

Oct. 17, 1944.

G. H. GRAY

2,360,416

METHOD OF PRODUCING MATS

Filed July 2, 1941

2 Sheets-Sheet 1

FIG. 1.

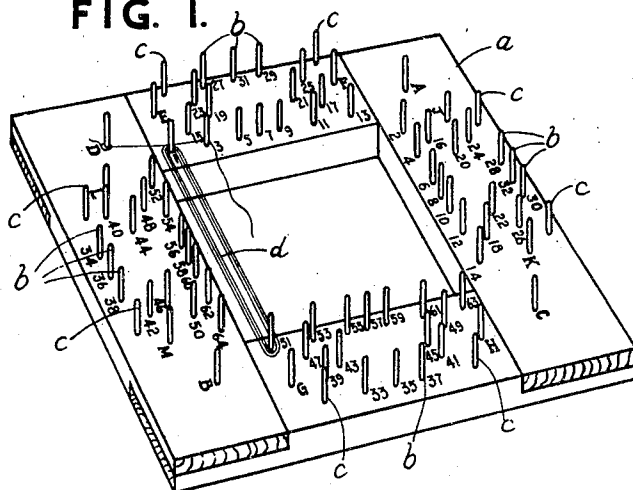


FIG. 2.

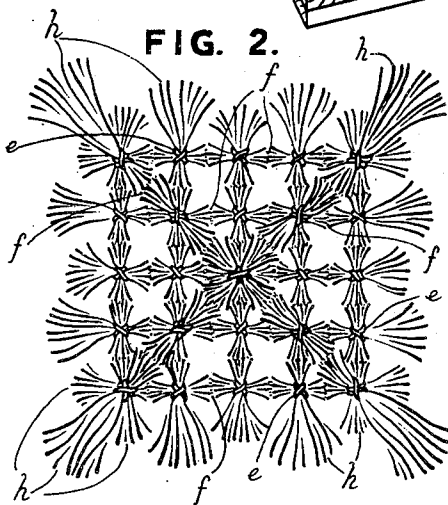


FIG. 3.

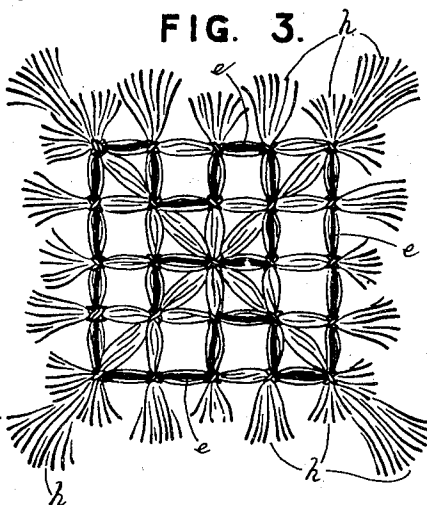


FIG. 7.

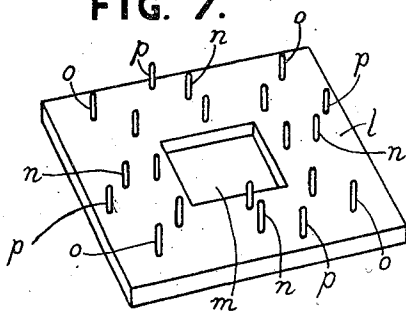
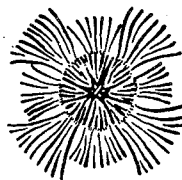


FIG. 8.



Inventor
Gerald H. Gray
by *Sommer & Young*
Attorneys

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FIG. 5.

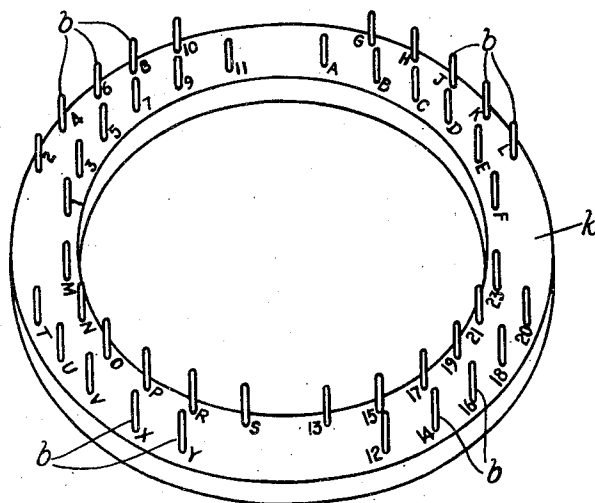


FIG. 6.

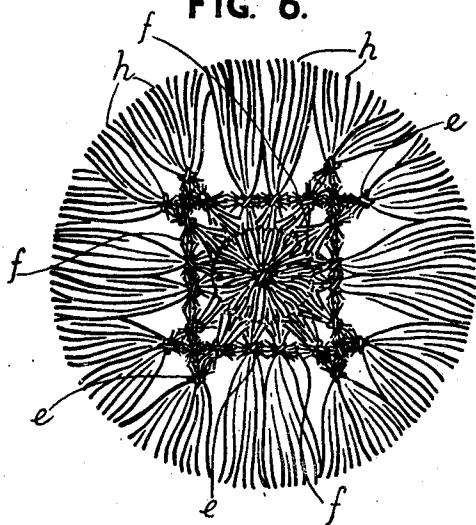
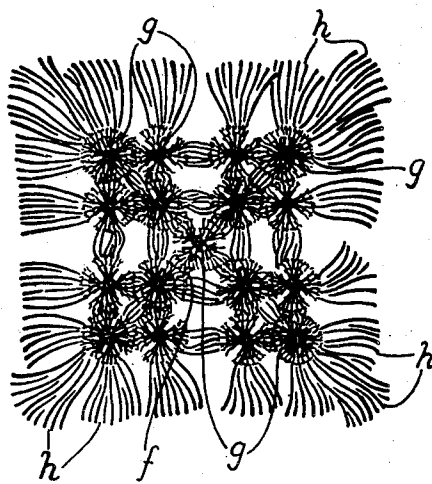


FIG. 4.



Inventor
Gerald H. Gray
By Sommers & Young
Attorneys

UNITED STATES PATENT OFFICE

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METHOD OF PRODUCING MATS

Gerald Hamilton Gray, Saltford, Bristol, England

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2 Claims. (Cl. 28—72)

This invention comprises improvements in and relating to mats and other woven or like articles and methods for use in the production thereof.

An important object of the invention is to provide an improved method of making fancy mats for table and like use but which method may also be applied for the production of other ornamental articles such as buttons, badges, rosettes or cockades for hats or clothing, or of floor mats or other like articles such as rugs.

The mats or other articles are produced by looping yarns, strands or threads of silk, artificial silk, cotton, linen, wool, hemp, cord, rope, wire or other fibrous or filamentary material around pins, pegs or other projections on the face of a circular, polygonal or other shaped frame or base so that several loopings extend across or along the frame or base each from one projection to another, then binding different loopings together at one or more points and finally detaching the loopings from the pins, pegs or other projections.

A convenient form of apparatus for use in the production of the articles comprises a circular, polygonal or other shaped frame or base of wood or any other suitable hard or rigid material and of generally flat form, provided with projections on one face in the form of pegs, nails, tacks, gimp pins, ordinary pins or other suitable devices, and having an opening or recess open to both faces of the frame or base and across which the yarns, strands or threads can be looped from projection to projection.

An opening or recess of the nature referred to is of advantage in facilitating binding of the loopings and in fact enables the binding to be neatly done from the back of the frame or base.

Polygonal frames or bases may suitably be of square or oblong shape. Frames or bases of other forms may, for example, be curved frames or bases, cross-shaped frames or bases or frames or bases of irregular shape.

The pins, pegs or other projections may be fixedly or removably mounted in position. Conveniently, the projections may be arranged in groups at opposite sides or extremities of the one face of the frame or base, the groups being similar or not, but it is important that the positions of the projections should be precisely determined in order to produce the desired formation of the mats or other articles without undesired irregularities.

The projections may be lettered or numbered on the frames or bases to facilitate the looping operations but different frames or bases may be lettered and/or numbered in different ways. If removable pegs, pins or the like are used, the frames or bases may be perforated after the style of a cribbage board so that the pegs may be moved readily from one position to another when it is desired to make mats of a different pattern.

In the production of table mats and other articles from threads or yarns of fibrous material, the bound loopings may be removed from their pins, pegs or other projections by cutting them at the pins or the like, this also producing fringes which give very desirable ornamental effects.

It is also advantageous for the production of flowered or patterned effects to cut some of the bound loopings intermediately of their ends or, preferably, two or more sets of loopings of differently-coloured materials could be wound on the pins, pegs or other projections and be subsequently bound together, the set or sets of loopings above the lower set being cut intermediately of their length and on either side of a binding place. The binding material, which is suitably yarn, thread or filament, e. g., artificial silk, may also be adapted to provide pattern effects.

In order to enable the invention to be readily understood reference is directed by way of illustration thereof, to the accompanying drawings in which—

Figure 1 shows in perspective view one form of frame or base adapted for the production of table or like mats by the method of the present improvements.

Figure 2 is a plan view and Figure 3 an inverted plan view of a mat produced by use of the frame or base shown in Figure 1.

Figure 4 is a view similar to Figure 2, of another form of mat produced by the use of the frame or base shown in Figure 1.

Figure 5 is a perspective view of another form of frame or base.

Figure 6 is a plan view of a mat produced by use of the frame or base illustrated in Figure 5.

Figure 7 is a perspective view of a smaller form of frame or base suitable for use in producing smaller articles than mats and

Figure 8 is a plan of a rosette produced by the frame or base seen in Figure 7.

The frame shown in Figure 1 and intended for making table or like mats, comprises a flat built-up wooden structure *a* of square shape open at the middle and having on one face and along each side of the square, groups of pins, pegs, nails or other similar projections, such as are shown at *b*. The frame or base, like any others of the invention, would, of course, be made of appropriate size according to the size of the articles to be made on it. The groups of pins are similar so that only one group along one side of the frame or base (the upper side in Figure 1) need be particularly described. Along this side and near its inner edge is a line of pins which are shown as having applied to them, on the frame, the numerals 1, 3, 5, 7, 9, 11 and 13, of which 5, 7 and 9 are slightly closer together than 1 and 3, 11 and 13, 3 and 5 and 9 and 11. In a row a little farther from the said inner

edge are two pins 15 and 17 which, regarded in elevation from the interior of the frame or base, may respectively lie centrally between 1 and 3 and 11 and 13 though as shown they are slightly off-centre towards 3 and 11 respectively. In a third row lying at about the same distance from the second row as the latter is from the first row, are two pins 19 and 21 which in elevation as aforesaid respectively lie between 3 and 5 and 9 and 11 but slightly nearer to 3 and 11 than to 5 and 9. All rows may be at about the same distance apart though the distances may vary slightly if desired. The next (fourth) row also has two pins 23 and 25 respectively lying, in similar elevation, say immediately behind 3 and 11, or as shown between 3 and 19 and 11 and 17 and suitably slightly nearer to 3 and 17 than to 19 and 11. The fifth and last row lying near the outer edge of the said side of the frame or base contains three pins 27, 31, 29 which are in a set about centrally of the length of the side like the pins 5, 7, 9 but they are suitably spaced slightly further apart one from another than 5, 7 and 9. Proceeding clockwise around the frame or base the group on the next side thereof may have pins numbered 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 32 and 30, the next group pins numbered 63, 61, 59, 57, 55, 53, 51, 49, 47, 45, 43, 41, 39, 37, 35, and 33, and the final group pins numbered 64, 62, 60, 58, 56, 54, 52, 50, 48, 46, 44, 42, 40, 38, 36, 34. The grouping described is, of course, only by way of example so that, for instance, any row of pins or the like may lie slightly out of parallelism with the edges of the frame or base, or there may be slight variations in the setting of the pins in the different rows according to the effects desired in the pattern or extra pins might be placed in any or each of the groups, for example further pins might be provided in any or all of the groups as shown at c, c as will be understood.

In forming a mat, a thread of artificial silk, for instance, is looped round the pins from side to side of the frame or base. The winding may be continuous until the entire looping operation for forming the mat is finished and at each end the thread may be tied off on suitable pins or other projections, for instance there may be one or more tie-off pins at each corner of the frame or base and lying one or more along each diagonal line thereof, for example pins lettered A, B, C, and D and if desired extra-tie-off pins may be provided as marked for example at E, F, G, H, J, K and L, M in the respective groups.

Thus, starting from tie-off pin D (or any other of the tie-off pins which may conveniently be used), looping may be effected first around pin 1 and its opposite number 51, as indicated diagrammatically at d. The thread may be looped several times around these two pins as shown and then looping may take place around 3 and its counterpart 53 on the opposite side of the frame or base, and so on, the thread being finally tied-off at the completion of the looping operation at say the tie-off pin A or at any other conveniently placed tie-off pin. Only one set of loops d is shown in Figure 1 so as not to confuse the illustration but the loose piece of thread shown passed round the pin 3 will show how the thread is passed to the next pin after one set of loops is finished. As will be realised, in this way a series of parallel loopings may be formed across the frame or base and then another and cross series may be extended between the pins on the other sides of the frame or base, as will

be evident from Figures 2 and 3 wherein the vertical and horizontal formations represent the crossed series of loopings. The two series may then be bound together at the crossing places by thread or other suitable material e which as shown is wound around them diagonally at these places, the binding thread being passed from crossing place to crossing place at the back of the frame or base a in the open centre of the latter. The loopings might also be inclined to the sides of the frame or base by using the appropriate pins and by way of example a series of two diagonally disposed loopings crossing at the centre of the mat or frame or base is indicated in Figures 2 and 3 and can be produced by making loopings on the respective pairs of tie-off pins A, B, and C, D. Or any loopings of the individual series may be drawn together at one or more points and bound together at these points, in addition, or alternatively, to binding the different series at crossing points. By zig-zagging the binding thread e from place to place as shown by Figure 3 a continuous binding thread may be used which in its passage from place to place may run parallel with the loops as shown, or may run otherwise for instance at an inclination to the loops or diagonally of the frame or base. In the suitable cases, especially if the binding thread is of different colour from the looping thread, it may form an advantageous background or decorative pattern for the mat. If desired, a further series of loopings may be made on the same pins, or on other pins, to produce further pattern effects, the binding being effected after this further looping, and by using thread of different colour for this further looping very pretty variations of the pattern are possible. If desired, some of the first loopings, after binding, could be cut across intermediately on either side of crossing and binding places, as at f, so as to produce flower-like effects (see also Figure 4). Or the further series of loopings of different colour could be cut in this way to produce, say, coloured or white flower effects on a background respectively of white or other contrasting colour. Thus, in Figures 2 and 3, the diagonal formations might be regarded as provided by such further loopings and they might be, say, white and the first loopings running vertically and horizontally red, or another contrasting colour, the binding being blue or having other contrasting colour. If desired, one or more still further series of loopings may be effected on the same pins and these be cut so as to produce flower-like formations with centres g contrasted with differently-coloured edge parts of larger diameter. In this case, which is illustrated by Figure 4, the cutting would be such as to remove lengths of the still further loopings and similar procedure may be adopted with the other loopings so as to produce clearly isolated flower formations as also shown in Figure 4. Obviously all the looping and binding may be in single colour thread, for example white cotton thread. The mats are suitably removed from the frame or base by having removable pins or by cutting the ends of the loopings at the pins. In the latter case, fringe effects, as at h, are formed at the ends of the loopings and if the looping has been between different rows of the pins at each side of the frame or base, fringes of different lengths can be produced as is evident from Figures 2 and 3 thereby providing advantageous ornamental effects. Naturally, the looping may be be-

tween any desired pins of different groups or of the same group according to the effects desired and the looping may be such as to produce mats of generally square shape, as shown by Figures 2 to 4, or of roundish or other shapes and many other variations are possible of production with the frame or base *a* as will be understood.

The construction of frame or base *k* shown in Figure 5, and which is also suitable for making table and like mats, is annular and as illustrated may have say four groups of the pins, nails, pegs or the like *b*, spaced equally apart around its circumference. There may for instance be in each quarter of the frame or base a group of pins in two rows running parallel and near to the inner and outer edges of the frame or base. One row, the inner one, of one group is shown as comprising pins numbered 1, 3, 5, 7, 9 and 11 spaced about equal distances apart while the outer row is shown as comprising pins numbered 2, 4, 6, 8, 10 spaced equally apart and lying, in elevation as aforesaid, centrally between pairs of pins of the inner row or slightly off-centre in one direction or the other. The corresponding pins of the other groups, proceeding clockwise around the frame or base, may, as shown be lettered or numbered as follows: A, B, C, D, E, F, G, H, J, K and L; 23, 21, 19, 17, 15, 13 20 18, 16, 14 and 12; and S, R, P, O, N, M, Y, X, V, U and T, and there may be tie-off pins (not shown) between the groups as desired. The form of mat shown in Figure 6 is purely an example of mats capable of production by the frame or base shown in Figure 5 and though it is shown as circular, other shapes such as square or hexagonal are possible as will be realised.

The smaller form of frame or base *l* shown in Figure 7 is suitable for making badges, button-like articles, rosettes or cockades for hats. It is of flat and square form with a central aperture *m*, and has pins, pegs or the like in a row along each side and numbered or lettered or not. Thus there may be eight pins one adjacent to each corner of the aperture *m* and one adjacent to the middle of each side of the aperture, thereby providing in effect single rows with three pins each. On the middle pins might be slightly farther away from the edge of the aperture than shown, so that the whole series of eight pins lies substantially in a circle. Or four extra pins *n* may be used so as to provide both a square and a circular series on the one frame or base, as shown. Obviously, the frame or base may also, and as shown for instance at *o*, have other pins or rows of pins or the like, and there may also be tie-off pins such as *p* at suitable points. In producing small articles on this frame or base, and as will be apparent from Figure 8, the loopings need only be crossed at one point that is at the middle of the aperture where binding would be effected. By then cutting the article from the pins, flower-like formations of the nature shown in Figure 8, for instance, are provided which serve very well for badges, buttons, rosettes, cockades and the like. Both square and circular articles can be readily produced by the frame shown in Figure 7 as will be understood.

Obviously, any of the articles produced on the frames or bases may be cut to different shapes by edge trimming, especially the centrally-bound badge or like articles produced with the frame or base shown in Figure 7.

With larger frames or bases and using hemp, rope or other suitable material, floor mats, rugs and the like can be formed in a precisely similar manner, with or without flowered or other decorative effects as desired. Even wire thread or plain wire or other filamentary material can be formed into mats.

The frames or bases, of course, might be of wood, metal or other material and other modifications are possible without departing from the scope of the invention, herein described of forming mats or other articles on one face of a flat frame or base, by winding the thread or the like continuously to form loopings on various pairs or sets of the pins or the like, with possibility of ready access to the back of the mats or the like for binding the loopings through a central or other open part of the frames or bases. The lettering or numbering of the projections facilitates the loopings operations and enables catalogues or books to be prepared containing instructions for producing different patterns of articles, based on the lettering or numbering, somewhat similarly to instructions for knitting, so that any desired pattern can be readily prepared by following the instructions in the catalogues or books. An especially important feature of the invention is the method by which are produced on the face of the mats for table use, and other articles, flower-like formations of varying designs and colours.

Table mats and other articles produced in accordance with this invention have been designated by me as "Hamilda" work and it is believed that they represent an entirely novel form of work which is of very advantageous practical use, the method referred to being capable of producing very delightful designs of decorative or ornamental articles for household use, personal wear and other applications.

I claim:

1. Method of producing mats and other woven or like articles, comprising winding yarns, strands or threads of fibrous or filamentary material around and between spaced projections on a frame or base so that a set of several loopings extends from one projection to another, then winding yarns, strands or threads of similar though differently coloured material around and between the projections so that a second set of several loopings extends above the first-mentioned set, then binding different loopings together at one or more points, then cutting the second set of loopings intermediately of its length and on either side of a binding place, and finally detaching the loopings from the projections.

2. Method of producing mats and other woven or like articles comprising winding yarns, strands or threads of fibrous or filamentary material around and between spaced projections on a frame or base and binding the windings together at a plurality of places along their length, the winding operation being effected by taking the yarns, strands or threads several times around and between different projections and the method including the step of cutting across some only of the several lengths of yarn, strand or thread at a plurality of points spaced apart lying intermediately between two adjacent binding places so as to remove the portion of such lengths lying between said spaced points.

GERALD HAMILTON GRAY.