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METHOD OF METALIZING ELECTRICALLY
NONCONDUCTIVE THREADS
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2,566,074

Fig. 1.

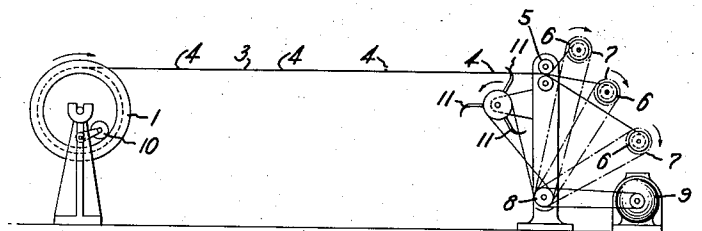
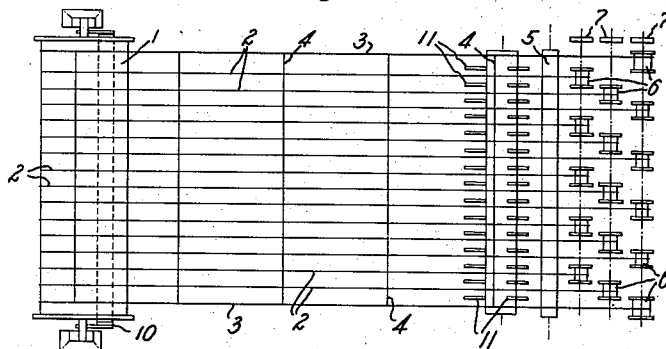


Fig. 2.

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UNITED STATES PATENT OFFICE

2,566,074

METHOD OF METALIZING ELECTRICALLY
NONCONDUCTIVE THREADS

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Application February 26, 1948, Serial No. 11,303
In Great Britain November 19, 1945Section 1, Public Law 690, August 8, 1946
Patent expires November 19, 1965

3 Claims. (Cl. 28—74)

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This invention relates to the metallizing of non-conductive textile threads.

It is possible to metallize non-conductive threads such as threads of cotton, artificial silk, nylon and the like by first treating them so as to render their structure preliminarily electrically conductive and then subjecting the conductive threads to a process of electro-deposition.

It is possible to attain the result by treating and spooling single threads or strands separately but it will be obvious that to adopt this method would involve considerable expense which would be reflected in the final cost of the product.

The object of the present invention is to provide a method and apparatus whereby the process can be carried out under commercially economic and practical conditions.

The present invention consists broadly in a method of manufacturing metallized threads from non-conductive material, according to which a fabric of non-conducting material, woven with warps of the required denier held together by wefts widely separated but sufficient to maintain the warps in position, is metallized as a whole and the warps are then collected on separate spools, the wefts being removed and discarded during the spooling operation.

In carrying into practice the method of the invention, I employ a fabric which may be of any desired width and may contain any desired number of warp threads, but instead of containing a normal number of weft threads it contains only a small number of weft threads widely spaced apart, the number of wefts being only sufficient to hold the warps together. The border warps—that is the longitudinal edges of the fabric—are preferably of more substantial denier than the warps proper so as to give adequate tensile strength to the fabric as a whole.

This fabric is then subjected to metallization preferably by electrode-deposition in accordance with the principles disclosed in my application Serial No. 581,169 filed March 5, 1945, now U. S. Patent No. 2,474,502, for example by means of a continuous plating plant in accordance with application Serial No. 584,276 filed March 23, 1945, now abandoned, by Arthur Bruce Frazer Gillespie Richardson and the present applicant.

After the metallized fabric has passed from the plating machine and been thoroughly dried the warps are led to and wound upon individual spools so that all the metallized warp threads are simultaneously collected, the comparatively few connecting weft threads being discarded. The disconnection of the weft threads may occur

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automatically but means may be provided for positively removing them such for instance as a rotating hook device located between the plating apparatus and the spooling equipment.

The spooling of the various warp threads may be effected by more-or-less normal spooling machines but for the sake of clarity the accompanying purely diagrammatic drawings illustrate the general lines on which a spooling equipment for use in carrying out the invention could be constructed.

Figure 1 being a plan and

Figure 2 an elevation.

In these drawings the numeral 1 designates a storage roll on which is carried the special fabric above described, metallized for example as described in the above mentioned application Ser. No. 584,276, now abandoned.

The special fabric consists of as large a number of warps 2 as is convenient the outer or border warps 3 being, preferably, of greater denier than the main body of warps 2.

A number of weft threads 4 are employed sufficient to hold the warps in place and enable the fabric as a whole to be woven in more-or-less normal manner. The numeral 5 designates guide rods or rollers between which the fabric passes in its passage from the storage reel 1 to the spools 6 upon which the individual warps are to be spooled. The spools 6 are, of course, so arranged that each warp thread has an uninterrupted run to its spool. The spindles or shafts on which the spools are keyed may be driven in any suitable manner as, for example, by the pulleys 7 driven from pulleys mounted on the shaft 8 driven from the motor 9.

The weft threads have to be removed before the warps reach their spools. This can be accomplished by providing a rotating hook 11 driven by belt and pulley from the shaft 8 and timed to be in position to obstruct and catch each of the wefts and tear or displace it from the fabric.

The storage roll 1 will preferably be provided with an adjustable friction braking device indicated at 10 to ensure that the tension on the fabric set up by the rotating spools 6 will be sufficient to prevent any over-running of the roll and ensure sufficient tension to keep the fabric from sagging unduly on its passage to the guide rods or rollers 5.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. A method of manufacturing metallized

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threads from non-conductive material, which method comprises metallizing a fabric of non-conducting material, woven with warps of the required denier held together by wefts widely separated but sufficient to maintain the warps in position, spooling the warps on separate spools and removing the wefts during the warp spooling operation.

2. A method of manufacturing metallized threads from non-conductive material according to claim 1, wherein the woven fabric is metallized by electrodeposition.

3. The method which comprises treating a woven fabric of non-conductive material to render the same conductive, metallizing the same by electrodeposition, winding the warp threads on separate spools and withdrawing the weft threads during the said spooling of the warp threads.

CHARLES THEODOR SUCHY. 20

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