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C. G. HAMPSON

1,908,237

PRINTING ROLLER

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Fig. 1

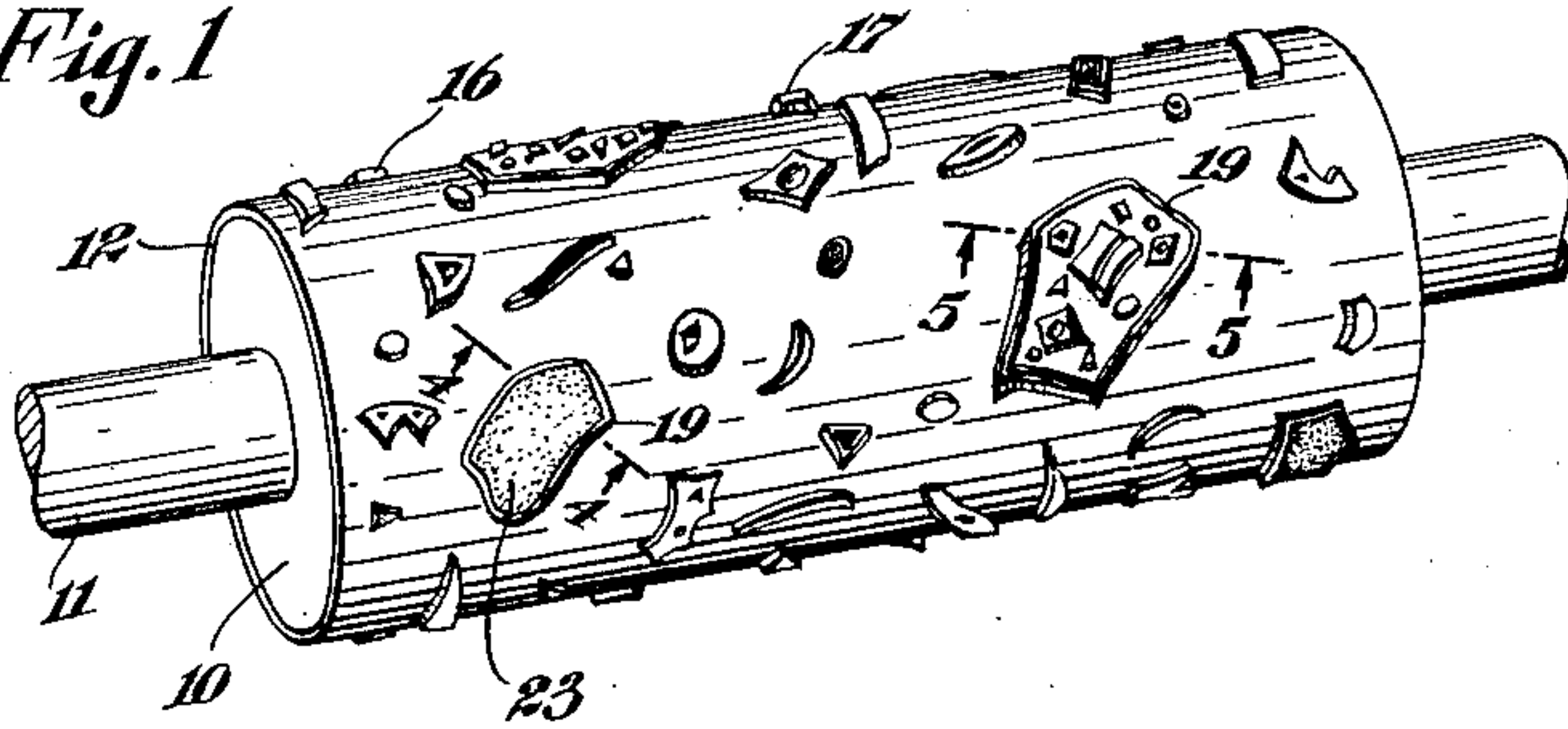


Fig. 2

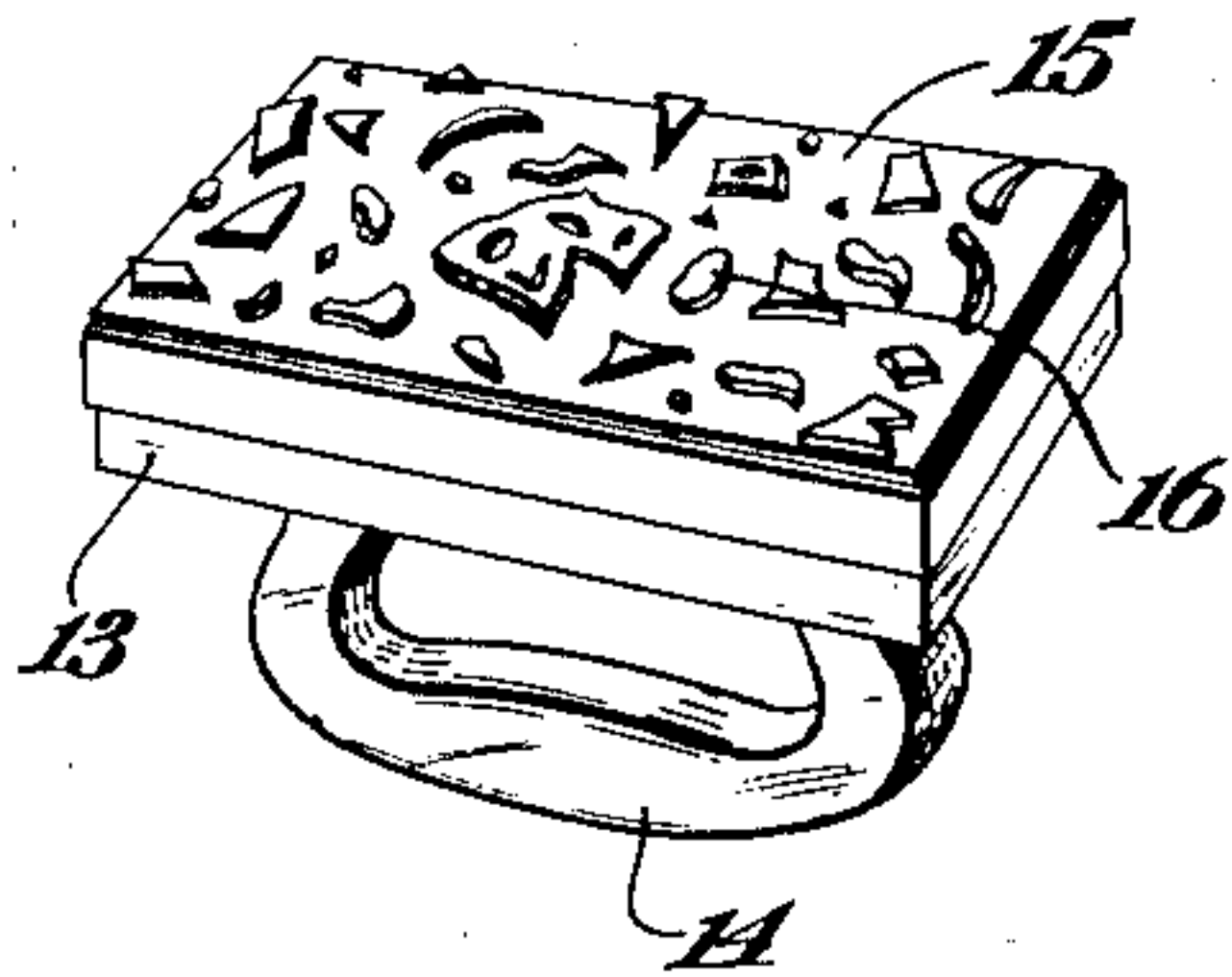


Fig. 3

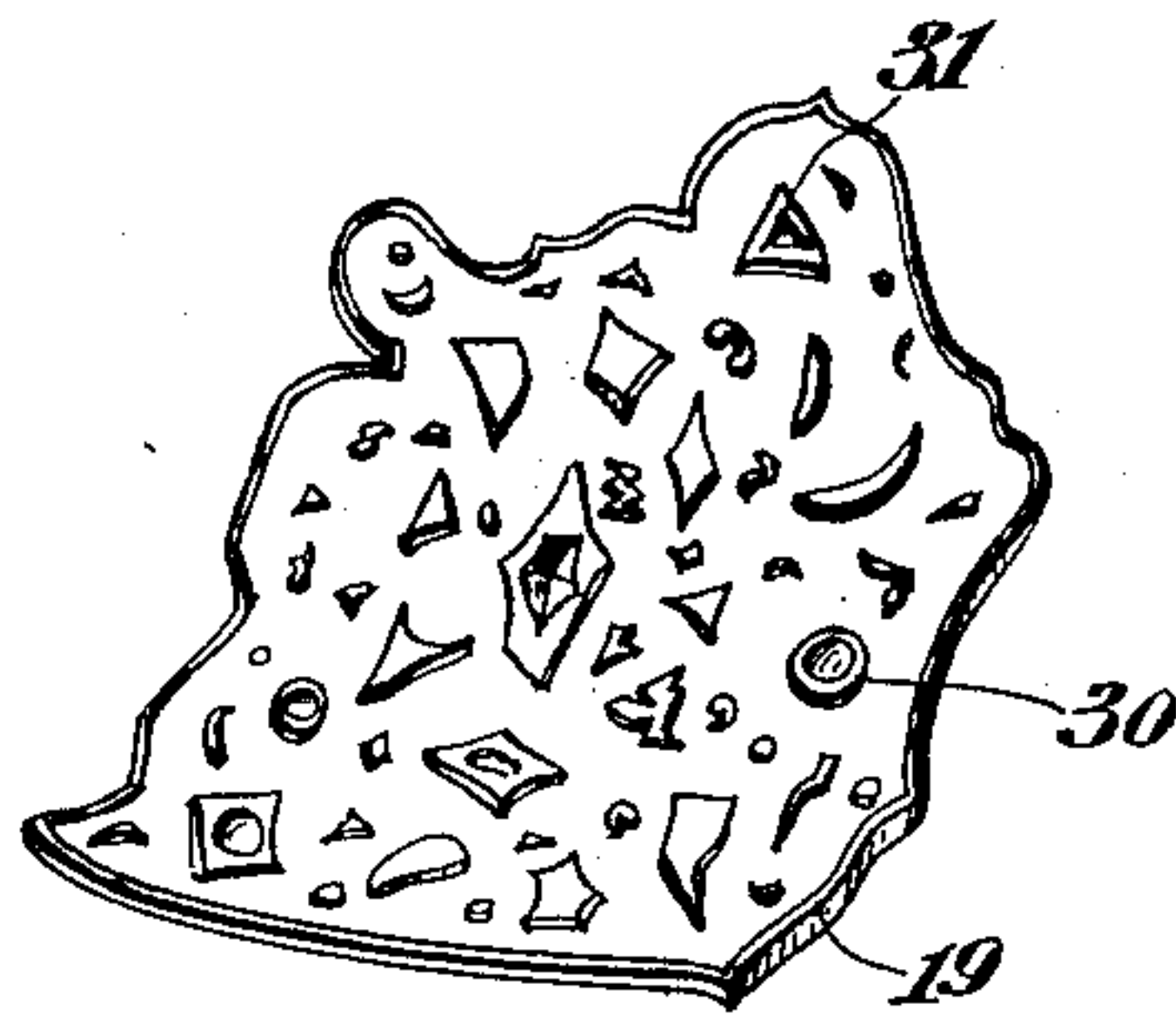


Fig. 4

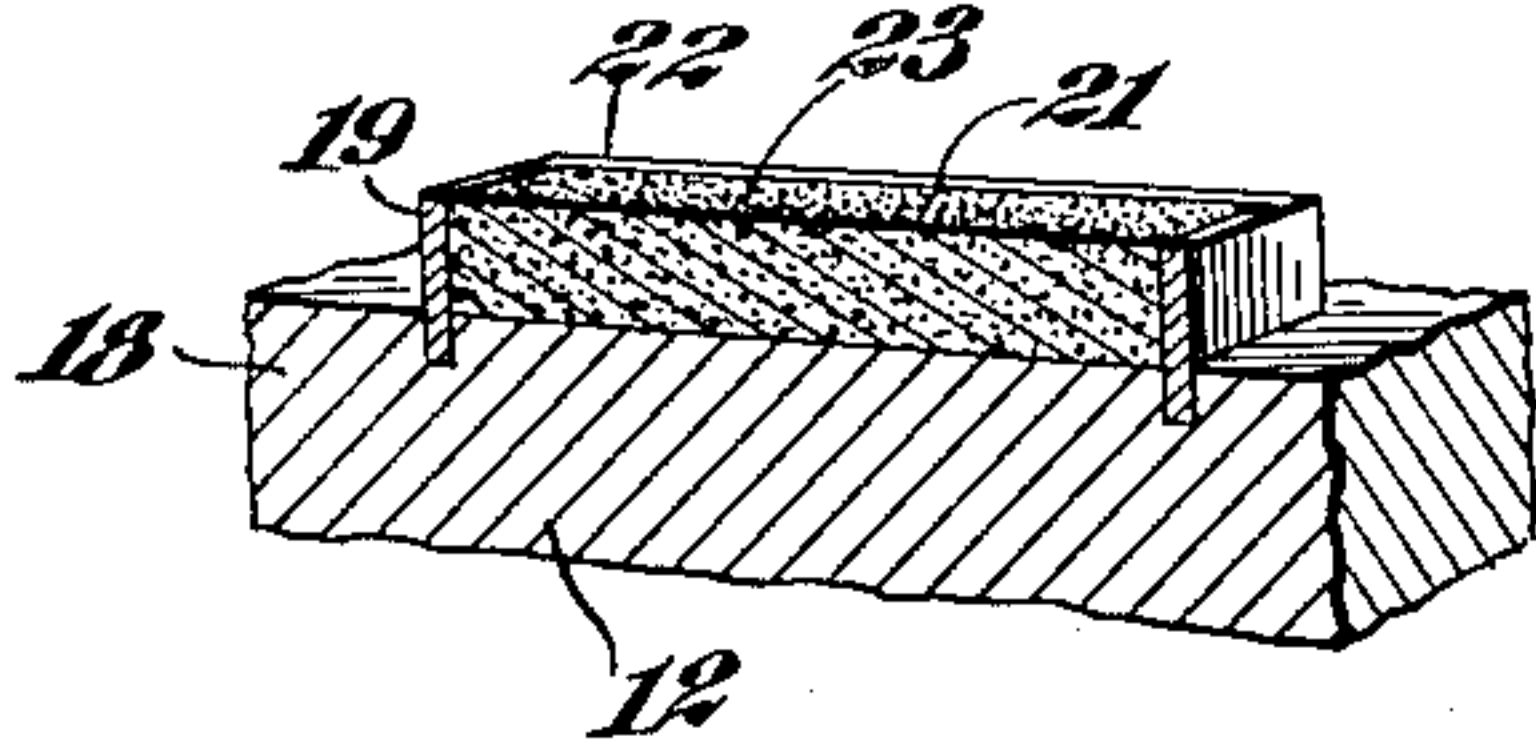
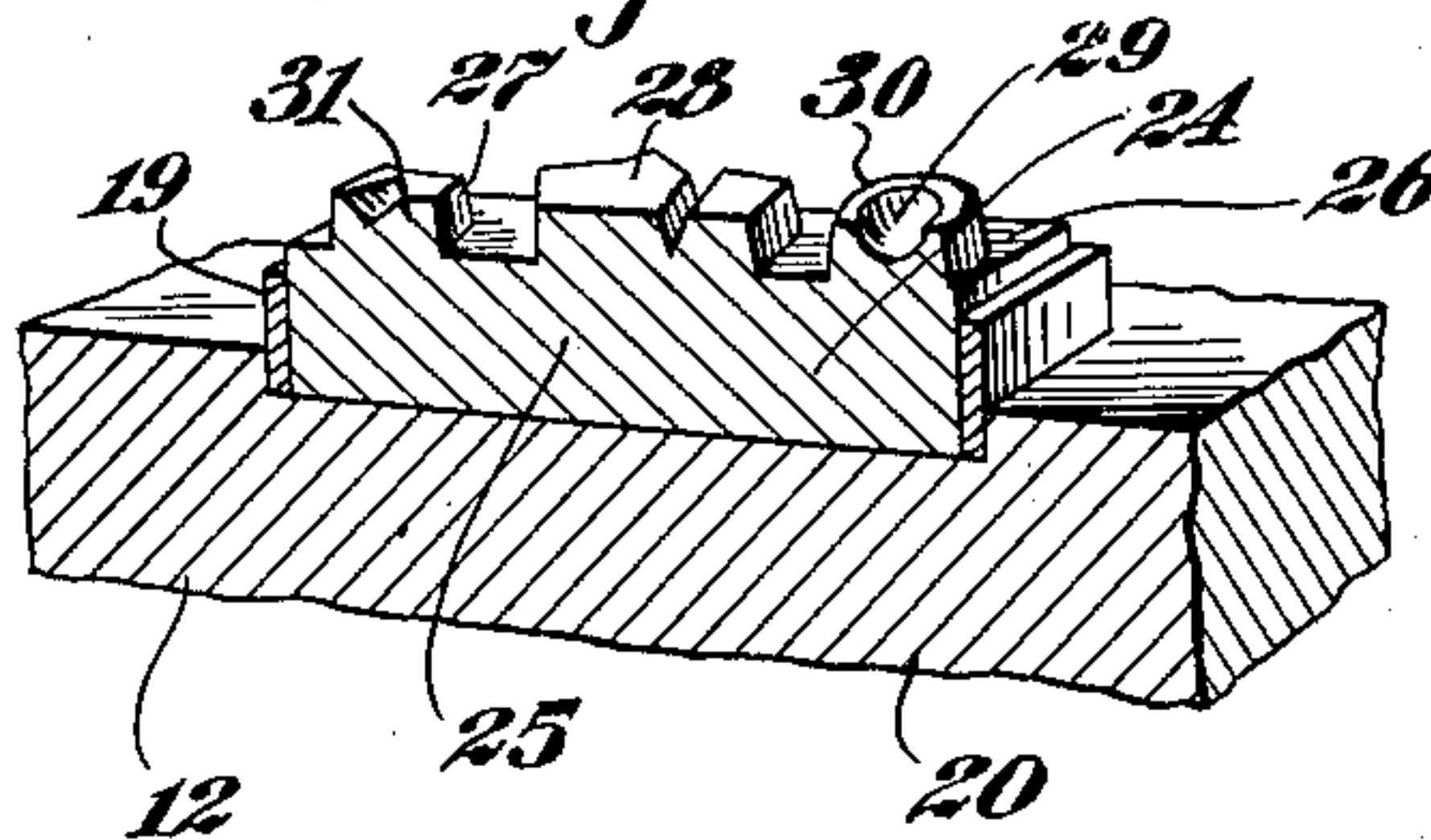


Fig. 5



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PRINTING ROLLER

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The invention relates to an improvement in printing surfaces of the type employed to distribute color in different designs on wall paper, fabrics, metallic surfaces, painted walls and the like, hereinafter referred to collectively as paper. It is a usual practice in the printing art to cause the paper, fabric or other material to be printed to be passed through a machine provided with suitable rollers for distributing color to a printing roller which in turn impresses its design upon the material passed through the machine. In other cases, it has been known to utilize hand implements for creating decorative designs and other surfaces on thick structures such as walls and ceilings.

The invention herein disclosed relates particularly to the printing surface itself designed for adaptation to both the roller type form in either a machine or in the hand implement and to the flat form, and the invention particularly features a readily demountable and replaceable form of printing surface which may constitute a replacement on the usual printing rollers or on the hand implement as the case may be and following conventional practices in this respect.

The primary object of the invention is to provide a simplified form of printing surface which can be easily and cheaply formed to give any desired design or appearance to the printed surface and which will be unusually rugged and capable of a longer life than is usual with similar known constructions.

The present invention particularly features the providing of a printing surface which will give a mottled, stippled, irregular appearance or which will give a design of a more regular appearance, and which may contain either sharp or blurred outlines as desired.

Various other objects and advantages of the invention will be in part obvious from an inspection of the accompanying drawing and in part will be more fully set forth in the following particular description of two forms of mechanism embodying the invention, and the invention also consists in certain new and novel features of construc-

tion and combination of parts hereinafter set forth and claimed.

In the accompanying drawing:

Fig. 1 is a perspective view of one embodiment of the invention illustrated in connection with the printing roller element of a conventional form of paper printing machine;

Fig. 2 is a showing of a modified embodiment of the invention insofar as the printing surface is concerned and illustrated in connection with a hand manipulated implement or tool;

Fig. 3 is an enlarged detail view of one of the filled design forming frames shown in Fig. 1;

Fig. 4 is an enlarged, transverse section taken through one of the design frames of Fig. 1 and showing approximately the construction as taken on the line 4—4 of this figure; and

Fig. 5 is a similar view showing a different form of frame and its contents and taken on the line 5—5 of Fig. 1.

Referring to the disclosure in Fig. 1, there is shown, as part of a printing machine, a wooden roller 10 mounted on a driving shaft 11 and which roller 10 is covered by a cylindrical sleeve 12 constituting one physical embodiment of the invention. Referring to the disclosure in Fig. 2, there is shown a wooden support 13, in this case shown to be a flat block provided with a handle 14 and suitably fastened to which is a sheet of molded soft or semi-soft rubber or paper 15, constituting a printing surface corresponding in function to the cylindrical surface 12 shown in Fig. 1.

The sleeve 12 is formed of soft or semi-soft rubber, paper or other suitable moldable material, as is also the block 15, and in both Figs. 1 and 2 there is shown printing studs or projections 16 formed integral with the support 12 or 15 as the case may be and having outer faces 17 which may be flat but preferably are tangent to the surface of a cylinder enclosing the cylinder 12 in the case of Fig. 1, or parallel to the top of the block 15 as in Fig. 2. These projections 16 may be relatively long compared to their

other dimensions or may be short as in some of the projections 16 but in either case, distinguish from the known forms of rubber faced type in that they are easily distortable while in use and will thus impress upon the printed surface a different appearance than would be the case if the projections even though made of rubber were so rigid as to be unyielding or substantially so. It is within the scope of the disclosure to provide the printing roller with a plurality of spaced apart projections of this type capable of relative movement as they are brought into engagement with the surface under treatment thus forming a peculiarly appearing distortable character of stippled surface. The projections may be grouped to form blotches or irregular groups of designs or to form some more positively defined design as may be desired.

It is obvious that under some conditions the formation of the projections 16 as integral parts of the soft, semi-soft rubber or paper base portions 12 or 15 would provide a rather weak connection between the projections, especially if they were of material length and easily bendable and are thus liable to become damaged or even broken away from the base portion under the action of the high pressures used in printing operations. It is accordingly suggested herein that the base portion 12 be formed of some material 18 (Fig. 4), such for instance as wood or other material into which could be driven a brass frame 19, or it may be some rugged moldable material such as the hard rubber 20 (Fig. 5) into which the brass frame 19 might be set during the molding operation. In the disclosure in Fig. 1, the frames are shown incorporated into the soft rubber sleeve 12 so that there is disclosed in the several figures the concept of mounting the frame 19 more or less rigidly in different characters of supporting structure.

The frame 19 may be of any desired configuration to give the required outline of design and is formed preferably of an endless strip of thin brass strip which can be bent easily into the desired outline. In the event that the brass frame is driven into the wood or other support, as is shown in Fig. 4, it must of course have sufficient mass and rigidity so as not to be distorted in the act of hammering it into place, but where this frame is otherwise fastened as by molding it in place as shown in Figs. 1 and 5, an extremely thin gauge of brass strip may be utilized and this would be particularly true where it was desired to use the exposed edge of the frame as part of the printing surface as would be the case in the showing in Fig. 4.

In the form shown in Fig. 4, the brass frame is filled with a material capable of

receiving color from the color rollers or equivalent color supplying agency and to apply the color to the surface under treatment. For this purpose the frame 19 in Fig. 4 is filled with a body of felt or paper 21 which has been tamped into position or otherwise compressed, level with the top edge 22 of the frame so as to provide within the design outlined by the frame a felt or soft material printing surface 23. It is obviously within the scope of the disclosure to position within the frame 19 other forms of printing material such for instance as sponge rubber, fabric, paper and the like, the frame providing rigidity of outline and thus preventing the spreading of the more or less loosely packed material 21.

In the showing in Fig. 5, the printing agency is in the form of a block 24 of moldable material such as soft rubber or paper. This comprises a massive base portion 25 which extends above the top edge of the outlining frame 19 and from the top surface 26 extends one or more printing projections 27. The top surfaces 28 of these projections provide printing surfaces and may be of various forms and are so grouped both with reference to each other and with reference to the corresponding projections at other parts of the entire printing surface to give the desired design and appearance to the entire printed surface.

Instead of the flat printing surface shown at 28 in Fig. 5, it is suggested that the printing surface be defined by a depression 29 forming a suction cup outlined by a thin edge 30 which may be of circular form as shown in Fig. 3, of triangular form as shown at 31 in Figs. 3 and 5, or of any other geometric or irregular form which may be selected by the artist in designing the appearance of the finished surface.

The printing surfaces may be molded in one operation to give the all-rubber form shown in Fig. 2 or it may be made up into sheets which are cut to size and conventionally fastened to the supports 10 or 13. When a plurality of rollers or blocks are used to impress different colors on the printed surface, the printing surfaces herein disclosed may be duplicated and placed in proper position on the several rollers.

It is obvious from this disclosure that a variety of stippled, blotted, mottled, fine line, coarse line and dotted area appearances may be given to the printed surfaces. The use of the design forming metal frame herein featured is particularly valuable in that it can give rigidity and strength to what would otherwise be an extremely delicate and easily distortable form of printing surface and at the same time there is retained the advantages of such surfaces when made of material such as soft, semi-soft rubber or paper. While the top edge of the frame as

shown in Fig. 4 will give a similarly sharp and definitely defined outline to the printed design, the other printing projections herein disclosed are characterized by their ability to give or distort under pressure and will form a character of design which is more indefinite in outline than is the case where the conventional forms of printing surfaces are used. In the printing of surfaces such as wall paper and fabrics, some novel effects have been produced by an artistic grouping of sharply defined lines and areas with the less sharply defined lines and areas capable of being produced by utilizing the flexible soft rubber and similar tips and projections featured in this disclosure.

I claim:

1. In a device of the class described, the combination of a support, a brass frame enclosing a printing area of prescribed design, a layer of felt, packed into said frame and having its exposed side flush with the top edge of said brass frame and coacting therewith to provide a printing surface, the edge of the frame forming a sharply defined outline to the printed design.

2. In a device of the class described, the combination of a hollow rigid metal frame and a filler of flexible material in said frame, said filler having a side thereof exposed through the frame to form a printing surface flush with the exposed edge of the frame and said exposed filler surface and the exposed edge of the frame outlining the same forming a printing face.

3. In a device of the class described, means forming a printing surface, said means including a plurality of spaced apart rubber tits coacting to form a design and a plurality of spaced apart printing projections having printing surfaces defined by felt and coacting with the rubber tits to form a prescribed design.

4. A printing roller comprising a wooden roller, a removable attachment secured thereto and including a sleeve fitted over the wooden roller, a plurality of printing projections extending radially from the outer surface of the sleeve, and coacting to form a printing surface, said projections comprising a plurality of easily bendable and compressible tits of moldable material and rigid means spaced from the printing surface for reinforcing the jointure between these projections and the sleeve without materially affecting the character of the elements forming the printing surface to move relative to each other.

5. A printing roller comprising a wooden roller, a removable attachment secured thereto and including a sleeve fitted over the wooden roller, a plurality of printing projections extending radially from the outer surface of the sleeve, said projections comprising a plurality of soft or semi-soft eas-

ily bendable and compressible rubber tits having recesses in their outer ends to form suction cups of less depth than the depth of the tits in which they are contained, and means for reinforcing the jointure between these projections and the sleeve thereby to give rigidity to the base portion of the projections.

Signed at New York city in the county of New York and State of New York this 28th day of August, A. D. 1930.

CHARLES G. HAMPSON.

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