

(No Model.)

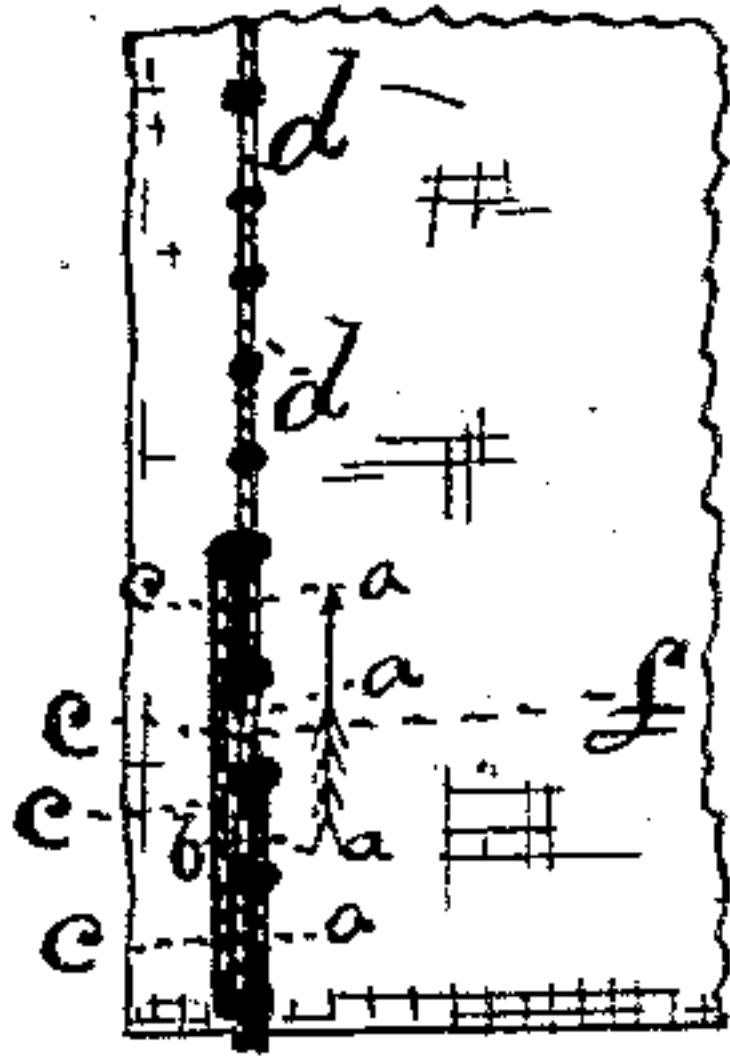
E. S. CRAM.

METHOD OF SEWING TO FASTEN THE ENDS OF SEWED SEAMS.

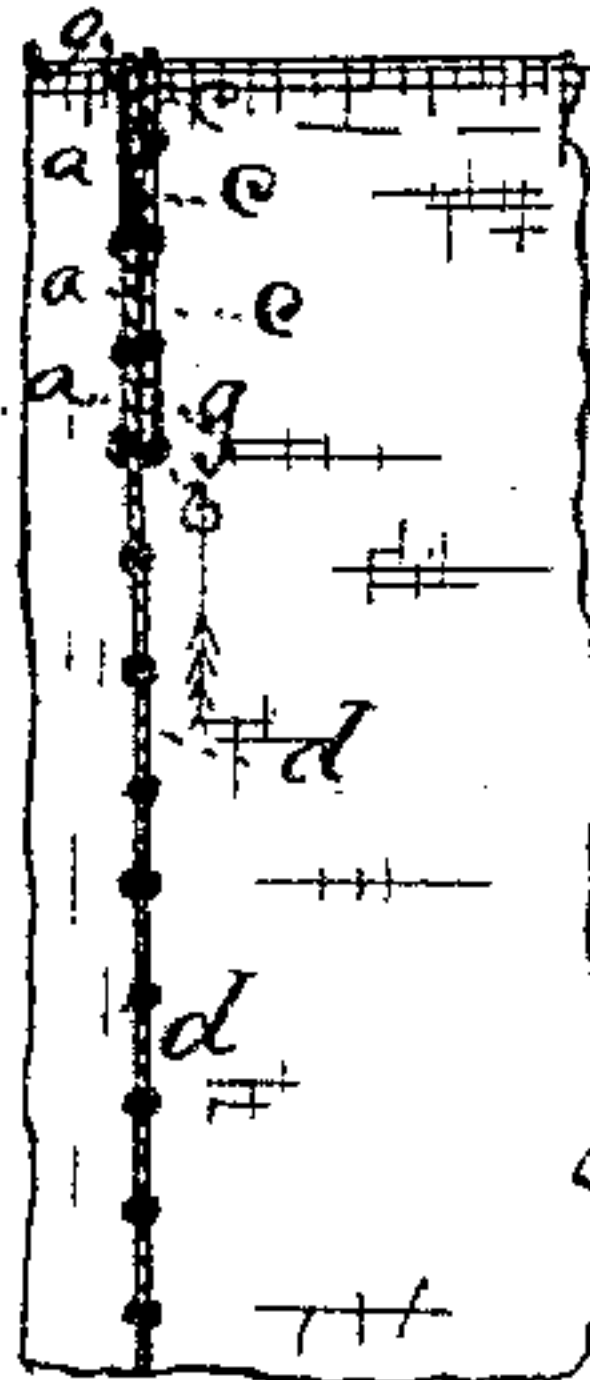
No. 315,916.

Patented Apr. 14, 1885.

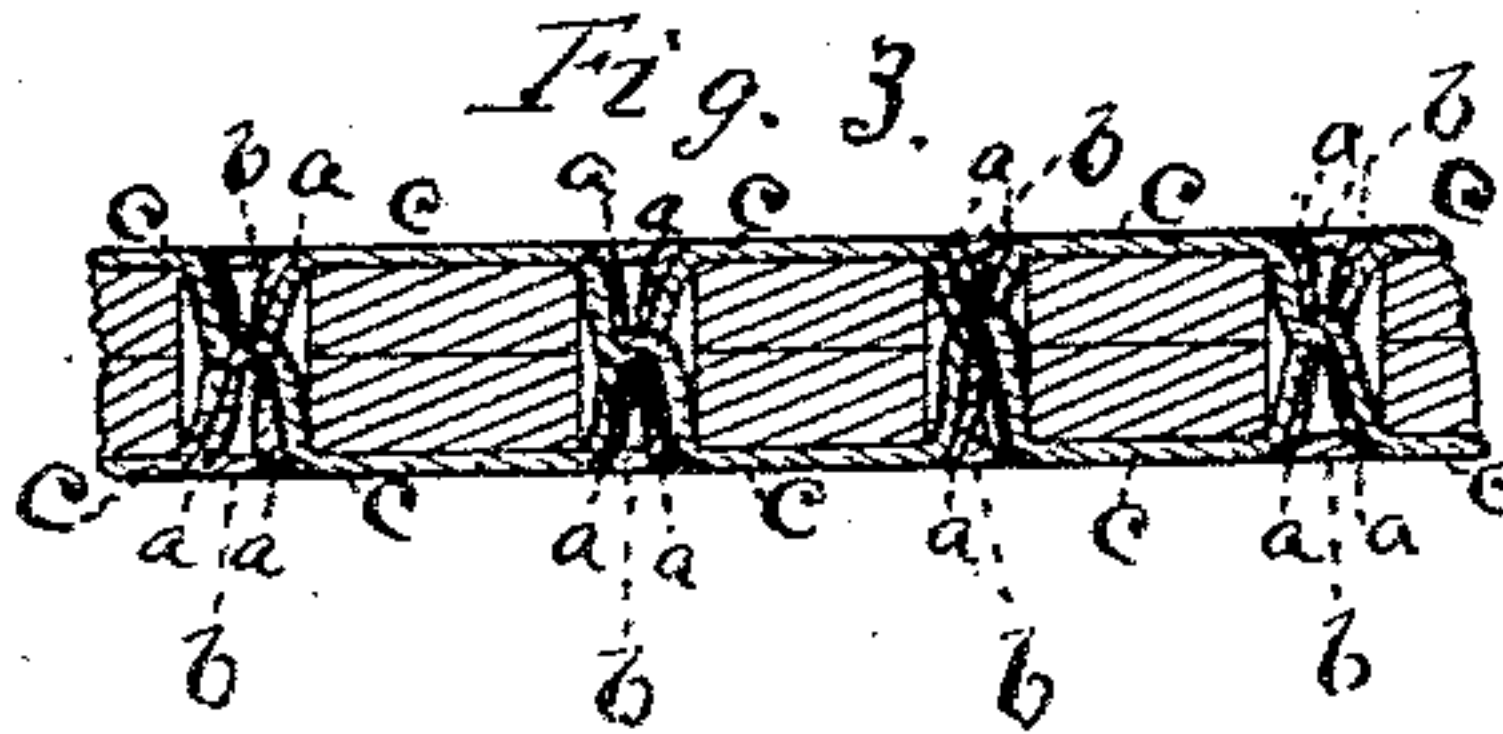
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



WITNESSES

*A. S. Brown.*  
*J. B. Sawyer.*

INVENTOR,

*Elisha S. Cram,*  
*By J. S. Brown,*  
*his Attorney.*



# UNITED STATES PATENT OFFICE.

ELISHA S. CRAM, OF LACONIA, NEW HAMPSHIRE, ASSIGNOR OF THREE-  
FOURTHS TO EDGAR C. COVELL, OF SAME PLACE, AND JOHN S. CRANE  
AND B. FRANK DRAKE, OF LAKE VILLAGE, NEW HAMPSHIRE.

## METHOD OF SEWING TO FASTEN THE ENDS OF SEWED SEAMS.

SPECIFICATION forming part of Letters Patent No. 315,916, dated April 14, 1885.

Application filed May 9, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, ELISHA S. CRAM, of  
Laconia, in the county of Belknap and State  
of New Hampshire, have invented an Im-  
proved Method of Sewing for Fastening the  
Ends of the Threads at the Ends of Seams; and  
I do hereby declare that the following is a  
full and exact description thereof, reference  
being had to the accompanying drawings,  
making part of this specification.

My improved method of sewing with sew-  
ing-machines by which the threads are fast-  
ened at the ends of seams consists in first  
sewing forward in the usual way, then revers-  
ing the feed of the machine, without mak-  
ing stitches, to the extent of a few stitches,  
and then sewing forward again and making  
stitches in the same places in the fabric as  
the first set of stitches, substantially as here-  
inafter specified.

In the accompanying drawings, Figure 1  
shows the first end of a machine-sewed seam  
having the threads fastened by my improved  
method. Fig. 2 shows the last end of a ma-  
chine-sewed seam having the threads fastened  
by my improved method; Fig. 3, a section  
on an enlarged scale of a fabric showing a  
sewed seam fastened by my method.

Like letters designate corresponding parts  
in all of the figures.

In applying my method of fastening the  
threads at the beginning of a seam, as illus-  
trated in Fig. 1, the seam is started in the  
usual way, and when a few stitches, *a a*, pref-  
erably about three, four, or five, have been  
sewed, the motion of the machine is reversed,  
thereby reversing the feed, which reverse feed  
is continued until the initial point of sewing  
is reached without making stitches, but leav-  
ing portions *b b* of the threads simply reach-  
ing from the last to the first stitch outside of  
the fabric. Then the motion of the machine is  
changed to direct again, with a forward feed,  
and sewing into the same thread-holes in the  
fabric as in the first sewing, thereby making  
another set of stitches, *c c*, close by the side  
of or over the first set of stitches, *a a*. Then  
the sewing is continued without interruption  
beyond the double stitches, forming the regu-  
lar seam *d*. Thus the first end of the seam

is securely held against unraveling without  
any care, trouble, or loss of time, except to  
reverse the motion of the machine for one  
revolution or less of the driving-wheel, and  
then start forward again.

For fastening the threads at the last end of  
a seam, as illustrated in Fig. 2, the regular  
sewing is continued at *a a* forward to the end  
of the seam. Then the motion of the machine  
is reversed, thereby feeding backward to the  
extent of a few stitches, as at the first end of  
the seam, without forming stitches, but leav-  
ing straight portions *b b* of the threads out-  
side of the fabric. Then the forward motion  
of the machine is resumed and the forward  
feed again continued to the end of the seam,  
thereby sewing into the thread-holes of the  
first set of stitches a set of additional stitches,  
*c c*, and securing the seam as before set forth  
for the first end of the seam.

I have shown in the magnified representa-  
tion, Fig. 3, how the threads are combined by  
this method of sewing for fastening the stitches  
at the ends of said seams. Here first the  
stitches *a a* are sewed in the fabric *A* as or-  
dinary stitches. The threads in the reverse  
feed of the machine are not looped together,  
but the needle-thread is drawn out of the fab-  
ric at each withdrawal of the needle, while  
the shuttle-thread is not drawn into the fabric,  
the shuttle not passing through the needle-  
thread loop. Thus portions *b b* of the two  
threads remain outside of the fabric and ex-  
tend from the thread-hole of the last fastening-  
stitch back to the thread-hole of the first fast-  
ening-stitch, as shown, and making the entire  
threads continuous, so that they can be drawn  
out of the fabric accidentally to loosen the  
stitches. Then another set of stitches, *c c*, are  
sewed into the same thread-holes as the first  
stitches, *a a*. These last stitches, *c c*, will some-  
times lie on the fabric close beside the first  
stitches, as indicated by most of the fastening-  
stitches shown in Figs. 1 and 2, but sometimes  
the last stitches will cross over and lie upon  
the first stitches, as shown at *f* in Fig. 1. It  
matters little how the second set of stitches  
lie in relation to the first set of stitches, since  
both sets of stitches lie close together and close  
upon the fabric, as they pass through the same



holes in the fabric, and the straight portions *b b* of the threads also lie close upon the fabric, as shown. Sometimes they are crossed over by the second set of stitches, as shown at *g* in Fig. 2. This makes the seam none the worse in appearance, and makes the fastening even more secure. If, however, stitches were formed during the reverse feed of the machine, there would be three sets of stitches lapping by one another, and they would not all enter one set of thread-holes, and the seam would be bungling and unsightly.

In order to employ my method of fastening stitches with shuttle sewing-machines, it is requisite that the machine shall be capable of having its motion reversed without the shuttle's making stitches during the back feed, and without the liability of breaking the needle-thread by the shuttle's taking the needle-thread loop. As such sewing-machines are now constructed, none, so far as I am aware, are capable of having their motion reversed without being liable to break the needle-thread by the shuttle and without taking stitches. To adapt machines to the purpose of my invention, I have adopted various means, according to the different organizations of the machines. Thus for one class of machines a short-pointed shuttle is sufficient, such as set forth in an application for Letters Patent No. 117,136, filed by me January 11, 1884, the shuttle being thereby adapted to cast off the needle-thread loop during the reverse motion of the machine. For another class of machines, to which such a shuttle will not practically apply, a shuttle which is both short-pointed and has the point considerably below the central line may be em-

ployed, such as described in a joint application by myself and Edgar C. Covell, No. 121,105, filed February 11, 1884. For other sewing-machines which cannot be adapted to the purpose by changing the construction of the shuttle, a peculiar construction of the needle-driving cam may apply, as described in a joint application of myself and Edgar C. Covell, No. 122,348, filed February 28, 1884. With this construction, on reversing the motion of the machine the needle rises out of the way before the shuttle is carried forward far enough to take the needle-thread loop; and for such machines as neither of the above-mentioned constructions will adapt to the purpose a suitable special take-up for the needle-thread, adapted to take up the slack thread and allow no needle-thread loop to be formed for the shuttle to enter during the reverse motion of the machine, and acting only during such reverse motion of the machine, may be employed, as set forth in a joint application of myself and Edgar C. Covell, No. 127,806, filed April 14, 1884.

I claim as my invention—

The method of fastening the threads at the ends of seams in sewing, which consists in, first, sewing forward in the usual way; second, without breaking the sewing thread or threads beginning back a number of stitches; and, third, sewing forward again and making another set of stitches in the thread-holes of the first set of stitches.

ELISHA S. CRAM.

Witnesses:

EDGAR C. COVELL,  
EDGAR F. REEVES.