

(No Model.)

2 Sheets—Sheet 1.

E. WOOD.
QUILTING MACHINE.

No. 303,095.

Patented Aug. 5, 1884.

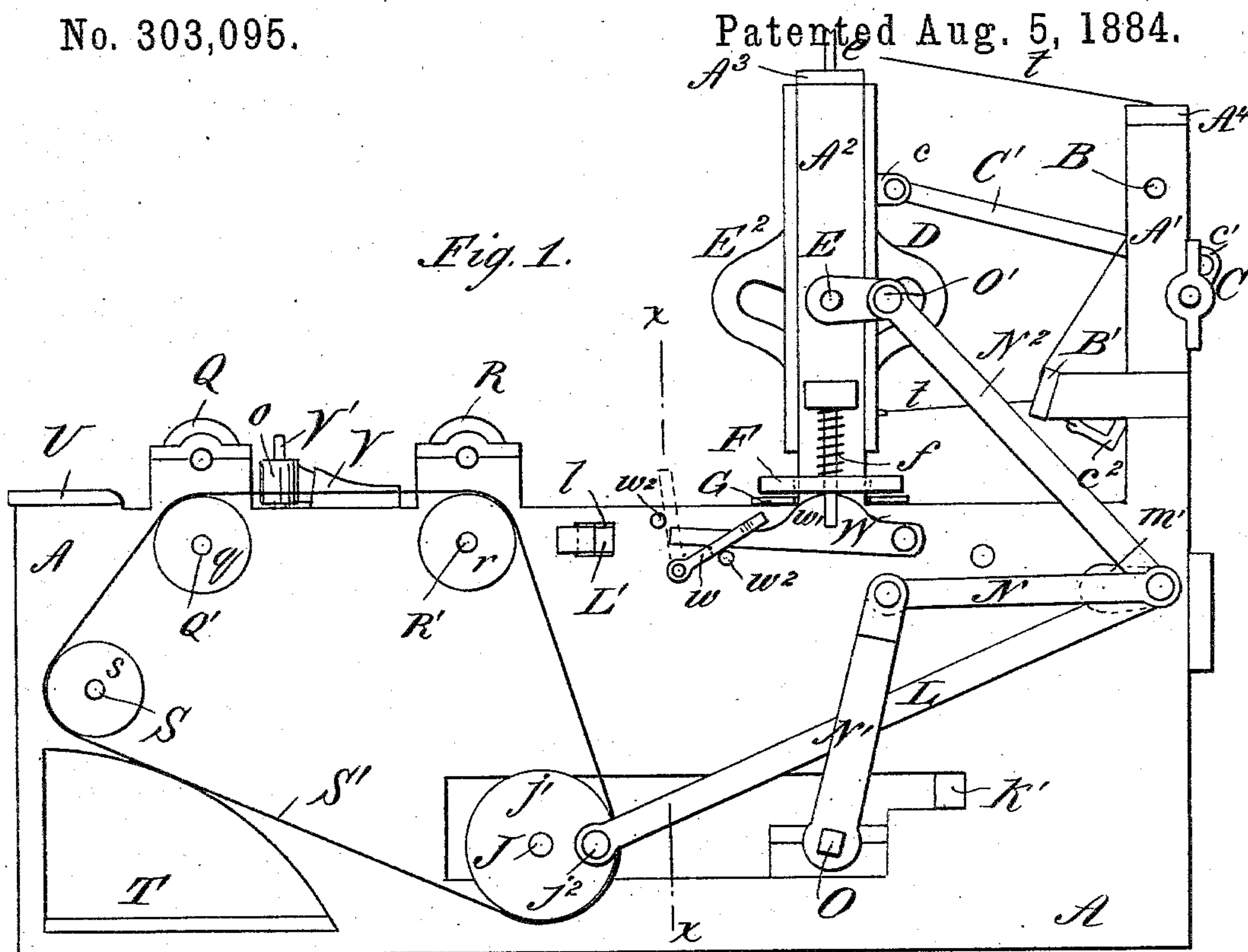
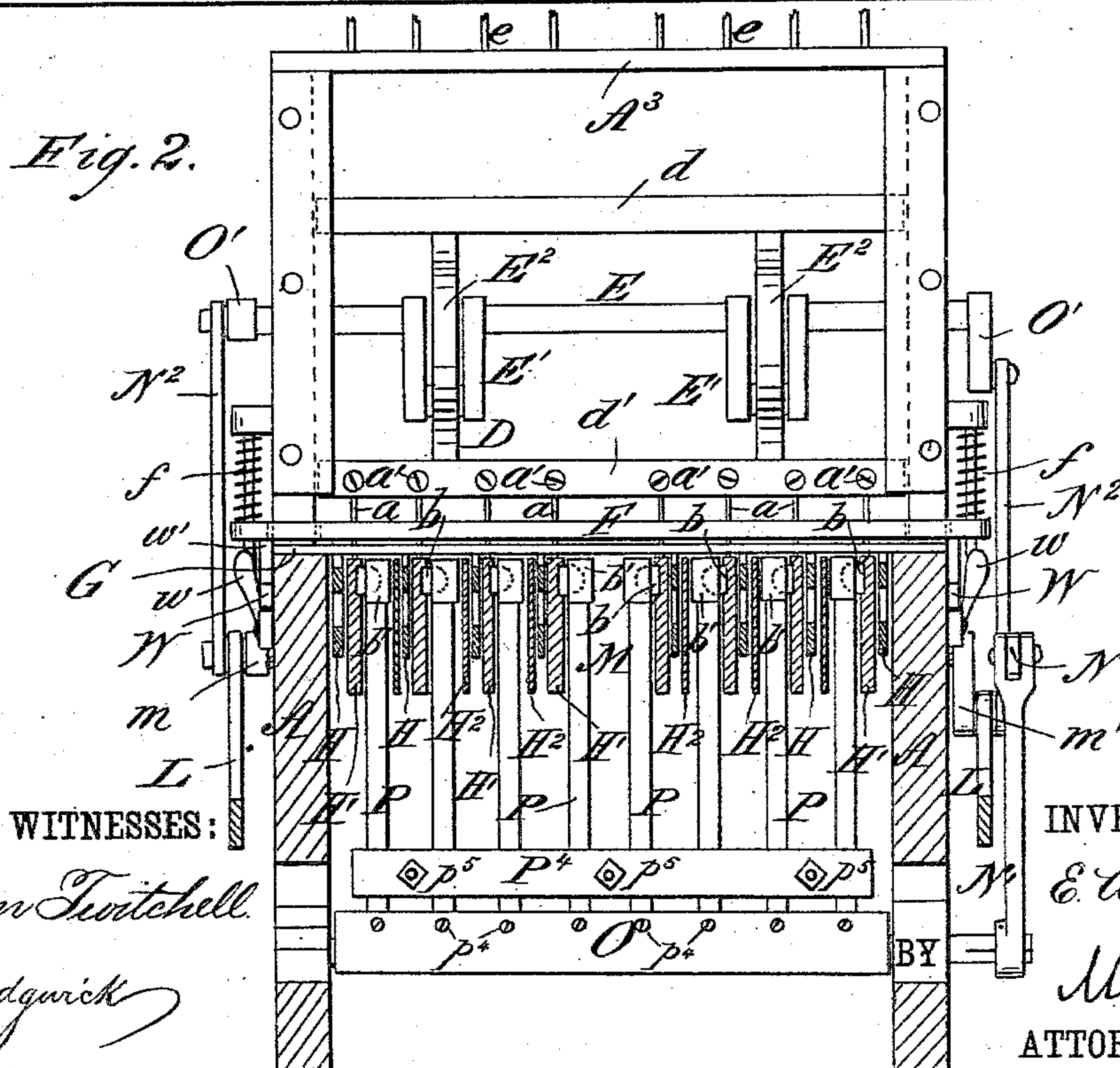


Fig. 2.



WITNESSES:

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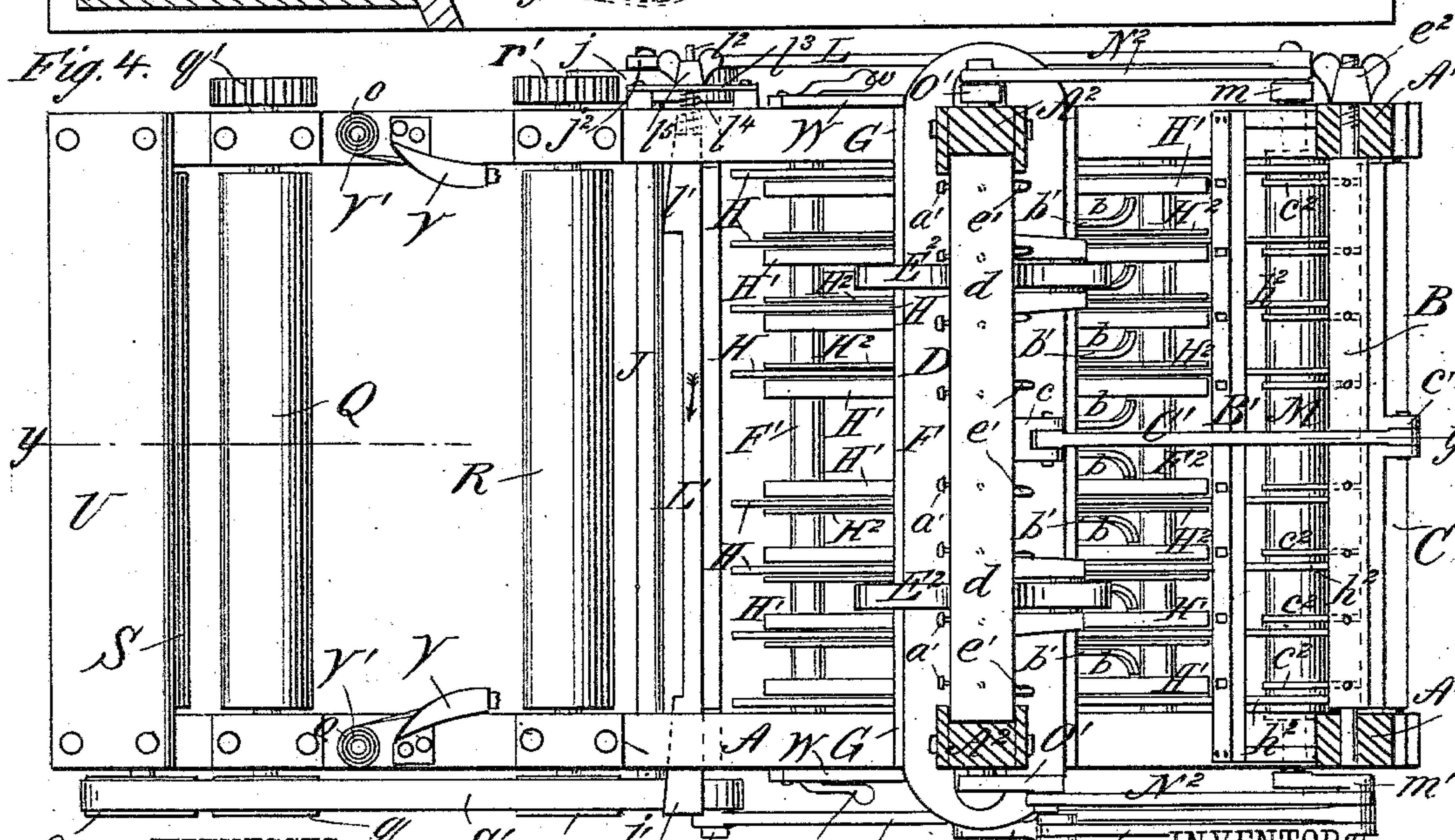
E. Wood

BY Munn & Co.
ATTORNEYS.

2 Sheets—Sheet 2.

QUILTING MACHINE.

Patented Aug. 5, 1884.



WITNESSES:

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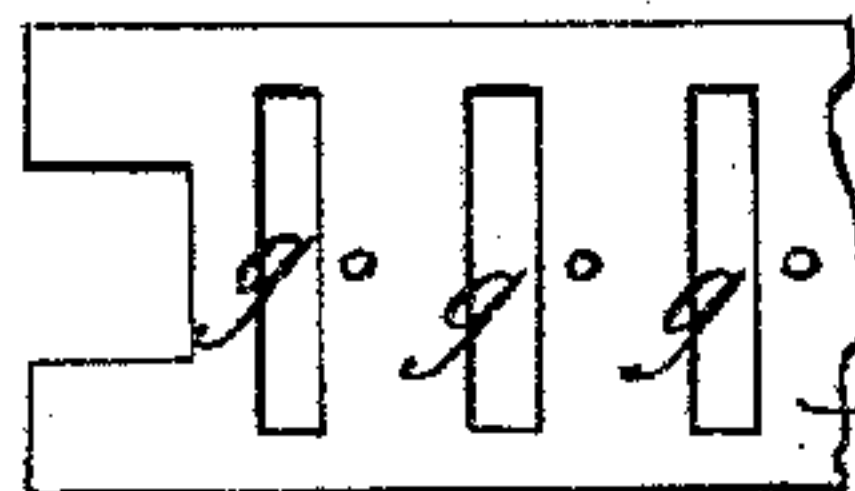


Fig. 6. BY

E Wood

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UNITED STATES PATENT OFFICE.

EVANS WOOD, OF LYONS STATION, TEXAS.

QUILTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 303,095, dated August 5, 1884.

Application filed February 23, 1884. (No model.)

To all whom it may concern:

Be it known that I, EVANS WOOD, of Lyons Station, in the county of Burleson and State of Texas, have invented a new and Improved Quilting-Machine, of which the following is a full, clear, and exact description.

The object of this invention is to provide a quilting-machine more especially intended for manufacturing bed-quilts or "comforts," the machine being arranged to quilt the material composing the bed-quilt or comfort throughout its entire width or length at one passage of the material through the machine.

The invention consists in the construction, arrangement, and combination of parts, as will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my invention. Fig. 2 is a transverse sectional elevation of the same, taken on the line $x x$ of Fig. 1. Fig. 3 is a longitudinal sectional elevation taken on the line $y y$ of Fig. 4. Fig. 4 is a sectional plan view of the machine, taken on the line $z z$ of Fig. 3. Fig. 5 is a side elevation of one of the feed-plates removed from the machine, and Fig. 6 is a detailed plan view of a part of the cloth-plate.

The invention will first be described in connection with the drawings, and then pointed out in the claims.

A represents the frame or housing in and to which the operative parts of the machine are secured. This frame A is provided at one end with the uprights $A^1 A^1$, in which the tension-bar B and take-up bar C are journaled, and also with the channeled uprights $A^2 A^2$, which guide the up and down movements of the needle-frame D, and in which the crank-shaft E, which operates the needle-frame D, is journaled, and upon these uprights $A^2 A^2$ is placed and operated the pressure foot or plate F, which is held constantly pressed downward by the action of the coiled springs $f f$ for holding the goods to be quilted upon the cloth-plate G, so that the goods may be fed forward by the action of the feed-bars H H.

J is the power-shaft of the machine, to which shaft motion is imparted by the belt K, com-

ing from any suitable motor or primary shaft and passing over the pulley j secured on one end of the shaft J. The pulley j , and also the pulley j' , secured to the opposite end of the power-shaft J, are crank-pulleys, and upon the crank-pins $j^2 j^2$ thereof are placed the lower ends of the connecting-rods or pitmen L L, which are connected at their upper ends to the cranks $m m'$ of the eccentric feed-shaft M for revolving the same for operating the feed-plate H H for feeding the goods forward to the needles $a a$. The crank m' is connected by the connecting-rod N to the lever N' of the rock-shaft O, to which the shuttle-carrying arms P are secured, and the cranks $m m'$ are each connected by a connecting-rod, N^2 , to the outside cranks, $O' O'$, of the crank-shaft E, so that as the feed-shaft M is revolved by the crank $m m'$ these cranks at the same time cause the crank-shaft E to be revolved, which, through cranks $E' E'$ and heart-cams $E^2 E^2$, reciprocates vertically the needle-frame D, and the crank m' also at the same time rocks the shaft O for reciprocating the shuttles b , held in the shuttle-carriers b' , formed upon or secured to the upper ends of the said shuttle-carrying arms P. The said needle-frame D is composed of the said heart-cams $E^2 E^2$ and the upper bar, d , and lower bar, d' , which latter is formed at suitable intervals throughout its length with needle-orifices, in which the sewing-machine needles a are held by the set-screws a' .

To the center of the upper bar, d , of the needle-frame D is secured the eye e , to which is attached one end of the connecting-rod C' , the other end of which is connected to the short crank c' , attached to the upper side or edge of the take-up bar C, so that as the needle-frame D is forced downward the take-up arms c^2 of bar C (through the lower ends of which arms the threads t , coming from spools held upon the spool-pins e , fitted in the cross-piece A^3 , pass) will be forced forward, giving the required slack to the threads, and as the needle-frame D is moved upward the said take-up arms will be moved backward, drawing the threads tight.

In threading the machine, the threads are first passed through suitable orifices made in the cross-piece A^4 , thence through suitable ori-

fices in the tension-bar B, then through the eyes of take-up arms c^2 , after passing through slots made in the guide-bar B', thence back through the slots of bar B' to the guide-loops e' , attached to the edge of the lower bar, d' , of the needle-frame D, thence through the eyes of the needles a ; and in order to increase or diminish the tension upon the threads as required for good stitching the tension-bar B has simply to be turned to the right or left and held at the required position by the thumb-screw e^2 , secured to one end thereof, as shown in Fig. 4. The needles a , in the descent of the needle-frame D, before penetrating the goods, pass through orifices made in the pressure foot or plate F, and after penetrating the goods held down by the said pressure-plate F they pass through corresponding orifices made in the cloth-plate G, on which the cloth rests, and then they pass down into the small slots f' (shown in Fig. 3) made in the vertical side plates, H', held below the cloth-plate G upon cross-rods F' F², thus carrying the threads t down into the shuttle-races formed by the said plates H' and the parallel plates H², so that the shuttle b , moving in the said races will be carried through the upper threads, t , and thus form the stitches in the goods, as by an ordinary shuttle sewing-machine. The plates H', where the faces of the shuttles b run against them, are each formed with the circular groove or recess i , terminating in an opening, i' , for the insertion of the shuttle, (shown clearly in Fig. 3,) in which the shuttles, when in place, fit, and in which they move, so that there is no danger of their becoming displaced in the operation of the machine, and the cloth-plate G has the feed-slots g , Fig. 6, made through it near the needle-orifices made therein, through which slots the toothed portions h of the feed-plates H operate for feeding the goods forward. The said feed-plates H besides being formed or provided with the feeding-teeth h are each bifurcated at the forward end to form the members h' , and bent downward at the opposite end, as shown, to form the hook h^2 , and the said plates are held in the machine between the plates H' and H² upon the shaft F' at their forward ends, (which is straddled by the members h' , h'), and at their rear ends upon the eccentric feed-shaft M, over which the hooks h^2 pass, and in close contact with which they are held by the action of the coiled springs G', which connect the lower ends of the hooks h^2 of the plates with the cross-bar K', held in the frame of the machine below and in front of the eccentric shaft M, as shown clearly in Fig. 3. The eccentricity of the shaft M is such that when revolved it acts in connection with the springs G' to impart an elliptical movement to all of the feed-plates H—viz., an upward, forward, downward, and backward movement, the last two being effected by the action of the springs G', the upward and forward movement causing the teeth h to reach above the cloth-plate G and engage with the goods, and then carry the goods forward to the needles a the length

of a stitch with each forward movement. The backward movement of the plates H, caused by springs G', is limited by the cross-piece L', held in slots ll , made in the frame of the machine immediately in front of the said plates H, as shown in Figs. 1, 3, and 4, and the bar L has formed upon or attached to its forward edge the corresponding inclines or wedges, $l' l'$, (shown clearly in Fig. 4,) which inclines come in the slots ll , so that by moving the bar longitudinally the wedges or inclines will gradually force the body of the bar L backward or permit it to move forward, as the case may be, permitting greater or less longitudinal movement of the feed-plates H, and thus cause the bar to regulate the length of the stitches taken by the needles. For convenience in moving the bar L' longitudinally for regulating the stitches, I provide it at one end with the screw-rod l^2 , which passes through the plate l^3 , and upon this screw-rod I place the coiled spring l^4 , which acts between the plate l^3 and the end of bar L', so as to tend constantly to force the bar L' in the direction of the arrow shown in Fig. 4, and upon the outer end of the screw-rod l^2 , I place the nut l^5 , which acts against the outside surface of the plate l^3 , so that by turning the nut l^5 in one direction it will draw the bar L' toward it, causing wedges $l' l'$ to force it backward, thus shortening the stitches, and at the same time compressing the spring l^4 , so that by turning the nut l^5 in the opposite direction the spring will force the bar L' away from the nut l^5 , thus lengthening the stitches taken by the machine.

It is designed to place and operate this quilting-machine at the rear of the cotton-condenser of a cotton-gin, so that the thick even bat of cotton, as it issues from the cotton-condenser, may be fed between the upper and lower webs of cloth used for making the quilt, and with them fed through the quilting-machine and quilted; and for this purpose I provide the quilting-machine with the sets of guiding, feeding, and compressing rollers Q Q' and R R', between which the material composing the quilt passes before reaching the needles a of the quilting-machine, which rollers compress the cotton still further, and maintain the material for the quilt straight and even in its passage through the machine. The rollers Q' and R', and also the roller S, (which latter is a mere guide-roller for the under web of cloth, which will be supported in quantity upon the shelf T, near the bottom of the machine,) are revolved by the belt S' passing over the pulley j' , fixed upon the drive-shaft J, and over the pulleys q , r , and s , fixed upon the shafts or gudgeons of said rollers, as will be understood from Figs. 1 and 4. The upper rollers, Q R, are revolved from the lower rollers, Q' R', by means of the sets of intermeshing pinions $q' q^2$ and $r' r^2$, secured upon the shafts or gudgeons of the rollers Q Q' and R R', respectively, as will be understood from Figs. 3 and 4. The upper web of cloth forming the quilt will be fed into the machine over the

upper shelf or table, U, and the mat of cotton will enter between the upper and lower webs of cloth just in front of the set of rollers Q Q' under the said table U.

5 V V are hemmers or binders secured to the frame A of the machine between the sets of rollers Q Q' and R R', so that the edges of the material composing the quilt will pass into and be drawn through the binders; and V' V' 10 are spool-pins on which the spools o o of binding material are placed, so that the binding will pass from the spools through the binders and be applied by them upon the edges of the quilt as it passes through the binders ready to 15 be stitched in place by the outer needles in the needle-frame D, thus adapting the machine not only to quilt the material, but to bind it at its edges also, thus finishing the quilt except binding or hemming it at its ends.

20 For lifting the pressure foot or plate F, I pivot under it at its ends to the outside of the frame A of the machine, the cam-levers W W, and under the free ends of these levers I pivot the small cam-lifting levers w w, which, when 25 turned to vertical position, as shown in dotted lines in Fig. 1, lift the free ends of the cam-levers W W and cause the raised parts w' w' thereof to come against the under surface of the pressure-plate F, and lift it, so that the 30 goods may be easily passed under the plate for starting the goods in the machine.

w² w² are stop-pins for preventing the cam-lifting levers w w from being turned too far in either direction, as will be understood from 35 Fig. 1.

The shuttle-carrying arms P P are, by preference, secured in the rock-shaft O by the set-screws p¹, (shown in Figs. 2 and 3,) and the 40 said shuttle-carrying arms are all clamped together to insure uniformity of movement by the horizontal clamp-plates P¹ P¹, held upon both sides of the arms P P by the screw-bolts p⁵, as shown clearly in Figs. 2 and 3, and suitable spacing-collars are placed upon the rods 45 F' F² between the plates H' H², to hold them the proper distance apart, or any other suitable means for this purpose might be employed; and the grooves or recesses i in the plates H' 50 are open to the upper edge of the plate, as shown at i³, Fig. 3, to permit the shuttles to be placed in and removed from the said grooves or recesses.

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

55 1. The combination of the needle-frame D, adapted to carry a series of needles, with the feed-plates H, eccentric-shaft M, for operating the same, shuttle-carriers P b', rock-shaft O, to which they are secured, rocking take-up C 60 c², and bar C', connecting it with the needle-bar, the needle-bar shaft, eccentric-shaft M, and rock-shaft O being connected together and to the drive-shaft by the connecting-bars, substantially as set forth.

65 2. The needle-frame D, carrying a series of needles, and the shuttle-carriers P b', firmly

secured to a rock-shaft below the table, in combination with the feed-plates H, eccentric-shaft M, provided with cranks m m' on its ends, pivoted links N N, connecting the shaft O with 70 the cranks m m', bars N², connecting the needle-frame shaft with said cranks, and bars L, connecting the drive-shaft with the cranks m m', substantially as set forth.

3. The combination, with a needle-frame, of 75 the fixed plates H' H², arranged to form the shuttle-race, the former being provided with the longitudinal groove i, terminating in a vertical opening, i', of shuttle-carriers adapted to move between said plates, whereby the shut- 80 tle may be inserted in shuttle-carrier through the vertical opening and be guided by the longitudinal groove, substantially as set forth.

4. The feed-plates H, formed or provided with teeth h, bifurcated at their rear ends to 85 form the members h' h', and bent at their forward ends to form the hook h², in combination with the rod F', passing between said members h' h', eccentric feed-shaft M, operating on the under side of the hooked ends, and the 90 springs G', secured to the hooked ends and to the frame, as shown, all arranged to operate substantially as and for the purposes set forth.

5. The needle-frame D, provided with two heart-cams, E² E², shaft E, having the cranks 95 E' E', working in the cams, and the stitch-forming mechanism, in combination with the take-up bar C, arms c² thereon, and a connecting-bar, C', for rocking said take-up bar by the vertical movements of the needle-frame, sub- 100 stantially as set forth.

6. The combination, with the several feed-bars H, of the stitch-regulating bar L', mounted in slots in the frame of the machine in rear 105 of the needle-bars, and provided with inclined surfaces for working against the walls of the slot, and adapted to have longitudinal and forward and backward movement, whereby the movement of all of the feed-bars H may be regulated simultaneously, substantially as and 110 for the purposes set forth.

7. The feed-regulating bar L', formed or provided with the wedges or inclines l', screw-rod l², spring l³, and thumb-nut l⁴, in combination 115 with the plate l' and the feed-plates H, the bar L' being placed in slots l l, made in the frame of the machine, substantially as and for the purposes set forth.

8. The combination, with the perforated tension-bar B, pivoted between the uprights A', 120 and the take-up bar C, pivoted in the upright below the tension-bar, rocked from the needle-frame, and provided with take-up arms c², of the perforated guide-bar B', secured between the uprights below and in rear of the take-up 125 bar, for guiding the threads from the take-up arms to the guide-loops e and the needles, substantially as set forth.

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Witnesses:

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