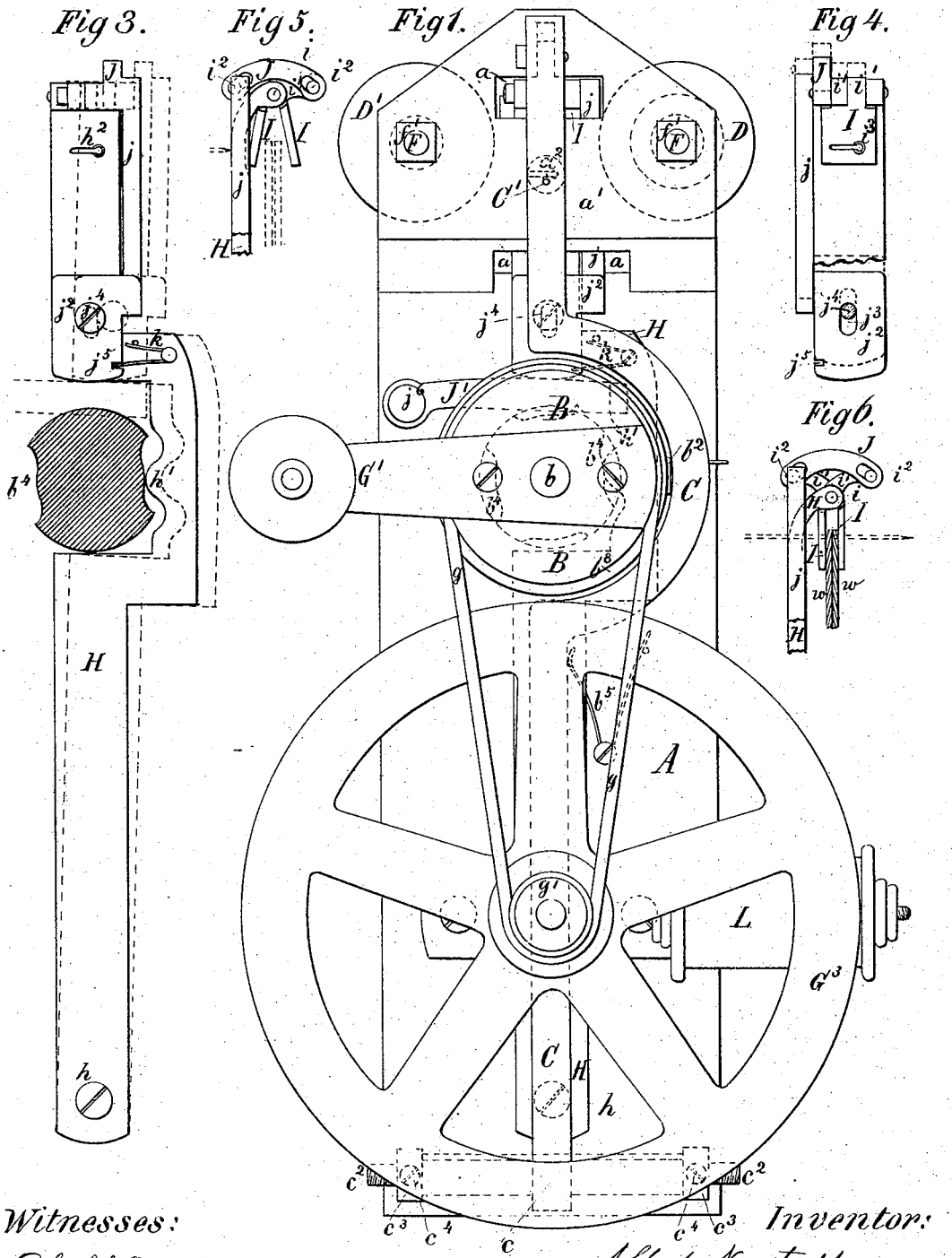
(Model.) 2 Sheets—Sheet 1.

A. NEUSTADT.

CARPET SEWING MACHINE.

No. 261,248. Patented July 18, 1882.



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(Model.) 2 Sheets—Sheet 2.

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Fig 2.

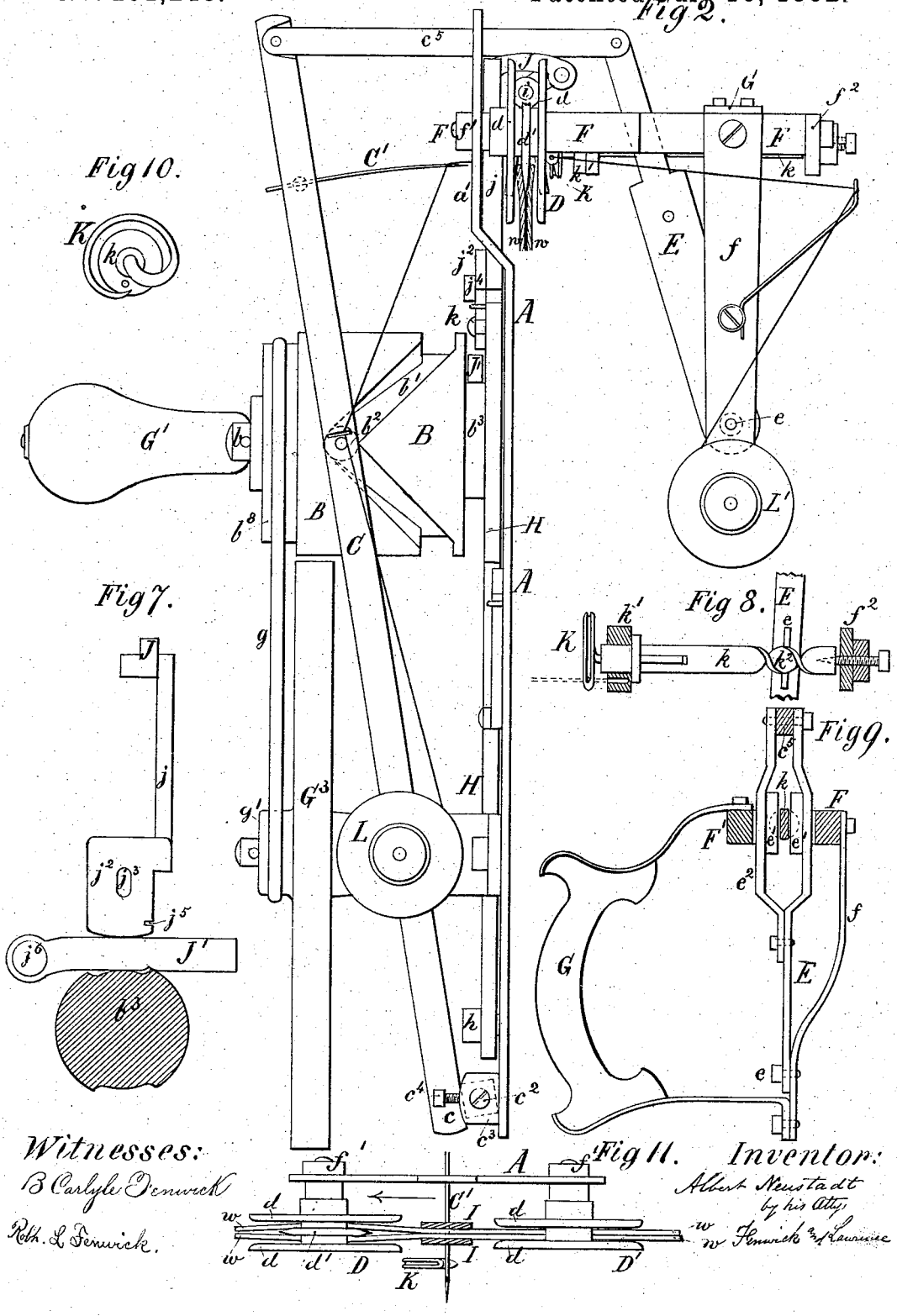

Fig 10.

Fig 7.

Fig 8.

Fig 9.

Fig 11.

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UNITED STATES PATENT OFFICE.

ALBERT NEUSTADT, OF SAN FRANCISCO, CALIFORNIA.

CARPET-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 261,248, dated July 18, 1882.

Application filed April 12, 1882. (Model.)

To all whom it may concern:

Be it known that I, ALBERT NEUSTADT, a subject of the Queen of Great Britain, residing at San Francisco, in the county of San Francisco and State of California, have invented a new and useful Carpet-Sewing Machine, of which the following is a specification.

My invention relates to an improved sewing-machine which rolls upon the edges of two strips of carpeting or other fabric stretched between suspending hooks or supports, and while traversing from one end of the material to the other lays over its frayed or raveled edges and sews the two pieces together.

The main novel features in this machine are, first, a sewing-machine frame provided with flanged rollers which revolve upon the edges of the carpet, while the frame slides in relief above and along the sides of the same; second, the frame provided with rollers having a V-shaped circular projection or its equivalent on the tread of its periphery between the flanges; third, the gripper whereby the machine is intermittently or at the completion of each stitch fed along—that is, fed along the distance of a stitch—stopped until the stitch is made, and then again fed along the distance of another stitch, and so on until the seam is completed; fourth, the mechanism for operating the gripper; fifth, the combination of stitch-forming mechanism, a gripper-feeding mechanism, and a sewing-machine frame provided with flanged roller-supports for rolling the machine over the edges of the carpet or other fabric; and, sixth, the combination of the stitch-forming mechanism, gripper-feeding mechanism, frame of sewing-machine provided with rollers for supporting and rolling it on the edges of the carpet or other fabric, one of the rollers having a V-shaped circular projection between its flanges, a crank-handle, suitable speed-regulating gearing, and a steadying-handle, all as will be hereinafter described.

In the accompanying drawings, Figure 1 is a side view of the machine. Fig. 2 is a front view of the same, showing portion of two carpet-strips in section as they appear in the front supporting-roller. Fig. 3 is a detail side view of the feed-lever and gripping mechanism and a sectional view of its operating-cam. Fig. 4 is a view of the upper portion of the same, showing the side opposite to that seen in Fig. 3. Fig. 5 is an edge view of the gripper when open. Fig. 6 is a similar view of the same when closed. Fig. 7 is a detail view, partly in elevation and partly in section, showing the gripper-operating cam and lever-arm with spring-slide. Fig. 8 is a detail vertical section, showing the looping-hook and a portion of one of its operating lever-arms in elevation. Fig. 9 is a vertical section and partial elevation, showing the lever-arms, the loop-forming bar, the connecting-rod of the lever-arms, a part of the frame, and steadying-handle. Fig. 10 is an end view of the loop-forming hook and its bar and bearing; and Fig. 11 is a plan diagram of a part of the frame, the supporting-rollers, carpet-strips, needle, and loop-forming hook, and a horizontal section of the gripper.

Similar letters refer to similar parts throughout the several views.

A represents a vertical plate forming part of frame to which the main parts of the machine are attached; B, the operating cam-wheel; C, the needle-bar; D D′, the supporting-rollers.

To the frame-plate A the cam-wheel B is attached by means of a pivot, *b*. This cam-wheel has three different cam formations for the purpose of three distinct operations—viz., the operation of the needle, the gripping device, and its feed motion. For the first purpose the cam-wheel B is provided with a doubly-inclined continuous groove, *b′*, in which an anti-friction roller, b^2, travels, which roller is attached to the needle-bar C. The lower end, *c*, of the needle-bar is of T shape, and is pivoted between the pointed ends of two adjustable set-screws, c^2, suitably hung in lugs c^3 of the frame-plate A, and steadied by set-screws c^4 in said lugs. The upper end of said needle-bar is, by means of a connecting-rod, c^5, connected to the upper end of a lever-arm, E. The lower end of the lever-arm E is pivoted at *e* to a rigid arm, *f*, of a bar, F, which is fastened by a nut, *f′*, to the plate A. A similar bar, F′, is fastened by a nut, *f′*, to the plate, and the two ends of the bars F F′ are united by a cross-bar, f^2, in a suitable way, the parts F F′ *f*, with plate A, constituting a suitable frame for my improved sewing-machine.

To the extreme lower end of the arm *f* and

to the bar F′ a suitable handle, G, is attached, whereby the operator may with his left hand steady and hold the machine in the right position while sewing.

A crank-handle, G′, of suitable construction is attached to the cam-wheel B, whereby said wheel is operated.

In order to steady the movements of the machine, a balance-wheel, G^3, is provided and suitably hung to the plate A, and this wheel is driven from the cam-wheel B by means of a grooved pulley, b^3, and a belt or cord, g, and a grooved pulley, g', of the balance-wheel.

The arm F is provided with a flanged roller, D, which has a central V-shaped projection or ridge, d', of much less thickness than the width of the space between the flanges d d of the roller, and while the pulley is riding upon the edges of the carpet-strips said roller D, by its flanges d, prevents the carpet-strips from parting, while the ridge d' enters between the faces of the carpet-strips and deflects the woolen facing downward and out of range of the needle C′ immediately before the feed gripping-plates I I of the machine take hold of the thus prepared edges of the carpet-strips. A flanged roller, D′, not having a ridge, and with the flanges nearer to each other than the flanges of roller D, is provided on the arm F′ in line with the roller D, and the two rollers serve to guide and hold the machine as it rolls over the carpet-strips.

As an equivalent of the continuous V-shaped ridge d', a series of spaced segmental projections might be adopted; or a series of spaced suitably-shaped hooks might be placed between the flanges of the roller D for the same purpose as the continuous V-shaped ridge d'; and, if desired, the transverse sectional form of the ridge d', or of the equivalents therefor, herein mentioned, might be varied, so as to be rounding instead of tapering, and still perform the desired work of laying over the frayed edges out of the range of the needle.

The gripping device is an adjunct to and forms a part of the feeding or propelling device, which consists of a longitudinally-vibrating bar, (denominated herein the "feed-lever" H.) This feed-lever is pivoted at h to the frame-plate A, and the upper portion of it moves back and forth the length of the respective stitches in a horizontal slot, a, of a stepped upper portion, a', of said frame-plate A. By forming the plate with the slotted stepped portion a' the upper portion of the lever H can be passed through this plate, so as to have it stand on that side of the plate A where the rollers D D′ are located, and on which side the two flat gripping-plates I of the gripping device are pivoted at i to the upper end of the lever H at a suitable distance above the edges of the carpet. The gripping-plates I are provided with arms i', which are connected by means of pivot-pins i^2 and oblong slots to the head J of a sliding bar, j. The lower end of the sliding bar j is provided with a foot-plate, j^2, having a vertical central slot, j^3, through it, which permits a set-screw, j^4, to pass into the lever H, and thus hold the slide-bar j to the lever. A spring, k, suitably fastened to the lever H and bearing with one end into a notch, j^5, of the foot-plate j^2, serves to draw the slide down and simultaneously open the gripping-plates and keep them open during the time the gripper is being moved back to take a new bite for feeding the machine along. The lower end, j^2, of the sliding bar j rests upon a lever, J′, which is pivoted at j^6 to the plate A and bears upon a cam, b^3, of the cam-wheel B, and thus the proper motion is given to the sliding head J and the gripper-plates I, as will hereinafter be seen. The lever H is provided with a cam formation, h', opposite a cam, b^4, of the cam-wheel B, in order that it may be moved forward the distance of the required length of stitch, and with a spring, b^5, suitably fastened to the plate A and bearing against the lever H, so as to keep the cams h' and b^4 in working contact, and also to cause a return of the lever H, with gripper attached, to a position for producing a new feed of the machine at the moment the needle has receded to its starting position. This construction gives the proper propelling or feed motion to the gripping-plates, as will be hereinafter seen. In order to allow the needle C′ to freely enter the carpet-strips, the plate A is provided with a hole, a^2, the lever H with a horizontal slot, h^2, and the gripping-plates I with horizontal slots i^3. Opposite the needle, on the other side of the plate A, a looping-hook, K, is provided, which is fastened to a vibrating bar, k, suitably hung to the bar f^2, and a bearing, k', on the bar F. The bar k has two spiral twists, as k^2, formed on it, and over this spiral-thread formation k^2 two parallel lugs, e', one on the arm E and the other on a branch arm, e^2, pass back and forward with the needle-bar. By this construction the looper-hook K is properly vibrated back and forward with each back and forward movement of the needle, and forms the loop of a double chain-stitch in the ordinary well-known way. The hook K and the needle C′ are each supplied with thread from spools L and L′, suitably attached to the plate A and arm f.

Inasmuch as I do not desire to confine my invention to any one specific mechanism for forming stitches, but purpose to employ any other known stitch-forming mechanism which can be practically applied for use in connection with my gripper-feed mechanism, flanged rollers, and rolling suspended supporting-frame, and other parts employed as adjuncts thereto, I will, without further description of such mechanism, now proceed to describe the several stages of operation of the feed or gripping and propelling mechanism with respect to the special stitch-forming mechanism shown—viz., a reciprocating eye, pointed needle, and a vibrating perforated or thread-carrying looper.

The machine described having been placed upon the edges of the suspended carpet-strips

or other pieces of fabric to be united, the operator places his left hand on the handle to steady it, and turns the actuating-cam with his right hand applied to the crank-handle. As the machine moves along the roller D lays aside or down the frayed or loose wool edges of the carpet. The gripping-plates I grip the carpet-strips thus prepared by roller D. The whole sewing-machine is caused by the grippers to roll forward the distance of the required stitch, it swinging on the pivot *h* of the lever H and rolling on rollers D D′. The threaded needle now passes through the plate A, lever H, and one of the gripping-plates, carpet-strips, and then through the other gripping-plate. The needle now recedes, and thereupon the threaded looper is set in motion and caused to take the loop of the needle, which it retains in proper relation to its own thread until the needle again advances, when by a reverse movement of the looper the loop is freed from it and the stitch is tightened or completed upon the fabric at the next receding movement of the needle. Previously to the above-mentioned second advance of the needle the gripper-plates I I are opened and swung back by the spring K drawing down the slide *j*, and are made to bite upon the carpet and to feed the machine along the distance of another stitch by the cam b^4 acting on the lever H; and while these operations are proceeding the needle maintains its starting position outside the plate A; but as soon as the feeding of the machine forward the distance of a stitch is accomplished the needle makes the aforesaid second advance, the looper casts off its loop and assumes a position for taking the loop about to be formed by the backward movement of the needle, and the stitch, as before stated, is tightened or completed during the subsequent operation of the parts, and thus the operation proceeds until the seam is completed.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with stitch-forming mechanism, a suspended frame having one or more supporting flanged rollers which travel upon the edges of the carpet-strips or pieces of fabric to be united, substantially as and for the purpose described.

2. In combination with a sewing-machine frame and stitch-forming mechanism, the suspending and supporting flanged roller D′ and the suspending and supporting roller D, having a projection or ridge, *d′*, substantially as and for the purpose described.

3. A gripper-feeding device applied on the sewing-machine above and on each side of the edges of the carpet or other fabric, opened out from the sides and closed against the sides of said edges, and having its feed-lever H pivoted to the frame A below the needle, in combination with stitch-forming mechanism mounted on a frame which is suspended upon, supported by, and moved on the edges of the carpet-strip, substantially as and for the purpose described.

4. In a carpet-sewing machine, the combination of suitable actuating mechanism, the gripping-plates I, pivoted to the feed-bar H at *i* and to the head J of slide *j*, spring *k*, lever J′, and cam b^3, substantially as and for the purpose described.

5. A gripper-feeding device consisting of pivoted and perforated plates I, which are connected to a feeding-lever, H, in combination with a carpet-sewing-machine frame-plate, A, having a perforation through it for a horizontally-vibrating needle, substantially as and for the purpose described.

6. The combination of a stitch-forming mechanism, a gripper-feeding mechanism, a sewing-machine frame, and flanged rollers D D′, which roll upon the edges of the carpet or other fabric to be united, substantially as and for the purpose described.

7. The combination of a stitch-forming mechanism, gripper-feeding mechanism, a sewing-machine frame having supporting flanged rollers D D′, one of which has a V-shaped central circular ridge, *d′*, a crank-handle, G′, suitable speed-regulating gearing, and a steadying-handle, G, substantially as and for the purpose described.

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