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United States Patent
Hinson

4,275,515
June 30, 1981

Apparatus for making a handcrafted pile rug

Abstract

Successive rows of individual pile yarn tufts are secured to a backing *fabric* with the aid of a pile forming guide designed for assisting in obtaining a more uniform pile spacing and pile height. The pile yarn is threaded onto a needle and each individual pile yarn tuft is individually secured to the backing *fabric* by penetrating the backing *fabric* with the pile yarn and securing the same thereto by forming a knot.

Inventors: **Hinson; Betty R.** (5319 Milford Rd., Charlotte, NC 28210)

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Intern'l Class:

D05C 001/02; D06C 003/08

Field of Search:

289/1.2,1.5,17,18.1,149,151,152 38/102.4-102.91 D15/66,78

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Primary Examiner: Rimrodt, Louis

Attorney, Agent or Firm: Bell, Seltzer, Park & Gibson

Claims

What is claimed is:

1. An apparatus for use in making handcrafted pile rugs comprising

a frame adapted for holding a backing *fabric* in an outstretched condition, and

an elongate pile forming guide extending transversely across said frame so as to overlie the backing *fabric* and being adapted to facilitate forming a row of pile loops on the backing *fabric*,

said pile forming guide having means provided at spaced locations therealong around which a yarn may be successively looped and then sewn into the backing *fabric* for forming a row of spaced pile loops across the backing *fabric*, and

said frame including a pair of elongate mounting strips removably secured to said frame along opposite side edges thereof, each mounting strip having a series of evenly spaced slots therein adapted for receiving an end portion of said pile forming guide to permit securing the pile forming guide to the frame at a series of evenly spaced locations thereacross for forming successive evenly spaced rows of pile loops on the backing *fabric*.

2. An apparatus according to claim 1 wherein said means provided at spaced locations along said guide around which the yarn may be looped comprises a series of upstanding evenly spaced teethlike projections.

3. An apparatus according to claim 1 wherein said frame is of a rectangular configuration and includes a series of pins along the outer perimeter thereof for engaging and holding the backing *fabric* in an outstretched condition on the frame.

4. An apparatus according to claim 3 including respective cover strips of lengths corresponding to the outer dimensions of said frame, each cover strip being constructed for receiving the pins along a respective side of said frame and adapted for being positioned over said pins to protectively cover the same and prevent accidental injury.

5. An apparatus according to claim 1 including indicia means defining a series of spaced graduations along the base portion of said elongate pile forming guide to show the proper spacing for sewing the successive pile yarn loops into the backing *fabric*.

6. An apparatus according to claim 1 wherein at least the base portion of said elongate pile forming guide is formed of a transparent material to enable the user to see the previously formed row of pile loops located behind the guide.

7. An apparatus according to claim 1 wherein said elongate pile forming guide includes an elongate base portion having opposite end portions adapted for being supported by said securing means, an elongate top portion having a series of upstanding evenly spaced teethlike projections around which the yarn may be looped to form pile loops, and

means for securing said top portion to said base portion at various heights in relation to the base portion to thereby permit varying the height of the pile loops formed on the backing *fabric*.

8. An apparatus for use in making handcrafted pile rugs comprising

a frame,

a backing *fabric* carried by said frame in an outstretched condition, and

an elongate comblike pile forming guide carried by said frame and extending transversely thereacross overlying said backing *fabric*,

said pile forming guide having a series of upstanding evenly spaced teethlike projections therealong around which a yarn may be successively looped and then sewn into the backing *fabric* for forming a row of evenly spaced pile loops across the backing *fabric*, and

opposite sides of said frame having a respective series of evenly spaced openings therein for receiving opposite end portions of said elongate pile forming guide to thus permit securing the guide to the frame at a series of evenly spaced locations thereacross for forming successive evenly spaced rows of pile loops on the backing *fabric*.

9. An apparatus according to claim 8 wherein said backing *fabric* has indicia thereon for indicating the desired location for sewing the pile loops into the backing *fabric*.

10. An apparatus for use in making handcrafted pile rugs comprising

a frame adapted for holding a backing *fabric* in an outstretched condition, and

an elongate pile forming guide extending transversely across said frame so as to overlie the backing *fabric* and being adapted to facilitate forming a row of pile loops on the backing *fabric*,

said pile forming guide including an elongate base portion having end portions projecting at opposite ends thereof, an elongate top portion having a series of upstanding evenly spaced toothlike projections around which the yarn may be successively looped and then sewn into the backing *fabric* for forming a row of spaced pile loops across the backing *fabric*, and means for securing said top portion to said base portion at various heights in relation to the base portion to thereby permit varying the height of the pile loops formed on the backing *fabric*, and

said frame including means cooperating with opposite end portions of said elongate pile forming guide to permit securing the pile forming guide to the frame at a series of evenly spaced locations thereacross for forming successive evenly spaced rows of pile loops on the backing *fabric*, said means including a respective series of evenly spaced openings extending along opposite sides of said frame and adapted for receiving said opposite end portions of said pile forming guide.

Description

FIELD OF THE INVENTION

This invention relates to an apparatus for making a handcrafted pile rug.

BACKGROUND OF THE INVENTION

The popular craft of rugmaking has been practiced by many people for a number of years. It provides an enjoyable pastime and creative outlet while producing useful and aesthetically appealing rugs having an infinite variety of designs and textures which cannot be duplicated by commercial machine-produced rugs. Handcrafted rugs are used on the floor in place of conventional floor coverings, and are often displayed as a wall hanging.

There are a variety of techniques or methods for producing handcrafted rugs. For example, one popular style of handcrafted rug is the hooked rug which is produced by passing a hook successively through a backing *fabric* to arrange a continuous pile yarn into loops projecting from the face of the backing *fabric*. A variation on the hooked rug is the latch hook rug which uses precut lengths of yarn instead of a continuous yarn. The precut lengths of yarn are attached to a heavy canvas mesh backing using a latch hook.

Most rugmaking techniques of which applicant is aware, including those described above, require a certain aptitude and many people find the techniques difficult to master. The usual methods of producing a hooked rug, for example, require some degree of skill and dexterity in order to achieve uniform spacing and density of the pile and to form the pile of a uniform height. Also, many people find the pushing or pulling of the hook through the backing *fabric* to be tiresome.

In certain popular styles of hooked rug the pile yarns are merely pushed through the backing *fabric* and held in place solely by friction. In the event that the pile is accidentally snagged, the pile yarn can be readily pulled from the backing *fabric* leaving an area of exposed backing *fabric*. In the latch hook type rug, the pile yarns are secured to the backing *fabric* by a knot, and are thus not as susceptible to being pulled out. However, the necessity of using precut pile yarns makes this type of rug relatively expensive. Additionally, unless particular care is exercised in inserting and securing the lengths of pile yarn, uneven pile tufts may be produced, presenting an undesirable surface appearance to the rug. Also, many people find it difficult to handle the short pieces of yarn and continued work with the short pieces causes discomfort in the user's hands.

SUMMARY OF THE INVENTION

With the foregoing background in mind, it is an important object of the present invention to provide a method and apparatus for more easily producing handcrafted pile rugs by persons having a wide range of skills and aptitudes.

It is a further object of this invention to provide an apparatus and method which is particularly designed to facilitate obtaining a pile rug having a more uniform pile height, density and spacing.

In accordance with the present invention, successive rows of individual pile yarn tufts are secured to a backing *fabric* with the aid of a pile forming guide designed for assisting in obtaining a more uniform pile spacing and pile height. The pile yarn is threaded onto a needle and each individual pile yarn tuft is individually secured to the backing *fabric* by penetrating the backing *fabric* with the pile yarn and securing the same thereto by forming a knot.

In accordance with the invention a frame is provided for holding a backing *fabric* in an outstretched condition and the pile forming guide is adapted to be mounted on the frame to assist the user in forming rows of evenly spaced uniform height pile loops on the backing *fabric*. The pile forming guide extends transversely across the backing *fabric* and is provided with a series of upstanding teethlike projections around which the pile yarn may be successively looped for thus forming a row of spaced pile loops on the backing *fabric*. With the pile forming guide positioned across the backing *fabric* the user forms the respective pile loops by looping the pile

yarn behind one of the upstanding projections and then using the needle, penetrating the backing *fabric* with the pile yarn and forming a knot to secure the pile yarn to the backing *fabric*. This is repeated successively along the pile forming guide until a row of evenly spaced pile loops has been formed. The pile forming guide is then removed from the row of loops and repositioned alongside the row for forming the next row of pile loops. A particular knot is disclosed which is particularly suited for securely fastening the pile loops to the backing *fabric*. The handcrafted pile rug which results from this procedure is of a construction which differs significantly from the previously known types of handcrafted rugs as well as from commercial machine-produced rugs.

DESCRIPTION OF THE DRAWINGS

Some of the objects, features and advantages of the invention having been stated, others will become apparent as the description proceeds when taken in connection with the accompanying drawings, in which:

FIG. 1 is a perspective view showing an apparatus for making handcrafted pile rugs in accordance with the invention, with some of the parts of the apparatus shown in exploded relation for clarity of illustration;

FIG. 2 is a perspective view of the apparatus showing a pile rug as it is being made on a burlap backing;

FIG. 3 is a perspective view showing the pile forming guide, with parts thereof shown in exploded relation for clarity of illustration;

FIG. 4 is an elevational view showing a portion of the pile forming guide;

FIGS. 5A-5C are a series of views showing how a pile loop is formed and secured to an open mesh backing *fabric* in accordance with the invention;

FIGS. 6A-6B are a series of views showing how a pile loop is formed and secured to a burlap backing *fabric* in accordance with the invention;

FIG. 7 is a perspective view showing a series of completed pile loops on the pile forming guide using the burlap backing;

FIG. 8 is a perspective view showing how the pile forming guide is removed from the pile loops after the completion of a row of pile loops; and

FIG. 9 is a perspective view showing how the respective pile loops may be sheared to form a cut pile surface.

DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

Referring now more particularly to the drawings, FIGS. 1 and 2 illustrate an apparatus for use in making handcrafted pile rugs in accordance with the present invention. As illustrated therein, a rectangular frame 10 formed of wood or other suitable material is provided for holding a backing *fabric* in an outstretched condition to enable the user to form pile loops on the backing *fabric* in the manner to be described presently. A stand 11 is connected to the underside of the frame 10 and supports the frame in a generally horizontal or slightly inclined position at a convenient height above the floor to enable the user to work at the frame.

The backing *fabric*, indicated by the reference character B, is preferably of a woven construction formed of interwoven warp and weft yarns. The backing *fabric*, for example, may comprise a relatively inexpensive closely woven *fabric* such as burlap or woven jute or may comprise an open mesh *leno-weave fabric* of a

type similar to that conventionally used for needlepoint or for latch hook type rugs. The backing *fabric* B is held in place on frame 10 by a series of pins 12 extending outwardly at spaced locations along the outer perimeter of the frame 10. The backing *fabric* B is stretched across the frame and the edges thereof are pulled downwardly so that the pins 12 penetrate and engage the *fabric* to thus hold the *fabric* in place.

As illustrated, respective cover strips 13 of lengths corresponding to the outer dimensions of the rectangular frame are provided, each having a series of holes therein corresponding to the locations of the pins 12. V-shaped plastic strips without holes may also be used as cover strips to encompass the pins 12 on the outer perimeter of the frame. Once the backing *fabric* B is in place on the frame 10, the cover strips 13 may be positioned over the projecting portions of the pins 12 to protectively cover the pins and prevent accidental injury.

As illustrated, the width and length dimensions of the rectangular frame 10 are such as to enable the user to easily reach all areas of the backing *fabric*. When it is desired to produce a rug of larger size than the dimensions of the frame, the user works on one section of the backing *fabric* at a time. When one section is completed, the completed section can be rolled up at the rear end of the frame as indicated by reference character 14 in FIG. 2, and additional backing *fabric* advanced from a supply roll 15 provided at the front end of the frame.

To assist in forming rows of evenly spaced, uniform height pile loops on the backing *fabric*, a pile forming guide, generally indicated by the reference character 20, is mounted on the frame extending transversely thereacross to overlie the backing *fabric*. Means are provided on the pile forming guide around which a pile yarn may be successively looped for thus forming a row of spaced pile loops on the backing *fabric*. Preferably, and as illustrated, the pile forming guide 20 is provided with a series of upstanding teethlike projections 21 to facilitate the formation of the pile loops.

With the pile forming guide positioned across the backing *fabric*, the user forms a pile loop by looping the pile yarn Y behind one of the upstanding projections and then, using a needle 16, penetrating the backing *fabric* B with the pile yarn Y and forming a knot to secure the pile yarn to the backing *fabric*. This is repeated successively at the respective upstanding projections along the pile forming guide until a row of evenly spaced pile loops has been formed across the backing *fabric*. The pile forming guide 20 is then removed from the thus formed row of loops and repositioned alongside the row for forming the next row of pile loops.

To facilitate obtaining even spacing between the respective rows of pile loops, the pile forming guide 20 is supported at opposite ends by a pair of mounting strips 17 which are carried by the frame and which have a series of evenly spaced openings 18 in the form of slots or any other suitable configuration for receiving opposite end portions of the pile forming guide 20. As best seen in FIG. 1, the mounting strips 17 are removably secured to frame 10 along opposite side edges thereof with the use of bolts and wing nuts. The mounting strips 17 are installed on the frame once the backing *fabric* has been mounted to the frame, with the mounting strips thus being located on the top of the backing *fabric*. Optionally, the mounting strips 17 can be provided with a further series of openings having different spacing, as for example on the underside of the strips. This will permit the user to select a different spacing between adjacent rows of pile loops depending upon the density desired and type of backing *fabric* used.

Referring more particularly to the construction of the pile forming guide 20, as best illustrated in FIGS. 3 and 4, the pile forming guide is preferably constructed of two pieces to facilitate adjusting the height of the pile loops which are formed. The pile forming guide includes an elongate base portion 22 and an elongate comblike top portion 23 removably connected to the base portion and provided with a series of upstanding evenly spaced teethlike projections 21. As illustrated, the opposite ends 24 of the base portion extend outwardly and are of a

relatively flat bladelike configuration adapted to be received in the slots 18 formed in the mounting strip 17. This arrangement effectively serves to hold the pile forming guide in an upright position and to prevent undesired pivoting or tilting of the pile forming guide 20 under the tension produced by the pile loops.

The base portion 22 is provided with an upstanding mount 25 adjacent each end thereof having a series of vertically spaced mounting holes 26 to which the top portion 23 may be secured using a bolt and nut. By appropriate selection of the mounting holes 26, the height of the top portion 23 relative to the base portion 22 may be adjusted to thereby vary the height of the pile loops which are formed.

Preferably, the base portion 22 is formed of a transparent material such as rigid plastic to enable the user to see the previously formed row of pile loops located behind the pile forming guide and to thus assist in properly locating each pile loop. Since the top portion 23, when mounted in its lowest position, may be located overlying the base portion 22, it is desirable that the top portion 23 also be of a transparent material such as plastic.

Additionally, the base portion 22, and optionally also the top portion 23, are provided with indicia 27 defining a series of spaced graduations corresponding to the spacing of the upstanding projections 21. The indicia 27 serve to assist the user in determining where to position the needle and locate the knots in order to achieve even spacing between adjacent pile loops.

Optionally, the top portion 23 may be provided on the underside with a second series of teethlike projections of a different spacing from that on the top. Depending upon the desired density, yarn weight, type of backing *fabric*, or other factors, the user may invert the top portion 23 to select between two different pile spacings.

To also assist the user in locating the pile loops and obtaining an even spacing therebetween, the backing *fabric* may optionally also be imprinted with indicia. As shown in FIG. 2 indicia in the form of a series of transversely extending lines 28 is provided on the backing *fabric* to assist in keeping the rows of pile loops straight by indicating the desired locations for penetrating the backing *fabric* with the pile yarn. The backing *fabric* may optionally also have longitudinally extending lines intersecting the transverse lines 28 and forming a grid, these lines serving to further assist in obtaining even, uniform spacing between the pile loops. As also shown in FIG. 2, the backing *fabric* may also be imprinted with indicia in the form of a pattern design 29 to assist the user in locating differently colored pile yarns used for forming a desired design in the pile surface.

The series of views of FIGS. 5A-5C and 6A-6B more particularly illustrate the preferred manner of forming a pile loop and securing the same to the backing *fabric* with a knot. As illustrated therein, each knot is formed by penetrating the backing *fabric* at four closely spaced locations, preferably defining four corners of a square. As seen in FIG. 5A where an open mesh type backing *fabric* is used, the upstanding portion Y-1 of the pile yarn from the preceding pile loop is passed downwardly and then upwardly through two adjacent openings in the open mesh *fabric* so that the yarn is positioned beneath one of the widthwise-extending strands of the backing *fabric*. The yarn is then brought around the front of the upstanding yarn portion Y-1 as indicated by the dotted lines to form a loop portion L. Then, as indicated in FIG. 5B, the yarn is passed from the opposite direction through the same two adjacent openings in the backing *fabric* B so that the yarn is again positioned beneath the same widthwise-extending strand of the backing *fabric* and located alongside where the yarn previously passed thereunder. Upon emerging from the opening in the backing *fabric* the yarn is brought through the loop L and the yarn is then pulled tight to thus complete the knot K, as shown in FIG. 5C. The pile yarn Y is then looped around the next upstanding projection 21 to form an upstanding portion Y-2 and the sequence is repeated to form the next knot.

The procedure for forming a knot in a closely woven backing *fabric* is quite similar, and illustrated in FIGS. 6A and 6B. The pile yarn Y from the preceding pile loop is passed downwardly through the *fabric* at a first

location 1 and then brought upwardly through the *fabric* at 2, spaced a short distance rearwardly of the first location 1. The yarn is then brought around the front of the upstanding yarn portion Y-1 to form a loop portion L and passed downwardly through the *fabric* at a third location 3 spaced a short distance to the right of the second location 2, emerging upwardly at a fourth location 4 alongside the first location 1 and forming the fourth corner of a square. The yarn is then passed through the loop portion L and pulled tight to thus complete the knot.

The knot thus formed holds the pile yarn quite securely to the backing *fabric*. This is particularly so since the pile yarn penetrates the backing *fabric* at four spaced locations, and the knot is formed around several intersecting warp and weft strands of the backing *fabric*.

In the arrangement illustrated, a single pile yarn Y is threaded through the needle 16 and pile loops are formed at each upstanding projection 21 on the pile forming guide. However, in some instances, particularly with longer pile length, it may be desirable to have the pile loops less densely arranged. In this case, pile loops may be formed on alternate upstanding projections or on every third projection. Also, it may be desirable to use more than one pile yarn in the needle at a time or to form a heather effect by using multiple yarns of different colors in each pile loop. This technique works well with small strands of yarn or with relatively soft rug yarns.

In forming a pattern design in the rug, such as the floral design shown in FIG. 2, it is necessary for the user to periodically change yarn colors during the formation of a row of pile loops. This is accomplished by completing the knot and cutting the yarn at the pile height in use, then starting a new color yarn with the next knot. This procedure is also followed when the yarn in use becomes too short and it is necessary to begin a new yarn of the same color.

Once a row of pile loops is completed, the pile forming guide 20 is removed from the row of loops and repositioned for forming the next row. As illustrated in FIG. 8, this is accomplished by lifting the end portions 24 out of the slots 18 in the mounting strips 17, tilting the base of the pile forming guide away from the user, and then pushing the pile forming guide 20 away from the user as indicated by the arrows to thus free the upstanding projections 21 from the thus formed loops. The pile forming guide is then repositioned in the next slot 18 in mounting strip 17 for forming the next row of pile loops. It will be appreciated that when it is desired to produce a rug having a lower pile density, the rows of pile yarns can be spaced further apart by using alternate slots in the mounting strip, or every third slot.

The thus formed pile loops can be left uncut if desired to form a loop pile surface, or if desired the loops may be cut to produce a cut pile surface as shown in FIG. 9. Preferably, if a cut pile surface is desired, the row of pile loops is cut immediately following removal of the pile forming guide while the loops are still readily accessible. Any suitable implement may be utilized for cutting the pile loops, such as scissors, for example.

From the foregoing it will be readily seen that the present invention provides a unique new method and apparatus for forming handcrafted pile rugs having numerous advantages over the techniques previously known. It will also be seen that the handcrafted rug resulting from this method and apparatus is also of a unique new construction, differing quite significantly from the construction of prior handcrafted rugs or machine-produced rugs. In particular, the novel handmade pile rug in accordance with the present invention is characterized by having a plurality of rows of individual pile yarn tufts secured to the backing *fabric*, each tuft comprising a knot K and two upstanding pile yarn portions Y-1, Y-2 emanating from the knot K and extending upwardly therefrom. In each knot K the pile yarn penetrates the backing *fabric* at four separate closely spaced locations to secure the pile yarn tuft to the backing *fabric*. The upstanding pile yarn portions Y-1, Y-2 extend generally upwardly from two of the four penetrations in the backing *fabric* to thus form the pile surface on the backing *fabric*.

As originally formed pursuant to the invention, the upstanding pile yarn portions Y-1, Y-2 of adjacent pile yarn tufts are joined together to form loops and the rug has a loop pile surface. However, as earlier noted the loops may be cut, in which case the upstanding pile yarn portions of adjacent pile yarn tufts are separate and the rug has a cut pile surface.

In the drawings and specification there has been set forth a preferred embodiment of the invention and although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation.

* * * * *



- [54] APPARATUS FOR MAKING A HANDCRAFTED PILE RUG
- [76] Inventor: Betty R. Hinson, 5319 Milford Rd., Charlotte, N.C. 28210
- [21] Appl. No.: 61,281
- [22] Filed: Jul. 27, 1979
- [51] Int. Cl.³ D05C 1/02; D06C 3/08
- [52] U.S. Cl. 38/102.91; 289/18.1
- [58] Field of Search 289/1.2, 1.5, 17, 18.1, 289/149, 151, 152; 38/102.4-102.91; D15/66, 78

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Primary Examiner—Louis Rimrodt
 Attorney, Agent, or Firm—Bell, Seltzer, Park & Gibson

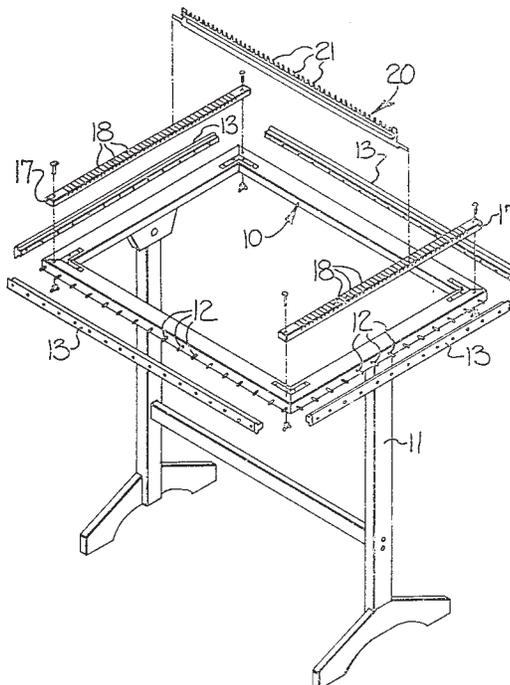
[57] ABSTRACT

Successive rows of individual pile yarn tufts are secured to a backing fabric with the aid of a pile forming guide designed for assisting in obtaining a more uniform pile spacing and pile height. The pile yarn is threaded onto a needle and each individual pile yarn tuft is individually secured to the backing fabric by penetrating the backing fabric with the pile yarn and securing the same thereto by forming a knot.

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10 Claims, 12 Drawing Figures



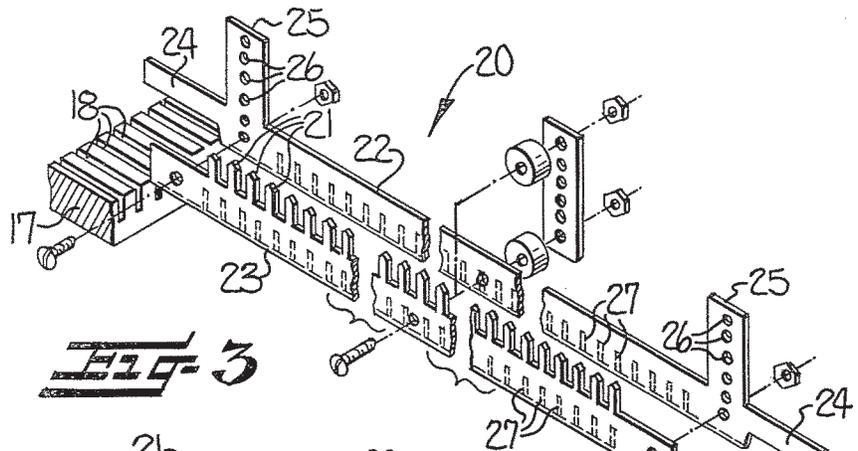


Fig. 3

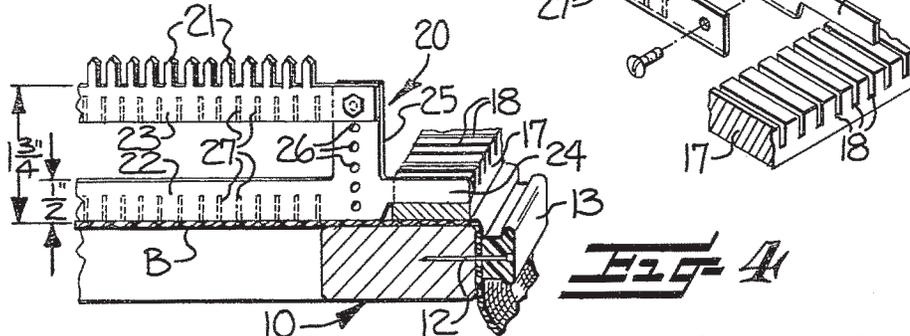


Fig. 4

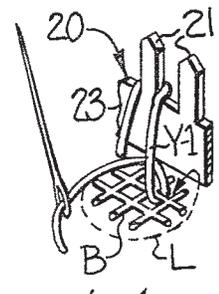


Fig. 5A

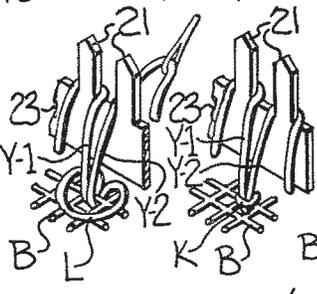


Fig. 5B

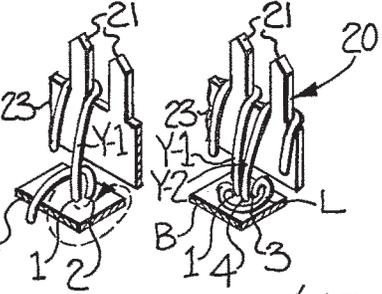


Fig. 5C

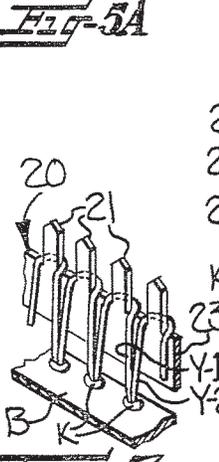


Fig. 6A

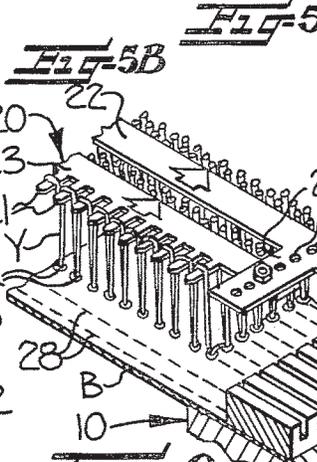


Fig. 6B

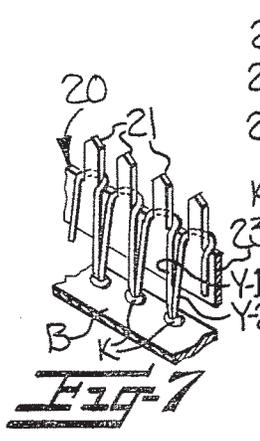


Fig. 7

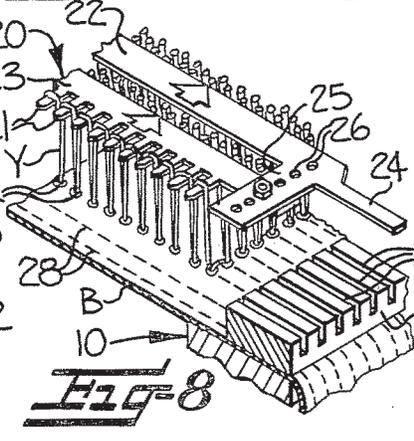


Fig. 8

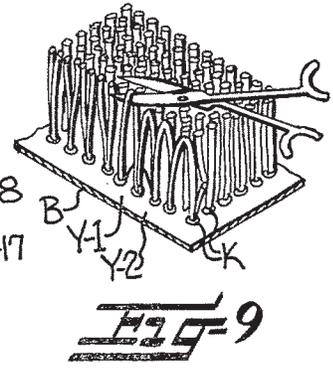


Fig. 9

APPARATUS FOR MAKING A HANDCRAFTED PILE RUG

FIELD OF THE INVENTION

This invention relates to an apparatus for making a handcrafted pile rug.

BACKGROUND OF THE INVENTION

The popular craft of rugmaking has been practiced by many people for a number of years. It provides an enjoyable pastime and creative outlet while producing useful and aesthetically appealing rugs having an infinite variety of designs and textures which cannot be duplicated by commercial machine-produced rugs. Handcrafted rugs are used on the floor in place of conventional floor coverings, and are often displayed as a wall hanging.

There are a variety of techniques or methods for producing handcrafted rugs. For example, one popular style of handcrafted rug is the hooked rug which is produced by passing a hook successively through a backing fabric to arrange a continuous pile yarn into loops projecting from the face of the backing fabric. A variation on the hooked rug is the latch hook rug which uses precut lengths of yarn instead of a continuous yarn. The precut lengths of yarn are attached to a heavy canvas mesh backing using a latch hook.

Most rugmaking techniques of which applicant is aware, including those described above, require a certain aptitude and many people find the techniques difficult to master. The usual methods of producing a hooked rug, for example, require some degree of skill and dexterity in order to achieve uniform spacing and density of the pile and to form the pile of a uniform height. Also, many people find the pushing or pulling of the hook through the backing fabric to be tiresome.

In certain popular styles of hooked rug the pile yarns are merely pushed through the backing fabric and held in place solely by friction. In the event that the pile is accidentally snagged, the pile yarn can be readily pulled from the backing fabric leaving an area of exposed backing fabric. In the latch hook type rug, the pile yarns are secured to the backing fabric by a knot, and are thus not as susceptible to being pulled out. However, the necessity of using precut pile yarns makes this type of rug relatively expensive. Additionally, unless particular care is exercised in inserting and securing the lengths of pile yarn, uneven pile tufts may be produced, presenting and undesirable surface appearance to the rug. Also, many people find it difficult to handle the short pieces of yarn and continued work with the short pieces causes discomfort in the user's hands.

SUMMARY OF THE INVENTION

With the foregoing background in mind, it is an important object of the present invention to provide a method and apparatus for more easily producing handcrafted pile rugs by persons having a wide range of skills and aptitudes.

It is a further object of this invention to provide an apparatus and method which is particularly designed to facilitate obtaining a pile rug having a more uniform pile height, density and spacing.

In accordance with the present invention, successive rows of individual pile yarn tufts are secured to a backing fabric with the aid of a pile forming guide designed for assisting in obtaining a more uniform pile spacing

and pile height. The pile yarn is threaded onto a needle and each individual pile yarn tuft is individually secured to the backing fabric by penetrating the backing fabric with the pile yarn and securing the same thereto by forming a knot.

In accordance with the invention a frame is provided for holding a backing fabric in an outstretched condition and the pile forming guide is adapted to be mounted on the frame to assist the user in forming rows of evenly spaced uniform height pile loops on the backing fabric. The pile forming guide extends transversely across the backing fabric and is provided with a series of upstanding teethlike projections around which the pile yarn may be successively looped for thus forming a row of spaced pile loops on the backing fabric. With the pile forming guide positioned across the backing fabric the user forms the respective pile loops by looping the pile yarn behind one of the upstanding projections and then using the needle, penetrating the backing fabric with the pile yarn and forming a knot to secure the pile yarn to the backing fabric. This is repeated successively along the pile forming guide until a row of evenly spaced pile loops has been formed. The pile forming guide is then removed from the row of loops and repositioned alongside the row for forming the next row of pile loops. A particular knot is disclosed which is particularly suited for securely fastening the pile loops to the backing fabric. The handcrafted pile rug which results from this procedure is of a construction which differs significantly from the previously known types of handcrafted rugs as well as from commercial machine-produced rugs.

DESCRIPTION OF THE DRAWINGS

Some of the objects, features and advantages of the invention having been stated, others will become apparent as the description proceeds when taken in connection with the accompanying drawings, in which:

FIG. 1 is a perspective view showing an apparatus for making handcrafted pile rugs in accordance with the invention, with some of the parts of the apparatus shown in exploded relation for clarity of illustration;

FIG. 2 is a perspective view of the apparatus showing a pile rug as it is being made on a burlap backing;

FIG. 3 is a perspective view showing the pile forming guide, with parts thereof shown in exploded relation for clarity of illustration;

FIG. 4 is an elevational view showing a portion of the pile forming guide;

FIGS. 5A-5C are a series of views showing how a pile loop is formed and secured to an open mesh backing fabric in accordance with the invention;

FIGS. 6A-6B are a series of views showing how a pile loop is formed and secured to a burlap backing fabric in accordance with the invention;

FIG. 7 is a perspective view showing a series of completed pile loops on the pile forming guide using the burlap backing;

FIG. 8 is a perspective view showing how the pile forming guide is removed from the pile loops after the completion of a row of pile loops; and

FIG. 9 is a perspective view showing how the respective pile loops may be sheared to form a cut pile surface.

DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

Referring now more particularly to the drawings, FIGS. 1 and 2 illustrate an apparatus for use in making handcrafted pile rugs in accordance with the present invention. As illustrated therein, a rectangular frame 10 formed of wood or other suitable material is provided for holding a backing fabric in an outstretched condition to enable the user to form pile loops on the backing fabric in the manner to be described presently. A stand 11 is connected to the underside of the frame 10 and supports the frame in a generally horizontal or slightly inclined position at a convenient height above the floor to enable the user to work at the frame.

The backing fabric, indicated by the reference character B, is preferably of a woven construction formed of interwoven warp and weft yarns. The backing fabric, for example, may comprise a relatively inexpensive closely woven fabric such as burlap or woven jute or may comprise an open mesh leno-weave fabric of a type similar to that conventionally used for needlepoint or for latch hook type rugs. The backing fabric B is held in place on frame 10 by a series of pins 12 extending outwardly at spaced locations along the outer perimeter of the frame 10. The backing fabric B is stretched across the frame and the edges thereof are pulled downwardly so that the pins 12 penetrate and engage the fabric to thus hold the fabric in place.

As illustrated, respective cover strips 13 of lengths corresponding to the outer dimensions of the rectangular frame are provided, each having a series of holes therein corresponding to the locations of the pins 12. V-shaped plastic strips without holes may also be used as cover strips to encompass the pins 12 on the outer perimeter of the frame. Once the backing fabric B is in place on the frame 10, the cover strips 13 may be positioned over the projecting portions of the pins 12 to protectively cover the pins and prevent accidental injury.

As illustrated, the width and length dimensions of the rectangular frame 10 are such as to enable the user to easily reach all areas of the backing fabric. When it is desired to produce a rug of larger size than the dimensions of the frame, the user works on one section of the backing fabric at a time. When one section is completed, the completed section can be rolled up at the rear end of the frame as indicated by reference character 14 in FIG. 2, and additional backing fabric advanced from a supply roll 15 provided at the front end of the frame.

To assist in forming rows of evenly spaced, uniform height pile loops on the backing fabric, a pile forming guide, generally indicated by the reference character 20, is mounted on the frame extending transversely thereacross to overlie the backing fabric. Means are provided on the pile forming guide around which a pile yarn may be successively looped for thus forming a row of spaced pile loops on the backing fabric. Preferably, and as illustrated, the pile forming guide 20 is provided with a series of upstanding teethlike projections 21 to facilitate the formation of the pile loops.

With the pile forming guide positioned across the backing fabric, the user forms a pile loop by looping the pile yarn Y behind one of the upstanding projections and then, using a needle 16, penetrating the backing fabric B with the pile yarn Y and forming a knot to secure the pile yarn to the backing fabric. This is repeated successively at the respective upstanding projec-

tions along the pile forming guide until a row of evenly spaced pile loops has been formed across the backing fabric. The pile forming guide 20 is then removed from the thus formed row of loops and repositioned alongside the row for forming the next row of pile loops.

To facilitate obtaining even spacing between the respective rows of pile loops, the pile forming guide 20 is supported at opposite ends by a pair of mounting strips 17 which are carried by the frame and which have a series of evenly spaced openings 18 in the form of slots or any other suitable configuration for receiving opposite end portions of the pile forming guide 20. As best seen in FIG. 1, the mounting strips 17 are removably secured to frame 10 along opposite side edges thereof with the use of bolts and wing nuts. The mounting strips 17 are installed on the frame once the backing fabric has been mounted to the frame, with the mounting strips thus being located on the top of the backing fabric. Optionally, the mounting strips 17 can be provided with a further series of openings having different spacing, as for example on the underside of the strips. This will permit the user to select a different spacing between adjacent rows of pile loops depending upon the density desired and type of backing fabric used.

Referring more particularly to the construction of the pile forming guide 20, as best illustrated in FIGS. 3 and 4, the pile forming guide is preferably constructed of two pieces to facilitate adjusting the height of the pile loops which are formed. The pile forming guide includes an elongate base portion 22 and an elongate comblike top portion 23 removably connected to the base portion and provided with a series of upstanding evenly spaced teethlike projections 21. As illustrated, the opposite ends 24 of the base portion extend outwardly and are of a relatively flat bladelike configuration adapted to be received in the slots 18 formed in the mounting strip 17. This arrangement effectively serves to hold the pile forming guide in an upright position and to prevent undesired pivoting or tilting of the pile forming guide 20 under the tension produced by the pile loops.

The base portion 22 is provided with an upstanding mount 25 adjacent each end thereof having a series of vertically spaced mounting holes 26 to which the top portion 23 may be secured using a bolt and nut. By appropriate selection of the mounting holes 26, the height of the top portion 23 relative to the base portion 22 may be adjusted to thereby vary the height of the pile loops which are formed.

Preferably, the base portion 22 is formed of a transparent material such as rigid plastic to enable the user to see the previously formed row of pile loops located behind the pile forming guide and to thus assist in properly locating each pile loop. Since the top portion 23, when mounted in its lowest position, may be located overlying the base portion 22, it is desirable that the top portion 23 also be of a transparent material such as plastic.

Additionally, the base portion 22, and optionally also the top portion 23, are provided with indicia 27 defining a series of spaced graduations corresponding to the spacing of the upstanding projections 21. The indicia 27 serve to assist the user in determining where to position the needle and locate the knots in order to achieve even spacing between adjacent pile loops.

Optionally, the top portion 23 may be provided on the underside with a second series of teethlike projections of a different spacing from that on the top. De-

pending upon the desired density, yarn weight, type of backing fabric, or other factors, the user may invert the top portion 23 to select between two different pile spacings.

To also assist the user in locating the pile loops and obtaining an even spacing therebetween, the backing fabric may optionally also be imprinted with indicia. As shown in FIG. 2 indicia in the form of a series of transversely extending lines 28 is provided on the backing fabric to assist in keeping the rows of pile loops straight by indicating the desired locations for penetrating the backing fabric with the pile yarn. The backing fabric may optionally also have longitudinally extending lines intersecting the transverse lines 28 and forming a grid, these lines serving to further assist in obtaining even, uniform spacing between the pile loops. As also shown in FIG. 2, the backing fabric may also be imprinted with indicia in the form of a pattern design 29 to assist the user in locating differently colored pile yarns used for forming a desired design in the pile surface.

The series of views of FIGS. 5A-5C and 6A-6B more particularly illustrate the preferred manner of forming a pile loop and securing the same to the backing fabric with a knot. As illustrated therein, each knot is formed by penetrating the backing fabric at four closely spaced locations, preferably defining four corners of a square. As seen in FIG. 5A where an open mesh type backing fabric is used, the upstanding portion Y-1 of the pile yarn from the preceding pile loop is passed downwardly and then upwardly through two adjacent openings in the open mesh fabric so that the yarn is positioned beneath one of the widthwise-extending strands of the backing fabric. The yarn is then brought around the front of the upstanding yarn portion Y-1 as indicated by the dotted lines to form a loop portion L. Then, as indicated in FIG. 5B, the yarn is passed from the opposite direction through the same two adjacent openings in the backing fabric B so that the yarn is again positioned beneath the same widthwise-extending strand of the backing fabric and located alongside where the yarn previously passed thereunder. Upon emerging from the opening in the backing fabric the yarn is brought through the loop L and the yarn is then pulled tight to thus complete the knot K, as shown in FIG. 5C. The pile yarn Y is then looped around the next upstanding projection 21 to form an upstanding portion Y-2 and the sequence is repeated to form the next knot.

The procedure for forming a knot in a closely woven backing fabric is quite similar, and illustrated in FIGS. 6A and 6B. The pile yarn Y from the preceding pile loop is passed downwardly through the fabric at a first location 1 and then brought upwardly through the fabric at 2, spaced a short distance rearwardly of the first location 1. The yarn is then brought around the front of the upstanding yarn portion Y-1 to form a loop portion L and passed downwardly through the fabric at a third location 3 spaced a short distance to the right of the second location 2, emerging upwardly at a fourth location 4 alongside the first location 1 and forming the fourth corner of a square. The yarn is then passed through the loop portion L and pulled tight to thus complete the knot.

The knot thus formed holds the pile yarn quite securely to the backing fabric. This is particularly so since the pile yarn penetrates the backing fabric at four spaced locations, and the knot is formed around several intersecting warp and weft strands of the backing fabric.

In the arrangement illustrated, a single pile yarn Y is threaded through the needle 16 and pile loops are formed at each upstanding projection 21 on the pile forming guide. However, in some instances, particularly with longer pile length, it may be desirable to have the pile loops less densely arranged. In this case, pile loops may be formed on alternate upstanding projections or on every third projection. Also, it may be desirable to use more than one pile yarn in the needle at a time or to form a heather effect by using multiple yarns of different colors in each pile loop. This technique works well with small strands of yarn or with relatively soft rug yarns.

In forming a pattern design in the rug, such as the floral design shown in FIG. 2, it is necessary for the user to periodically change yarn colors during the formation of a row of pile loops. This is accomplished by completing the knot and cutting the yarn at the pile height in use, then starting a new color yarn with the next knot. This procedure is also followed when the yarn in use becomes too short and it is necessary to begin a new yarn of the same color.

Once a row of pile loops is completed, the pile forming guide 20 is removed from the row of loops and repositioned for forming the next row. As illustrated in FIG. 8, this is accomplished by lifting the end portions 24 out of the slots 18 in the mounting strips 17, tilting the base of the pile forming guide away from the user, and then pushing the pile forming guide 20 away from the user as indicated by the arrows to thus free the upstanding projections 21 from the thus formed loops. The pile forming guide is then repositioned in the next slot 18 in mounting strip 17 for forming the next row of pile loops. It will be appreciated that when it is desired to produce a rug having a lower pile density, the rows of pile yarns can be spaced further apart by using alternate slots in the mounting strip, or every third slot.

The thus formed pile loops can be left uncut if desired to form a loop pile surface, or if desired the loops may be cut to produce a cut pile surface as shown in FIG. 9. Preferably, if a cut pile surface is desired, the row of pile loops is cut immediately following removal of the pile forming guide while the loops are still readily accessible. Any suitable implement may be utilized for cutting the pile loops, such as scissors, for example.

From the foregoing it will be readily seen that the present invention provides a unique new method and apparatus for forming handcrafted pile rugs having numerous advantages over the techniques previously known. It will also be seen that the handcrafted rug resulting from this method and apparatus is also of a unique new construction, differing quite significantly from the construction of prior handcrafted rugs or machine-produced rugs. In particular, the novel handmade pile rug in accordance with the present invention is characterized by having a plurality of rows of individual pile yarn tufts secured to the backing fabric, each tuft comprising a knot K and two upstanding pile yarn portions Y-1, Y-2 emanating from the knot K and extending upwardly therefrom. In each knot K the pile yarn penetrates the backing fabric at four separate closely spaced locations to secure the pile yarn tuft to the backing fabric. The upstanding pile yarn portions Y-1, Y-2 extend generally upwardly from two of the four penetrations in the backing fabric to thus form the pile surface on the backing fabric.

As originally formed pursuant to the invention, the upstanding pile yarn portions Y-1, Y-2 of adjacent pile

yarn tufts are joined together to form loops and the rug has a loop pile surface. However, as earlier noted the loops may be cut, in which case the upstanding pile yarn portions of adjacent pile yarn tufts are separate and the rug has a cut pile surface.

In the drawings and specification there has been set forth a preferred embodiment of the invention and although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation.

What is claimed is:

1. An apparatus for use in making handcrafted pile rugs comprising

a frame adapted for holding a backing fabric in an outstretched condition, and

an elongate pile forming guide extending transversely across said frame so as to overlie the backing fabric and being adapted to facilitate forming a row of pile loops on the backing fabric,

said pile forming guide having means provided at spaced locations therealong around which a yarn may be successively looped and then sewn into the backing fabric for forming a row of spaced pile loops across the backing fabric, and

said frame including a pair of elongate mounting strips removably secured to said frame along opposite side edges thereof, each mounting strip having a series of evenly spaced slots therein adapted for receiving an end portion of said pile forming guide to permit securing the pile forming guide to the frame at a series of evenly spaced locations thereacross for forming successive evenly spaced rows of pile loops on the backing fabric.

2. An apparatus according to claim 1 wherein said means provided at spaced locations along said guide around which the yarn may be looped comprises a series of upstanding evenly spaced teethlike projections.

3. An apparatus according to claim 1 wherein said frame is of a rectangular configuration and includes a series of pins along the outer perimeter thereof for engaging and holding the backing fabric in an outstretched condition on the frame.

4. An apparatus according to claim 3 including respective cover strips of lengths corresponding to the outer dimensions of said frame, each cover strip being constructed for receiving the pins along a respective side of said frame and adapted for being positioned over said pins to protectively cover the same and prevent accidental injury.

5. An apparatus according to claim 1 including indicia means defining a series of spaced graduations along the base portion of said elongate pile forming guide to show the proper spacing for sewing the successive pile yarn loops into the backing fabric.

6. An apparatus according to claim 1 wherein at least the base portion of said elongate pile forming guide is formed of a transparent material to enable the user to see the previously formed row of pile loops located behind the guide.

7. An apparatus according to claim 1 wherein said elongate pile forming guide includes an elongate base portion having opposite end portions adapted for being supported by said securing means, an elongate top por-

tion having a series of upstanding evenly spaced teethlike projections around which the yarn may be looped to form pile loops, and

means for securing said top portion to said base portion at various heights in relation to the base portion to thereby permit varying the height of the pile loops formed on the backing fabric.

8. An apparatus for use in making handcrafted pile rugs comprising

a frame, a backing fabric carried by said frame in an outstretched condition, and

an elongate comblike pile forming guide carried by said frame and extending transversely thereacross overlying said backing fabric,

said pile forming guide having a series of upstanding evenly spaced teethlike projections therealong around which a yarn may be successively looped and then sewn into the backing fabric for forming a row of evenly spaced pile loops across the backing fabric, and

opposite sides of said frame having a respective series of evenly spaced openings therein for receiving opposite end portions of said elongate pile forming guide to thus permit securing the guide to the frame at a series of evenly spaced locations thereacross for forming successive evenly spaced rows of pile loops on the backing fabric.

9. An apparatus according to claim 8 wherein said backing fabric has indicia thereon for indicating the desired location for sewing the pile loops into the backing fabric.

10. An apparatus for use in making handcrafted pile rugs comprising

a frame adapted for holding a backing fabric in an outstretched condition, and

an elongate pile forming guide extending transversely across said frame so as to overlie the backing fabric and being adapted to facilitate forming a row of pile loops on the backing fabric,

said pile forming guide including an elongate base portion having end portions projecting at opposite ends thereof, an elongate top portion having a series of upstanding evenly spaced toothlike projections around which the yarn may be successively looped and then sewn into the backing fabric for forming a row of spaced pile loops across the backing fabric, and means for securing said top portion to said base portion at various heights in relation to the base portion to thereby permit varying the height of the pile loops formed on the backing fabric, and

said frame including means cooperating with opposite end portions of said elongate pile forming guide to permit securing the pile forming guide to the frame at a series of evenly spaced locations thereacross for forming successive evenly spaced rows of pile loops on the backing fabric, said means including a respective series of evenly spaced openings extending along opposite sides of said frame and adapted for receiving said opposite end portions of said pile forming guide.

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