

(No Model.)

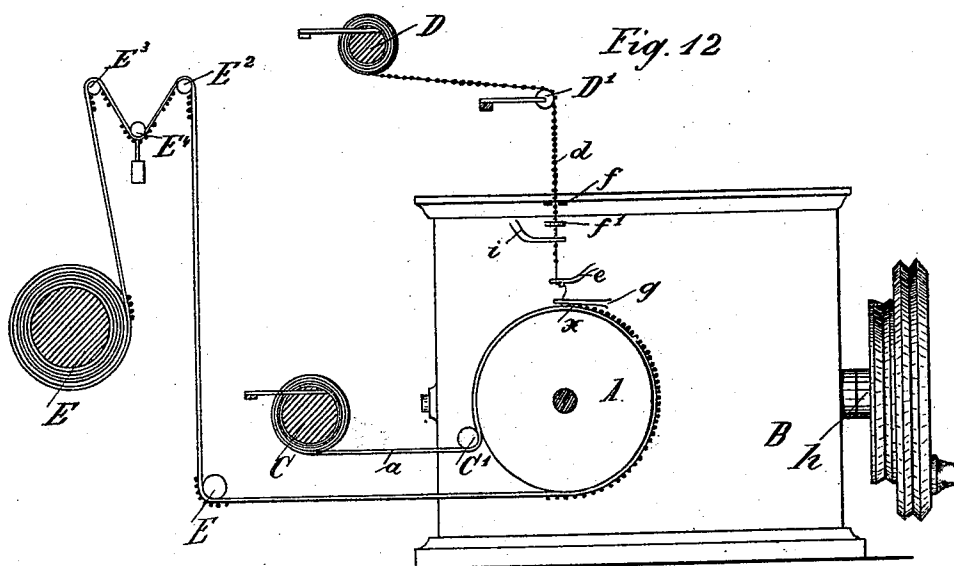
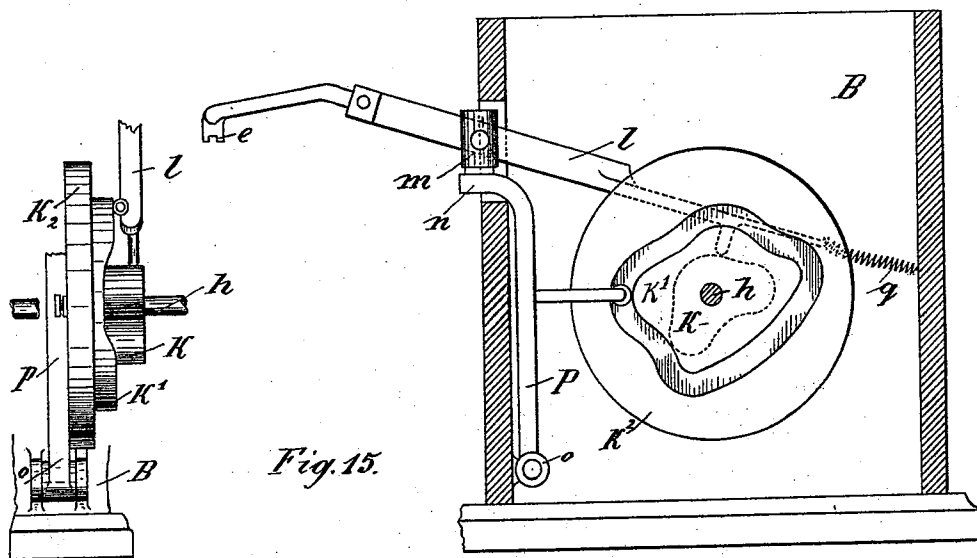
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K. NECKER.

MACHINE FOR SEWING BEADS TO FABRICS.

No. 518,156.

Patented Apr. 10, 1894.



Witnesses:
Walter E. Allen.
Walter Allen

Inventor.
Karl Necker
By *Knight Bros.*
Attorneys

(No Model.)

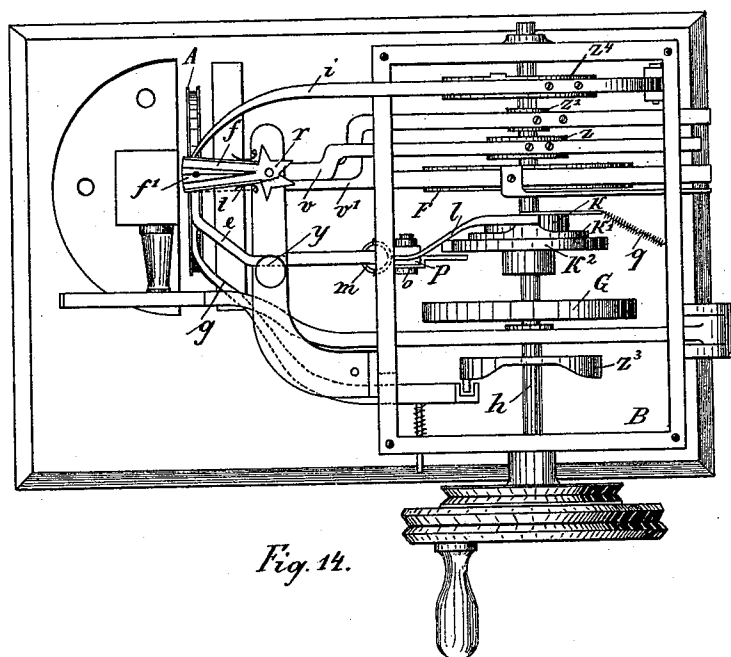
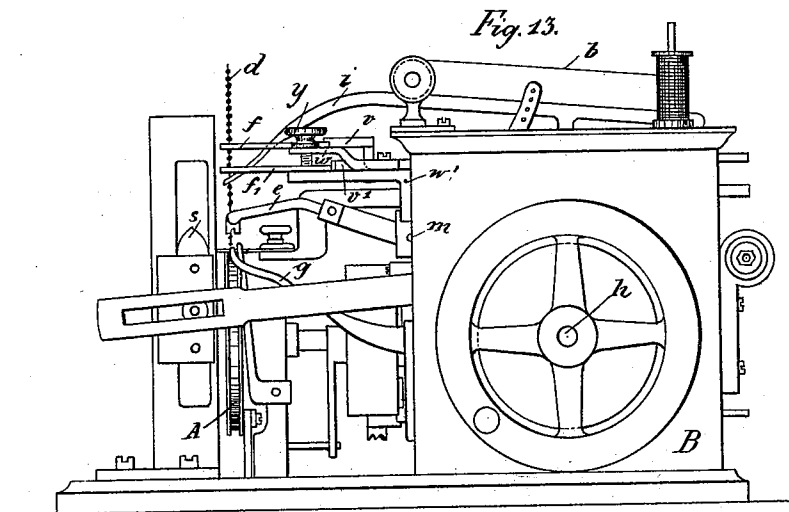
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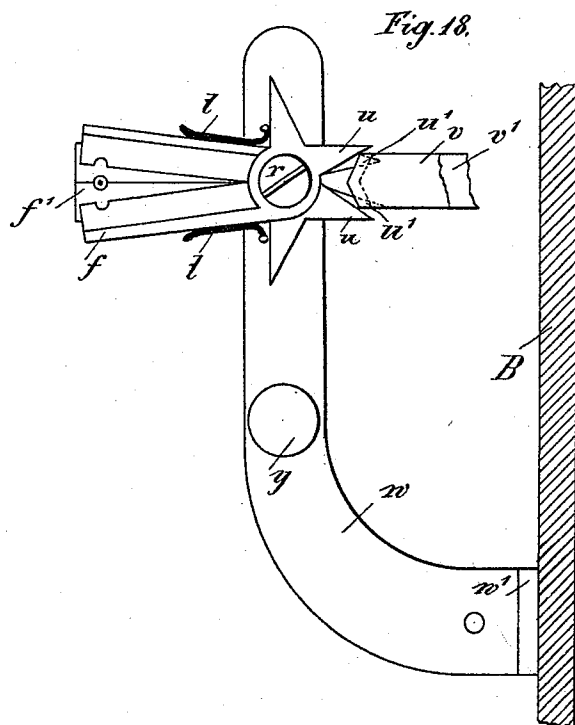
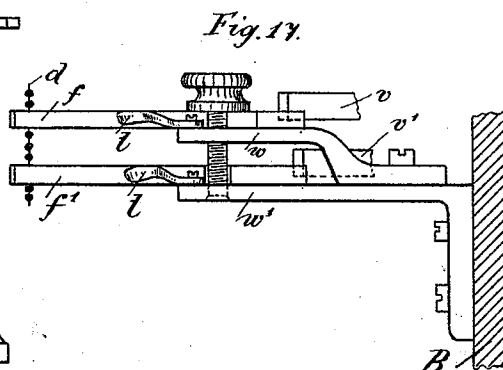
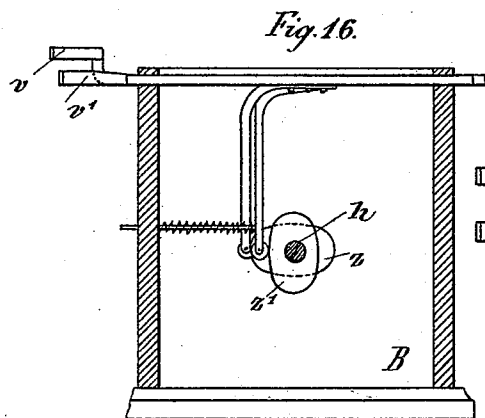
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UNITED STATES PATENT OFFICE.

KARL NECKER, OF BERLIN, GERMANY.

MACHINE FOR SEWING BEADS TO FABRICS.

SPECIFICATION forming part of Letters Patent No. 518,156, dated April 10, 1894.

Application filed June 7, 1892. Serial No. 435,858. (No model.)

To all whom it may concern:

Be it known that I, KARL NECKER, a subject of the King of Prussia and German Emperor, and a resident of Berlin, in the Kingdom of Prussia and German Empire, have invented certain new and useful Improvements in Machines for Sewing Beads to Fabrics, of which the following is a specification.

My invention has reference to a machine for sewing beads to fabrics, by attaching the beads drawn on to an over stitch thread, to the braid, or cord, and then sewing the two together by means of a quilting stitch.

In order that the invention may be fully understood I will proceed to describe it with reference to the accompanying drawings, in which similar letters are used to denote similar parts.

Figure 1 is the representation of an ordinary quilting stitch. Fig. 2 is the representation of a combined quilting and over stitch. Fig. 3 represents a braid with beads sewed on. Fig. 4 to 11 are detail views showing the different stages in sewing the beads on the braid. Fig. 12 is a schematic front view of the machine. Fig. 13 is a front view of the machine. Fig. 14 is a plan of the same, the cover being omitted. Fig. 15 represents the actuating mechanism of the bead-thread-carrier. Figs. 16 to 18 are detail views.

a is the braid or cord, *b* the needle thread, *c*, the shuttle thread and *d* the over stitch thread. As can be seen from Fig. 3, the beading thread is not laid over the braid, as heretofore, alternately, as an empty, and as a full thread, that is, at one time with beads and the next without, but is always used with beads drawn on. This is made possible by the following invention which comprises, first, a thread-carrier bringing the beading thread across the braid as may be necessary for ultimately sewing with the quilting stitch; second, a bead-holder which keeps the necessary beads arranged ready for each row across the braid; third, a bead distributor which, at the right moment, guides the beads to the thread-carrier, and fourth; a bead-pusher which pushes the beads on that may have remained on the thread.

It is immaterial whether the above four devices be attached to a longitudinal or a circular shuttle-machine.

In Figs. 4 to 11 are shown the various phases in the production of the beaded trimming. The braid *a* lies on a disk *A* and a little to the right of it (Fig. 4) the beading thread has formed a loop through which the needle passes piercing the braid *a*. The thread-carrier *e* seizes the beading thread *d* on the right and carries it on the left over the braid *a*. Below the thread-carrier, are three beads on the thread, while the bead distributor *f, f'* incloses three others. *g* is the bead-holder. Now, while the needle is piercing the braid *a* (Fig. 5), the thread-carrier *e*, which has meanwhile passed over to the left, sinks, the lower part of the distributor *f'* opens and three beads held by it fall on the top of the thread-carrier *e*. The holder, *g* during these movements, keeps the beads on the right ready for the next stitch. The thread-carrier *e* now sinks farther (Fig. 6) and slightly forward so that it forms a loop on the left side through which the needle can pass. The holder *g* remains in its position, while the upper part of the distributor opens, so that a fresh supply of beads can be advanced. The needle (Fig. 7) by piercing farther forms a loop through which the shuttle *s* with shuttle thread *c* can be driven. Meanwhile, thread-carrier *e* has left the loop and consequently the beading thread also, allowing the three beads to the left to slip down to the edge of the braid. The holder *g* has now receded, having released the beads held back, which are at once brought to the top of the braid *a*. The distributor *f, f'* is now closed. The needle now goes back and draws, in the well known manner, the shuttle thread into the braid, and the loop of the over stitch beading thread *d* is fast to the left side. (Fig. 8.) The thread-carrier *e* seizes the same above the three beads on the left, passes with it to the right, and the bead holder *g* is again advanced, securing the beads in their position. The needle has finally quite receded (Fig. 9), thread-carrier *e* has sunk to the right and the formation of the loop of the beading thread *d* commences after the under part of the distributor has left the three beads slip onto the thread-carrier *e*. After the thread-carrier *e* (Fig. 10) has completed the loop by downward and forward motion (the disk *A* has in the meantime advanced one stitch) the

needle again pierces through the braid, while the bead-holder *g* still assures the position of the three beads on the left. The lower part *f'* of the distributor has now closed, the upper part *f* opened and three fresh beads pass into the distributor. Finally, (Fig. 11) thread-carrier *e* leaves the loop on the right side free. The three beads resting on the top of said thread-carrier slip down to the right edge of the braid *a*, the holder *g* recedes and the tension on the beading thread not only draws the right thread up, but also brings the three beads, until then on the left of *g*, onto the surface of the braid *a*. The whole operation now commences again. (Fig. 4.)

It is clear from the description that the thread-carrier *e* makes a to and fro motion transversely over the braid *a* and an up and down motion and finally a forward and back motion vertically. The holder *g* must likewise make a backward and forward motion horizontally. The distributor *f, f'* must open at the top and at the bottom alternately and close again. There is also the bead pusher *i* for pushing the beads down which have remained on the thread from any cause whatever. This bead pusher has also an up and down motion.

Figs. 12 and 13, show a mechanism chosen for carrying out the above operations, Fig. 12 giving a schematic front view showing the advance of the beading thread and the winding off of the finished braid. In the framing B is a cam seated on the driving spindle, for actuating the thread-carrier *e*, the distributor *f, f'*, bead-holder *g* and bead-pusher *i*. The braid *a* proceeds from the roller *c* provided with a brake device and is brought into the disk A from under the tension roller C'. The groove on the disk for the reception of the braid is naturally chosen according to the width of the same. The roller D, also provided with a brake device, contains the beading thread *d*, which is led over a spring roller D', and passes the distributor *f, f'*, bead-pusher *i* and thread-carrier *e*, when it is gripped by the last-named holder *g*, when the holder *g* holds it and comes into contact with the braid *a* at *x*, in order to be sewed onto the same. The finished product passes off the disk A, to the winding roller E, being conducted thereto by the lower roller E', upper rollers E² and E³; the tension roller E⁴ keeping the band taut. According to the greater or lesser contiguity of the rows of beads, is the disk A more or less advanced. Fig. 13 is a front view of the complete machine; Fig. 14, a plan of the same with the cover removed and with the omission of a few well-known details. Figs. 15 to 18 are details.

The movement of the thread-carrier *e* is effected by the triple cam K, K' and K'' (Figs. 14 and 15) seated on the axle *h*. The cam K tends to raise and lower arm *l* of the thread-carrier *e*, rotating on *m* on the one hand,

and on the other hand (K' is a worm-disk bearing on pivot *n*) bears in the lever arm *p* rotating at *o*, said arm being actuated by K'' and so giving the thread-carrier *e*, a to and fro motion transversely over the braid. The spring G tends to keep the arm *l* close to K. The holder *g* is pushed downward and forward (Fig. 14) in the direction of the middle plane of disk A by means of the worm disk Z³.

The distributor (Figs. 13 to 18) consists of two shears *f, f'* lying one over the other, the parts of which, rotating at *r*, are kept closed by the pressure of spring *t*. When their rear parts *u' u'* are pressed apart by the pusher *v'*, the parts *f* or *f'* open. The lower part *f'* bears in the fixed arm *w'*, while the upper part *f* is attached to the slightly yielding iron *w* on fixed arm *w'*. The iron *w* can be drawn on or removed from *w'* by means of the micrometer screw *y*. By this means, one can regulate the space between *f* and *f'* according to the number of beads required for each row. The forward and backward motion of pushers *v* and *v'* for the opening of the parts *f* and *f'*, is effected by two eccentrics Z, Z' (Figs. 14 and 16.)

The bead pusher *i* (Figs. 13 and 14) receives its up and down motion from the cam Z⁴.

It has still to be mentioned that the sewing needle receives its to and fro motion from the grooved cam F, (Fig. 14), while the shuttle *s* is driven by another such cam G. When a vertical motion of the shuttle is chosen as shown in the drawings. The choice of shuttle and its movements is immaterial. The machine can also be used with other ornamental threads, such as silks, chenille, &c. For this purpose, the thread-carrier *e* is retained for holding the thread, while the distributor *f, f'*, holder *g*, and pusher *i* are removed.

Having now described my invention, I declare that what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination of a thread-carrier for bringing the beading thread across the braid, a bead-holder which keeps the necessary beads arranged ready for each row across the braid, a bead distributor which guides the beads to the thread-carrier, a bead-pusher which pushes the beads on the thread and stitch-forming mechanism for securing the thread carrying the beads to the fabric; substantially as described.

2. The combination of a thread-carrier, the distributor *f, f'*, the holder *g*, the pusher *i*, means for operating the same and stitch-forming mechanism for securing the thread carrying the beads to the fabric; substantially as described.

3. The combination, with a braid support; of the thread-carrier *e* means for causing the thread-carrier to seize the thread and form a loop on one side of the support, means for withdrawing the thread-carrier and elevating

it, means for causing the thread-carrier to
seize the thread above the beads and carry
the thread across the support and depress the
thread carrier and form a loop on the other
5 side of the support, means for withdrawing
the thread-carrier, elevating it, causing it to
seize the thread again, above the beads, and
returning it in the same manner in which it
was advanced and stitch-forming mechanism

for securing the thread carrying the beads to
the fabric; substantially as described.

In witness whereof I have hereunto set my
hand in presence of two witnesses.

KARL NECKER.

Witnesses:

W. H. EDWARDS,
W. HEUY.