(No Model.)

W. B. VAN DYKE.

PROCESS OF MAKING ROLLS FOR ORNAMENTAL FORMS.

No. 423,002. Patented Mar. 11, 1890.

Fig. 1.

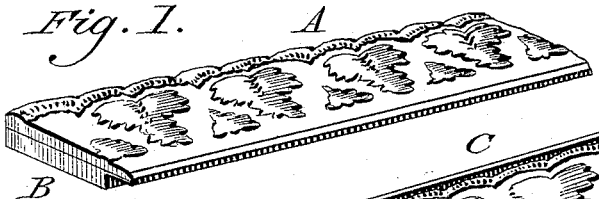


Fig. 2.

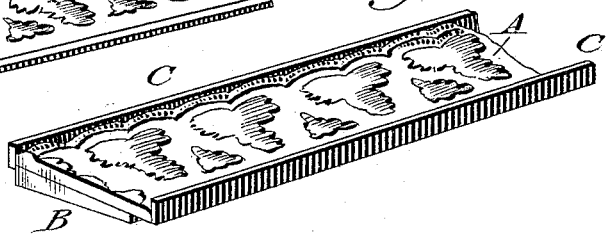


Fig. 3.

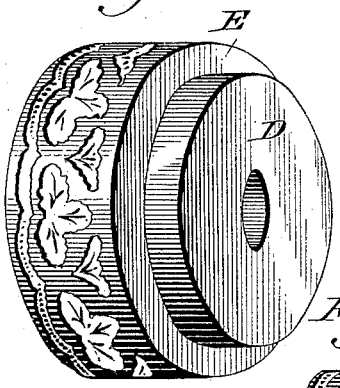


Fig. 4.

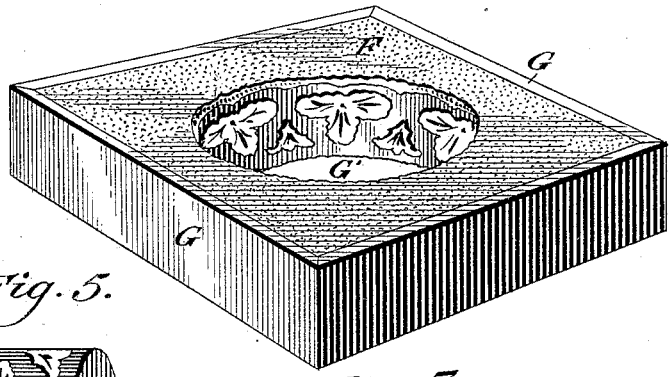


Fig. 5.

Fig. 8.

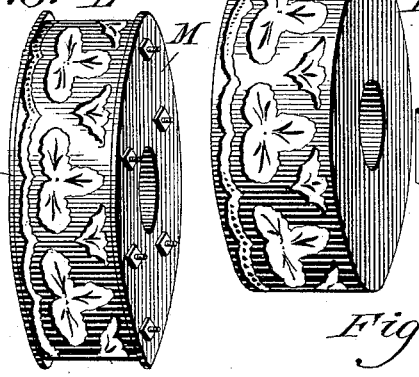


Fig. 7.

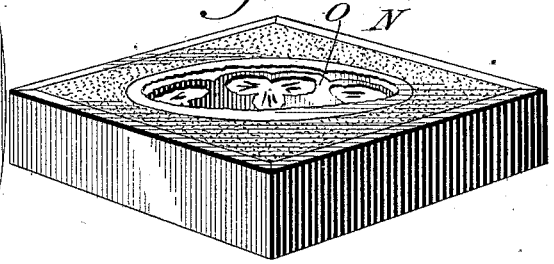
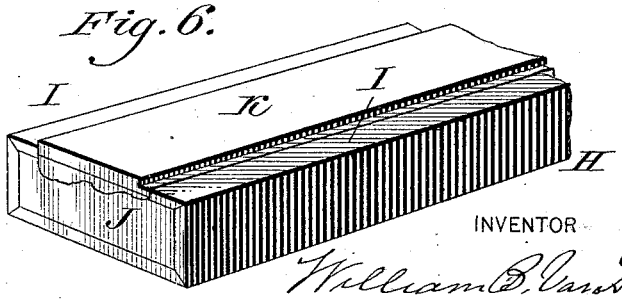


Fig. 6.



WITNESSES:

P. F. Eagle.

Wm. H. Carson.

INVENTOR

William B. VanDyke

per George E. Buckley

his Atty.

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

UNITED STATES PATENT OFFICE.

WILLIAM B. VAN DYKE, OF PHILADELPHIA, PENNSYLVANIA.

PROCESS OF MAKING ROLLS FOR ORNAMENTAL FORMS.

SPECIFICATION forming part of Letters Patent No. 423,002, dated March 11, 1890.

Application filed February 10, 1887. Serial No. 227,220. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM B. VAN DYKE, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented a new and Improved Process of Making Rolls for Ornamental Forms; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making part hereof.

My invention relates to that class of rolls which are adapted to be set in housings and roll ornamental forms in a composition which passes under them or over which they are passed. These forms are (speaking generally) of the class which are backed up with a stiff support and used for picture-frame and other moldings. The rolls are also used for embossing wall-paper, leather, thin wood, and other materials, and for ornamentation generally. These rolls have heretofore been turned up out of a block of brass and other metals, and the design of the ornamental form to be impressed has been cut on the convex face or tread of the roll. These rolls are in common use in the art, and the housings and stands and all parts of the machine in which they are mounted are familiar to all mechanics or artisans skilled in the art of making moldings for picture-frames, &c., embossing wall-paper, wood, leather, and other materials. I shall therefore enter into no description of the machines in which they are used, as my invention has reference to the process of constructing them, and particularly to the transfer of a pattern on a molding to the face of a roll with the object of reproducing such pattern in a rapid and economical manner, whereby the practice of the art is greatly benefited.

The nature of my invention will fully appear from the following description and claim.

In the drawings, which are all perspective views, Figure 1 represents a section of ornamental molding which may have been impressed, carved, or engraved on wood or other substance, or may be a section of a picture-frame molding which it is desirable to reproduce; Fig. 2, a view showing the side pieces or "boxing," the ends being similarly "boxed," though not shown in the drawings, to receive a thin gelatinous mass poured upon it and retain it until it hardens. Fig. 3 shows a cylindrical block with the hardened gelatinous mass rolled around it, the pattern appearing on the outer convex surface; Fig. 4, a plaster or other mold which has been formed around the gelatinous mass as a core; Fig. 5, a roll of type-metal or other suitable metallic substance which has been cast in the mold shown in Fig. 4; Fig. 6, a box or mold, showing one form of securing the impression; Fig. 7, a box with a plaster-and-composition filling with the pattern on the concave face or wall of the round interior opening; Fig. 8, a roll with two hard-metal disks on each side to protect the edges of the roll.

A is a section of molding which it is desirable to reproduce, having the ordinary wooden backing B.

C C are side pieces with which in practice the ends are also provided to hold the thin gelatine until it hardens.

D is a wooden cylindrical block.

E is the gelatine pattern formed on the molding in the boxing shown in Fig. 2, and rolled around the convex face of block D, with the face of the pattern outward.

F is a mold formed in the box G, the pattern appearing on the concave face of the interior or middle opening G'.

H is a box, which in practice is closed at the ends as well as at the sides, and is provided with upper side strips I I.

J denotes a composite mass (picture-frame-makers' composition) formed of glue, resin, oil, and whiting.

K is a picture-frame molding placed face downward on the mass J, the latter being prevented from oozing out in excess by the side strips I I, between which the molding K is laid.

L denotes a roll cast in the mold.

M M are two disks—say of iron—slightly larger in diameter than the roll, and bolted, screwed, or riveted thereto. They are simply designed to protect the roll, which I make of type-metal or other suitable material. The rolls are liable to be indented or nipped at the

edges, and the disks are designed to protect them. These disks may be made of the same diameter as the roll, and if they are larger the flanges which they form should not be of greater depth than the thickness of the molding to be formed.

N is a wooden block bored out cylindrically in the middle to receive a thin composition strip O.

The gelatine which I use is the same as is used for food and known as such in commerce.

My "composition" is made of combined white clay in two parts to sixteen parts of plaster-of-paris, though these proportions may be varied.

To form my roll I proceed as follows: The molding A is surrounded by boxing C, which may be of wood, putty, or other suitable material. (See Fig. 2.) I then pour heated (melted) gelatine over the molding and let it cool. The gelatinous strip is then removed and placed around a wooden cylindrical block D, the ends of the strip being joined by passing a hot knife between them and pressing the end edges together. The block, with the surrounding gelatine, is then placed horizontally in the box G, the lower face of the block being flush with the lower edge of the gelatine ring. A mass of plaster-of-paris F is then poured around the ring E equal in depth to the depth of the ring. When the plaster is set or hard, the block D is pushed or drawn out and the ring E is then removed, when it will be found that the ornamental forms on the outer face of the ring will be left in sharp relief on the outer face of the wall of the hole in the plaster mold, as at F, Fig. 4. A core is then placed in the center of the opening G′, and the molten type-metal is poured into the mold around this core, thus casting the ornamental roll L, Figs. 7 and 8. The hole for the shaft left by the said core is then finished up, and the roll is bored at intervals to receive bolts, screws, or rivets to hold disks M M in place. These disks are then attached and the roll is ready to be attached to or set upon a shaft in a molding-rolling machine.

Another equivalent means of obtaining the gelatine pattern is shown in Figs. 6 and 7. Here a box H is filled with a composite mass J, and while the mass is still soft a molding K is first greased and then pressed face downward into it. When the mass J has sufficiently hardened, the molding K is removed, and the upper face of the mass J is then greased and a layer of my composition is, while soft, placed thereon and then backed by a wooden strip, to which it will adhere, as in a picture-frame molding. The composition is then pressed down by this backing-strip. As soon as the layer of composition receives the impression and has become partially set the backing is raised, bringing with it the strip of composition. This strip is at once shaved off the backing-strip and bent around the inner face of the opening in the block N, with its back glued against the inner wall thereof, as shown in Fig. 7. The face containing the design will thus constitute the inner wall of the opening, forming a mold to cast from. When it has hardened, a mass of melted gelatine is poured into the opening, and when this mass has set a gelatinous pattern will be formed, which is pressed out and used to form a mold such as described above and shown in Fig. 4. From this latter mold my roll is cast, as described above. I do not cast the metallic roll from the mold shown in Fig. 7, as it would burn the mold and be hard to get out.

I have shown no drawing of the gelatine pattern last described, as it would possess the form of the roll shown in Fig. 5, with the exception of the central shaft-opening.

The mold F is baked in an oven to harden it before casting the roll L in it. The design cast on the convex face of roll L will of course be a female impression.

I am well aware that rolls provided with electrotype-sheet surfaces have heretofore been constructed, and that sheet metal with struck-up designs thereon has been bent around the surface of rolls and secured thereto; but in these cases, as is well known to those skilled in the art, a joint more or less marked must occur where the edges of the metallic sheet meet. In my device this joint is avoided and the ornamental surface or tread is integral or in one solid piece with the body of the roll which immediately supports it. A long strip ornamented upon one surface has also been cast in soft metal and bent around a roll with the ornamental surface outward; but here, also, a joint occurs, and the process is very costly as compared with mine. In bending a straight plate around the roll the pattern is also more or less distorted and spread, whereby the design on the roll will not be a fac-simile of the original design. The gelatine is soft and springy in its nature, like rubber, and one of these substances would answer the purpose as well as the other. Gelatine being the cheaper, I use it.

I am well aware that stereotyped and electrotyped plates have been cast in curved form and set upon a cylinder for printing. In these cases they do not form rolls and are not integral with the cylinders to which they are attached. Plates with ornamental designs affixed to cylinders could not be substituted for my device, because of the joints or breaks which would exist between the adjoining edges of the plates. In my roll the face is one continuous piece of metal. If a joint or break existed in the face of the roll it would mark the ornamental molding and spoil the appearance thereof. In the claim I shall designate this feature of my roll by the word "unjointed."

What I claim as new is—

The process of forming the cast roll L with

the impression of an ornamental molding in its convex surface, which consists in covering a molding with a layer of melted springy elastic material, removing the latter when set, and covering the convex surface of a cylindrical block with the strip thus removed with the ornamental face outward, setting the same in a box and pouring around the springy former or core a mass of plaster F, removing the said core, and casting the metallic roll in the mold thus formed, substantially as described.

W. B. VAN DYKE.

Witnesses:
WM. H. CARSON,
GEORGE E. BUCKLEY.