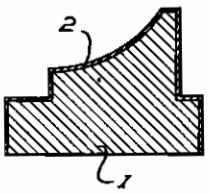


Fig. 3.

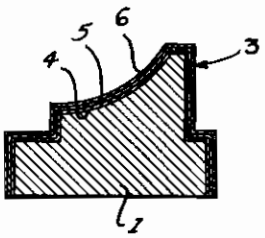


Fig. 4.

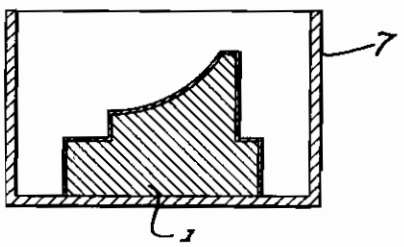
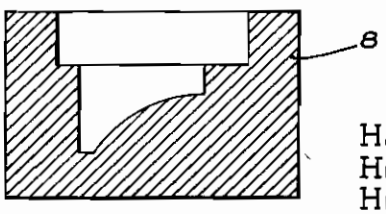


Fig. 5.



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AGENT.

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ALIEN PROPERTY CUSTODIAN

COPYING MODELS

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Application filed June 28, 1940

The invention relates to a process for producing copying models and copying stencils for copying milling machines for metal-working and copying moulding machines for wood-working and the like.

Hitherto the models for copying milling machines for metal-working and copying machines for wood-working are made out of wood or out of stone-powder, poured out in fluid state over a counter mold from wood. Besides metal casting was employed.

The wooden model as the negative model or as the negative stencil has the defect that the wood is not enough resistant to the caliper of the copying milling machine for metal-working and copying moulding machines for wood-working; thus the caliper can be pressed into the wood whereby the exactness of the copying is injured. The model out of stone-powder has the defect that sharp edges and thinner free standing cross pieces easily are broken out. Besides also the model out of stone-powder is affected being touched by the caliper of the copying milling machine for metal-working and copying moulding machines for wood-working. The model of metal-casting made out of a sand mold is inexact and has a rough surface, also influencing the milling work in an unfavorable manner.

According to the invention it is proposed to employ artificial resin as casting material for the models or stencils for copying milling-works because the disadvantages existing hitherto can be avoided by using artificial resin. Artificial resin is of sufficient solidity and finer details of the copying models can be reproduced exactly by the fusible artificial resin. Pouring off the fusible artificial resin, however, difficulties arise because the artificial resin combines closely with wood and the like. Therefore a pouring off was not possible. These difficulties could not be eliminated by applying the known model-powders with which wooden models are covered in order to prevent the adherence of the sand of the mold.

Now there was found that artificial resin can be employed for the producing of copying models used for the casting from the negative models without the artificial resin adhering to the wood of the negative model, if the model to be formed consisting of wood, plaster of Paris and the like first is covered by a soft to elastic coat easily to be removed as well from the model to be formed as also from the solidified artificial resin. This may be done, for instance, by covering the model to be formed with a coat of wax which is spread with metallic dust and a further coat of heat-resistant lacquer combining neither with the metallic layer nor with the artificial resin. After that the model is fixed in a known manner in a casting box which then is filled up by pouring in the molten artificial resin free from air bubbles.

Especially suitable as artificial resin are meltable polymerized vinyl compounds as polymerized vinyl esters, polymerized styrenes and the like, especially suitable are, for instance, polymerized vinyl acetates, particularly a mixture of a low and a middle grade of polymerization.

Besides there was found that it is especially advantageous to produce the coat uniformly of caoutchouc respectively of a caoutchouc lacquer. Hereby it is only necessary to cover the wooden model with the caoutchouc lacquer, resp. with the solution of caoutchouc whereupon the casting by the artificial resin can be executed. Hereby the process is essentially simplified. The model of artificial resin can always easily be removed from the negative model out of wood or the like. Active solutions of caoutchouc according to the invention are above all the commercial products of this marking, that is solutions of some per cents of caoutchouc in suitable solvents, as f. i. benzene, benzine, trichlorethylene and so on. Likewise successfully also corresponding solutions of artificial polymerisates or mixed polymerisates, as, f. i. the butadiene polymerisates known by the trade mark "Buna" and mixed polymerisates of butadiene with acrylic acid nitril or other acrylic acid derivatives like acrylic acid esters, polymerized styrenes and so on, further the polymerized isobutylenes known by the trade mark "Opanol" may be employed. The film forming solution must act repellently upon the artificial resin used for the casting. Therefore every solution complying with this condition can be employed. Correspondingly according to the invention all the solutions containing additions selected from the group consisting of softening agents, diluents, filling materials, colors, pigments and the like answering this requirement are to be understood as caoutchouc lacquers. It is decisive for the selection of such additions that they at least do not diminish the repelling effect upon the artificial resin. Employing f. i. polymerized vinyl acetate as casting resin above all ligroin or paraffin oils will be applied as dissolved diluents or as diluents emulsified in the solution, talcum and the like will be used as filling material.

There is a further advantage if employing the caoutchouc lacquer, resp. the solution of caoutchouc consisting in the possibility of using colored artificial resin because there is no danger

that the color disappears under the influence of the material of the original. So it is necessary that molds out of plaster of Paris employed, f. i., for the producing of substitute parts for artificial teeth and the like are covered by a foil consisting of tin before the artificial resp. the artificial material can be poured in. Such a work is very troublesome. Employing caoutchouc lacquers, resp. solutions of caoutchouc the covering with a foil of metal is omitted. The caoutchouc lacquer can not only be employed as an active coat of separation between the fusible artificial resin resp. the artificial material and the material of the model but it also isolates the mold in such a way that the color of the artificial resin is not injured and that the products of artificial resin do not lose their color. Thus the original color of the artificial material is kept.

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