

Feb. 24, 1942.

O. P. RIEDEL

2,273,894

COMPOSITE METALLIC FABRIC

Filed July 9, 1940

2 Sheets-Sheet 1

Fig. 1

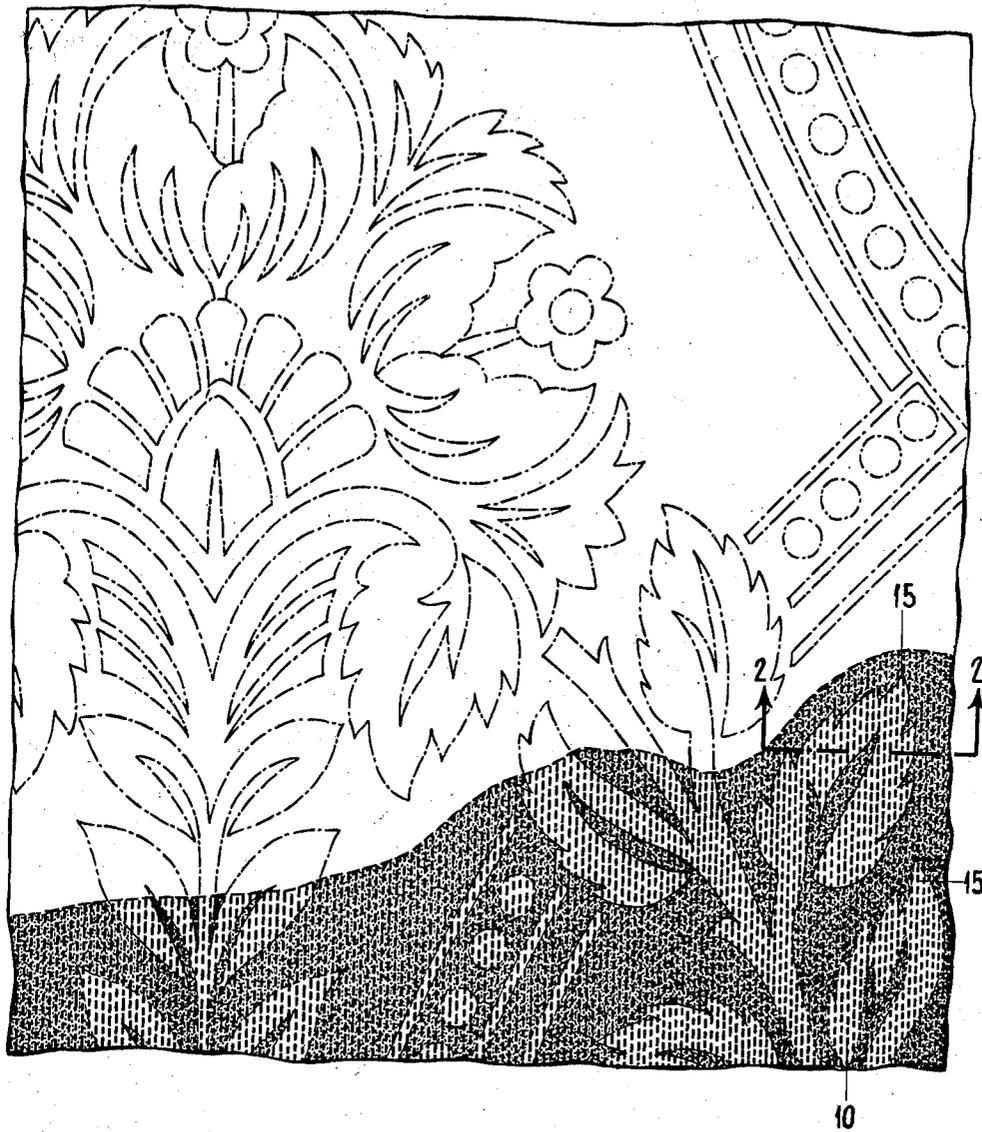
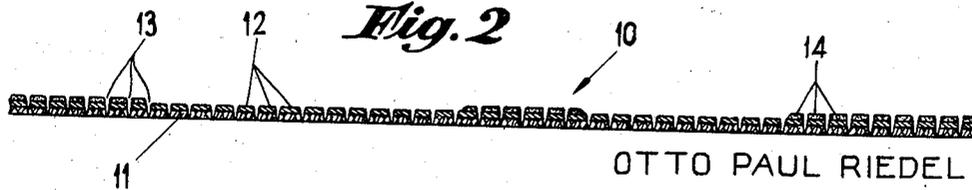


Fig. 2



OTTO PAUL RIEDEL

INVENTOR

BY *Joseph Blacker*

ATTORNEY

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Fig. 3

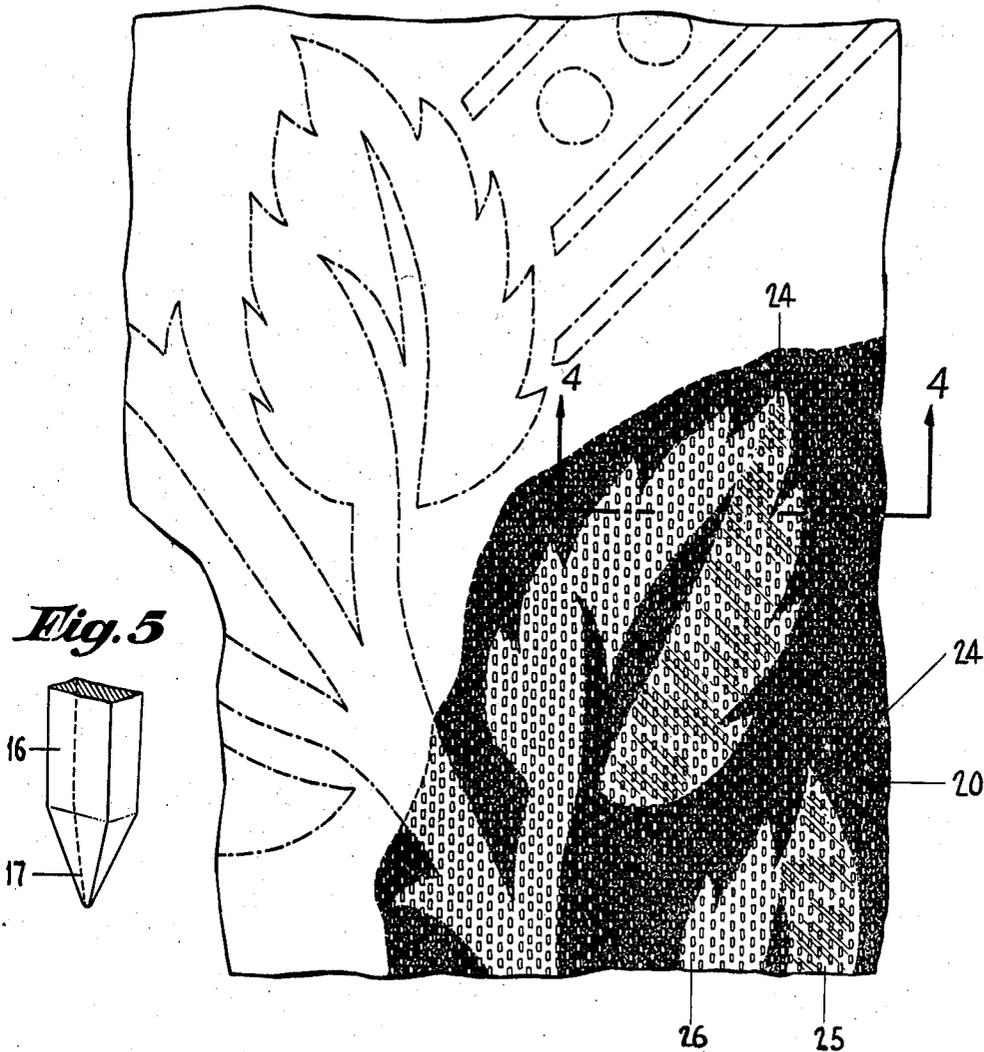


Fig. 5

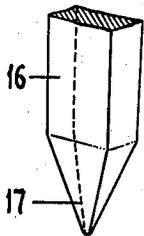
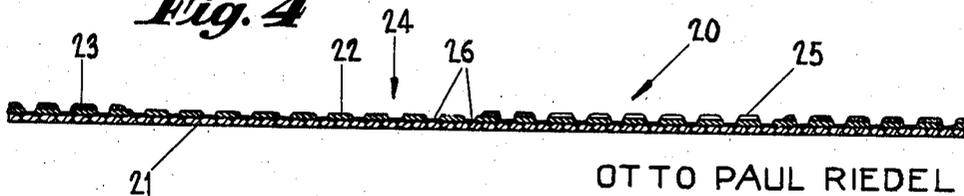


Fig. 4



OTTO PAUL RIEDEL
INVENTOR

BY *Joseph Blacker*

ATTORNEY

UNITED STATES PATENT OFFICE

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COMPOSITE METALLIC FABRIC

Otto Paul Riedel, Bergenfield, N. J., assignor to
Metaphane Inc., New York, N. Y., a corporation
of New York

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3 Claims. (Cl. 41-18)

This invention relates to a composite flexible metallic fabric which comprises a layer of metal foil and a woven fabric background, the metal surface being suitably ornamented, and being made substantially as pliable as the fabric background.

An object of this invention is to provide a composite flexible metallic fabric comprising a woven fabric background and an integral superimposed lustrous metal foil, portions of the metallic surface being covered with a flexible layer of opaque coloring matter forming a ground and portions of the metallic surface being uncovered and exposing ornamental metallic figures, and the said fabric having needle-like indentations whereby the said normally substantially rigid metallic surface assumes the pliability of the said background fabric.

Another object of this invention is to provide a composite flexible metallic fabric comprising a fabric background and a normally exposed integral superimposed metal layer, portions of the metallic surface being covered with an opaque ground and the remaining portions being uncovered and exposing ornamental metallic figures covered by a layer of transparent coloring material, the fabric having minute indentations all over its surface, the said indentations rendering the composite metallic fabric sufficiently pliable to permit sections of the fabric to be stitched together in seamed form.

Another object of this invention is to provide an ornamented composite metallic fabric having a metallic layer, and to closely subdivide and break up the continuity of the metallic surface to simulate the appearance of interstices of the type always present in a woven textile fabric.

Another object of this invention is to employ a highly ductile metallic layer and to cause the breaking up of the said metallic surface to be made by indenting means which press down the metal and form minute substantially pyramidal cavities all over the normally exposed surface of the fabric, the said pyramidal elements being adapted to reflect light from all angles.

With the above and other objects in view, the invention will be hereinafter more particularly described, and the combination and arrangement of parts will be shown in the accompanying drawings and pointed out in the claims which form part of this specification.

Reference will now be had to the drawings, wherein like numerals of reference designate corresponding parts throughout the several views, in which:

Figure 1 is a fragmentary plan view of a composite metallic fabric having its entire surface broken up with point-by-point inverted pyramid-like cavities and having portions of the metal surface covered with a flexible coating while other

portions of the metal surface remain uncovered and expose ornamental metallic figures.

Figure 2 is an enlarged cross-sectional view, the sections being taken as on line 2-2 in Figure 1.

Figure 3 is a fragmentary plan view of a modified composite metallic fabric having its entire surface broken up with inverted pyramid-like cavities, the said cavities being closely spaced and being in staggered relation to simulate the appearance of portions of interlaced threads of a woven textile fabric.

Figure 4 is an enlarged cross-sectional view, the section being taken as on line 4-4 in Figure 3.

Figure 5 is a perspective view of a fragmentary portion of an indenting tool having an inverted substantially pyramid-like lower end and which may be utilized to produce the pyramid-like cavities shown in Figures 3 and 4.

In the illustrated embodiment of the invention shown in Figures 1 and 2, the numeral 10 indicates a composite flexible metallic fabric comprising a sheet of flexible woven fabric 11 having an integral layer of metal foil 12 on one of its faces.

The entire body of the composite metallic fabric 10 has been broken up with point-by-point impressions or cavities 13.

Portions of the metallic surface have been covered with a relatively flexible coating or covering 14 contrasting in color with the metal foil so as to produce a two-tone color effect. Portions of the metallic surface have been left uncovered forming ornamental metallic figures 15.

It is to be noted that the colored flexible covering forms a ground around the ornamental figures.

It is also to be noted that where "foil" is used throughout the specification and claims, that any satisfactory form of adhered coating is indicated.

The cavities 13 are preferably of inverted substantially pyramid-like form and are closely spaced and extend through the opaque flexible coating 14, through the metal foil 12 and through the woven fabric 11 and cause the coating and the metallic surface to assume the pliability of the woven fabric 11.

The walls of the inverted substantially pyramid-like cavities 13 are lined with the depressed metal foil. These sloping angular metallic surfaces form individual reflecting elements all over the normally exposed surfaces of the metallic fabric 10, and this adapts the said metallic fabric to reflect light from all angles.

As shown in Figure 5, the means for forming the cavities or indentations 13, may take the form of an indenting tool 16 having an inverted, substantially pyramid-like striking end portion 17. At least the striking end portion of the indenting tool is tapering. The pressure exerted

upon the indenting tool causes the metal foil to deform into definite surfaces. It is to be understood that the indenting end portion of the tool may have designs or shapes different from that shown in Figure 5. In operation, the impressions or cavities 13 are preferably impressed upon the normally exposed surface and extend to the normally concealed surface of the composite metallic fabric, the metal foil employed being highly ductile and thereby adapted to be deformed by the indenting tool and to take on the form of the tool, without any cracking or distortions. When the indenting tool enters the composite fabric 10, the paint coating is consolidated and permits the shiny metallic foil to be seen through the cavities formed thereby.

The indenting tool 16 may be taken as representing any suitable means for performing the same function. In practice, disks having serrated edges all around their circumference may be employed to impart the indentations to the metallic fabric. A large number of these serrated disks may be mounted side by side and in parallel relation upon an axle with the teeth or serrations in properly spaced and in as close relation as desired. Each of the serrations is performed to the design of indentation desired.

The material of this invention comprises the fabric base 11, preferably a woven textile fabric such as cotton or the like. A light reflecting metallic film or foil covers the entire area of the base. The foil, such as aluminum, is preferably cemented onto the base. Portions of the metallic surface are covered with a flexible opaque paint coat, leaving selected figured metallic areas uncovered. The paint coating preferably contains oil and is soft and non-brittle and fully adapted to form a flexible ground upon the metallic surface. A transparent coating of lacquer may be applied to the exposed metallic areas. The transparent coating may be colored by suitable dyes.

The ornamental metallic figures thus formed will be found particularly applicable to the true representation of flowers, but is not necessarily confined to this use.

Figures 3 and 4 show a modification of the metallic fabric shown in Figure 1, on an enlarged scale. This metallic fabric is identified by the numeral 20 and comprises a sheet of flexible woven fabric 21 having an integral layer of metal foil 22 on one of its faces. Portions of the metallic surface have been covered with a relatively flexible coating or covering 23 contrasting in color with the metal foil so as to produce a two-tone color effect. Portions of the metallic surface have been left uncovered and forming ornamental metallic figures 24.

Figure 3 shows a portion of the ornamental figure 24 covered with substantially transparent colored lacquer 25. The portion 25 is made darker than the portion that is not covered, to subdue the metallic luster of the foil. The composite metallic fabric 20 has been broken up with point-by-point impressions or cavities 26. The cavities 26 are preferably of inverted substantially pyramid-like form and are closely spaced and extend through the opaque flexible coating 23, and through the metal foil 22, but do not extend entirely through the woven fabric 21. The cavities 26 cause the coating and the metallic surface to assume the pliability of the woven fabric 21.

As shown in Figure 3, the adjacent cavities 26 are arranged in staggered relation to simulate the appearance of portions of metallic threads of high luster crossing non-lustrous threads of a woven textile fabric.

In accordance with the patent statutes I have described and illustrated the preferred embodiments of my invention, but it will be understood that various changes and modifications can be made therein without departing from the spirit of the invention as defined by the appended claims.

I claim:

1. In a composite flexible fabric having a decorative surface, comprising a woven fabric background, a superimposed metal foil covering the entire surface of said fabric, portions of the metal foil surface having a flexible covering thereon forming a ground, leaving other portions forming ornamental figures, the entire area of said fabric having closely spaced linear indentations passing through said flexible covering and said metal foil and stopping short of said woven fabric, said indentations being spaced apart in staggered and parallel relation and causing the uncovered portions to simulate interlaced metallic threads of high luster crossing non-lustrous threads, said indentations causing said metallic surface to assume the pliability of said woven background, said indentations forming metallic elements all over the normally exposed surface of said fabric, the decorative surface of said metallic elements being adapted to reflect light directed from all angles against said decorative surface and causing said composite fabric to simulate a woven metallic cloth.

2. A composite flexible fabric, comprising a fabric background, an integral superimposed metal foil covering the entire surface of said fabric, portions of the metal foil surface having a flexible covering thereon forming a dull ground, the entire area of said fabric having closely spaced indentations passing through said flexible covering and said metal foil, said indentations being spaced apart to simulate interlaced metallic threads, said indentations causing said metallic surface to assume substantially the pliability of said fabric background, said indentations forming inverted substantially pyramid-shaped metallic elements all over the normally exposed surface of said fabric, said metallic elements being adapted to reflect light directed from all angles and causing said composite fabric to simulate a woven metallic cloth.

3. In a composite flexible fabric, comprising a fabric background, a superimposed metal foil or metal film covering the entire surface of said fabric, portions of the metal foil surface having a flexible covering thereon forming a dull ground, said fabric having closely spaced indentations passing through said flexible covering and said metal foil and being spaced apart to simulate interlaced metallic threads, said indentations causing said metallic surface to assume substantially the pliability of said fabric background, said indentations forming metallic elements all over the normally exposed surface of said fabric, said metallic elements being adapted to reflect light directed from all angles and causing said composite fabric to simulate a woven metallic cloth.

OTTO PAUL RIEDEL,