J. GROETSCHEL.

PROCESS FOR THE PRODUCTION OF EMBROIDERIES.

APPLICATION FILED FEB. 4, 1913.

1,067,605. Patented July 15, 1913.

Fig. 1.

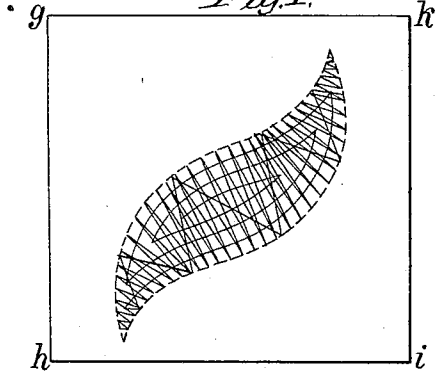


Fig. 2.

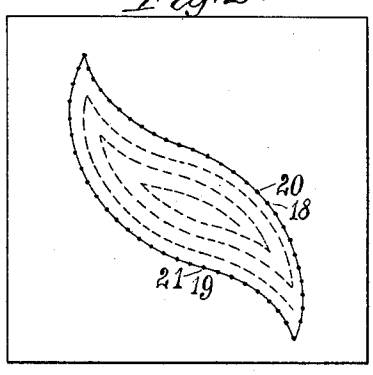


Fig. 3.

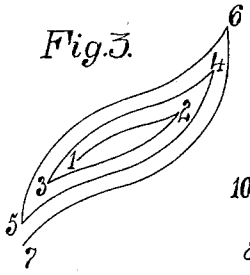


Fig. 4.

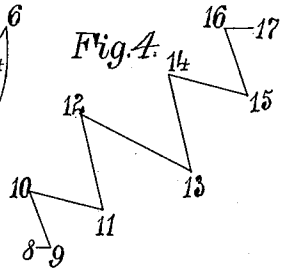
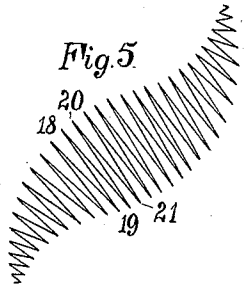


Fig. 5.



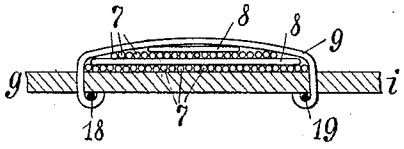


Fig. 6.

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PROCESS FOR THE PRODUCTION OF EMBROIDERIES.

1,067,605. Specification of Letters Patent. Patented July 15, 1913.

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To all whom it may concern:

Be it known that I, JULIUS GROETSCHEL, a subject of the German Emperor, residing at Plauen, in Vogtland, in the Kingdom of Saxony, Germany, have invented certain new and useful Improvements in Processes for the Production of Embroideries, of which the following is a specification.

The invention has reference to an improved process for the production of discharge embroideries.

Before I commence to describe wherein the improvement discovered by me consists, I will first of all state that, for many years past, it has been known to produce a piece of embroidery from different kinds of yarn or thread (hereinafter called thread), and then the said embroidery was submitted to a process of the type known in the textile industry as the discharging-process. If, for instance, there be selected as the background for embroidery some backing of animal fibers, such as wool, and if there be selected for embroidering some threads made from plant fibers, such as cotton, then by immersing the piece of embroidery when completed in some caustic lye all the animal fibers can be destroyed and only the vegetable fibers will remain. This is merely one single example. There are also other well-known methods of producing such discharge embroideries.

For my invention only such embroideries come into question as can be produced upon a shuttle embroidering machine. To facilitate the comprehension of the description given below I will assume that it is necessary, or at least highly desirable, to use such a shuttle embroidering machine for the employment of the new process as is provided on the front face of the embroidery with two rows of needles and on the rear surface thereof with two or three rows of shuttles so that, according as may be required or as may be necessary, one row of needles can be withdrawn into the inoperative position the work being done with the other row of needles. The one row of needles must be provided with dischargeable, and the other row of needles with non-dischargeable, threads. In the same way the rows of shuttles must be filled with threads of varying dischargeable nature. Under these assumptions it is possible to select a number of different thread combinations. For instance the embroidery can be done with a non-dischargeable needle thread and a non-dischargeable shuttle thread, or another time with a dischargeable needle thread and a non-dischargeable shuttle thread, and a third time with a non-dischargeable needle thread and a dischargeable shuttle thread. All these combinations can be carried out by embroidering upon a backing of dischargeable material, or again by embroidering on a background of non-dischargeable material, or again in the third instance by embroidering at the beginning upon a dischargeable background while, first when the embroidery is only half completed, a non-dischargeable background is spread over and fastened upon the half completed embroidery whereupon the said piece of embroidery is then finished upon this double background. In this way I am enabled to produce such beautiful embroideries that they not only cause astonishment, but also charm the spectator, by their novel attractiveness and by the numerous combinative possibilities.

When I speak in this description of dischargeable and non-dischargeable textile fibers, I desire that the meaning of these terms be taken with a certain restriction. In reality there are no chemical mordants of such a nature that they will only destroy an animal fiber while leaving a vegetable fiber quite unmolested, or else destroy only the vegetable fibers while the animal fibers remain unchanged. On the contrary the truth is rather as follows:—If an animal and a vegetable fiber be left long enough in a mordant lye then both of them will be destroyed. However in practice, as is well known, there are used for this purpose such mordants which will destroy the one kind of fiber quickly, and the other more slowly. If, therefore, the mordant be allowed to act upon the finished embroidery only for a short time, then that will suffice to destroy the one class of fiber without the other being affected to any appreciable extent. Therefore when I speak in my description of dischargeable and non-dischargeable material, that is done merely for the sake of brevity. The attentive reader will imagine to himself such materials as can be destroyed by a mordant with greater or lesser ease.

The accompanying drawing illustrates my invention, given by way of an example. All the six figures of the drawing are diagrammatic in character, and are only to be

understood in such a sense as that they serve the individual elements of a perhaps very voluminous embroidery consisting of many pattern elements. All the figures are, for the sake of clearness, drawn to a much larger scale than the embroidery itself.

Figure 1 of the drawing, shows the front, and Fig. 2, shows the back of embroidery on a non-dischargeable material. Fig. 3, shows stitches made with a non-dischargeable needle thread along certain lines. Fig. 4, shows the stitching effected with the same threads as in Fig. 3, but in a different direction. Fig. 5 illustrates a variation in the work, explained fully hereinafter. Fig. 6, is a cross section through the embroidery after the dischargeable threads have disappeared.

The method of employment shown in Figs. 1 to 6, by way of example, assumes that the material (*g*, *h*, *i*, *k*) upon which the embroidery is to be done, consists of a non-dischargeable material. Fig. 1 is the front, and Fig. 2 the back thereof.

First phase Fig. 3: Stitches are made with a non-dischargeable needle thread and a dischargeable shuttle thread along the lines (1, 2, 3, 4, 5, 6, 7).

Second phase Fig. 4: The stitching is now effected with the same threads in a direction transverse to the line (8, 9, 10), etc., up to (17).

The object of these two phases is to produce, by a maze of crossing threads, a kind of embossed cushion. This cushion can be brought up to any height desired by repeating the two phases (7) and (8) several times.

Third phase Fig. 5: The shuttle threads, which are non-dischargeable for this third phase, must be changed, but the needle thread remains the same; that is to say it is also non-dischargeable. The zigzag lines shown in Fig. 5 are now stitched. In doing this, however, special care must be taken that the shuttle rows be changed for each stitch; that is to say, for instance, the points (18—20) are stitched or embroidered with the one shuttle, but the points (19, 21) are made with the other shuttle. Both shuttles, however, must have non-dischargeable threads. The points (18, 19, 20, 21) are also shown in Fig. 2. Why this new type of arrangement must be made, will be immediately understood when I point out that the object of this process is to make the rear side of the embroidery as smooth as possible, that is to say without threads. If, namely, the shuttles were not changed in this third phase but—as in the processes hitherto known—were allowed to work at the back with only one shuttle, then there would be produced upon the rear side exactly the same zigzag figure as is shown in Fig. 5. As, however, this shuttle thread is non-dischargeable then it would not be destroyed by the subsequent mordant process, and would also produce a cushion at the back in the same way as on the front side. This is precisely that which it is intended to avoid as an embroidery, possessing relief-like portions at the back, can never be so fine and uniform as a piece of embroidery which is perfectly smooth at the back; on the contrary it will display creases and elevations. The last phase Fig. 6 permits this to be clearly seen. Fig. 6, namely, is a cross section through the embroidery. The material (*g*—*i*) is shown excessively thick, in order that what I am going to explain may be clearly seen. All the dischargeable threads have disappeared in Fig. 6. (7) represents those threads which are to be seen in Fig. 3. Over these lie the threads (8) which correspond to Fig. 4. Then there follows again a group of threads (7), and then again the threads (8). Right at the top in Fig. 6 there may be seen the threads (9), which are held fast at the back by the threads (18, 19). In the diagrammatic representation shown in Fig. 6 the stitches (18, 19) stand out strikingly from the material (*g*—*i*). In reality they would scarcely be noticed, and the rear surface is perfectly smooth. In this connection it is worthy of remark that the threads (7, 8) in Fig. 6 have no connection with the material (*g*—*i*) owing to the destruction of the shuttle threads. They lie in the shape of a tangle of threads, loosely upon the upper surface of the embroidery and are held fast by the threads.

What I claim and desire to secure by Letters Patent, is:

The herein described process of producing embroideries consisting in stitching with a non-dischargeable needle thread and a dischargeable shuttle thread upon a non-dischargeable body material to form padding stitches, then overstitching said padding stitches with both non-dischargeable shuttle and needle threads and chemically removing said dischargeable shuttle threads.

In testimony whereof I affix my signature in presence of two witnesses.

JULIUS GROETSCHEL.

Witnesses:
JOSEPH MÜHLS,
ROBERT H. NIER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."