

(No Model.)

O. FRITZSCH.
METHOD OF MANUFACTURING PEARL RIBBONS.

No. 473,309.

Patented Apr. 19, 1892.

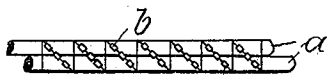
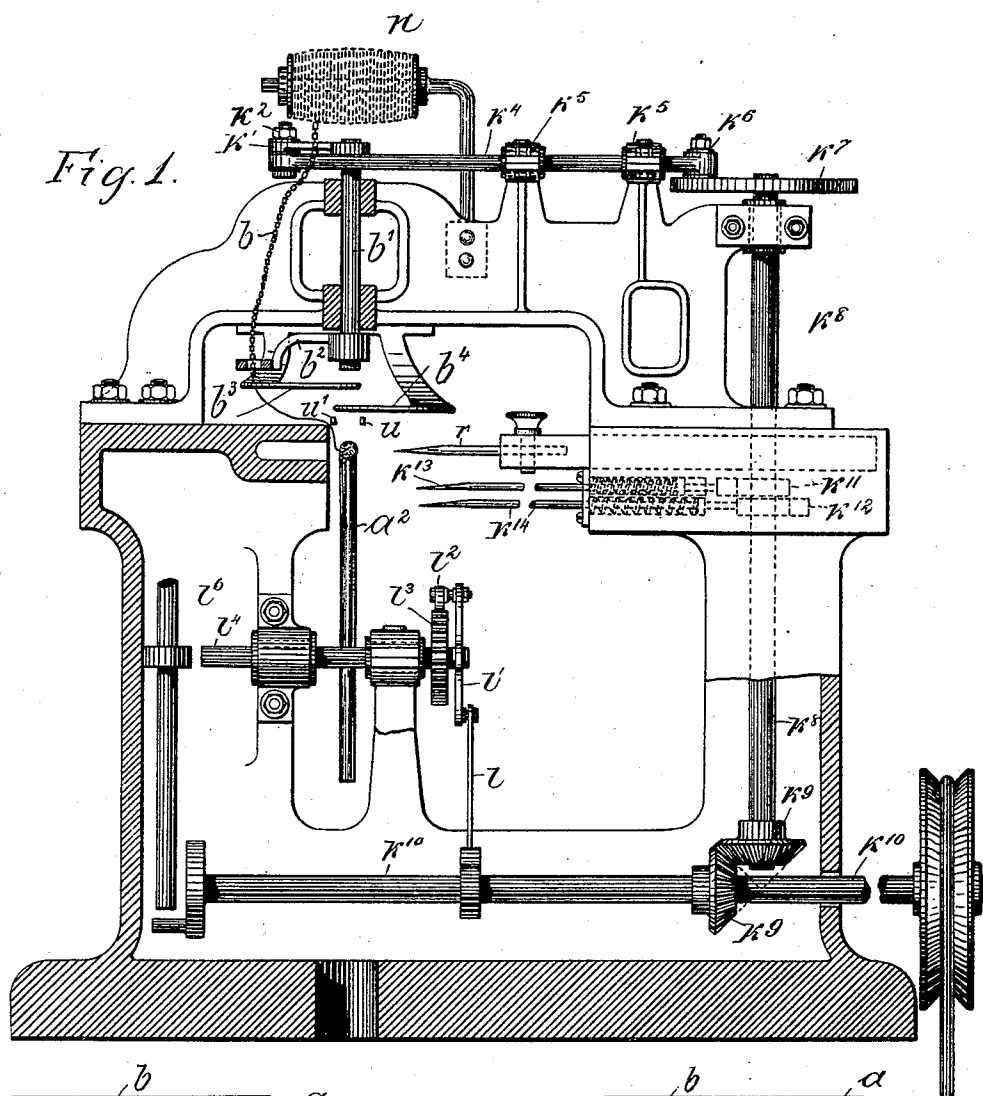


Fig. 2.

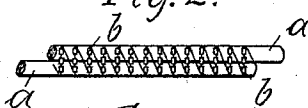


Fig. 3.

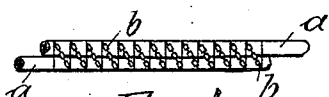


Fig. 4.

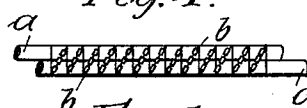


Fig. 5.

Witnesses:

W. W. Nenski,

G. A. Tauter

Inventor:

Oswald Fritzsch,

by Albert R. Dinkel

Attorneys.

UNITED STATES PATENT OFFICE.

OSWALD FRITZSCH, OF ANNABERG, GERMANY.

METHOD OF MANUFACTURING PEARL RIBBONS.

SPECIFICATION forming part of Letters Patent No. 473,309, dated April 19, 1892.

Application filed September 22, 1890. Serial No. 365,856. (No specimens.) Patented in Germany April 27, 1890, No. 53,962; in France May 8, 1890, No. 205,554; in England May 23, 1890, No. 8,094, and in Austria-Hungary November 2, 1890, No. 20,375 and No. 37,827.

To all whom it may concern:

Be it known that I, OSWALD FRITZSCH, a subject of the King of Saxony, and a resident of Annaberg, in the Kingdom of Saxony, German Empire, have invented a new Method of Manufacturing Pearl Ribbons, (for which I have obtained patents in Germany, No. 53,962, dated April 27, 1890; in Austria-Hungary, No. 20,375 and No. 37,827, dated November 2, 1890; in France No. 205,554, dated May 8, 1890, and in Great Britain, No. 8,094, dated May 23, 1890,) of which the following is a full, clear, and exact specification.

My invention relates to a new method of manufacturing pearl ribbons, in which a thread bearing the pearls is used; and the object of my invention is to attach this thread on a ribbon in such a manner that the pearls are arranged in separate series, so as to get parallel series of pearls by those parts of the thread which are filled with pearls, and to connect said parallel series of pearls by those parts of the threads which are empty of pearls, said empty parts being also of parallel position, the whole thread being fixed to the cordon or cordons by stitches through or across the latter.

Pearl ribbons made according to the old method show no regular site of the pearls among one another. It is directly the essential purpose of this invention that every pearl shall be in regular site to all those which surround it. They may be arranged either singly or in rows of two, three, four, or more pieces.

The manufacture of such pearl ribbons and cordons is effected in a manner as follows: A thread supplied with pearls in usual manner is laid upon or around the ground cordons and fastened by a stitch made through the middle of the cordons. That thread with pearls, however, though filled with them as usually, is not applied as usually, but prepared before in such a manner as to be alternately full of pearls and empty of them, so that parts with pearls and parts without them change perfectly regular, it being made possible thereby to have all those parts of the thread which are full of pearls laid in the same direction and get a regular position of all the pearls relative to one another, while all

those parts which are empty of pearls form a passage from one row to the other or the junction between two consecutive rows.

Four sorts of such pearl ribbons or cordons and a machine for manufacturing them are represented in the accompanying drawings, in which similar letters denote similar parts throughout the different views, and in which—

Figure 1 is a side view of the machine, partly in section. Figs. 2 to 5 are the four different executions of the new ribbon.

The machine, which in the whole may be modified in every imaginable way, possesses, however, two mechanisms which are indispensably requisite and of greatest importance for executing the proceeding in correct manner. These mechanisms consist, first, in a guide b^2 , moved to and fro for the purpose of carrying the thread to the left and right side, and, secondly, in a distributing-regulator for the pearls, allowing them to glide down on the thread only alternately and in equal quantities. That regulator is formed by two arms $b^3 b^4$, which are fixed to the frame of the machine. The horizontal parts of these arms are of fork-like shape, and when seen from above have a curvature, according to the movement of the end of guide b^2 . This guide is secured to the under extremity of a short shaft b' , which is alternately turned in opposite directions by the machine. The end of the guide has a hole through which the pearl thread is put and by which it is moved to and fro from one fork to the other. Said forks are in different height, the slits in them only as wide as to allow a passage of the thread itself, but keeping back the pearls above these parts.

The pearl thread b to be secured to the ground-cordon a at the left side and guide b^2 oscillate from the left to the right. The pearls which were kept back before by the upper fork b^3 will now fall down upon the under fork b^4 . At that time a catch u , moved by the machine automatically in any way, is pressed down and a part of the thread without pearls is laid half around the ground-cordon. The catch u remains now in that position, while guide b^2 begins its retrograde motion until arriving at central position. It is

obvious that a definite number of pearls is now separated from the others, according to the difference in height between both the forks. Those pearls between the forks will become free as soon as the retrograde motion of the guide from the right to the left proceeds, falling down and collecting over and around the base-cordon a . All remaining pearls are carried then again by the upper fork b^3 , as formerly. As soon as the retrograde motion of guide b^2 has been completed another catch u' is moved downward, and the thread on the cordon is fastened now by a stitch of needle r directly through the midst of the cordon. The needle having made the stitch and gone back into its normal position, a complete operation is finished and both the catches are moved upward again. Guide b^2 performs again a right-hand movement, and the same operation as described above is repeated. This is done continually in perfectly regular manner, while the guide as well as the catches and needle are operated by the machine.

In order to vary the number of pearls which are intended to form a row, according to the thickness of the cordon or breadth of the ribbon, the forks b^3 b^4 may be arranged so as to allow an alteration of the vertical distance between them.

I will hereunto add a description of the machine shown in Fig. 1 and explain how the same works. The pearl thread b , wound upon the roll n , passes first the guide b^2 and afterward the two arms b^3 and b^4 . The oscillation of the guide b^2 is effected by means of the crank k' , this having its seat upon the same axis b' as the guide b^2 . A rod k^4 , sliding in two bearings k^5 , is connected at one side with the crank k' , the gudgeon k^2 of that crank k' sliding in a slot provided at the end of the rod k^4 . The rod k^4 is moved by a gudgeon k^6 , sliding in an oval groove of the disk-wheel k^7 , thus causing an alternate motion of the rod k^4 and an oscillating motion of the guide b^2 , in extent according to the shape of the oval groove. The disk-wheel k^7 is fastened to axis k^8 , a rotary motion being imparted to the same by the conical wheels k^9 and by the main shaft k^{10} . Two oval disk-wheels k^{11} and k^{12} , secured to shaft k^8 , serve to set in alternate motion two rods k^{13} and k^{14} , which are under the pressure of springs, so as to go back

again when they have been pushed forward by the disk-wheels k^{11} and k^{12} . The rods k^{13} and k^{14} act upon the catches u and u' in such a manner that in proper time the working of the same is effected, as hereinbefore described.

For further explanation of the machine I remark that an advance of the wheel a^2 , around which the base-cordon a is placed, must be effected after every stitch of the needle. As indicated in Fig. 1, such motion is performed by the connecting-rod l , the two armed lever l' being turned thereby. This lever l' bears a pawl l^2 , imparting a periodic movement to the ratchet-wheel l^3 in well-known manner, thus moving the axis l^4 , which bears said wheel a^2 .

Shaft l^5 in the drawings is intended merely to indicate the manner of moving the shuttle in case that double-lock stitch be applied.

Having thus fully described the nature of my said invention, what I desire to secure by Letters Patent of the United States is—

1. The method of manufacturing pearl ribbons, consisting in applying a thread alternately full of pearls and empty of them to a cordon or ribbon or to several parallel cordons in a zigzag course, so as to get parallel series of pearls by those parts of the thread which are filled with pearls, and to connect said parallel series of pearls by those parts of the thread which are empty of pearls, as described.

2. The method of manufacturing pearl ribbons, consisting in applying a thread alternately full of pearls and empty of them in equal distances to a cordon or ribbon or to several parallel cordons in a zigzag course, so as to get parallel series of pearls by those parts of the thread which are filled with pearls, and to connect said parallel series of pearls by those parts of the thread which are empty of pearls, said empty parts being also of parallel position, the whole thread being fixed to the cordon or cordons by stitches through or across the latter, as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

OSWALD FRITZSCH.

Witnesses:

CARL WEISS,

FRIEDRICH SPULING.