July 14, 1931. J. C. McCARTHY 1,814,758

PRINTING BLOCK AND METHOD OF MAKING THE SAME

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Fig. 1

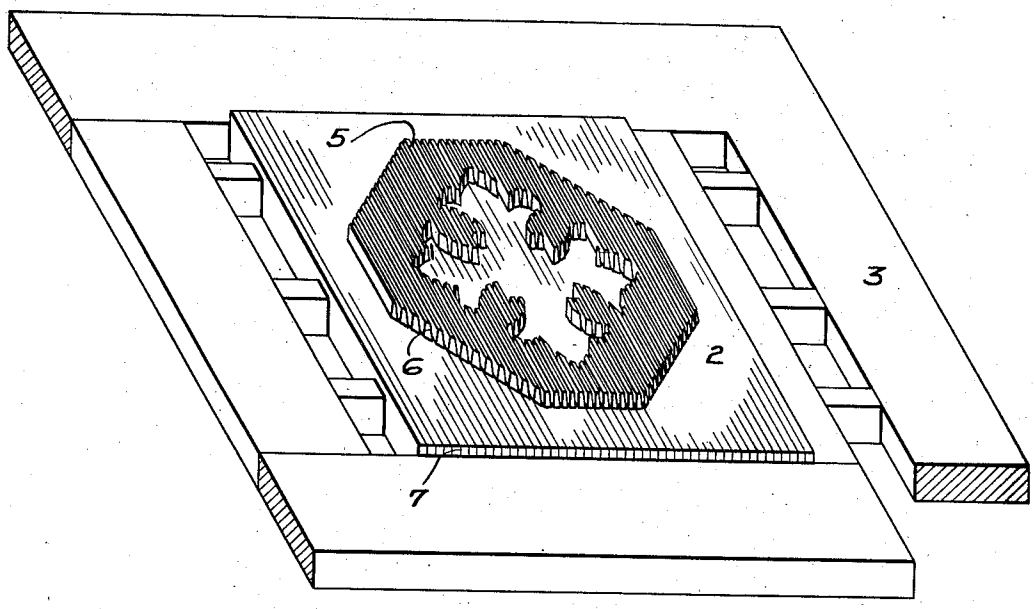


Fig. 2

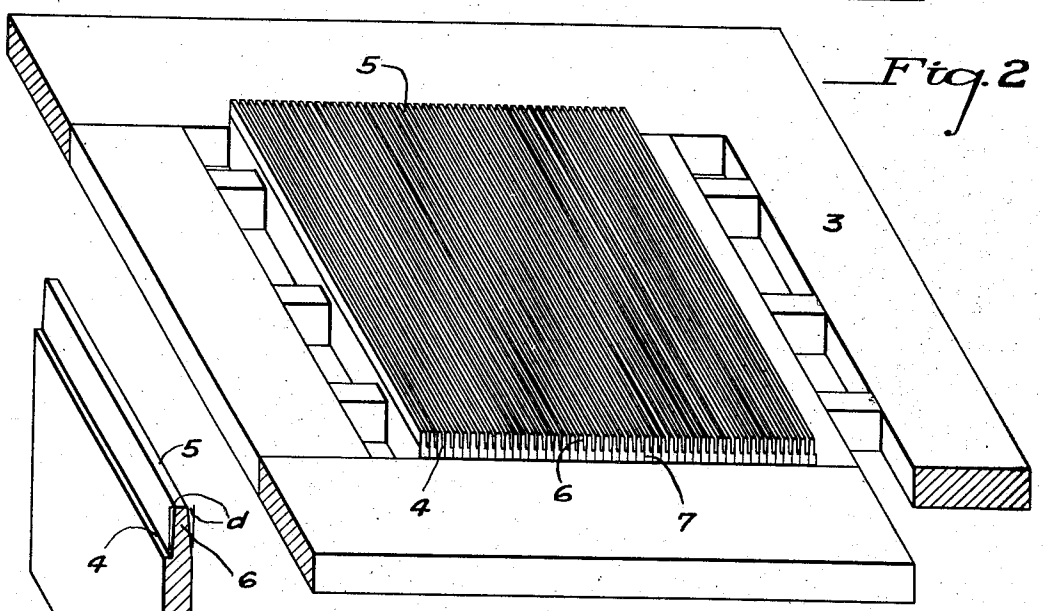


Fig. 3

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PRINTING BLOCK AND METHOD OF MAKING THE SAME

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Fig. 4

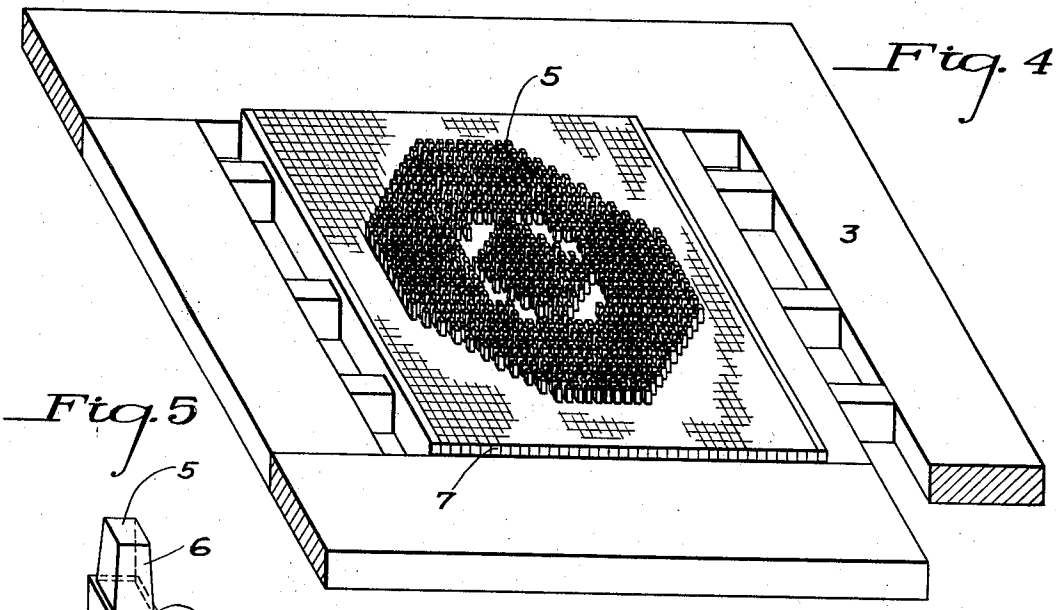


Fig. 5

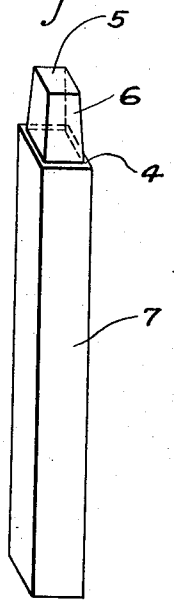


Fig. 6

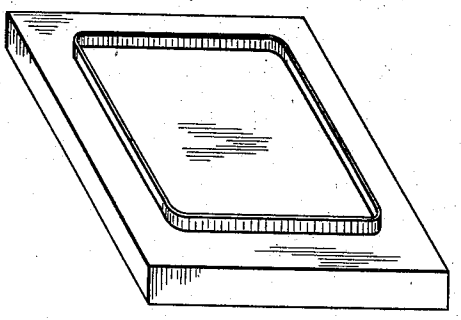
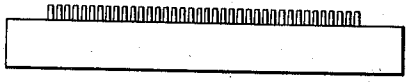


Fig. 7



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PRINTING BLOCK AND METHOD OF MAKING THE SAME

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Fig. 8

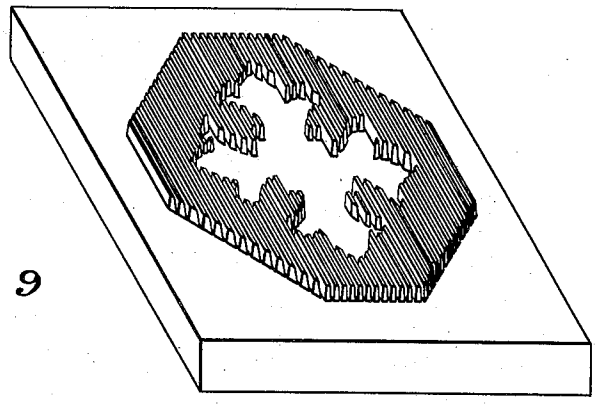


Fig. 9



Fig. 10

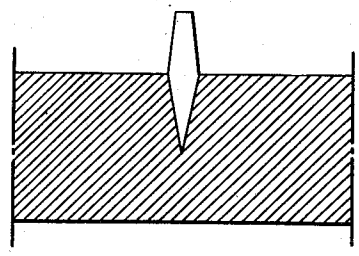
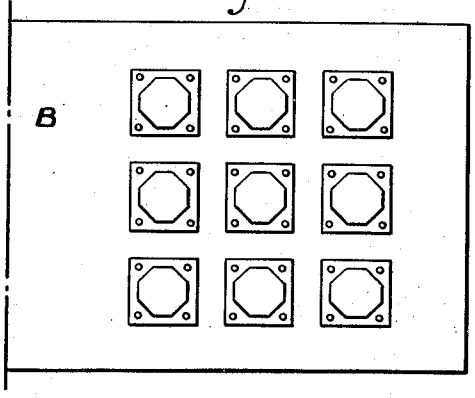


Fig. 11



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Patented July 14, 1931 1,814,758

UNITED STATES PATENT OFFICE

J. CLARENCE McCARTHY, OF LANCASTER, PENNSYLVANIA, ASSIGNOR TO ARMSTRONG CORK COMPANY, OF LANCASTER, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

PRINTING BLOCK AND METHOD OF MAKING THE SAME

Application filed April 5, 1927. Serial No. 181,085.

This invention relates to printing blocks and more particularly to metal printing blocks such, for example, as those used in the printing of linoleum, felt base goods, and wall paper.

Heretofore it has been customary to use wooden blocks for printing designs on floor coverings, such as linoleums. These printing blocks are made with narrow parallel grooves on the printing face thereof to insure proper distribution of the paint and to permit withdrawing the block from the printed surface without sucking away the wet paint. Some of the blocks have been made with the designs executed in pegs protruding therefrom, the ends of the pegs serving as a printing surface to transfer paint to the covering. The pegs afford ready access of air to the printing surface when the block is withdrawn from the wet paint. Other printing blocks have been formed of wood with the design formed by brass rules set therein.

The wooden blocks have proved objectionable for a number of reasons, among which are the expansion and contraction due to atmospheric changes, humidity and temperature. Such changes in the dimensions of the printing blocks seriously affect the registration of the colors. Another objection to the use of wooden blocks has been that each block must be routed out separately from the design stenciled on the surface. The wooden blocks are also subject to rapid wear and breakage.

I propose to obviate the foregoing difficulties by making the printing blocks of a suitable metal, the repeats in the design being all formed from one master plate. The metal blocks may be made in the form of sawn blocks, peg blocks, or outline blocks, as desired.

In the accompanying drawings, illustrating the present preferred embodiment of my invention

Figure 1 shows a master printing block formed according to my invention;

Figure 2 shows a unit prepared to form the block shown in Figure 1;

Figure 3 illustrates one of the rules used to form the unit illustrated in Figure 2;

Figure 4 shows a master block built up of pegs;

Figure 5 is a perspective view of the peg used to form the block in Figure 5;

Figure 6 shows a master printing block made of wood having the design brassed in;

Figure 7 is an end elevation of a printing block made from the master block shown in Figure 1;

Figure 8 shows a printing block made from the master block illustrated in Figure 1;

Figure 9 illustrates a quad used in forming the master peg block;

Figure 10 is an enlarged detail section of the brass rule block illustrated in Figure 6; and

Figure 11 shows a portion of a printing head having metal printing blocks attached thereto.

Referring to the illustrated embodiment, there is shown a master block formed of a series of beveled metal rules 2, the block being clamped in a printer's chase, indicated generally by 3. The strips are previously arranged, as shown in Figure 2, and are subsequently routed out to conform to a design stenciled on the surface, as shown in Figure 1. The figure, of course, may be drawn or transferred to the surface of the strips and then engraved in a manner similar to that at present used for cutting wood blocks. The portions which are cut away from the design are preferably removed to the depth of a shoulder 4 (Figure 3) leaving the plain portion of the finished master block a plane surface.

As shown in Figure 3, the rules from which the printing block is made are cut to form a printing surface 5 on an upstanding portion 6 projecting from a base 7. The rules are conveniently made type high, since such material is commonly used in connection with regular printing and the rules with the general shape illustrated may be easily obtained from printer supply houses. The portion 6 is cut with draft *d* so that the printing surface 5 is narrower than the upstanding portion 6 where it joins the base portion 7. The

rule is further provided with a shoulder 4 which serves to space the strips apart, giving the effect of a sawn block when a number of the strips are placed side by said (Figure 2).

After the block has been cut out with the desired design as shown in Figure 1, a mold is made from the master block and the printing blocks are cast from this mold, the printing blocks being in one piece of solid metal but retaining the characteristics of the design cut on the master block as well as the structural characteristics of the projecting portions not cut away in forming the design. The printing surface is therefore formed of a series of parallel surfaces on the top of wedge shaped upstanding portions affording maximum strength and ample relief. Figures 7 and 8 show finished blocks.

A block cast from a mold fashioned from the master mold will retain all of the characteristics of the master block and may be had in various compositions. I prefer, however, that the actual printing blocks be cast from aluminum or aluminum alloy, which is light in weight and can be easily used on the regular printing machines. Such a metal printing block will permit a more thorough cleaning than a wooden block, both from the standpoint of scrubbing and from the use of paint solvents. Furthermore, the metal block is not subject to dimensional changes from variations in atmospheric conditions. Neither is it liable to damage from heat.

By forming printing blocks in this fashion, I am enabled to form any desired number of exact duplicates which may be used in repeat designs, or interchangeably in the same design. As shown in Figure 11 the printing blocks are preferably secured to a support B, forming part of a printing head. If, for any reason, a block should be damaged, as by a piece of scrap metal in the material being printed, the damaged block may be easily removed from the support B and replaced with a spare unit with a minimum loss of time.

The use of such blocks based on a series of master blocks, obviates the necessity of large fire proof storage vaults for the printing blocks, for in case of loss or damage to the blocks actually used in printing, a duplicate series can be easily made from the master blocks. Furthermore, the printing units, as illustrated in Figure 11, may be easily disassembled and the individual blocks stored in a comparatively small space.

Figure 4 illustrates a printing block formed with a peg surface. This type of block may be formed from a master block in a manner somewhat similar to the printing block previously described. The mold for casting such a block is made from a master block formed of a number of pegs such as illustrated in Figure 5, having quads (Figure 9) set intermediate where no printing is required on the design. This method of forming a master block requires a minimum of cutting, the pegs may be set up by hand in units of sufficient size to accommodate the pattern desired, locked in a printer's chase and a mold may be made from the design so produced.

If desired, a monotype matrix for the peg and a matrix for the quad may be employed and the design may be set up on a type-setting machine, forming a master pattern in much the same manner that tabular matter is now set up on such machines.

Figure 6 shows a master printing block of the outline type. This block is produced by casting a desired alloy in a mold formed from the master pattern brassed on a wooden block with a beveled brass rule. This type of master pattern is convenient for such designs, the depth of the printing surface on such a block, however, may be limited to some extent by the depth to which the block metal may be successfully poured in thin sections. A practical outline block may be formed, however, with a depth less than that ordinarily employed, if air vents are made through the base of the plates. By using a slightly harder alloy the wear on the blocks is negligible and there is little danger of the lines thickening even though the section supporting the printing surface is beveled.

As shown in Figure 10, the brass rule employed in making the block shown in Figure 6 is beveled to provide draft to permit the finished block to be withdrawn from the mold. The brass rule is sharpened on one edge and is held in the wood, simply by driving the strip into a groove previously formed in the wood by a suitable implement. This is the usual method of applying brass rules to wooden blocks to form outline printing blocks.

Thus I provide an improved method for making metal printing blocks in units based on the repeats of patterns. I further provide for the making of a master block from a plurality of pieces, the component parts of the master block being locked together and held in such position until a mold has been made conforming to the contour of the master block.

I further provide a metal block having a printing face, a base and an upstanding integral portion projecting from the base and terminating in the printing face.

Other advantages accrue to my invention by reason of a method whereby duplicate printing blocks may be quickly and easily made from a master block, obviating the necessity of cutting each individual block, as has been done heretofore.

Further advantages arise from the provision of a plurality of metal printing blocks which may be conveniently removed from the printing machine blocks and stored in a minimum space, thus doing away with the

necessity of large fireproof storage heretofore required for the accommodation of the fragile cumbersome wooden blocks. The use of metal blocks permits the forms to be broken up and the units comprising them to be filed away in any desired order, minimizing the labor of reassembly and yet requiring small storage space.

While I have illustrated and described certain preferred embodiments of my invention, it will be understood that the invention is not limited thereto but may be otherwise practised and embodied within the scope of the following claims.

I claim:

1. The method of making a printing block comprising clamping a plurality of units together, said units being formed with bases having upstanding portions thereon and shoulders for spacing adjacent upstanding portions apart, cutting away undesired parts of the upstanding portions to form a design, making a mold conforming to the contour of the remaining upstanding portions and casting a printing block in the mold so formed.

2. The method of making a printing block, comprising clamping a plurality of strips together to form a blank having a plurality of spaced apart upstanding portions, routing out undesired parts of the upstanding portions to form a design, making an impression of the remaining upstanding portions to form a mold and casting metal in said mold to form a printing block having a base with integral upstanding portions thereon, the upstanding portions terminating in printing surfaces forming a printing face.

3. The method of making a printing block comprising clamping a plurality of units together to form a substantially plane printing face comprising a plurality of closely spaced printing surfaces, cutting away undesired portions of the printing surfaces, making an impression of the remaining printing surfaces and forming a metal printing block to conform with the impression.

4. The method of making a metal printing block for the printing of floor coverings comprising assembling a plurality of units to form a substantially plane face made up of a plurality of closely spaced printing surfaces, cutting away undesired portions of the printing surface, making an impression of the assembled units and forming a metal printing block to conform with the impression.

5. The method of making a printing block comprising assembling a plurality of units having bases with upstanding portions thereon, the upstanding portions being of lesser width than the bases, the units being assembled with the bases adjacent one another whereby the upstanding portions are spaced apart, cutting away undesired parts of the upstanding portions to form a design, making a mold conforming to the contour of the remaining upstanding portions, and casting a printing block in the mold so formed.

6. The method of making a printing block comprising clamping a plurality of strips together to form a blank having a plurality of spaced apart upstanding portions, removing undesired parts of the upstanding portions to form a design, making an impression of the remaining upstanding portions to form a mold, and producing from the mold a printing block from a suitable material, said block having a base with integral upstanding portions thereon, the upstanding portions terminating in printing surfaces forming a printing face.

7. The method of making a printing block which comprises assembling a plurality of units in such manner as to form a master block having a base with a plurality of upstanding portions thereon, which portions are spaced apart and have their tops lying substantially in a plane, said top portions, while spaced, lying sufficiently close to one another to form a printing surface capable of laying a continuous film of paint over substantially the entire composite area thereof, said composite area forming the outline of the desired figure to be printed, forming a mold from such block and producing from the mold a printing block from a suitable material, the block having a base with integral upstanding portions thereon corresponding to the upstanding portions of said assembly.

In testimony whereof I have hereunto set my hand.

J. CLARENCE McCARTHY.