

Aug. 11, 1942.

W. MURDOCK

2,293,008

PILE FABRIC

Filed Aug. 2, 1940

3 Sheets-Sheet 1

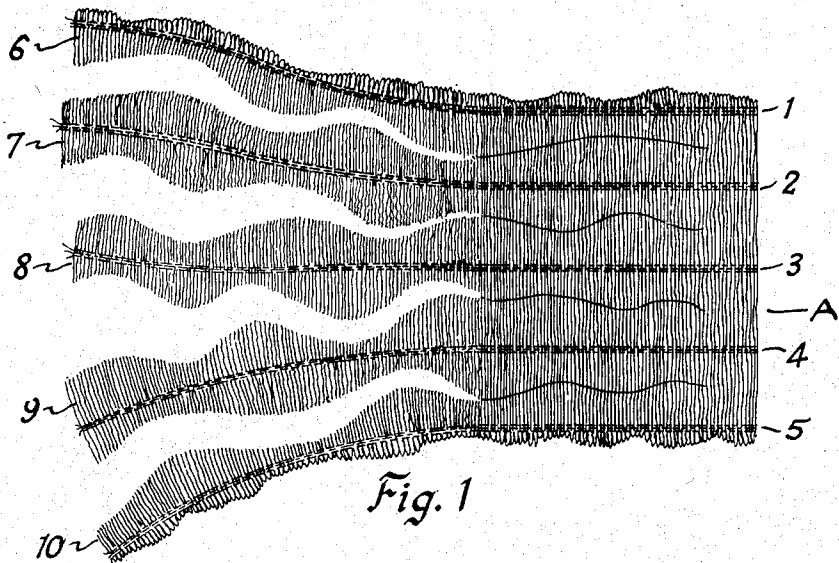


Fig. 1

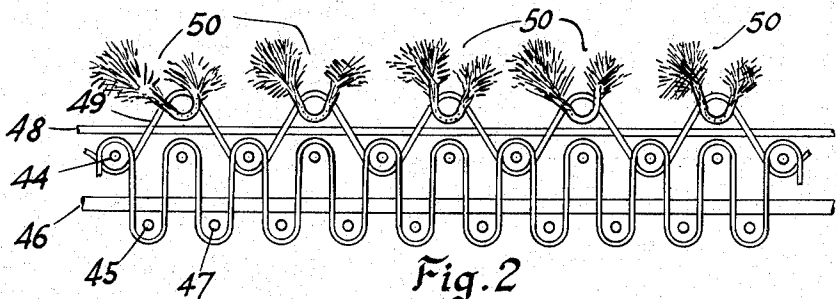


Fig. 2

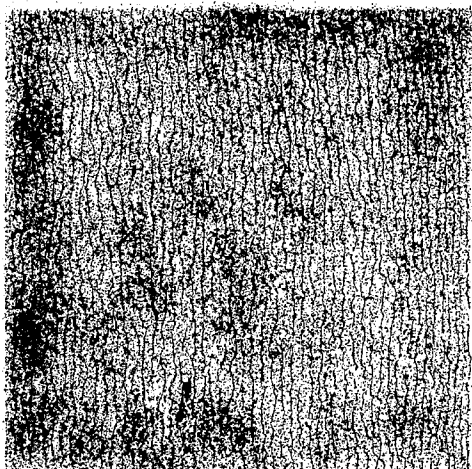


Fig. 3

INVENTOR.
William Murdock
BY *Paul R. Newcomb*
ATTORNEY.

Aug. 11, 1942.

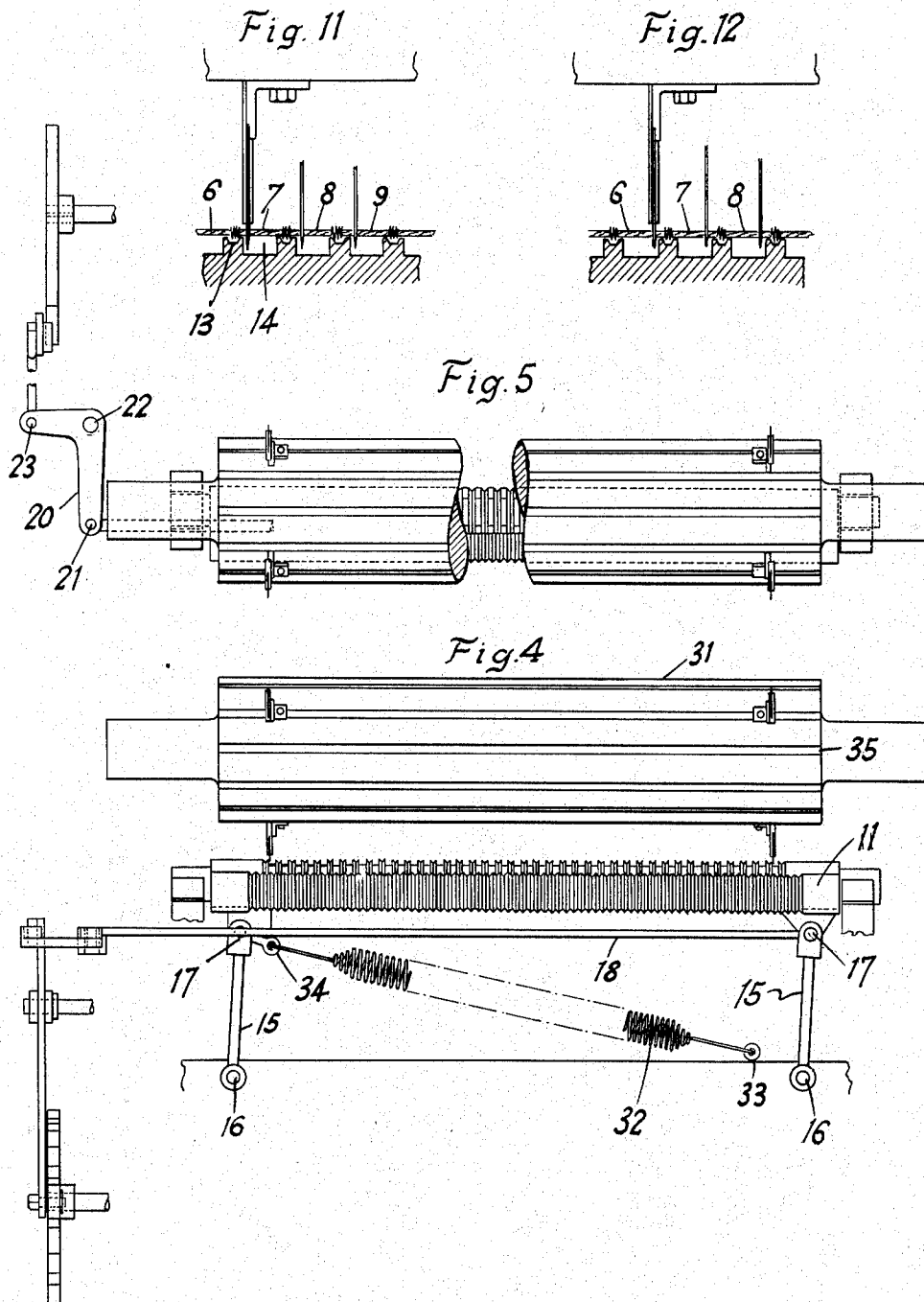
W. MURDOCK

2,293,008

PILE FABRIC

Filed Aug. 2, 1940

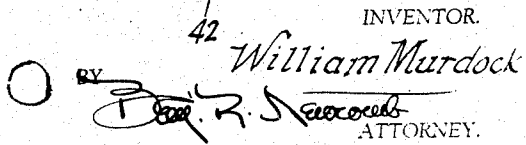
3 Sheets-Sheet 2



INVENTOR.
William Murdock
BY *Paul R. Narco*
ATTORNEY.

2,293,008

3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE

2,293,008

PILE FABRIC

William Murdock, Owasco, N. Y., assignor to
Firth Carpet Company, Inc., New York, N. Y.

Application August 2, 1940, Serial No. 349,900

4 Claims. (Cl. 139—394)

This invention is a chenille carpet fabric and the machine and method for making the same in such manner as to accord to the finished product a rampant shaggy surface texture having that depth of feeling and luxury which is so characteristic of chenille carpeting.

In the manufacture of chenille carpeting it has heretofore been customary to achieve the deep pile luxurious effect through an unblemished upright pile in both the plain and figured effects; to this end considerable hand work goes into the making of chenille carpet and with consequent high manufacturing cost; particularly is this true in figured chenille carpet where sharpness of design is a requisite and the prior published art embraces a number of patents indicating that it is a rather ancient practice to enhance the sharpness of the figured areas by cutting the fur of the chenille strip to different heights along the strip length and setting the strip into the carpet in such a way that the cut and uncut portions register to produce figures and background.

The present invention is the antithesis of the usual practice in that the objective from the viewpoint of esthetic effect is an unusually shaggy rampant deep pile effect, the natural shading of which lends depth and character to what might otherwise appear as an uninteresting and unfinished surface.

An additional feature is the production of an irregular or undulating fur strip together with the manner of combining it in successive adjacent rows upon a carpet foundation in such manner as to substantially eliminate any hand work such as must be performed in order to produce desirable curved effect with the processes heretofore practiced.

Further objects of the invention are the machine and method whereby the inventions are carried into effect.

With the above, and other objects in view, I shall describe forms which the invention may take in practice, and which I have illustrated in the accompanying drawings forming a part of this specification.

In the drawings:

Fig. 1 is a plan view of a chenille weft fabric being severed into several fur strips having irregular fur;

Fig. 2 is an enlarged opened up sectional view in the plane of the warp showing the manner in which the fur strip is incorporated into the carpet;

Fig. 3 is a plan view of a portion of the finished

product like the sample submitted with this application for patent;

Figs. 4 and 5 are plan views, in planes at right angles to each other, of one form of mechanism which I have successfully used commercially for producing the irregularly cut fur strips;

Fig. 6 is an end elevation showing the oscillating cutter cam displacer for the mechanism of Figs. 4 and 5;

Figs. 7 and 8 are fragmentary views similar to Figs. 4 and 5 showing a modified form of cam displacer;

Fig. 9 is a view similar to Fig. 6 showing the cam displacer of Figs. 7 and 8 in end elevation;

Fig. 10 is an enlarged fragmentary end elevation showing the slitter knife structure;

Figs. 11 and 12 are fragmentary sectional elevations longitudinally of the slitter showing the slitter knife travel.

In detail:

The weft fabric which is to be split into fur strips is indicated at A in Fig. 1 and between its selvages, which may be regular or irregular, are the usual warps 1 to 5 inclusive; between the warps the fabric is irregularly split to form the flat fur strips 6 to 10 inclusive, the slitting being accomplished in the manner and by the machine about to be described. The weft fabric A before being split may be passed over a suitable contracting roller and tension device, not shown, since they are a part of the usual slitter and are well known in the art.

Weft fabric A then passes onto a cutting bed 11 fluted or corrugated as shown to make the weft fabric track properly and having a portion 12 which is grooved at 13 to receive the warps 1 to 5 of the weft fabric A while the wefts are principally over the wider spaces 14. The spaces 14 have a width which takes in substantially the distance from one warp to another. The cutting bed is carried by upright swinging links 15 at each end pivoted at 16 to the cutting bed 11 and at 17 to the stationary bed so that the cutting bed 11 may have a limited lateral movement. Connected to the links 15 at one end of the bed is a horizontal link 18 which extends beyond the cutter bed and is attached to the extremity of one arm of a bell crank lever 20 as at 21 which is pivoted at 22 and the other arm of which is pivoted at 23 to a link 24 connected at 25 with a lever 26 swinging on a fixed pivot 27 where the end roller 28 rides over the irregular surface of a cam 29 keyed to the driven shaft 30 operated from the same driving means (not shown) which turns the cutting drum 31. The cutter bed is urged to its

extreme right hand position by a coil spring 32 connected at one end to eye 33 secured to the base and at the other end to eye 34 secured to the cutter bed.

Above the cutter bed and having its axis of rotation parallel with the cutter bed is a cutting drum having dovetail grooves 35 longitudinally spaced therearound to receive the extremely sharp cutting knives 36 which slit the weft fabric between the warps to divide it into the fur strips 6 to 10 as shown in Fig. 1.

As the weft fabric travels over the roller cutter bed 11 the cam 29 is driven in unison by the same prime mover that rotates the cutting drum 31. The knives are of such dimension as to enter the spaces 14 and as the cutter bed 11 is oscillated by the action of the cam 29 and attendant linkage an irregular slitting of the fur is produced somewhat as shown in Fig. 1 and the pattern of cut may be varied by substituting cams 29 having different faces. In Figs. 11 and 12 the position of the weft fabric and the slitter knives together with the extent of variation in the cut is clearly indicated.

I have illustrated in Figs. 7, 8 and 9 a slightly different arrangement in which the cutting bed 11 has no oscillating movement but instead the cutting drum is oscillated; since the parts are otherwise the same they will be designated by the same reference characters as previously used with the exception of the description of the cam displacer elements.

In Figs. 7 to 9 the cutter drum 31 is laterally oscillatable to perform the cut and at one end of its journaled neck carries a grooved or shrouded member 36' in the groove 37 of which are pins 37' of a yoke 38 which is on one end of an oscillatable lever 39 pivoted intermediately at 40; the other end of the lever 40 has a finger 41 riding in the side cam groove 42 of the cam 43 keyed to the shaft 44 and driven by the same prime mover as rotates the cutting drum 31.

From the foregoing it will be apparent that with the cutter bed 11 fixed and the cutting drum 31 and cam 43 driven in unison the cutting drum 31 will be oscillated and as the weft fabric is drawn under the knives the same irregular or undulating height of cut fur as previously described will be the result. Essentially the fur forming mechanism includes all of the elements used to standard types of mechanism for forming chenille fur strips steamed or ironed in V-shape form and the novel features added are the spaces in the cutting bed and the oscillation of either the cutter bed or cutting drum to slit the fur into strips which can be formed into V-shape and have an undulating height of fur. The fur on each side of a single strip may be of differing height as shown if desirable.

When the fur is incorporated into a carpet the weaver may abandon the usual practice of setting each strip straight, in fact, a better effect is obtained if the fur strips are gradually twisted as they are incorporated so that it is more or less accidental as to the angular or upright arrangement of the fur, thus producing a rampant effect which is very pleasing to the eye and with an entirely miscellaneous pattern.

In Fig. 2 I have illustrated a cross section of a chenille carpet woven in the manner of my invention. In this weave the sheds are opened between upper and lower foundation weft shots 44 and 45, as shown, and one or more stuffers 46 are secured therebetween by the chain warps 47,

only one of which is shown for the sake of clarity, the float 48 catches warps 49 (only one of which is shown) and V-shape fur wefts 50 which are inserted to form the surface. In inserting the fur wefts 50 the weaver makes no attempt for the effect shown in Fig. 3 to set the fur upright and it consequently falls every which way even at times being caught down in portions; however as he inserts the strip across a carpet width he may give it several complete twists to throw the fur in different directions and thus secure a more irregular effect, and this is clearly contemplated in the fabric of my invention and is for the purpose of avoiding any regularity of design. Any suitable chenille foundation and surface weave may be used and is of course within the scope of my invention provided it embodies an undulating fur, or an undulating fur strip which is twisted to throw the fur of the same strip in different directions to secure a varying rampant appearance.

While, in the foregoing I have described the invention in particular with regard to certain desirable phases thereof, it is nevertheless to be understood that in practicing the same I may resort to any and all modifications within the scope of the appended claims defining my invention.

I claim:

1. A pile fabric which comprises a backing web made up of stuffer warps, face and back weft threads respectively above and below the stuffers, binder warps crossing the weft threads and binding them against the stuffer warps, strips of V-shape chenille having fur irregularly undulating in height lying above the stuffer warps in irregular arrangement, and chain warps binding the strips in place to form an irregular pile surface, said fur strips being placed at random to avoid the formation of a distinct pattern.

2. A pile fabric which comprises a backing web made up of stuffer warps, face and back weft threads lying respectively above and below the stuffers, binder warps crossing the weft threads and binding them against the stuffer warps, strips of V-shape chenille having fur undulating in height lying above the stuffer with each strip twisted in its length to throw the fur ends on opposite sides of the center thereof, and chain warps binding the strips in place, said fur strips being placed at random to avoid the formation of a distinct pattern.

3. A pile fabric including a woven foundation with chain warps binding chenille fur strips, and V-shaped chenille fur strips, each of irregularly undulating pile height and forming a pile surface with the adjacent undulations of successive fur strips in miscellaneous pile height arrangement to provide a rampant irregular pile throughout the fabric face, said fur strips being placed at random to avoid the formation of a distinct pattern.

4. A pile fabric including a woven foundation with chain warps binding chenille fur strips, and V-shaped chenille fur strips, each of undulating pile height bound into the pile face with the pile throughout the length of each strip being irregular in its degree of erectness, whereby the undulations and irregularity of erectness of the pile in successive strips provides a rampant pile surface throughout the face of the fabric, said fur strips being placed at random to avoid the formation of a distinct pattern.

WILLIAM MURDOCK.