

(No Model.)

2 Sheets—Sheet 1.

F. N. COTTLE.

SEWING MACHINE FOR QUILTING, &c.

No. 254,926.

Patented Mar. 14, 1882.

FIG. 1.

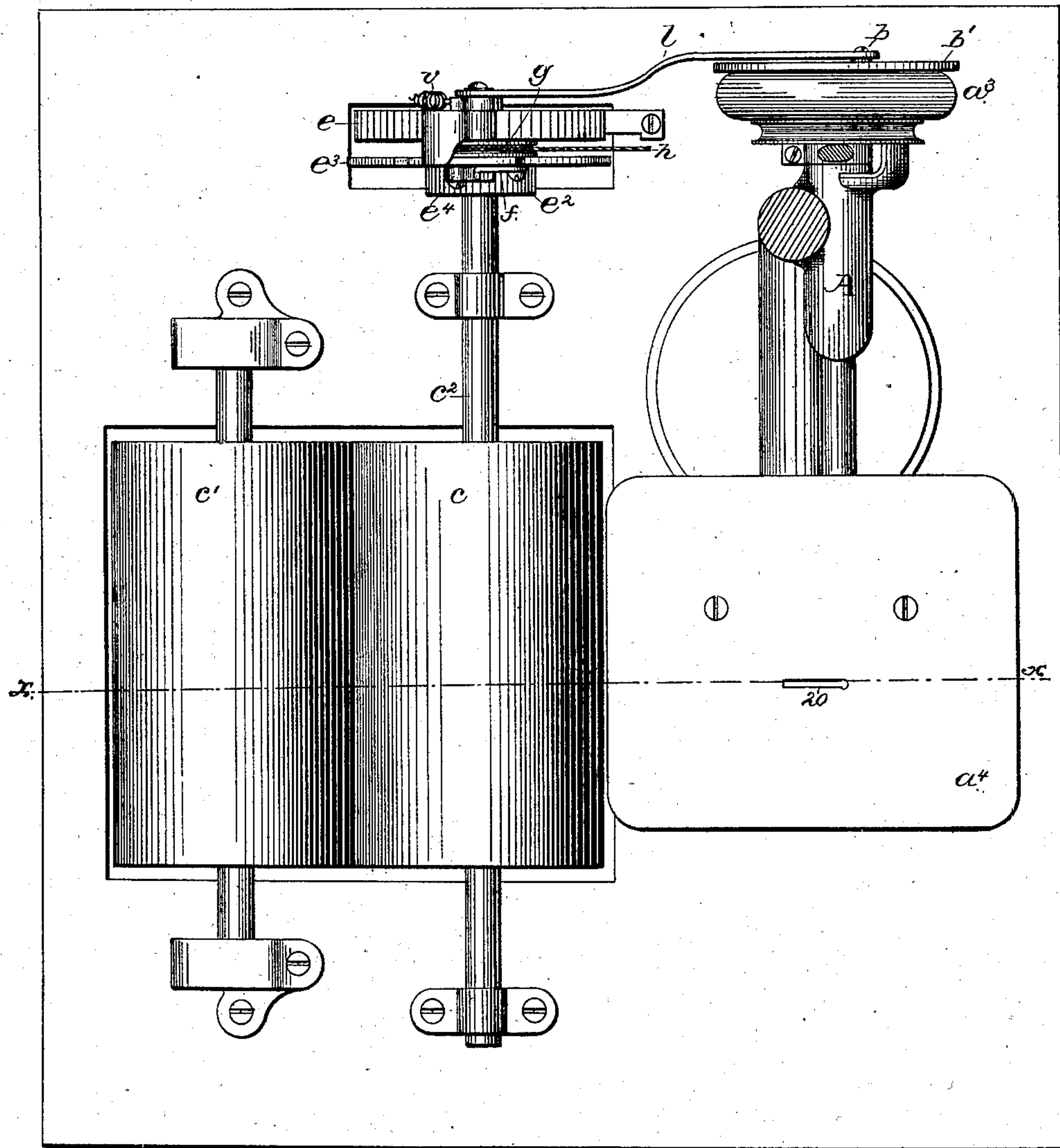
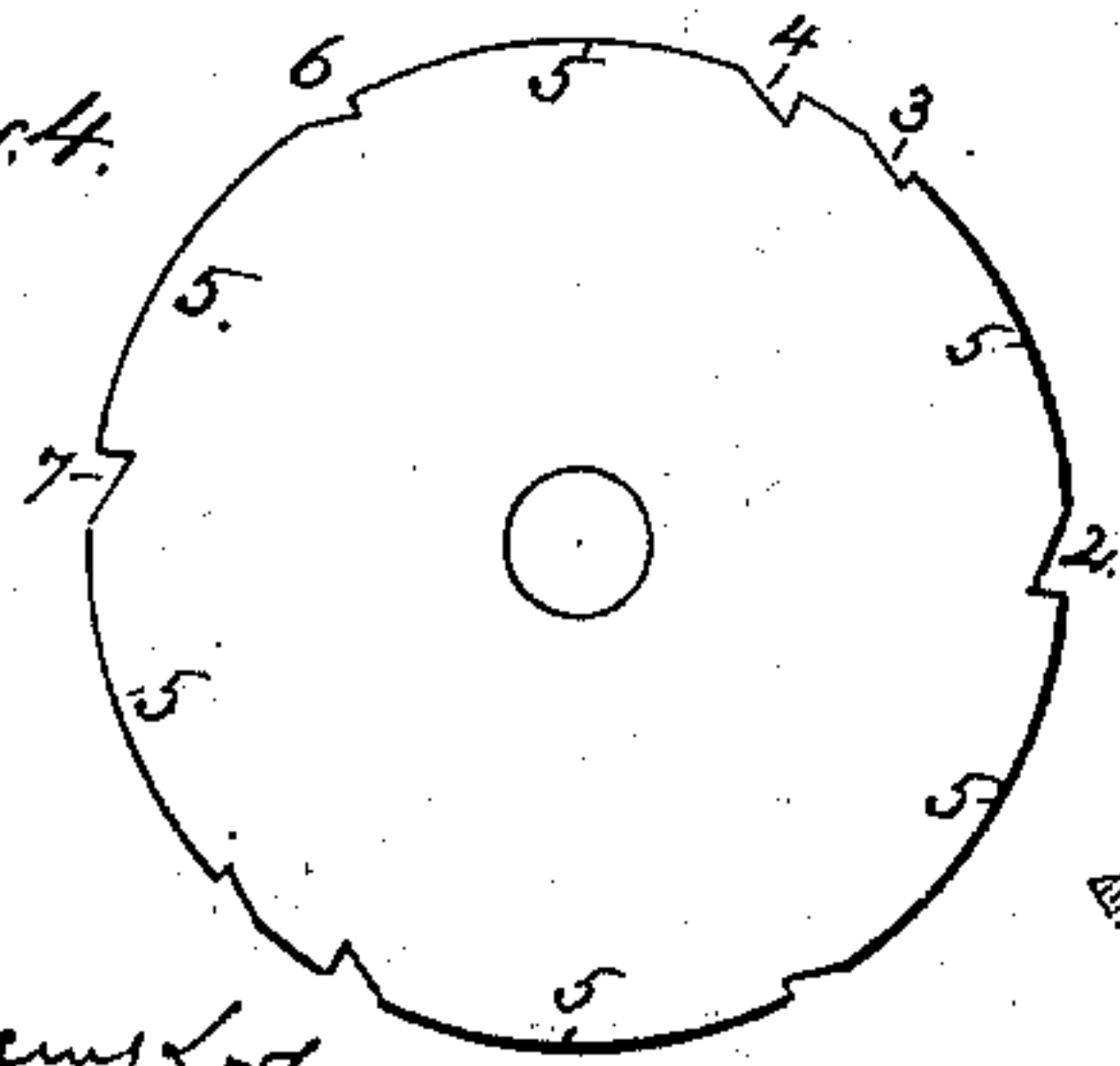


Fig. 4.

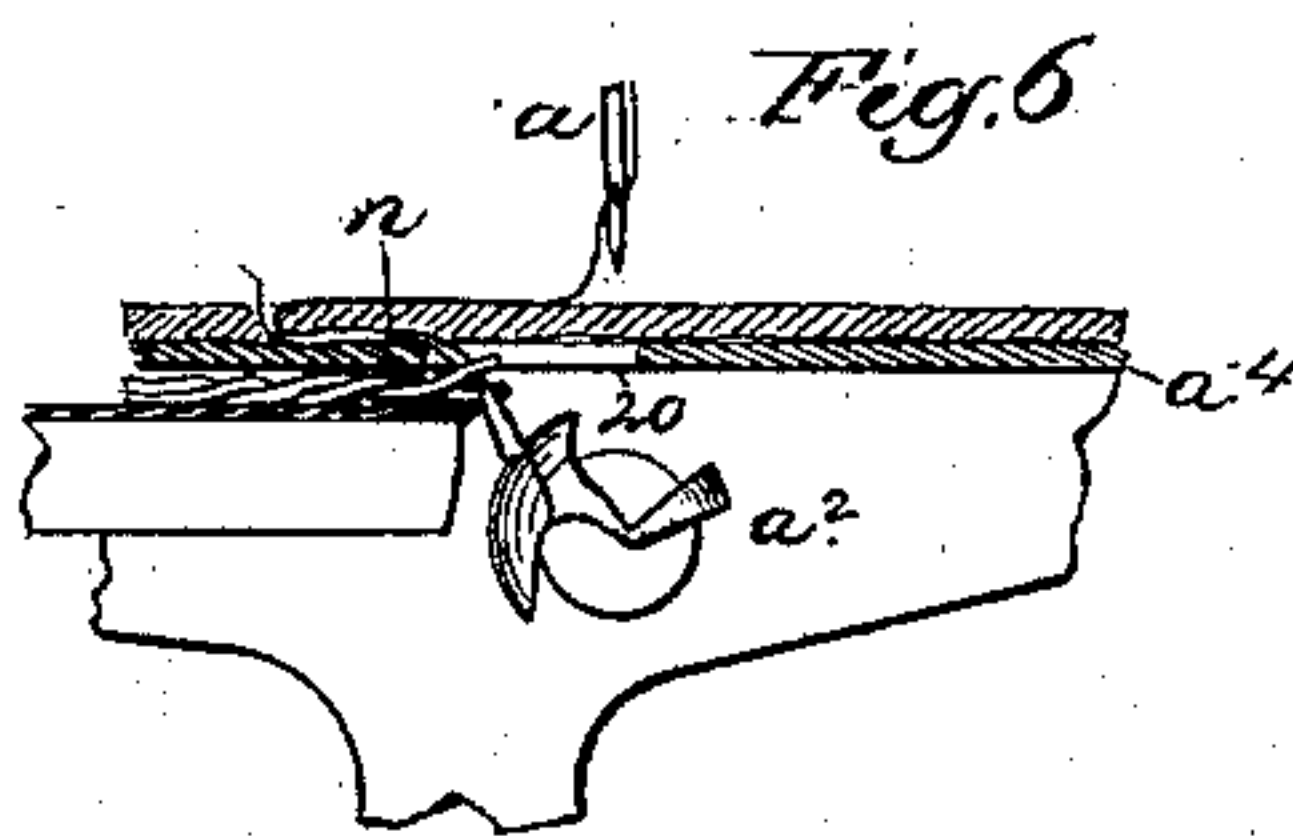


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Fig. 5.



Fig. 6.



Inventor:
Freeman N. Cottle

by Crosby & Gregory
Attys.

(No Model.)

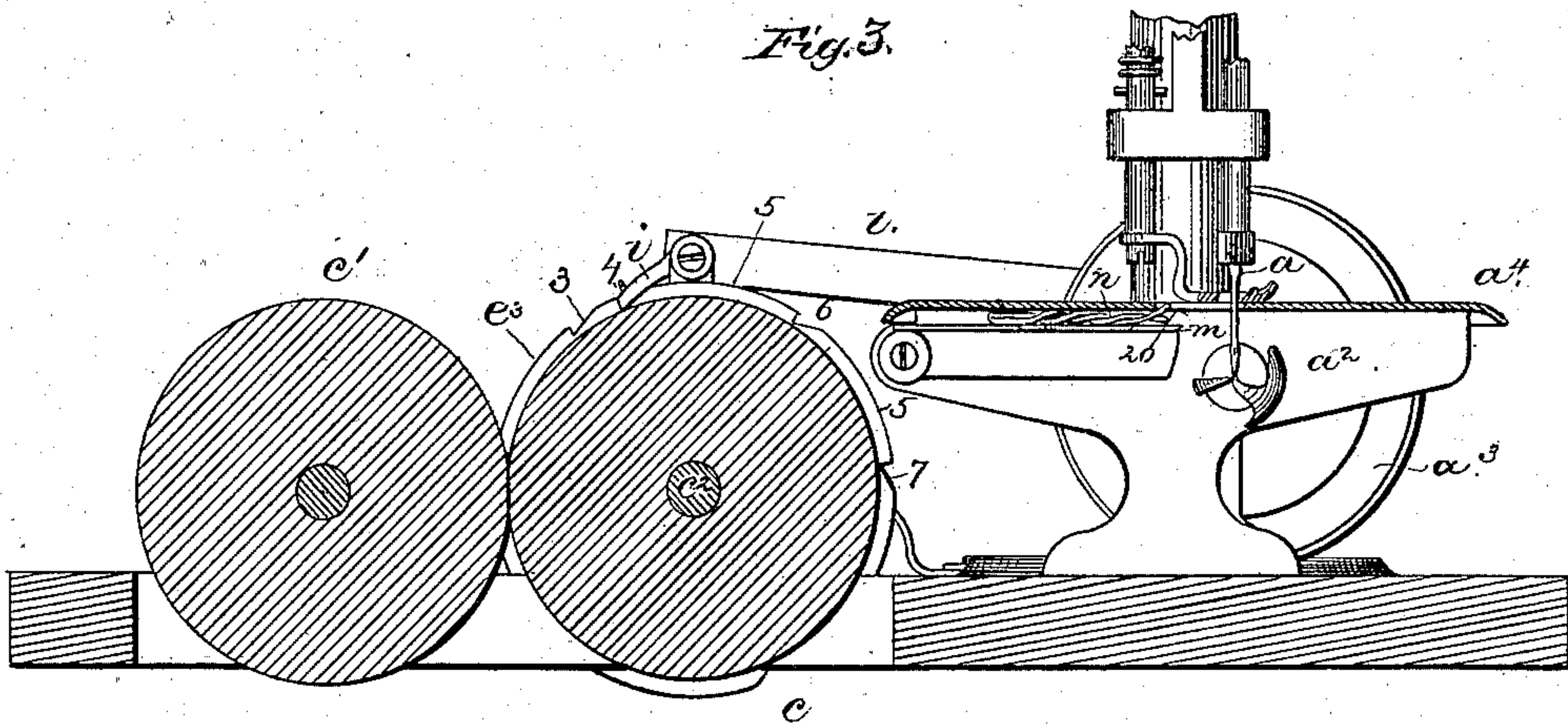
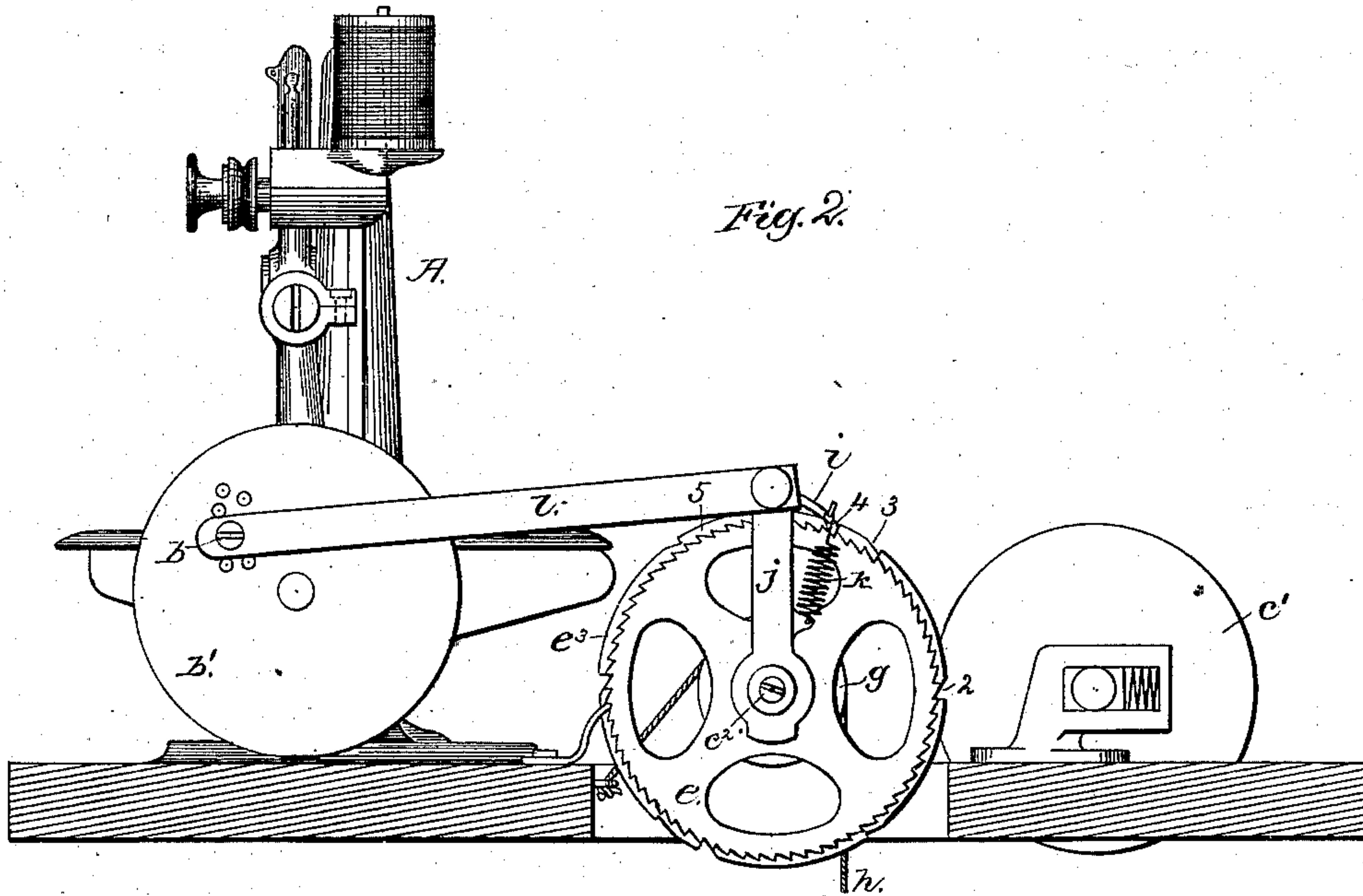
2 Sheets—Sheet 2.

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Witnesses,

John R. E. Prentiss
L. F. Connor.

Inventor,

Freeman N. Cottle

by Crosby & Gregory, Attys.

UNITED STATES PATENT OFFICE.

FREEMAN N. COTTLE, OF WALPOLE, MASSACHUSETTS.

SEWING-MACHINE FOR QUILTING, &c.

SPECIFICATION forming part of Letters Patent No. 254,926, dated March 14, 1882.

Application filed May 28, 1881. Renewed January 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, FREEMAN N. COTTLE, of Walpole, county of Norfolk, State of Massachusetts, have invented an Improvement in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification.

This invention in sewing-machines has for its object the production of a machine for uniting together layers of fabric and wadding in the manufacture of coverlets, quilts, carpet-linings, and that class of material wherein it is desired to make stitches only at intervals to tie, as it were, the fabric or layers of material together somewhat after the manner of tufting coverlets and quilts.

In the practice of this my invention I have taken the Willcox & Gibbs sewing-machine, removed from it its usual feeding mechanism, and connected with the driving-wheel on the hooked shaft a crank-pin to operate a link and reciprocate a pawl-carrier, so as to operate intermittingly, and for varied distances, a pair of rollers, which are made to feed the material in which the thread is to be tied or knotted at intervals. Beneath the throat-plate of the sewing-machine, and in line with the plane of rotation of the rotating hook, I have placed a thread-cutter, which at proper times is instrumental in cutting the thread which has been tied to form a knot in the material, and also beneath the plate I have added a thread-holder to hold that end of the thread extending to the eye of the needle after it has been severed by the cutter.

Figure 1 represents in top view a sufficient portion of a sewing-machine to illustrate my present invention; Fig. 2, a rear elevation of a Willcox & Gibbs sewing-machine with the connected parts employed to actuate the feeding mechanism. Fig. 3 is a horizontal section of Fig. 1 on the line $x x$. Fig. 4 is a separate view of the ratchet-disk. Fig. 5 represents a piece of quilt containing stitches substantially such as it is intended to make by this machine, and Fig. 6 is a detail showing the thread-loop as being drawn against the edge of the cutter during the long-feed stroke.

Referring to the drawings, A represents a well-known Willcox & Gibbs sewing-machine, it having an eye-pointed needle, a , and rotat-

ing hook a^2 to form the stitch, all as usual. The driving-wheel a^3 of the said sewing-machine will be provided with a suitable crank-pin, b , herein shown as attached to a disk, b' , secured to the said wheel a^3 ; but it is obvious that the crank-pin may be applied directly to the wheel a^3 , or an eccentric may be employed.

The quilt, coverlet, or other article composed of several layers of material which it is desired to unite together on this my improved machine, will be fed over the cloth-plate a^4 of the machine by the rollers $c c'$, the roller c being on a shaft, c^2 , which is driven positively, whereas the roller c' is driven by means of friction from the roller c . The shaft c^2 of the roller c has upon it a compound ratchet, composed of a ratchet-wheel, e , fixed upon the outer end of the shaft, a smaller ratchet, e^2 , fixed upon the said shaft near the ratchet e , and of an intermediate pawl-controlling ratchet-disk, e^3 , provided with a pawl, e^4 , held down in engagement with the smaller ratchet-wheel e^2 by the spring f , the pawl e^4 preventing backward movement of the said ratchet-disk as the main pawl i is moved backward. This intermediate ratchet-disk, e^3 , is loose upon the shaft c^2 , and between its outer side and the ratchet e the said disk has connected with it a grooved pulley, g , to receive a cord or band, h , extended over the same and subjected to a sufficient amount of tension to act as a check for and to prevent rotation of the ratchet-disk e^3 when not moved positively, or for a greater distance than moved positively by the pawl i , which is connected with the pawl-carrier j , pivoted upon the end of the shaft c^2 . The pawl i is broad enough to extend across both the ratchet e and the controlling-disk e^3 , and is held down on the pawl-carrier by the spring k . The pawl-carrier derives its motion from the crank-pin b through the link l .

Referring to Figs. 2 and 3, it will be seen that the ratchet-disk e^3 is of greater diameter than the ratchet e , and that the notches in the said disk e^3 to be entered by the pawl are of different depths, and are located at various distances apart.

In order to form a short stitch and knot or tie it, which is the object of my invention, I cause the needle to penetrate the fabric, and the looper to take hold of the needle-thread

loop, and I cause the needle to descend again through the fabric in the same spot, the looper again engaging the needle-thread. After this I move the feed-wheels for a short distance
 5 only, sufficient to make a stitch from a quarter to a half of an inch long, more or less. When the needle is again made to descend through the fabric or quilt its thread will be caught by the looper, rise, and the needle will again descend at the same spot, thus enabling the looper
 10 to engage the needle-thread the second time. These four descents of the needle, with its needle-thread being engaged at each descent by the looper, enable the looper to knot or tie
 15 the thread, and then, as the looper yet holds the thread, a long feed of the fabric or quilt is caused by the rollers, which so draw the thread extending from the looper to the fabric as to press the loop of the thread held by the looper
 20 against the edge of the cutter *m*, (see Fig. 6,) severing the thread between the needle and looper and fabric or quilt. The end of the needle-thread, extending through and beyond the eye of the needle, will be caught, as the thread
 25 is severed, between the forked end of the thread-holder *n*, composed of two pieces of wire twisted together, so as to form a tapering or V-shaped fork just at the rear of the long slot
 30 holding the end of the needle-thread below the cloth-plate until the next stitch is to be made.

To produce a feeding movement of this kind the pawl *i* will be supposed to have just engaged the notch 2 of the disk *e*³ (see Fig. 4)
 35 and have moved the feeding device for the long feed, and the needle immediately thereafter descended through the material. Then while the needle remains in the material the pawl *i* is carried back along over the edge of
 40 the ratchet-disk *e*³ and falls into the notch 3, at which time the needle has nearly risen; but said notch, being of less depth than the notch 2, does not permit the pawl to engage the ratchet *e*, and consequently the said pawl in
 45 its forward movement, moves only the controlling-disk, and just after the end of the forward stroke of the pawl the needle again descends in the same spot. The next tooth, 4, of the
 50 ratchet-disk is very close to the shallow ratchet-tooth 3, and as the pawl is drawn back it passes the said notch, rides along on the high part 5 of the controlling-disk, while the needle is in the fabric and is partially rising, and then the pawl is moved forward, engaging the
 55 notch 4 of the ratchet-disk, which is deep enough to permit the pawl to also engage the ratchet *e*, and during the further slight forward movement of the pawl and ratchet-disk *e*³ the ratchet *e* is also moved to make the short
 60 feed of the fabric. Then the pawl is again

moved backward along over the high part 5 of the ratchet-disk and engages the shallow notch 6 therein, so that the pawl, as it is again moved forward, will not engage the ratchet *e* and move the fabric or quilt, but permits the
 65 needle to again descend the second time in the same hole. At the next backward movement of the pawl it rides over the unnotched part 5 of the ratchet-disk and drops into the deep notch 7 of the controlling-disk, engaging also
 70 the ratchet-wheel *e*, which is moved the full stroke of the pawl, thus making a long feed, as described. After this the operation is again repeated, and two descents of the needle are made in one spot, a short feed is produced, and
 75 the needle is again made to descend twice in the same spot.

The knot made in the stitch, as I have described, is not what might be accurately denominated a "face-knot," but the loops of
 80 thread are so twisted or knotted together as to practically form a knotted or tied stitch. The thread-holder *n*, besides holding the severed end of the thread and preventing it from being drawn out of the eye of the needle, also serves
 85 to draw the knots tight.

I claim—

1. The sewing mechanism composed of the eye-pointed needle and hook and means to operate them and the roller-feed located at one
 90 side of the sewing mechanism, combined with the ratchet and pawl, and pawl-controlling disk, as described, adapted to operate the roller-feed intermittingly for a short distance and then for a long distance, leaving the feed-
 95 wheels at rest at intervals during two descents of the needle, to operate substantially as and for the purpose set forth.

2. The sewing mechanism composed of the eye-pointed needle and hook and the feeding
 100 mechanism, combined with the thread-cutting device *m*, located below the cloth-plate, over which the loop of thread is drawn and severed between the material being sewed and the eye of the needle, substantially as described.
 105

3. The combination, with the cloth-plate *a*⁴, the needle-bar and eye-pointed needle, of the thread-holder *n*, adapted to receive between its forked end the end of the thread projecting beyond the eye of the needle and hold the
 110 same until the needle again descends to form a succeeding stitch, substantially as described.

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

FREEMAN N. COTTLE.

Witnesses:

JOS. P. LIVERMORE,
 L. F. CONNOR.