

(No Model.)

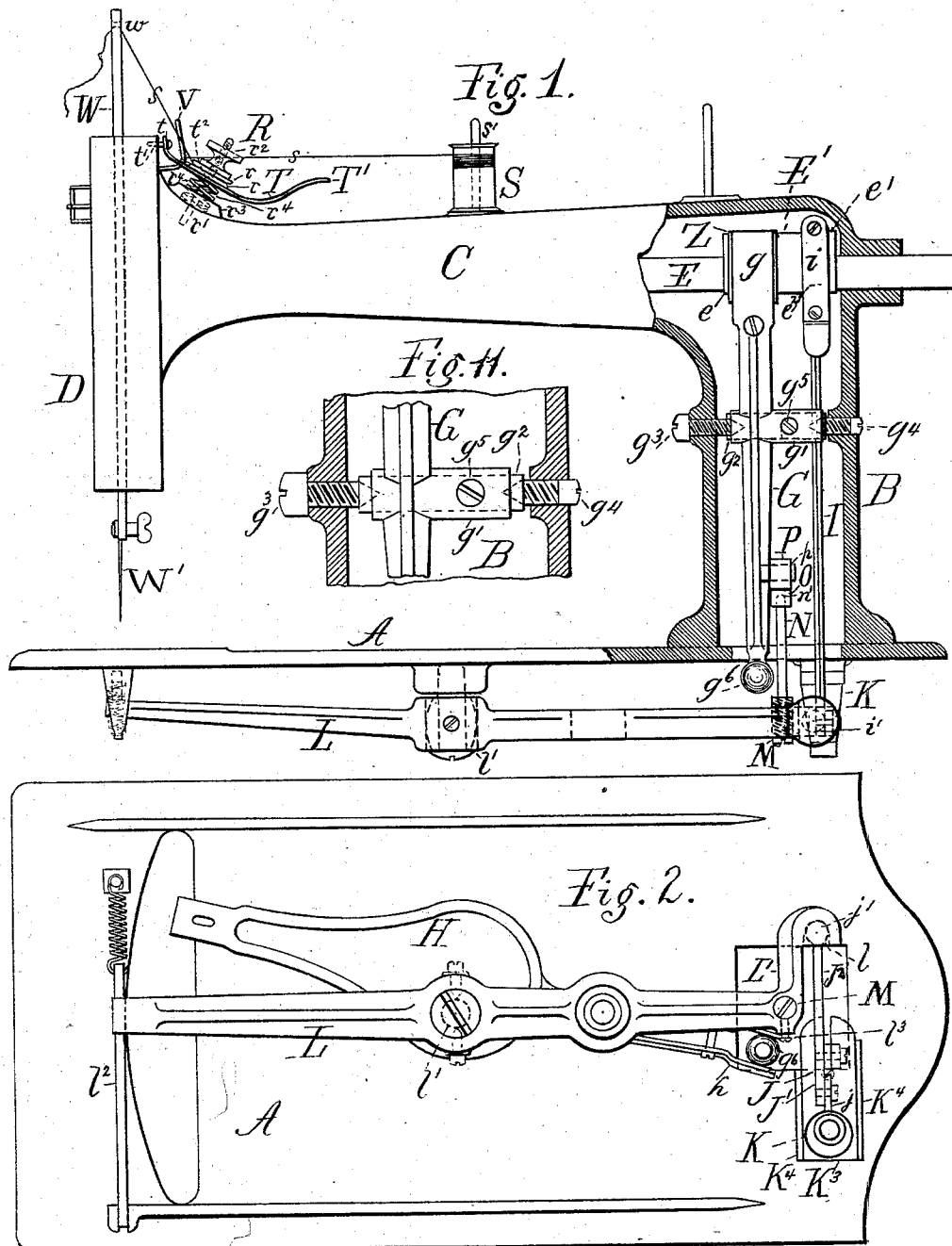
2 Sheets—Sheet 1:

J. TRIPP.

SEWING MACHINE.

No. 282,409.

Patented July 31, 1883.



WITNESSES:

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H. M. Supple

INVENTOR

James Tripp,

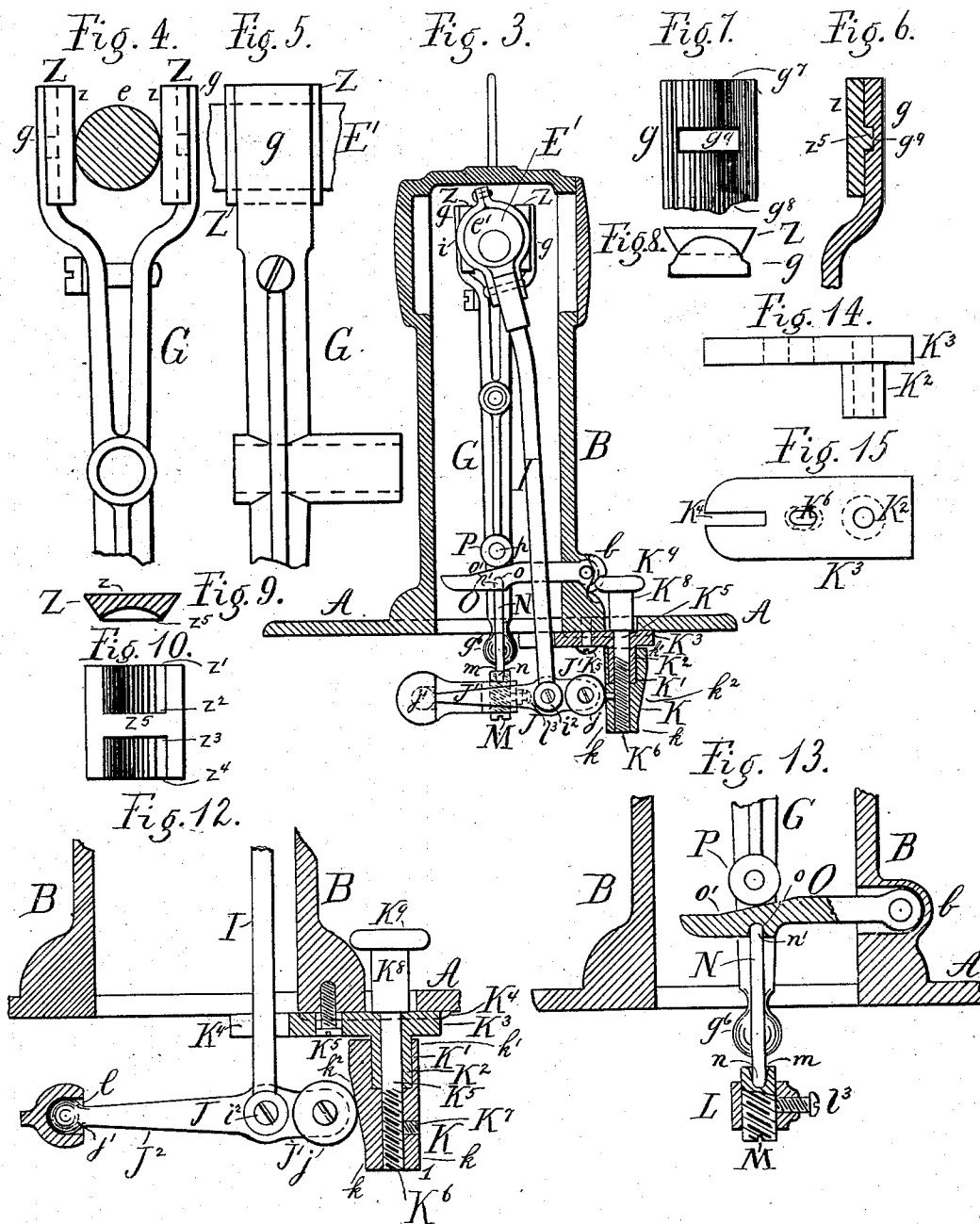
By Richardson

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UNITED STATES PATENT OFFICE.

JAMES TRIPP, OF NEW YORK, N. Y., ASSIGNOR TO CHARLES T. BECKWITH
AND ELLEN F. BECKWITH, BOTH OF OBERLIN, OHIO.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 282,409, dated July 31, 1883.

Application filed September 1, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES TRIPP, a citizen of the United States, residing at New York city, in the county and State of New York, have invented new and useful Improvements in Sewing-Machines, of which the following is a specification.

My invention relates to improvements in the mechanism for effecting the shuttle movements and feed movements of sewing-machines, and also to controlling the tension of the thread employed therein, the nature of which will be fully explained by reference to the following specification and the accompanying drawings, which form part of this specification.

Referring to the drawings, Figure 1 is a side view, partly in section, Fig. 2 an under side view, and Fig. 3 a sectional end view, of so much of a sewing-machine with my improvements applied thereto as will illustrate my invention. Figs. 4, 5, 6, 7, 8, 9, and 10 show detail views of the upper part of the shuttle-lever connection. Figs. 11, 12, 13, 14, and 15 show detail views of parts separately.

In each of the views similar letters of reference are employed to indicate corresponding parts wherever they occur.

A represents the bed-plate, and B the post of the arm. C is the arm, and D is the face or head of the machine proper.

In carrying out my invention I mount upon the main shaft E a cam-piece, E', one portion of which, *e*, is turned so as to revolve between surfaces *z z* (by preference finely planed) on the face of the blocks Z, applied between the forked ends *g g* of the lever G, commonly known as the "shuttle-lever connection." The blocks Z, on their front faces, *z z*, are planed, ground, or otherwise formed perfectly flat and true, while on their rear they are recessed from *z'* to *z''* and from *z'''* to *z''''*, the recesses *z' z''* and *z''' z''''* being of a section forming a portion of the arc of a circle, as shown more clearly by the enlarged separate views, Figs. 8, 9, and 10. The forked ends *g g* of lever G are formed with semicircular projections *g' g'*, corresponding with and adapted to be received within the semicircular recesses *z' z''* and *z''' z''''* in the blocks Z Z. Between the recesses *z' z''* and *z''' z''''* of each block Z, I form a straight bar or pro-

jection, *z⁵*, which is adapted to be received and held within a correspondingly-formed recess, *g⁶*, formed in each of the arms *g* of the lever G. The object of thus forming the surfaces *z z*, against which the part *e* of the cam E operates, is to allow of a fine finish being readily applied to such surfaces, together with great facility of adjustment, as well as repairs. By this peculiar construction of the working-surfaces of the arms *g g* of the lever G, all liability of binding between the surface of the cam E' and the surfaces *z z* is avoided. The lever or shuttle connection G is formed with a short horizontal hollow hub, *g'*, through which is inserted a solid shaft, *g²*, turned to fit truly to the internal diameter of the hollow hub *g'*. The solid shaft *g²* is formed at each end with conical recesses adapted to receive the pointed or conical ends of bearing-screws *g³ g⁴*, supported in the post B.

The relative positions of the hollow hub *g'* and solid shaft *g²* may be adjusted at will, when setting up the machine or otherwise, by means of a set-screw, *g⁵*, which passes through the hollow hub *g'* and binds against and holds the solid shaft *g²* in any desired relation to the hollow hub *g'*, carrying the shuttle-lever connection G. The lower end of the shuttle-lever connection G is formed with the ordinary ball-connection *g⁶*, adapted to be received into the forked end *h* of the shuttle-lever H, which is of the ordinary and well-known construction.

The second portion, *e'*, of the cam-piece E is formed with a slot or groove, *e²*, adapted for the reception of the strap or band *i*, affixed to and controlling the position of the upper end of the rod I, commonly known as the "feed-connection," the lower end, *i'*, of which, as shown in Figs. 1 and 3, is pivoted at *i²* to a lever, J, the short arm J' of which is provided with a roller or bearing-surface, *j*, adapted to bear against a cam, K, which is formed with two plain surfaces, *k k*, and one beveled or inclined surface, *k²*, and adapted for adjustment in position to vary the extent of feed to the machine, as hereinafter more fully explained.

The long arm J² of the lever J is formed or provided with a ball or projection, *j'*, adapted

to be received and held within a socket, l , forward on or affixed to a short bent arm or elbow, L' , of the feed-lever L , which is of the ordinary construction, and is pivoted to the bed-plate A at l' , and operates the feed-bar l' and the "feed" in the ordinary manner. At the rear end of the feed-lever L , I form a socket, into which I tap a screw, M , formed at its upper end with a concave seat, m , adapted to receive and hold the lower end of a shaft or pin, N , formed at each end with rounded ends or bearings n n' , the lower end, n , resting in the concave seat m , while the upper end fits into a correspondingly-formed bearing, o , formed in the under side of a cam-lever, O , which is pivoted at one end, as shown in Figs. 3 and 13, to lugs or projections b , formed on or affixed to the post B . On the upper side the lever O is formed with a cam-surface, o' , so formed that when a roller, P , which is pivoted at p to the shuttle-lever connection G , in the movement of the machine, passes over such cam-surface o' , it shall alternately cause the lowering or allow of the raising of the lever O , and consequently the depression or raising of the feed-lever L . The screw M is turned backward or forward, as desired, so as to adjust the height of the feed, and when so adjusted the screw M is held in the desired position by means of a set-screw, l^s , passing through the side of the feed-lever L .

The cam K , which, as before described, is formed with two plain surfaces, k k' , and one beveled or incline surface, k^2 , is formed, as shown in Figs. 3 and 12, with the surface k of a cylindrical form, while the surfaces of the parts k k^2 are of constantly increasing and decreasing diameter from the point 1, which is the point at which the device will cause the shortest possible stitch to be made of which the machine is capable. The cam K is formed with a hollow bearing, K' , which is adapted to be received upon a hollow projecting bearing, K^2 , formed on the under side of a sliding plate, K^3 , supported in guides K^4 , formed on or affixed to the under side of the bed-plate A , as shown in Figs. 2 and 12.

Through the center of the hollow projecting bearing K^2 and the cam K is passed a shank, K^5 , the lower end of which, at K^6 , is screwed into the cam K , and holds the same at any desired position, and when so adjusted the screw K^6 and the cam are held in proper relation by means of a set-screw, K^7 . At its upper end the shank K^5 is formed with an enlargement, K^8 , and a head or thumb piece, K^9 , for the purpose of causing the partial or total revolution of the cam K for the purpose of altering the position of the surfaces of the cam K in relation to the roller j of the lever J in order to vary the feed. The slide K^3 , at its forward end, is provided with a slot, K^4 , which serves as a guide to control the position of the rod or feed-connection I laterally. The slide K^3 , when adjusted in position, is there retained by a set-screw, K^5 , which passes through a

slot, K^6 , and is secured in the under side of the bed-plate A .

R is the tension device, which is composed of a pair of tension-disks, r r , of the ordinary construction, mounted centrally on a stud or pin, r' , which at its upper end is provided with a thumb or binding screw, r^2 , for the purpose of regulating the pressure on the plates, and consequently the tension of the thread s as it is drawn off from the bobbin S , which is supported on a pin or stud, s' , carried by the arm C in the usual manner. The stud or pin r' of the tension R is screwed into the center of a circular socket, r^3 , formed on or affixed to the arm C , as shown in Fig. 1. In the center of this socket r^3 , and encircling the stud or pin r , I arrange a coiled or other suitable spring, r^4 , which bears against the under side of a spring-lever, T , one end of which, at t , is provided with a slot or opening, through which is passed a screw, t' , which is secured into the head D , and holds the spring-lever T in a proper position. The lever T is formed with a central opening at t' for the passage of the stud or pin r' therethrough. The lever T , at its rear end, is provided with a bent extension, T' , by means of which the spring T may be depressed when desired, as hereinafter explained. The disks r r , as shown in Fig. 1, when the parts are in position, rest on the upper surface of the lever T .

U is a thread-guide supported by the head D , and W is the needle-bar.

The operation of the tension device is as follows: The thread from the bobbin S is conducted through an eye or loop in the thread-guide U . It is then conducted backward and between the disks r r , and thence through the eye w of the needle-bar W , after which it passes in the ordinary or other suitable manner to the needle W' , for use. The amount of tension is regulated by the thumb-screw r^2 . When, however, for any purpose, it is required to separate the tension-disks, so as to allow of the thread being drawn therethrough, or for inserting a new thread, it is simply necessary to depress the end of the bent extension T' of the spring-lever T with the thumb or fingers, so as to compress the spring r^4 , when the pressure will be removed from the disks r r , and the thread s will be allowed to freely pass between the same so long as the lever T is depressed; but immediately pressure is removed from the end T' the tension will be restored in exactly the same condition as it was prior to depressing the lever T , thereby avoiding the necessity of turning the thumb-screw r^2 , and necessarily deranging the tension, which is the case with mechanism of the ordinary construction.

I am aware that a pivoted bearing and releasing lever adapted to be operated automatically by a moving part of the machine has heretofore been used in a tension device. I do not therefore broadly claim such a construction.

Modifications may be made in my invention

without departing from the peculiar characteristics thereof. In some cases the parts z' z'' and z^3 z^4 of the block Z may project, in place of being recessed, in which case the parts g' g^8 will be formed recessed.

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

1. The combination, with the feed-connection of a sewing-machine, of a pivoted connecting-bar controlled in position at one end by an adjustable cam-surface, and provided at the opposite end with a pivotal connection operating the feed-lever, substantially as set forth.

2. The combination, with the feed-connection of a sewing-machine, of a pivoted connecting-bar controlled in position at one end by a pivoted cam capable of adjustment by a thumb-screw, and provided at its opposite end with a ball working in a bearing or socket formed in a bent arm or extension forming part of or connected with the feed-lever, substantially as shown and described.

3. In a sewing-machine, the combination, with a shuttle-lever connection provided at its lower end with a roller or bearing-surface, P, of a lever, O, pivoted to the side of the post B, and provided on its upper side with a cam-surface, o' , a vertical connecting pin or rod, N, and a feed-lever, L, having an adjustable screw-bearing, M, for the pin or rod N, substantially as and for the purpose described.

4. The combination, with the shuttle-lever connection of a sewing-machine, provided with a roller or bearing-surface, P, of a pivoted cam-lever, O, connection N, and a feed-lever having an arm or extension controlling the motion of the feed-lever by means of a pivoted lever actuated by the feed-connection and controlled in position by an adjustable cam, substantially as shown and described.

5. The combination, with the shuttle-lever connection of a sewing-machine, provided with a roller or bearing-surface, P, of a pivoted cam-lever, O, socketed connection N, and a feed-lever, L, provided with an adjustable screw-bearing, M, bent arm L', and a socket,

l, adapted to receive and be controlled by the bearing-surface or ball of a pivoted lever, actuated by the feed-connection and controlled in position by an adjustable cam-surface, substantially as shown and described.

6. In a sewing-machine, the combination, with a shuttle-lever connection provided at its lower end with a roller or bearing-surface, P, of a pivoted cam-lever, O, connection N, a feed-lever, L, adjustable bearing M, bent arm L', socket l, pivoted arm J, roller or surface j, feed-connection I, and adjustable cam K, substantially as and for the purpose described.

7. In a sewing-machine, an adjustable revolving cam-piece, K, mounted on a sliding adjustable plate, K³, substantially as and for the purpose described.

8. In combination with the feed-connection I, the sliding adjustable slotted guide-plate K³, substantially as and for the purpose described.

9. In a sewing-machine tension, the combination, with the tension disks or surfaces and an independent tension-spring, of a pivoted bearing and releasing lever provided with an extension adapted to be operated by hand for removing the pressure of the tension-spring from the disks, substantially as shown and described.

10. In a sewing-machine tension, the combination, with the tension-disks r r', stud r', and binding-screw r², of the socket r³, spring r⁴, and spring bearing and releasing lever T, substantially as and for the purpose described.

11. In a sewing-machine, the combination, with the main shaft E and cam-piece E', of the forked lever G, formed with arms g g, provided with semicircular portions g' g⁸ and a straight portion, g⁹, and the blocks Z Z, having correspondingly-formed curved portions z' z² z³ z⁴ and straight portion z⁵, substantially as and for the purpose described.

In witness whereof I have hereunto set my hand this 28th day of August, 1882.

JAMES TRIPP.

Witnesses:

MAX BAYERSDORFER,
K. M. SUPPLE.