April 5, 1932. G. KLAIBER ET AL 1,852,417

METHOD OF PRODUCING FRINGES AND FRINGED FABRICS

Filed Feb. 21, 1929 3 Sheets-Sheet 1

FIG.1

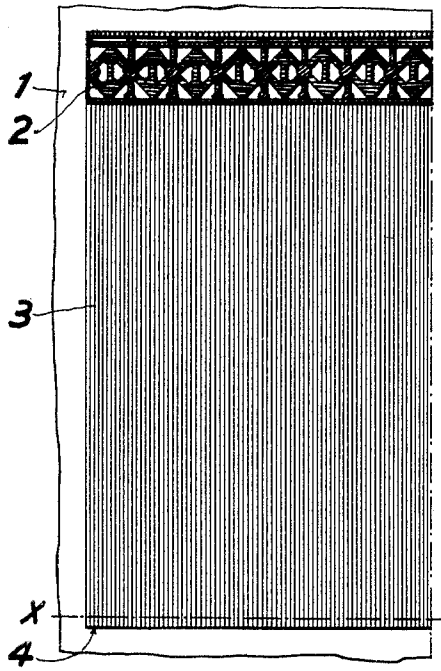


FIG.2

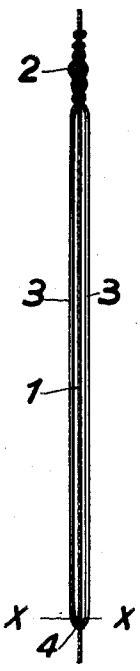


FIG.3

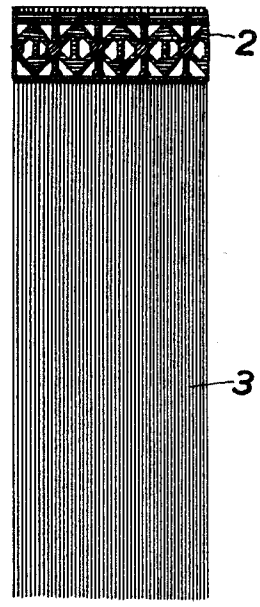


FIG.4

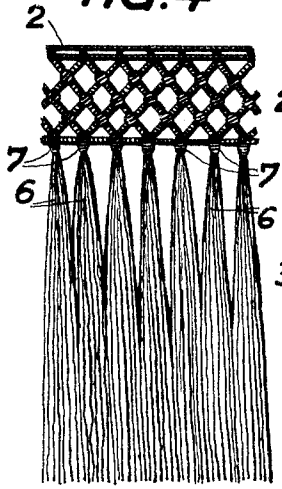


FIG.7

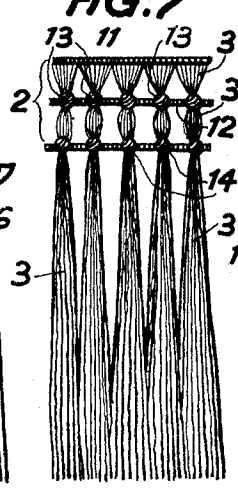


FIG.6

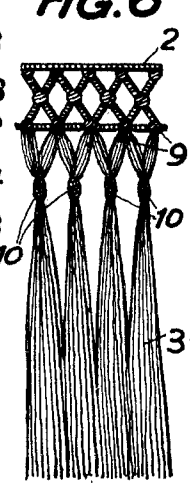
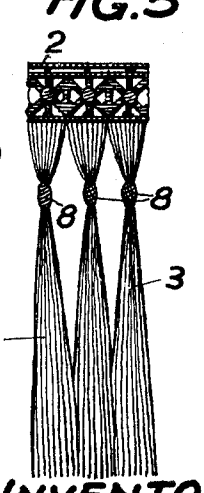


FIG.5



INVENTORS

Georg Klaiber

Emil Kühnis

By Harvey Ott & Co

Atty.

April 5, 1932. G. KLAIBER ET AL 1,852,417

METHOD OF PRODUCING FRINGES AND FRINGED FABRICS

Filed Feb. 21. 1929 3 Sheets-Sheet 2

FIG. 8

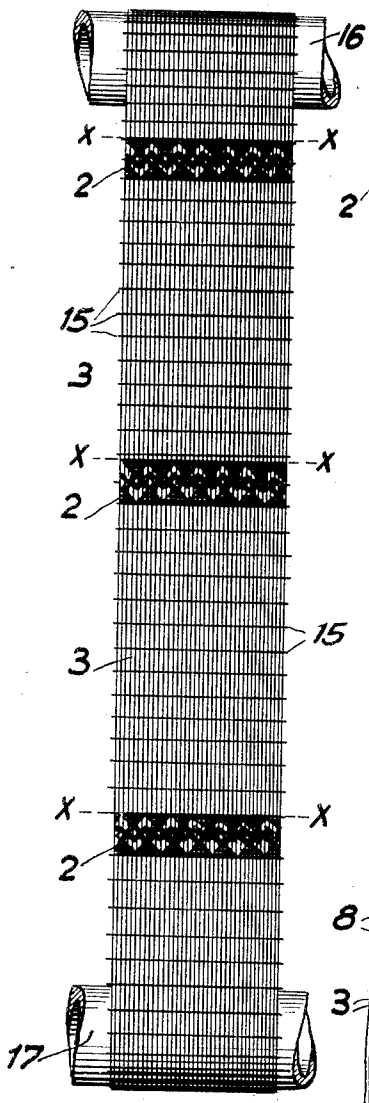


FIG. 9

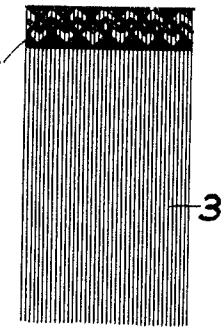


FIG. 10

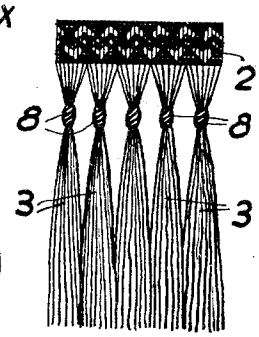
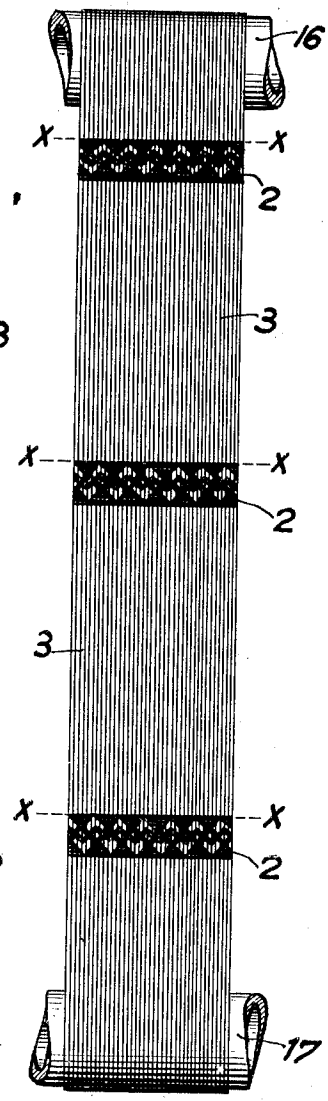


FIG. 11



INVENTORS

Georg Klaiber

Emil Kühnis

By Henry Orth Jr.

Atty.

April 5, 1932. G. KLAIBER ET AL 1,852,417

METHOD OF PRODUCING FRINGES AND FRINGED FABRICS

Filed Feb. 21, 1929 3 Sheets-Sheet 3

FIG. 15

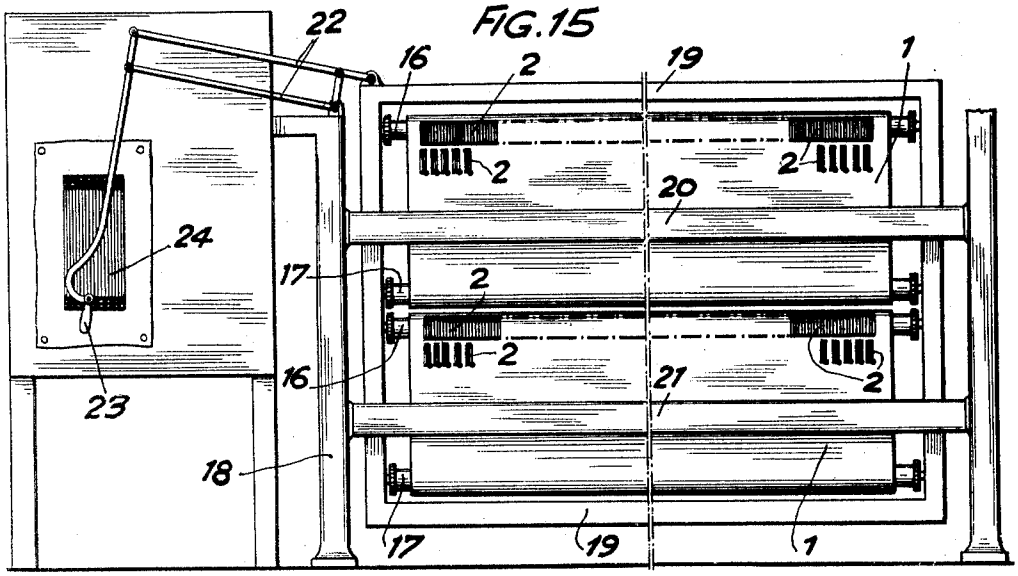


FIG. 12

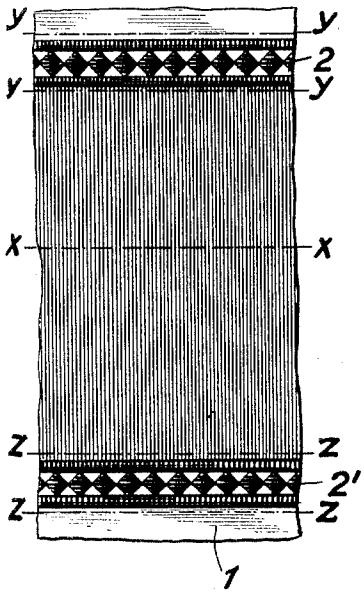


FIG. 13

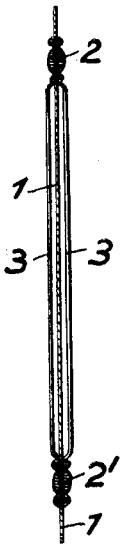


FIG. 14

INVENTORS

Georg Klaiber,
Emil Kühnis
By Henry Orth & Co
Atty.

Patented Apr. 5, 1932 1,852,417

UNITED STATES PATENT OFFICE

GEORG KLAIBER, OF ALTSTATTEN, AND EMIL KÜHNIS, OF OBERRIET, SWITZERLAND, ASSIGNORS TO THE FIRM JACOB ROHNER A. G., OF REBSTEIN, ST. GALL, SWITZERLAND

METHOD OF PRODUCING FRINGES AND FRINGED FABRICS

Application filed February 21, 1929, Serial No. 341,759, and in Switzerland February 24, 1928.

The present invention has reference to a method of producing fringes and fringed borders or articles in any designs and sizes and of any material and preferably by means of the embroidering machine.

A method for producing fringes is known in which loops or meshes are formed which loosely hang from the embroidered fabric. To this end a specially designed embroidering machine is needed, because it is necessary that while from one side the thread is pushed through the fabric by the needle thread catchers cooperate on the other side of the fabric with the loops and hold the latter when the needle recedes. If a border connecting the fringes at their roots is to be embroidered a second embroidering machine is needed or certain parts of the machine must be exchanged. The known method is tedious and can only be carried out with an expensive machine.

The subject matter of the present invention is a method by means of which regular fringes, i. e. fringes having free ended threads, can be produced and in which the embroidering of the fringes as well as of the transverse border holding the fringes together may be made in one single operation on the same embroidering machine.

The process according to the invention consists in that on a ground fabric a border and at right angles or approximately at right angles to the latter floating threads are embroidered in the desired closeness of the fringes, whereupon the threads are cut at their free ends whereby the length of the fringes corresponds to the length of the thread. Instead of embroidering one border two borders may be produced and simultaneously floating threads embroidered between the borders: by cutting these threads the middle of their length two borders provided with fringes are obtained. Alternately the thread forming the fringes may be placed like the warp threads of a weaving loom over beams and the latter inserted in the embroidering machine instead of the beams carrying the fabric; borders are there embroidered on these threads at regular distances and the thread cut off adjacent to one edge of each border to obtain fringed borders.

The accompanying drawings serve to illustrate several ways of carrying the method of the invention into effect and show examples of the article produced. In the drawings:

Fig. 1 is a front view of the embroidery on the ground cloth,

Fig. 2 is a section of Fig. 1,

Fig. 3 shows the fringed border obtained by the embroidery according to Fig. 1,

Figs. 4–7 show further examples of fringed borders;

Fig. 8 shows a further manner in which a fringed border may be produced by embroidering,

Figs. 9 and 10 show fringed borders obtained in the manner shown in Fig. 8;

Fig. 11 shows a way alternative to Fig. 8 of obtaining fringed borders,

Fig. 12 shows in a plan view an embroidery for producing fringed borders,

Fig. 13 is a vertical section of Fig. 12,

Fig. 14 is a further vertical section with the ground fabric removed, and

Fig. 15 shows in a diagrammatic manner a pantograph embroidering machine used for producing fringed borders.

Referring now to Figs. 1–3 of the drawings 1 denotes the ground fabric of any suitable material fixed in the frame of an embroidering machine in the well known manner. On the fabric 1 the border 2 is embroidered by means of the rows of needles of the machine. At right angles or approximately at right angles to the border the floating or strut threads 3 are embroidered of such a length and closeness as is desired to form the finished fringes. Preferably an ordinary shuttle embroidering machine is used for embroidering the fabric 1 and the threads of the needles and bobbins are connected with each other and with the fabric; when using a hand operated embroidering machine the floating threads are loosely pulled through the fabric 1. The embroidery pattern may be drafted on an enlarged scale on drafting paper and the movements of the frame of the machine are caused by a pantograph the tracer of which is moved along the design on

the drafting paper by the operator in the manner well known in the art of embroidering. The fabric 1 must be sufficiently resisting. The border 2 may have any pattern from a simple cord like strip to a richly decorated pattern of any width, to which the fringes are attached. The floating thread 3 is repeated any desired number of times depending on the desired closeness of the fringe threads.

After the embroidery is finished the floating threads are cut along the line x—x in Fig. 1. Thereupon the part of the fabric which is not covered by the border is cut away. Thereby the separation between the needle threads on one side of the fabric and the bobbin threads on the other side is suspended and both rows of threads now hang freely from the border 2 and form the fringes. The fabric may be removed within the border 2 by means of borers, and by the same implements the fabric may be removed on the edges of the fabric by boring it away during embroidering so that it only requires to be cut along line x—x to completely remove the fabric.

The fringes may be tied together at 7 on the machine to form bundles of fringes 6 (Fig. 4). The fringes may also be tied together at 8 at some distance from the border 2 (Fig. 5). Further two rows of knots 9 and 10 may be provided one arranged below the other and always two bundles of fringes tied together (Fig. 6).

With the fringed border shown in Fig. 7 the fringes are partly used as pattern for the border 2, in as much as after embroidering the border 11 by means of or without threads 12 the pattern is obtained by knotting the fringes at 13 and 14.

Instead of removing the fabric by boring or cutting mordanting may be resorted to if the border and the fringes are embroidered on a fabric capable of being affected by a mordanting material.

Referring now to Figs. 8–10 of the drawings the ground fabric on which the border is to be embroidered comprises warp threads 3 closely arranged one beside the other and of a kind of threads suitable for forming fringes. These warp threads 3 are held together by weft threads 15 arranged at some distance from each other and being of a minor quality as they have to be removed later on. The fabric is wound on beams 16 and 17, for instance on the cloth beams of a shuttle embroidering machine or on other beams specially adapted for the purpose. The warp threads, of which the fringes are formed, are vertical in the embroidering machine and it is thus possible to produce fringed borders of a length equal to the effective width of the embroidering machine. The borders 2 are embroidered over the whole length of the machine and thereupon the beams 16 and 17 are turned so that another border may be embroidered on the fabric. After the whole length of the latter is embroidered with borders distanced from each other to correspond to the desired length of the fringes the fabric is cut along the lines x—x and the weft threads 15 are removed. The product obtained is a fringed border as illustrated in Fig. 9 in which the fringes 3 hang loosely from the embroidered border. The fringes 3 may be tied together in bundles as is shown in Fig. 10. If necessary the fabric 3, 15 may be strengthened at the places where the borders are embroidered by an auxiliary fabric. The latter may not only serve for strengthening purposes but for obtaining special effects in the border. In the former case the parts of the auxiliary fabric which are not covered by the embroidery and have not been bored off are removed by cutting or mordanting, while in the latter case in which the auxiliary fabric is used for special effects only the parts of this fabric not required for these effects are removed.

Fig. 11 differs from Fig. 10 in as much as the warp threads 3 forming the ground fabric are not held together by weft threads such as 15 in Fig. 8 but are only connected together by the embroidered borders, otherwise the proceeding of producing the fringed borders is exactly the same as described with reference to Fig. 8. The warp threads 3 are wound on a beam in the same manner as on a warp beam in a loom and pass to a lower beam, both beams are inserted in an embroidering machine. The use of an auxiliary fabric for strengthening purposes may be desirable as described above and its superfluous parts may be removed in a mechanical or chemical manner.

In Figs. 12–14 a further manner of carrying into effect the method according to the present invention is shown. On the ground fabric 1 two borders 2 and 2′ are simultaneously embroidered, the distance of these borders from each other being twice the desired length of the fringes. The borders 2 and 2′ may have the same pattern or different patterns and they may be straight or curved or of any shape or arrangement. The floating threads 3 are embroidered from one border to the other by the same operation in which the borders are embroidered. Preferably a shuttle embroidering machine is used to have the bobbin threads on the rear of the fabric also used to form fringes.

When the embroidery is finished the floating threads 3 are cut intermediate the borders, for instance along the line x—x in Fig. 12. This cut may be in the middle of the distance between the borders or at some other distance and it may be straight or curved.

Thereupon the fabric 1 is cut along the lines y—y and z—z, the fabric is removed and the fringed borders are completed. As

described in the previous examples the fabric may be removed by boring during the embroidering. Fig. 14 is a section similar to Fig. 13 showing the finished fringed borders with the fabric removed.

According to this method fringes with a border and fringes without a border and from the smallest up to the greatest possible length may be produced.

Fringes of short length and closely arranged produce an article having a velvet like appearance.

Fig. 15 shows in a diagrammatic manner a pantograph embroidering machine on which the method according to the present invention may preferably be carried out. 16 and 17 are the beams on which the fabric 1 or the warp threads to be embroidered are wound; these beams are inserted in the movable frame 19 of the machine having a fixed frame 18 and two rows of needles 20 and 21. 22 is the pantograph mechanism and the operator moves with the handle 23 the tracer of the pantograph on the point paper 24 whereby the frame 19 carries out the movements necessary for obtaining the desired stitches as is well known in the art.

We claim:

1. A method of producing fringed borders which consists in embroidering on a fabric a border by means of an embroidering machine, embroidering at right angles to said border floating threads closely spaced beside each other, separating the fabric covered by said floating threads from the latter, and cutting said floating threads at their ends remote from the border.

2. A method of producing fringed borders by means of an embroidering machine, which consists in embroidering on a fabric borders at a distance from each other, embroidering the space between said borders with floating threads closely spaced beside each other, separating the fabric covered by said threads from the latter, and cutting said floating threads intermediate said borders.

In testimony that we claim the foregoing as our invention, we have signed our names.

GEORG KLAIBER.
EMIL KÜHNIS.