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BUREAU OF STANDARDS

S W. STRATTON, Director

TECHNOLOGIC PAPERS OF THE BUREAU OF STANDARDS NO. 96

[Issued June 25, 1917]

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By Walter S. Lewis, Assistant Physicist

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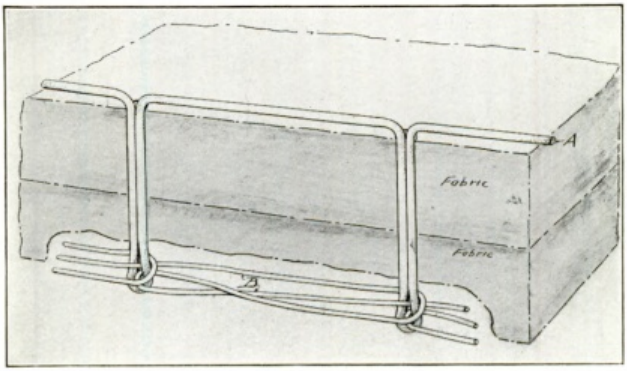

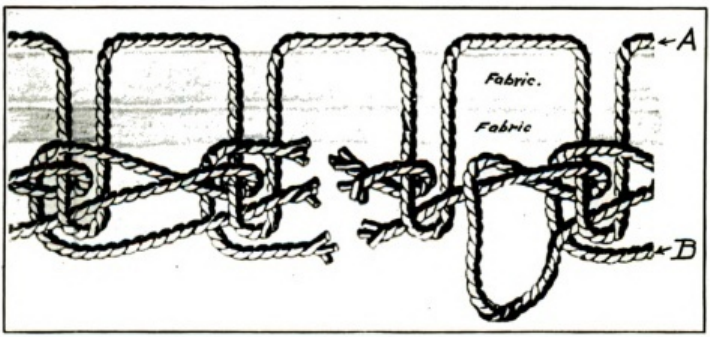

FIG. 1.—*Double-locked stitch*

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Upper Thread

A

Upper Thread

Under Thread

B

Under Thread

FIG. 3.—*Double-locked stitch*

FIG. 4.—*Shuttle stitch*

FIG. 6.—*Double-locked stitch seam*

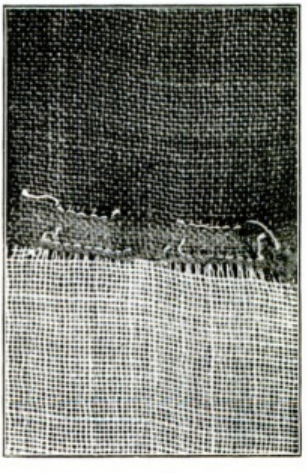

FIG. 7.—*Shuttle stitch seam*

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COMPARATIVE TESTS OF STITCHES AND SEAMS

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The stitches produced upon sewing machines most commonly used to-day are of three types—the double-locked stitch; shuttle, also called lock stitch; and the chain stitch. The chain stitch is not employed to the extent that the others are, and no tests were made of it. As shown later in this paper the shuttle or lock stitch does not lock the thread, so hereafter it will be called the shuttle or plain stitch.

The double-locked stitch is produced without the use of a shuttle, and in the formation of a seam all threads are fed directly from original spools or bobbins without any rewinding. The plain stitch is produced by the use of a shuttle which supplies the under thread from a bobbin carried thereby while the upper thread passes through the needle. With this method of stitching the bobbin must be removed from the shuttle to replenish the supply, and sometimes it is necessary to remove the shuttle from the machine. Figs. 1 and 2 illustrate the formation of the two kinds of stitches, and the broken portions of stitching threads show more clearly what might be the effect upon the strength of a seam by the cutting or breaking of certain threads.

In the figures the upper thread is indicated by the letter *A* and the under thread by the letter *B*. The under thread of the double-locked stitch, Fig. 3, is called the looper thread and this particular illustration is to show more clearly the characteristic formation when a heavy understitching thread is used, as in the manufacture of bags, where a flat surface is not essential. If necessary, the looper thread can be made to lay with little or no

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