

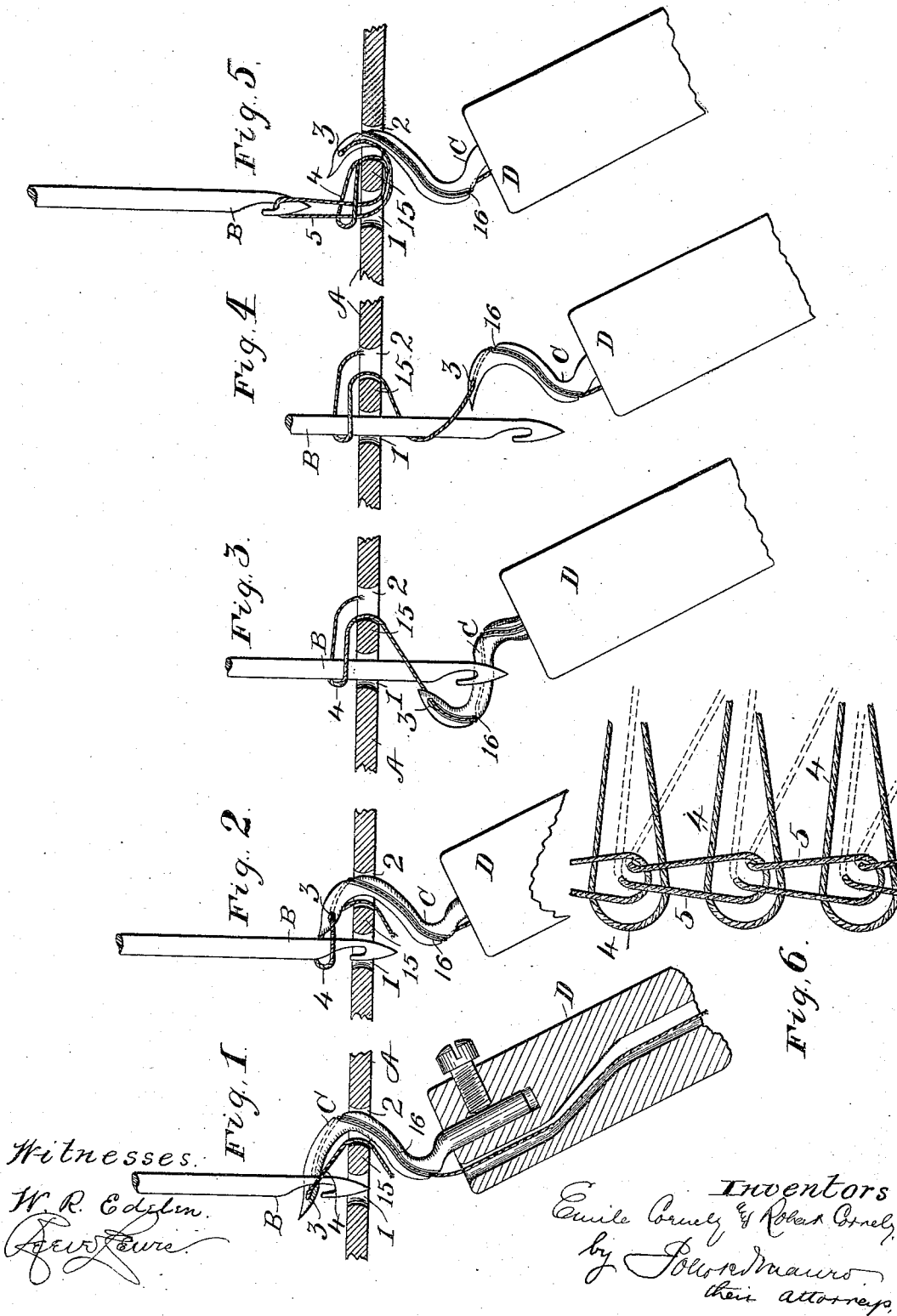
(No Model.)

3 Sheets—Sheet 1.

E. & R. CORNELY.
OVEREDGE SEWING MACHINE.

No. 543,335.

Patented July 23, 1895.



(No Model.)

3 Sheets—Sheet 2.

E. & R. CORNELY.
OVEREDGE SEWING MACHINE.

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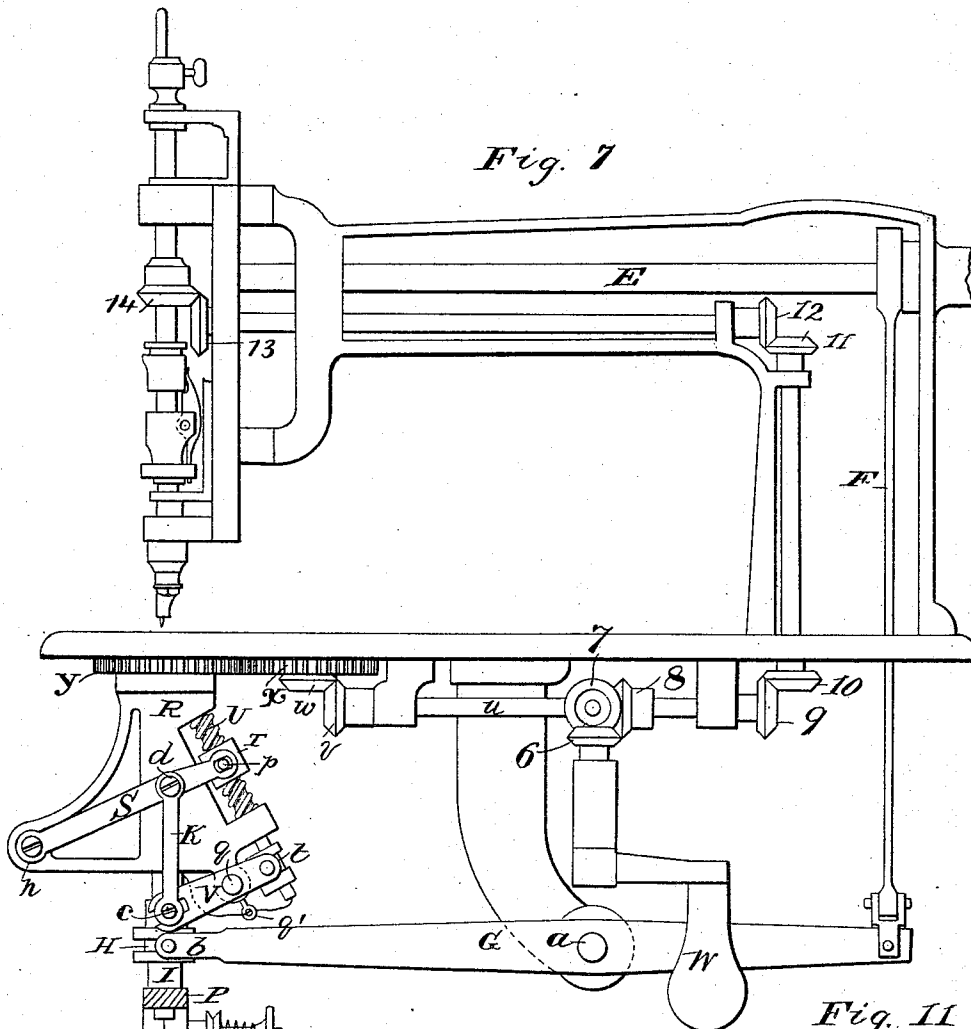


Fig. 13.

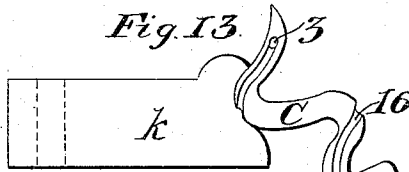


Fig. 14.

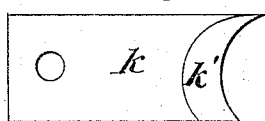


Fig. 11

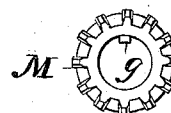
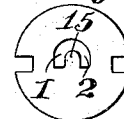


Fig. 12.



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J. W. Lewis

Inventors
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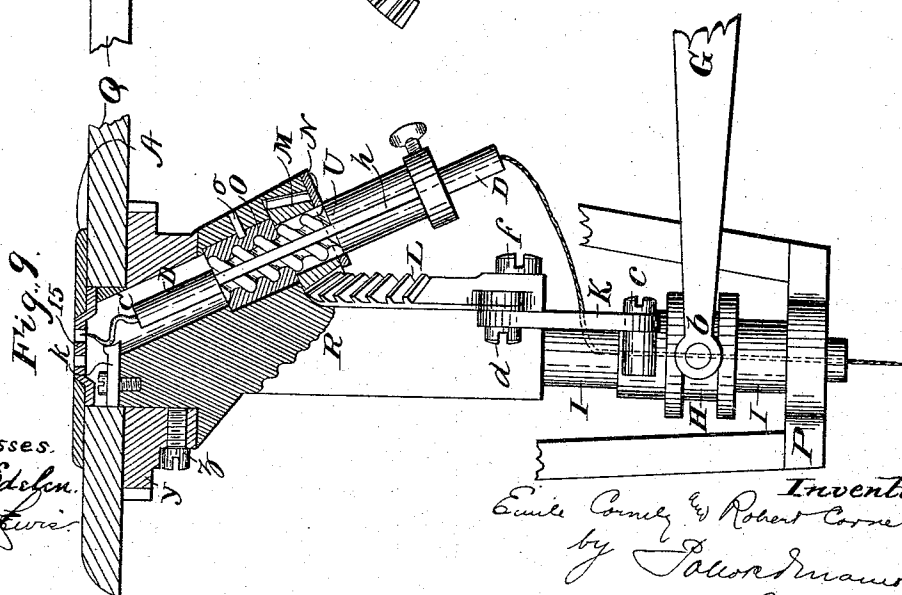
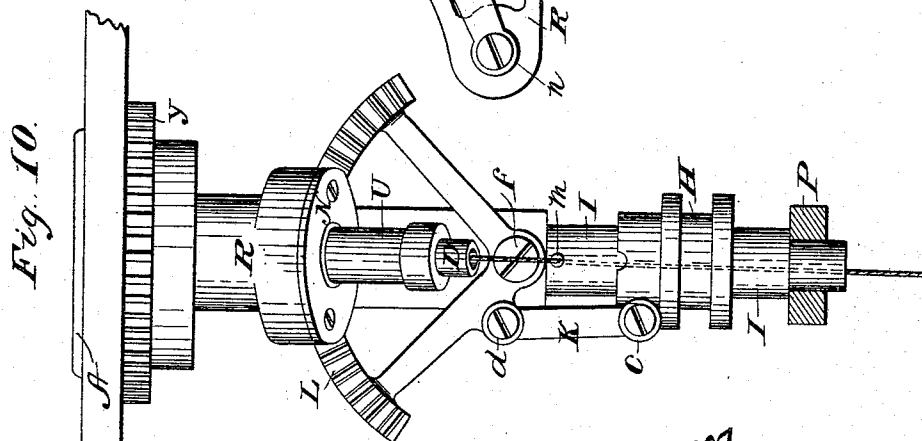
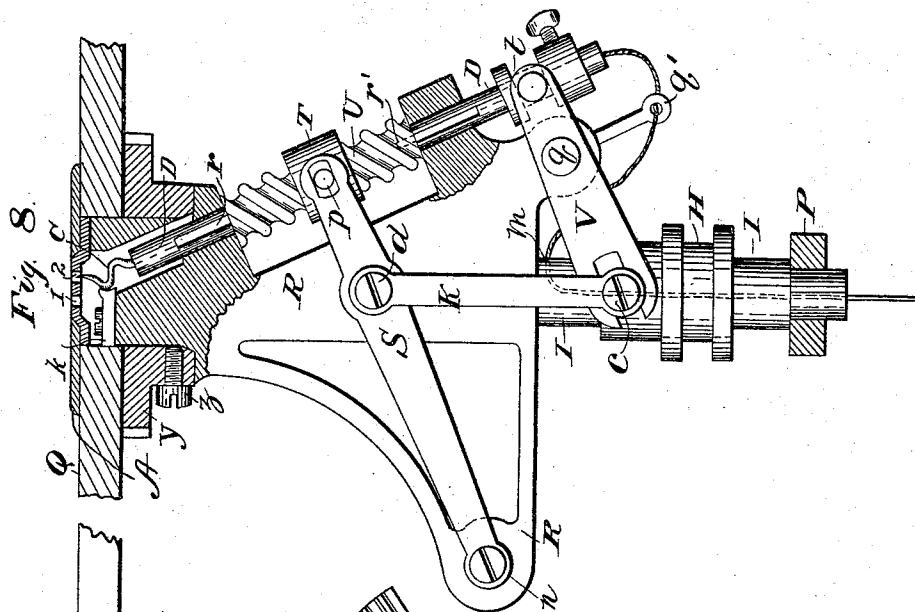
(No Model.)

3 Sheets—Sheet 3.

E. & R. CORNELY.
OVEREDGE SEWING MACHINE.

No. 543,335.

Patented July 23, 1895.



Witnesses.
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UNITED STATES PATENT OFFICE.

EMILE CORNELY AND ROBERT CORNELY, OF PARIS, FRANCE.

OVEREDGE SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 543,335, dated July 23, 1895.

Application filed October 6, 1894. Serial No. 525,145. (No model.)

To all whom it may concern:

Be it known that we, EMILE CORNELY and ROBERT CORNELY, of Paris, France, have invented a new and useful Improvement in Overedge Sewing-Machines, which is fully set forth in the following specification.

This invention has reference to machines for producing an edging or overseaming stitch by means of a single thread, and more particularly to machines in which the stitch-forming mechanism is connected with and controlled by the operating-handle of the universal-feed mechanism. Machines of this type are described in numerous patents, and their construction is well known.

According to the present invention the seam, which will be further described hereinafter, is produced by the co-operation of a reciprocating hook or crochet-needle and a helicoidal or corkscrew-shaped needle which oscillates on its axis and also reciprocates longitudinally of its axis. The helicoidal needle has a point near its eye and has the function also of a looper, its oscillation causing a loop of thread to be wound around the shank of the hook-needle. The latter draws this loop up through the preceding loop, holds it in the path of the eye-pointed helicoidal needle above the cloth-plate, and on its descent takes another loop from the helicoidal needle. These operations result in an overseaming chain-stitch which exhibits on the upper side of the fabric a series of connected loops running in the direction of the seam and intersected by a series of loops extending transversely to the seam.

Mechanism of various sorts may be employed to impart to the helicoidal needle its oscillatory and reciprocatory movements.

The improvements in stitch-forming mechanism may be employed for straight-ahead seams; but the invention also includes means for operating the same from the crank-handle of the universal-feed mechanism, so that the direction of the seam may be changed at the will of the operator.

The invention also includes certain special features of construction and combinations of parts, as will be fully set forth hereinafter.

In the accompanying drawings, which form part of this specification, Figures 1 to 5, inclusive, are enlarged views in elevation, partly

in vertical section, illustrating the movements of the needles in forming a stitch. Fig. 6 is a plan view of part of a seam. Fig. 7 is a side elevation of a machine constructed in accordance with the invention. Fig. 8 is an elevation, partly in vertical section, of parts beneath the bed-plate. Fig. 9 is a similar view of a modified form of driving mechanism. Fig. 10 is an elevation of the same at right angles to Fig. 9. Figs. 11, 12, 13, and 14 are details hereinafter referred to.

It will be convenient, first, to explain the operation of forming a stitch, from which it will be understood that mechanism of different kinds may be employed to impart to the stitch-forming devices their necessary movements.

Referring, therefore, to Figs. 1 to 6, A represents the needle-plate, B the reciprocating hook-needle, and C the helicoidal, reciprocating, and oscillating needle or looper. The latter is carried by a hollow shaft D, through which the thread passes, and is provided with a thread-groove 16 along its outer circumference leading to the eye 3. Shaft D reciprocates in line with its axis, and also turns thereon, so that needle C has a corkscrew motion. In Fig. 1 it is in its extreme upper position, and also at the extreme limit of its forward or right-hand oscillation, having passed through hole 2 in needle-plate A and past the needle B. The latter is descending, its point just entering hole 1 in the needle-plate, and, as shown, it has passed between needle C and thread 4. From this point both needles descend, and as needle C retreats it leaves a loop 4 around the shank of needle B, which loop spreads itself upon the cloth transversely to the general line of the seam, as shown in Fig. 6.

Figs. 2, 3, and 4 show the needles at different positions in their descending movement, during which movement needle C has turned completely around needle B, and consequently laid a loop (which is marked 5 to distinguish it from the preceding loop) in the hook of needle B, which in rising draws this loop through loop 4. Needle C in ascending passes through loop 5, and needle B again descending passes through another loop from needle C, these operations repeating themselves *ad infinitum*.

The seam, as shown in Fig. 6, presents on the upper side of the fabric a series of straight-ahead loops 5 and a series of cross-loops 4, the loops being connected on the under side of the fabric, as indicated in dotted lines. The two holes 1 and 2 in the needle-plate are connected by a semicircular slot, as shown in Fig. 12, forming a tongue 15, around which the overseaming stitch is formed and off which it slips when the cloth is moved by the action of the feed. This tongue also prevents the cloth being drawn or puckered by the tension of the thread.

It is to be observed, in connection with the foregoing description, that the eye-pointed helicoidal needle herein described is adapted either to pierce and carry its thread through the fabric upon which it operates, as where a seam is made back from the edge thereof, which is very desirable in operating upon thin goods, such as tulle or muslin, (the goods outside the seam being afterward cut away,) or simply to lay the thread around the edge of the fabric, as when operating upon cloth or similar goods.

The actuating mechanism will now be described, referring more particularly to Figs. 7 and 8. Shaft D has bearings in a frame R, supported beneath the bed-plate Q, in which bearings it is both free to turn and also to reciprocate. It passes loosely through a hollow worm-shaft U, which is held from endwise movement by the abutment of its ends against frame R. Worm U has an inwardly-projecting pin or feather, as indicated in dotted lines at r' , Fig. 8, which enters a longitudinal groove in shaft D. Hence when worm U rotates shaft D partakes of the rotary movement; but the connection of the two parts leaves shaft D free to move longitudinally independently of the worm. The latter is actuated by means of a nut T, carried by a lever S, pivoted in frame R at n . Lever S receives its motion from a sleeve H to slide on a hollow spindle I, which is rigidly connected with frame R and is supported at its lower end by a portion P of the main frame of the machine. Slide H is connected with lever S by pitman K, pivoted to the former at c and to the latter at d , and in turn is actuated by a lever G, pivoted in a bracket of the main frame at a and having a forked end b , which embraces a groove in slide H. This lever G is actuated from main shaft E through an eccentric and pitman F. By means of these connections shaft D receives its axial motion. Slide H also actuates a lever V, pivoted to frame R at q and connected by means of pins to a grooved block t , secured to the lower end of shaft D. Through this lever V said shaft receives its reciprocating movements. The thread, as shown in these figures, passes through hollow spindle I out through a hole m in the wall thereof, and thence, after passing through a suitable

thread-guide q' , it enters shaft D, as already described.

Obviously the means for imparting motion to needle C may be varied. Figs. 9 and 10 illustrate one of the modifications that may be employed. In these figures the pitman K, actuated by slide H, is pivoted to a toothed sector L, which is pivoted at f on frame R. Sector L is in gear with a bevel-pinion M, which is thereby oscillated. Pinion M is supported upon frame R by means of the plate N, Fig. 10. It encircles worm-shaft U and has a tooth, Fig. 11, which enters a groove h in said shaft. Consequently said shaft turns with gear N, but is free to move longitudinally. As the worm-shaft turns it traverses a nut O, fixed in frame R by means of a pin o , and is thereby given a reciprocating movement. In this case the shaft D of needle C is fixed rigidly to worm-shaft U, and partakes of its movements.

As already stated, the invention includes means whereby, if desired, the stitch-forming mechanism, whose construction and operation have been described, may be controlled by the crank-handle W of the universal-feed mechanism.

The connections for operating needle B are those commonly employed in machines of this class and require no description. The connections thereof with handle W are shown in Fig. 7, and consist of pinions 6, 7, 8, 9, 10, 11, 12, 13, and 14, with the shafts by which they are carried. In order that frame R and all parts carried thereby may rotate, said frame enters at its upper end a circular recess in plate Q, Figs. 8 and 9, and spindle I, which constitutes its axis of rotation, has a bearing in bracket P. Around the cylindrical upper end of frame R is a pinion y , secured there- to by screw z , and this pinion is driven from shaft u through pinions v and w and gear x .

In order to hold the thread in the thread-groove 16 of needle C a shield k is secured to the upper end of frame, Figs. 8 and 9. This shield, which is shown in detail in Figs. 13 and 14, has a surface k' curved to correspond with the curvature of needle C, which in operation moves in close proximity thereto.

Obviously modifications other than those described could be made in details of construction without departing from the spirit of the invention, and some of the improvements set forth could be used without the others.

What we claim is—

1. In a sewing machine the combination with the cloth-plate, a reciprocatory needle on one side of the cloth plate, a cork-screw shaped or helicoidal eye-pointed thread-carrying needle on the other side thereof, mounted obliquely to the reciprocatory needle and adapted to pierce and carry its thread through the fabric and to wind it around the reciprocatory needle below the cloth-plate, and means for imparting to the helicoidal needle

a longitudinal reciprocatory movement and an axial oscillatory movement, substantially as described.

2. In a sewing machine, the combination
5 with a universal feed mechanism, of a reciprocating needle, an eye-pointed helicoidal needle, driving mechanism for imparting to the latter oscillating and reciprocating movements, a rotatable frame carrying the helicoidal needle and its operating mechanism,
10 and connections between the said frame and

the controlling handle of the feed-mechanism whereby the former is operated by the latter, substantially as described.

In testimony whereof we have signed this 15 specification in the presence of two subscribing witnesses.

EMILE CORNELLY.
ROBERT CORNELLY.

Witnesses:

CLYDE SHROPSHIRE,
H. S. FULLER.