(No Model.)

E. CORNELY.

THREAD CUTTING APPARATUS FOR SEWING AND EMBROIDERING MACHINES.

No. 346,091. Patented July 27, 1886.

Fig. 1.

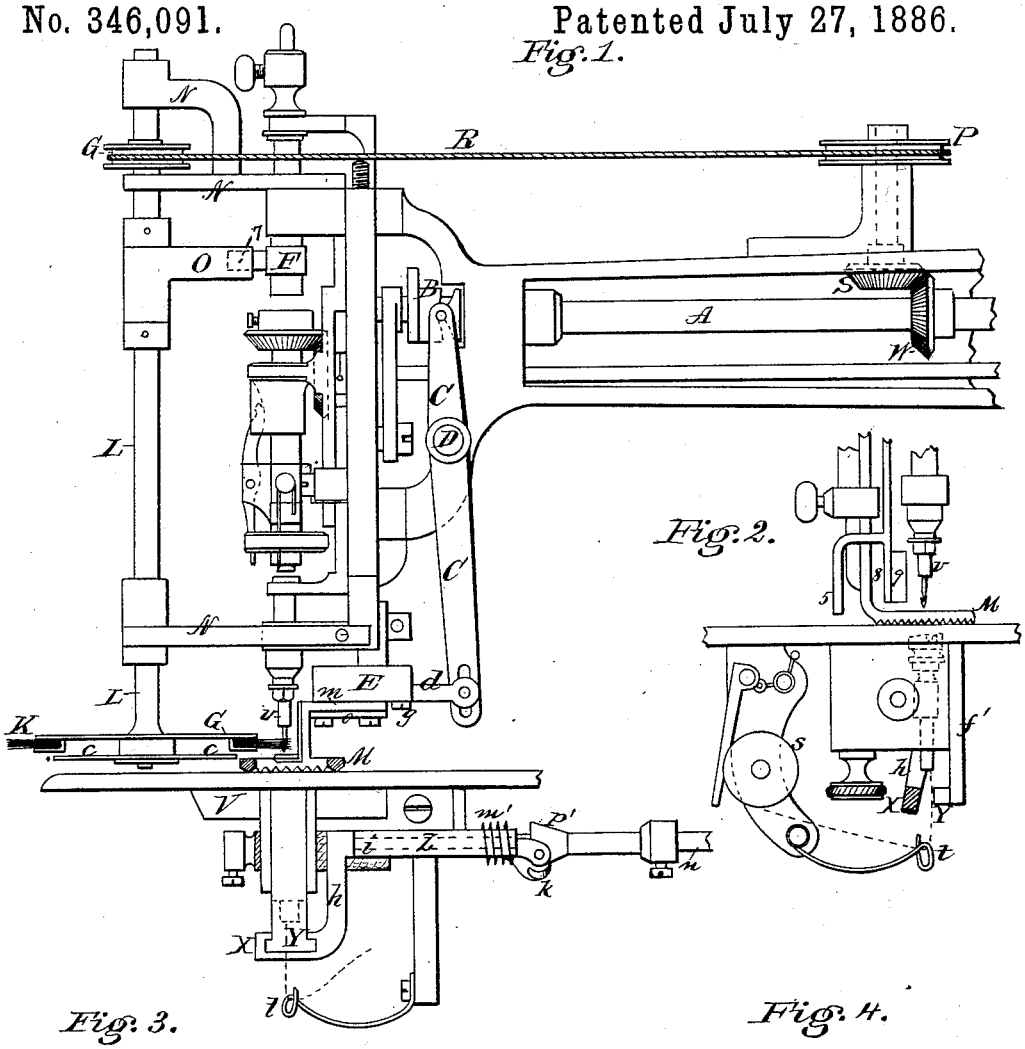


Fig. 2.

Fig. 3.

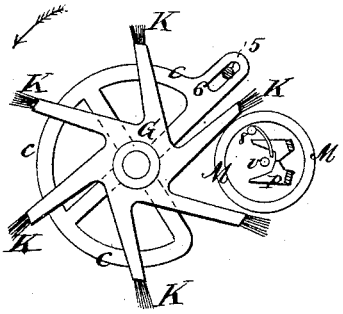
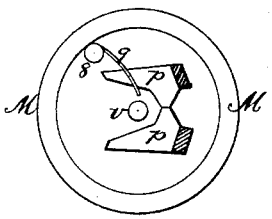


Fig. 4.



Witnesses
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Philip Lane

Inventor
Emile Cornely by
A. Pollok his attorney.

UNITED STATES PATENT OFFICE.

EMILE CORNELY, OF PARIS, FRANCE.

THREAD-CUTTING APPARATUS FOR SEWING AND EMBROIDERING MACHINES.

SPECIFICATION forming part of Letters Patent No. 346,091, dated July 27, 1886.

Application filed December 30, 1885. Serial No. 187,163. (No model.)

To all whom it may concern:

Be it known that I, EMILE CORNELY, of Washington, in the District of Columbia, a resident of Paris, in the Republic of France, have invented a new and useful Improvement in Thread-Cutting Apparatus for Sewing and Embroidering Machines, which are fully set forth in the following specification.

In the Patent No. 297,057, of the 15th day of April, 1884, a process and apparatus have been described and claimed for cutting each stitch formed by a sewing or embroidering machine after the completion of said stitch.

The present application relates to certain improvements which have been found necessary to obtain perfect work.

Figure 1 represents an elevation of the machine. Figs. 2, 3, and 4 represent detached views, hereinafter to be referred to.

Letters of reference on the different figures correspond with those on Patent No. 297,057. In the specification of said patent it has been explained that the cutting-scissors *p* cut the stitch after the thread has been drawn above the cloth. As in the patent above named the scissors are placed just above the feed-ring M, and are operated from a grooved cam, B, on main shaft A, so as to open as the needle descends and to close and sever the loop after the needle rises. In chain-stitch embroidering-machines which work with a needle-hook the loop, which has been drawn upward by the hook, is cut in two parts. The under part remains in the material as part of the seam to produce the velvet-like work. The upper part drops loosely on the work and mostly within the circular feed-ring M, and is thus worked into the consecutive stitching, whereby the appearance of the work is much injured. It has therefore been found necessary to remove each loop from the needle-hook after it has been cut by the cutting-scissors, so as to prevent it from dropping within the circular feed-ring M. This is accomplished by means of a system of rotary brushes, K, which are secured upon suitable arms of a wheel, G, which is secured to the shaft L. The shaft L has bearings in brackets N, which are secured to the head of the machine, and it is driven from the main shaft A by means of the pinions W S, pulleys or toothed wheels P Q, and cord or chain R. As the brushes K are adjusted very closely to the feed-surface M, they must be able during their rotations to rise and to descend with the latter in its movements of feeding the material. For this purpose a sleeve, O, is secured to the shaft L, and a stud, 7, on the upper part of the feed-bar F, extends into a recess of the horizontal part of sleeve O. Thus when the feed-bar F rises and falls the shaft L and the brushes K follow the same movement in conjunction with the feed-surface M. The connection of the shaft L with the feed-bar of the machine may be made by any other means than those described. As the brushes K rotate they strike against the needle, and they carry off the cut loops and throw them out away from the work. To prevent any of the loops or fibers from adhering to the brushes, those latter strike against the pins 5 and 8, which are secured to the frame of the machine. The stud 8, which extends into the circular feed M, is besides provided with a shield, 9, for the purpose of preventing any of the cut fibers from lodging in the rear part of the feed-ring M.

c represents a shield, Figs. 1 and 3, which is connected to the shaft L, but which cannot turn with it. The stud 5 extends into a slot, 6, of said shield, and prevents it from moving. The object of shield *c* is to prevent any contact of the material with the brushes K whereby it might be carried along with said brushes.

In working with a hook-needle the thread is wound around the needle by an oscillating looper, and as the needle-hook rises it draws up a loop; but to enable the hook to perform its work it is necessary that the thread should always have a certain degree of tension. This is obtained by means of a tension-spring, *t*, Figs. 1 and 2, through which the thread passes from the spool *s* into the looper. The spring *t*, by means of its elasticity, holds the thread tightly around the needle and prevents any false stitches. It has therefore always been employed on hook-needle machines.

In the present machine, when the loop has been cut by the cutting-scissors, the elasticity of the spring *t* has a tendency to draw the loose end of the thread downward, whereby the machine becomes unthreaded very frequently and must be threaded very often. To prevent this difficulty I have applied a pair of pliers, X Y,

through which the thread passes, and which close up and hold the thread tightly at the moment at which the loop is cut, and which thus prevent the spring from drawing the thread downward. The opening and closing of the jaw X against the jaw Y is effected by the action of the conical cam p', which is secured to the reciprocating looper-actuating bar n of the machine. The conical cam p' strikes against a friction-roller of the lever k, which acts upon shaft i and upon the lever h of the jaw X, so as to open the latter, and upon the return of cam p' the spring m' acts in the opposing direction and closes the jaws X Y, which hold the thread tightly while it is cut by the cutting scissors. This same apparatus for holding the thread fast has been described and claimed in a former application—to wit, No. 156,527, filed February 20, 1885—for tightening the seam in cording work. Its construction in the present case is modified in so far as it acts at a different moment and for a different purpose; also, the shape of the conical cam p' must be modified from that employed in the above-mentioned application.

Inasmuch as the machine, except in the particulars herein shown and fully described, is similar to that described and shown in Patent No. 297,057, above mentioned, and inasmuch as the construction and operation of machines of the type shown are well understood, it is not deemed necessary to describe the same more fully herein.

I claim—

1. In a sewing or embroidering machine, the combination, with the stitch-forming mechanism and the cutters for severing the thread at the completion of each stitch, of a brush or brushes and means for operating the same to remove the cut threads from the needle, substantially as described.

2. The combination of the stitch-forming mechanism, the cutters, and the revolving brush, substantially as described.

3. The combination, with the stitch-forming mechanism, the feed mechanism, and the cutters, of the brush or brushes, and a revolving shaft therefor connected with the feed-bar so as to rise and fall therewith, substantially as described.

4. The combination, with the stitch-forming mechanism, the feed-ring, and the cutters, of the revolving brush for removing the cut threads, the shaft carrying said brush, and a connection between said shaft and the feed mechanism, whereby said brush rises and falls with said feed-ring, substantially as described.

5. The combination, with the needle and the cutters, of the revolving brushes and a stud or studs in the path of said brushes, substantially as and for the purpose set forth.

6. The combination of the stitch-forming mechanism, the feed-ring, the cutters, the revolving brushes, the stud, and the shield, substantially as and for the purpose described.

7. The combination, with the stitch-forming mechanism, the cutters, and the revolving brushes arranged above the work-plate, of the shield interposed between said brushes and work-plate, substantially as and for the purpose described.

8. The combination, with the stitch-forming mechanism, the cutters, and the tension-spring, of the clamping jaws and operating devices for causing said jaws to close upon and hold the thread at proper intervals in the formation of each stitch, substantially as described.

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

EMILE CORNELY.

Witnesses:
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