2 Sheets--Sheet 1.

E. BRAUNDBECK.

No. 127,675.

Sewing-Machines.

Patented June 11, 1872.

Fig. IV.

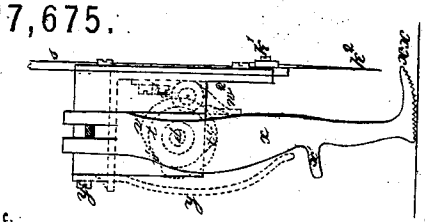


Fig. I.

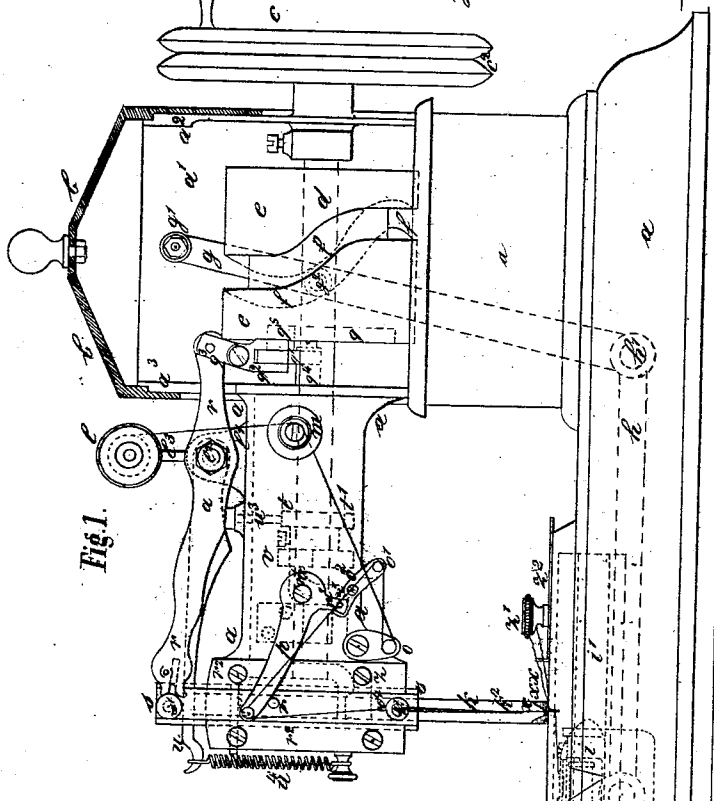


Fig. II.

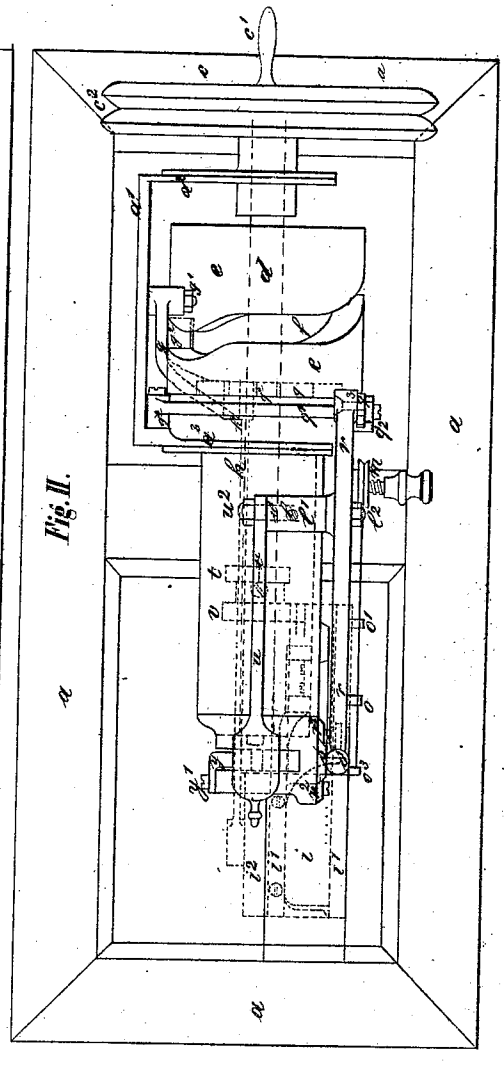
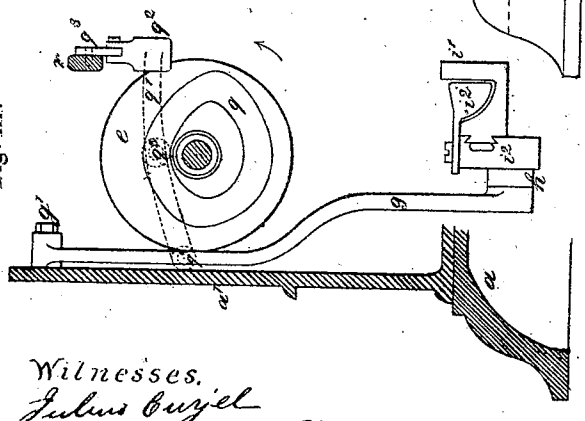


Fig. III.



Wilnesses.

Julius Bujel

Ludw Ad. Deucker.

Inventor.

Ed Braundbeck

2 Sheets--Sheet 2.

E. BRAUNDBECK.

Sewing-Machines.

No. 127,675.

Patented June 11, 1872.

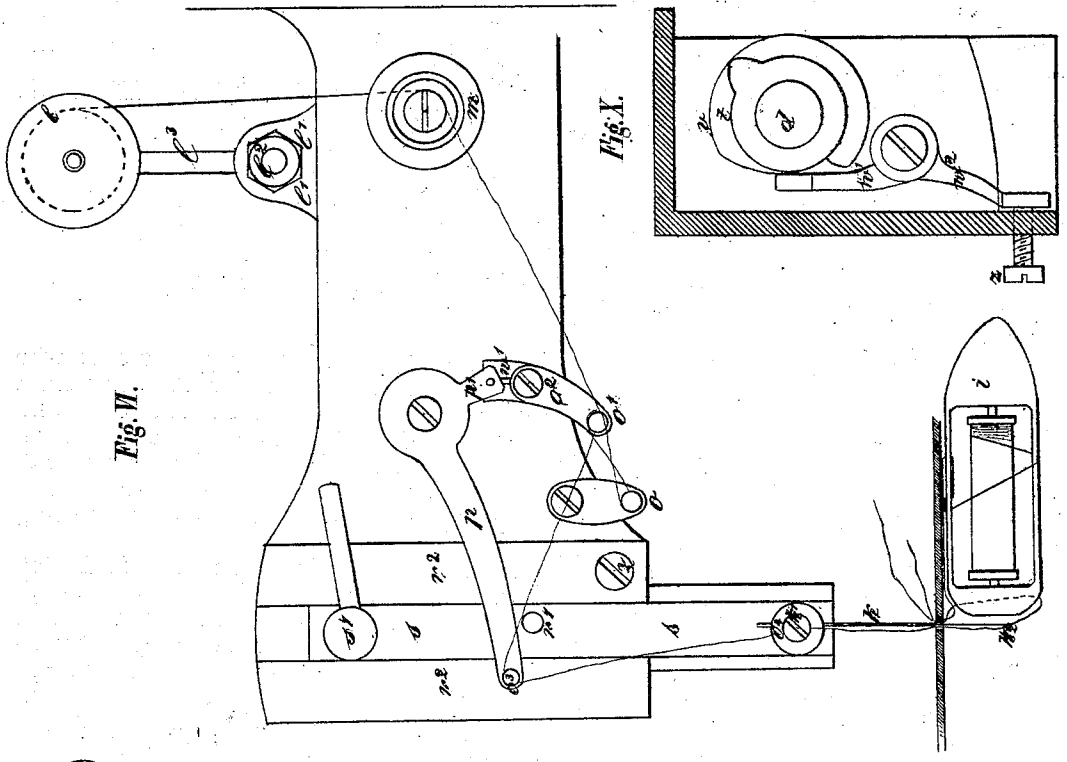


Fig. VI.

Fig. X.

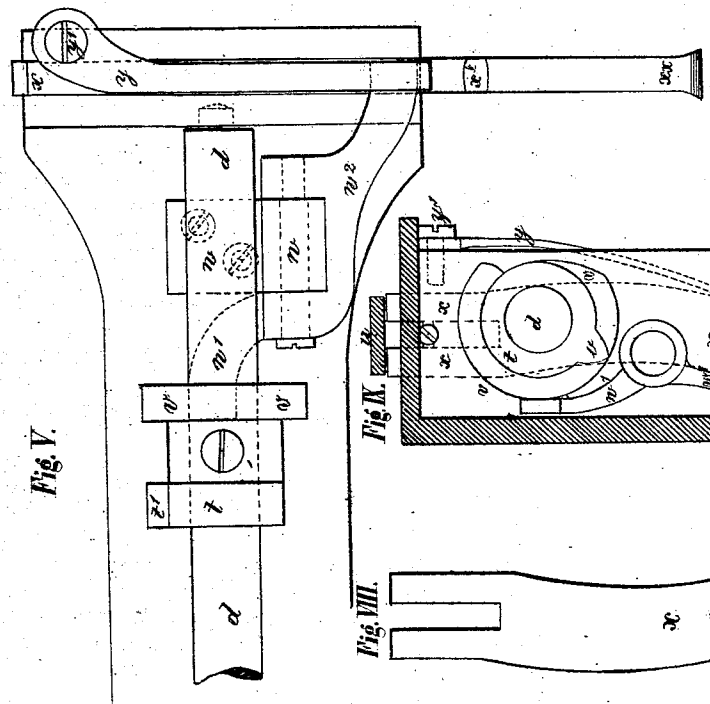


Fig. V.

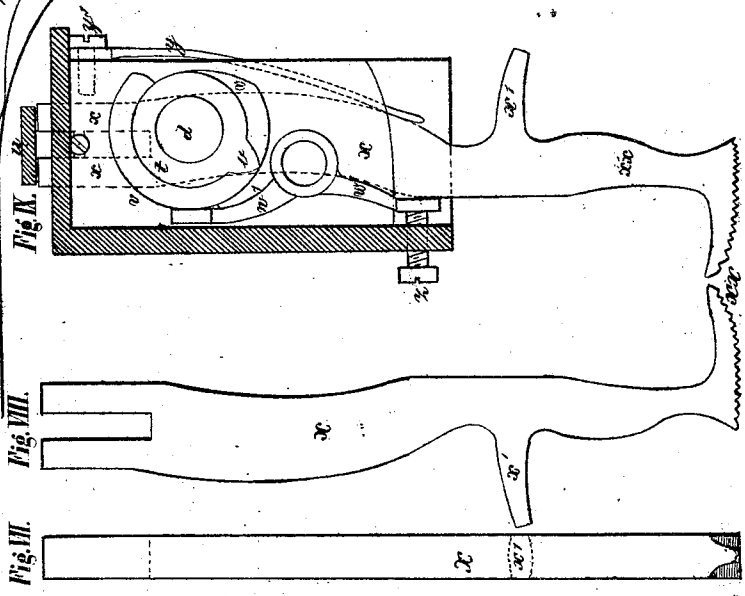


Fig. IX.

Fig. VIII.

Fig. VII.

Witnesses.

Julius Engel

Louis Aug. Deucker

Inventor.

Ed Braundbeck's

UNITED STATES PATENT OFFICE.

EDWARD BRAUNDBECK, OF HAMBURGH, GERMANY, ASSIGNOR TO THEODOR HEINRICH MENKE, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 127,675, dated June 11, 1872.

SPECIFICATION.

I, EDWARD BRAUNDBECK, of Hamburgh, in the Empire of Germany, have invented certain Improvements in Sewing-Machines, of which the following is a specification:

Nature and Objects of the Invention.

My invention relates to a combination mechanism, as hereinafter described, for controlling the needle-thread, in order to allow the use of a very large shuttle, whereby a great saving of time is obtained.

Description of the Accompanying Drawing.

Figure 1, Sheet I, is a sectional elevation of a sewing-machine embodying my invention, drawn half size. Fig. 2, Sheet I, is a plan view of the same; and Figs. 3 to 10, Sheets I and II, show detached parts.

Similar letters of reference indicate similar parts in each of the figures, respectively.

General Description.

a is the base of the machine. *b* is a casing covering the vertical plates or framing a^1 a^2 a^3, and all the driving-gear of the machine excepting the thread-stretching mechanism. This casing *b* protects the parts of the machine which it covers from dust, and may be made of any suitable form and material. The plates a^2 a^3 have perforations forming bearings for the driving-shaft *d*. When the driving-wheel *c* (placed on the outer end of the shaft *d*, and adapted for working by hand by means of the handle c^1, or by treadles, by means of a belt in its groove c^2) is set in motion it actuates the shaft *d*, and thereby the whole mechanism. The shaft *d* carries an eccentric, *e*, the curve *f* of which regulates the reciprocating motion of the shuttle-holder i^1 and shuttle *i* by means of the pendulum-lever *g*, fixed loosely on the plate a^1 by a bolt and nut, g^1. The eccentric *e* has also a curve, *q*, which gives motion to the needle *k* and to the parts q', q'', q''', q^4, q^5, *r*, and *s*.

The reciprocating motion is given to the shuttle *i* in the following manner: When the shaft *d* and eccentric *e* are set in motion by the driving-wheel *c* an oscillating motion is given to the curved pendulum-lever *g* by the roller g^2 fixed upon it and running in the curve *f*. This motion of the lever *g* gives a to-and-fro movement to the shuttle-rod *h* linked with it by the pin *h'*, and the piece i^2, fixed on the extreme end of shuttle-rod *h*, transmits this to-and-fro motion to the shuttle *i* in its holder i^1. I prefer to use a glass shuttle (molded or otherwise made) in lieu of a metal one, as being more economical.

The needle *k* receives its motion in the following manner: The stud q^4 on the lever q^1, carried by the plate a^3, is actuated by the curve *q*, in which travels the roller q^5 set on the lever q^1, and, by means of the connections q^2 q^3, gives motion to the needle-arm *r*, which has its pivot on a stud secured in the boss l^1 by a nut, l^2. The needle-bar *s* is connected with this needle-arm *r* by a roller, *s'*, having a stud forming swivel-joint, which, entering loosely into the needle-arm *r*, follows its movements and thereby secures the vertical ascent and descent of the needle-bar *s*.

The thread comes from the spool *l*, (see Fig. VI, Sheet II,) placed upon the spool-pin l^3, passes behind the thread-stretcher *m*, is drawn through the thread-guide *o* fixed immovably on the frame, drawn through the thread-guide o^1 in the lever o^2, connected, by a pin-and-slot connection, as shown, with the two-armed lever *p p'*; thence through the thread-guide o^3 in the upper end of the arm *p* of the lever *p p'*, through the guide-thread o^4 fixed on the needle-screw k^1; and finally through the eye k^2 of the needle. When the needle *k* is to act, the needle-bar *s*, carrying with it the needle *k*, set in its lower end, moves downward as much as is necessary for forming the loop which is to make the stitch. The loop of the upper thread, for giving passage to the shuttle *i* in the shuttle-holder i^1, is thus formed, but is not large enough, my shuttle being considerably larger than those hitherto commonly used. (If required, the shuttle may be still larger than that shown.) It therefore becomes necessary to enlarge the loop, in order that the shuttle may go through it.

My object in employing so large a shuttle is that such a shuttle can receive a larger bobbin, and possibly an original bobbin, for the under thread.

I will now proceed to explain the means by which the use of a considerably larger shuttle

becomes possible. The needle k having been sufficiently lowered by the motion given to the curve q, the jointed lever $p\,p'$ being thereby also lowered by means of the upper thread, which passes through the thread-guide placed on the lever-arm p, on the needle k rising again a loop is formed, to be taken by the joint of the shuttle i; but as above stated, this loop is not large enough to give passage to the shuttle i, and I therefore cause the size of the loop to be sufficiently increased by the advancing shuttle itself, in the following manner: When the roller g^2, traveling in the curve f, has ceased to actuate the parts immediately depending on the said curve, the lever-arm p, through the thread-guide o^3 of which runs the upper thread, is lowered almost onto the pin r' fixed on the needle-bar s, (see Fig. VI,) and it is this descent of the lever-arm p which enables the shuttle to enlarge the loop sufficiently for its passage through it. The loop, in enlarging, moves the arm p of the jointed lever, and necessarily its arm p', carrying a small stud which enters a slot, n^1 in the lever o^2, fixed by the screw n^2. This simultaneous movement of the lever o^2 produces a motion to the left, whereby the thread passing through the thread-guide o^1, hitherto tight, (Fig. 1,) becomes loose; and thus the lowered lever arm p furnishes the upper thread for enlarging the loop, (Fig. VI.) The upper thread given, as above set forth, to the lever-arm p by the lever o^2 for the enlargement of the loop is indeed given for the shuttle i; but this latter consumes only the quantity required by the length of the stitch. The shuttle i having thus been enabled to pass through the loop, the needle k on the needle-bar s, dependent on the curve q, is vertically raised with its upper thread, the stitch being now formed. During the enlargement of the loop for the shuttle i the lever-arm p has been lowered almost onto the stud r' of the needle-bar; it is therefore raised by this stud r', when the needle-bar s rises, and the lever o^2, dependent, by its slide n^1, on the motion of the jointed lever $p\,p'$, returns to its first position, whereby the thread again receives the right amount of tension, the stitch being likewise drawn sufficiently tight, because the upper thread has suffered tension; but the bobbin or spool l must give the same length of upper thread as has been consumed for the stitch already made.

I would here observe that the manner of forming a suitable loop by the passage through it of the shuttle, whereby the stitch is produced, is analogous to that of other shuttle-machines.

The construction of my machine adapts it for sewing the thinnest fabric or the thickest leather; and it may be driven by hand or by treadles, by the simple addition of a table with treadles, the driving-wheel c being provided, for this purpose, with a groove, c^2, to receive the driving-band.

Claim.

I claim as my invention—

The levers o^2 and $p\,p'$ with their thread-guides arranged in relation to the thread-guide o, and operating to give out and control the needle-thread, as and for the purposes set forth.

ED. BRAUNDBECK, L. E.

Witnesses:
JULIUS CRUJEL,
LUDW. AD. DENCKER.