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PROCESS FOR THE MANUFACTURE OF WARP OF DIFFERENT COLORED THREADS.

APPLICATION FILED DEC. 12, 1911.

**1,096,702.** Patented May 12, 1914.

FIG. 1.

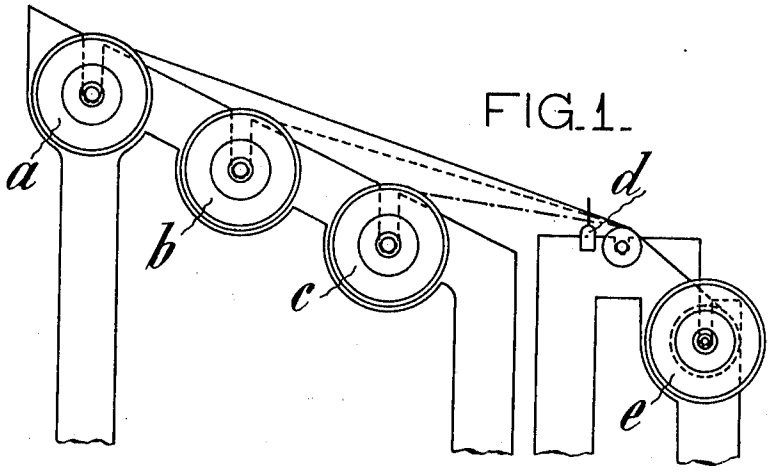
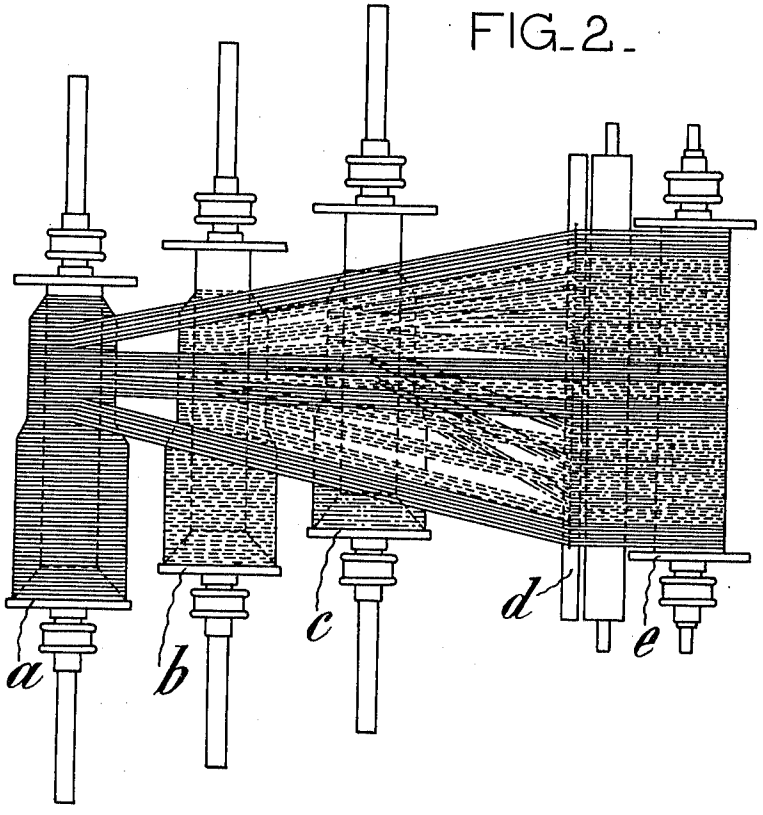



FIG. 2.




WITNESSES

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## PROCESS FOR THE MANUFACTURE OF WARP OF DIFFERENT-COLORED THREADS.

1,096,702. Specification of Letters Patent. Patented May 12, 1914.

Application filed December 12, 1911. Serial No. 665,269.

*To all whom it may concern:*

Be it known that we, WILLY FLEISCHER and ERNST FLEISCHER, manufacturers, subjects of the King of Prussia, residing at Reichenbach, Silesia, in the Kingdom of Prussia and Empire of Germany, have invented new and useful Improvements in the Process for the Manufacture of Warp of Different-Colored Threads, of which the following is a specification.

This invention has for its object to provide an improved process for the manufacture of warp of different colored threads (hereinafter called the colored warp) which shall enable even a weaver working on the smallest scale to manufacture his warps from one to any desired number, in a systematic, and therefore cheap and clean manner without waste.

The invention consists in forming the desired colored warp by combining together threads from a number of supply beams each of which carries a supply of threads of one color wound in a conical manner over the entire length of the supply beam. By this means the groups of threads required to form the desired colored warp can be drawn off the supply beams and combined together on the colored warp beam. The length of the threads on the supply beams is made equal to, or a multiple of the usual length colored warp lengths so that there is no waste as to length in making up the colored warps. The conical arrangement of the threads over the entire length of each supply beam, allows of drawing off any desired number of warp threads of the requisite length without risk of the threads left on the supply beam slipping off or becoming entangled even during long storage of the beam.

The various groups of threads may be combined together to form warps on a long warping frame provided with a reliable stop motion for breakages of threads. By the term "long warping frame" is to be understood a warping frame in which 4–600 threads are wound in a space of about 60 inches on a beam having about the same length of clear space between its two flanges, so that the winding is effected on approximately the width of the loom beam. Considerably less attention and labor are required of the operator because in putting on the bobbins for the formation of the supply beams she need no longer consider the particular pattern, but has now merely to put on uncolored bobbins, or only bobbins of one and the same prescribed color, and the bobbins are all used up for the same number of threads down to approximately their very last ends.

With the improved process advantages are obtained which have hitherto been possible only with very much more complicated means. Since the yarn of each color can be dressed or sized separately whether it has been dyed before being wound on the supply beam or is dyed on the supply beam, the various colors will all remain clear and will not be liable to run into one another as hitherto in the dressing or sizing process of the color warp. Further, the improved process allows of dressing or sizing long lengths of yarn taking perhaps half a day or a whole day to do, whereas owing to the large number of short warps used in weaving colored fabrics, it has hitherto been necessary to deal with fresh lengths as often as fifteen times a day. In all cases it is advisable to beam the supply warps first upon ordinary beams, and afterward in the dressing or sizing machine to wind the supply warps upon the conical supply beams.

The beaming of the yarn from the dressing or sizing machine onto the conical supply beam is effected with the aid of a comb or reed which is capable of laterally expanding in a determined proportion to the length to be beamed for the purpose of producing the desired conicity of the beamed yarn.

One way of carrying out the improved process for the manufacture of a colored warp is illustrated by way of example in the accompanying diagrammatic drawings in which:—

Figure 1 is a side elevation, and Fig. 2 is a plan of the apparatus employed for this purpose.

To manufacture a desired colored warp, the weaver takes from his store one supply beam of yarn of each color required in the finished warp. In the example three different colors, *a*, *b* and *c* are to be used, and they are indicated respectively by full lines, broken lines and dash-and-dot lines. The weaver, having placed these three supply beams in front of a beaming machine, arranges the differently colored threads in the expanding comb or reed *d* in accordance

with the required design. The different threads from the supply beams *a*, *b*, *c* are then beamed together upon one and the same beam *e*. (The colored warp beam).

If any one supply beam should not contain the necessary length of colored thread, a fresh supply beam of the same color is brought and used to supply the required further length of thread.

The thread left on the supply beams after beaming a colored warp is not disturbed by the beaming operation and can be returned to store.

A further advantage of the improved process is that it enables a weaver weaving very small quantities of colored fabrics to produce well dressed or sized warps without having a dressing or sizing apparatus or a dyeing plant. If his yarns are undyed he beams them on ordinary beams which he sends out to be dyed and then to be dressed or sized; or if his yarns are already dyed, he beams the differently colored yarns on separate beams which he sends out to be dressed or sized. In both cases the dyed yarns are conically beamed by the dresser or sizer from the dressing or sizing machine onto the supply beams each containing only yarn of one and the same color.

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

1. A process for the manufacture of variously colored warps, said process consisting in winding a plurality of threads on supply beams, each thread being wound in the form of a truncated cone and all of the threads being of uniform color; selecting the threads from a plurality of supply beams to form a pattern for weaving; arranging the selected threads on a warp beam; and winding the threads on the warp beam.

2. A process for the manufacture of variously colored warp, said process consisting in winding a plurality of threads on supply beams, all the threads on each beam being simultaneously wound, each thread being wound in the form of a truncated cone; selecting the threads from a plurality of supply beams to form a pattern for weaving; arranging the threads on a warp beam; and winding the threads on the warp beam.

3. A process for the manufacture of variously colored warp, said process consisting in winding a plurality of threads on supply beams, the threads on each beam being simultaneously wound, and each thread being wound in the form of a truncated cone; selecting threads from a plurality of supply beams to form a pattern and winding the threads on a warp beam.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLY FLEISCHER.
ERNST FLEISCHER.

Witnesses:
FRANK G. POTTS,
ERNST KATZ.

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