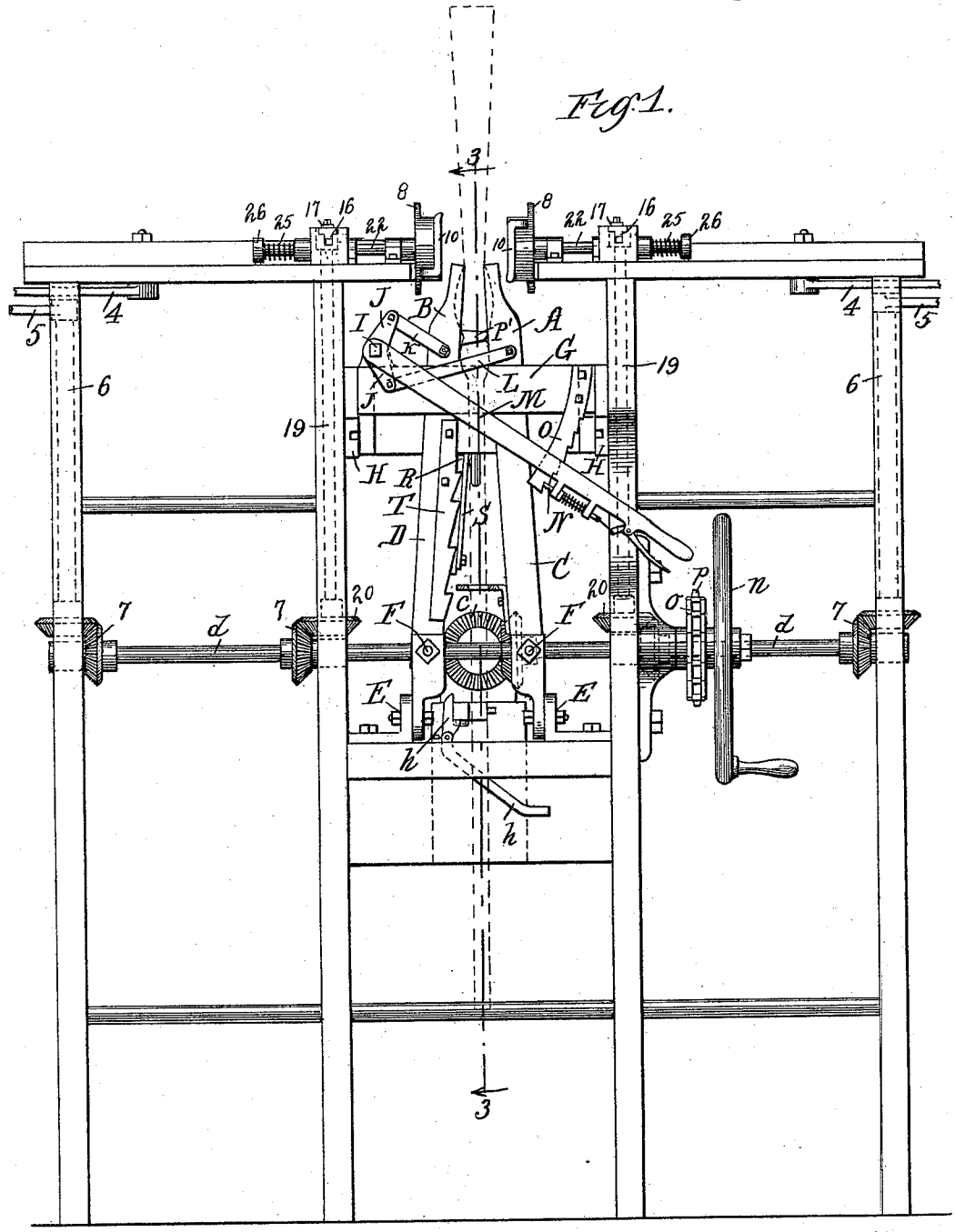
(No Model.) 5 Sheets—Sheet 1.

O. C. FLETCHER.

BROOM SEWING MACHINE.

No. 537,427. Patented Apr. 9, 1895.

Fig. 1.



Witnesses.
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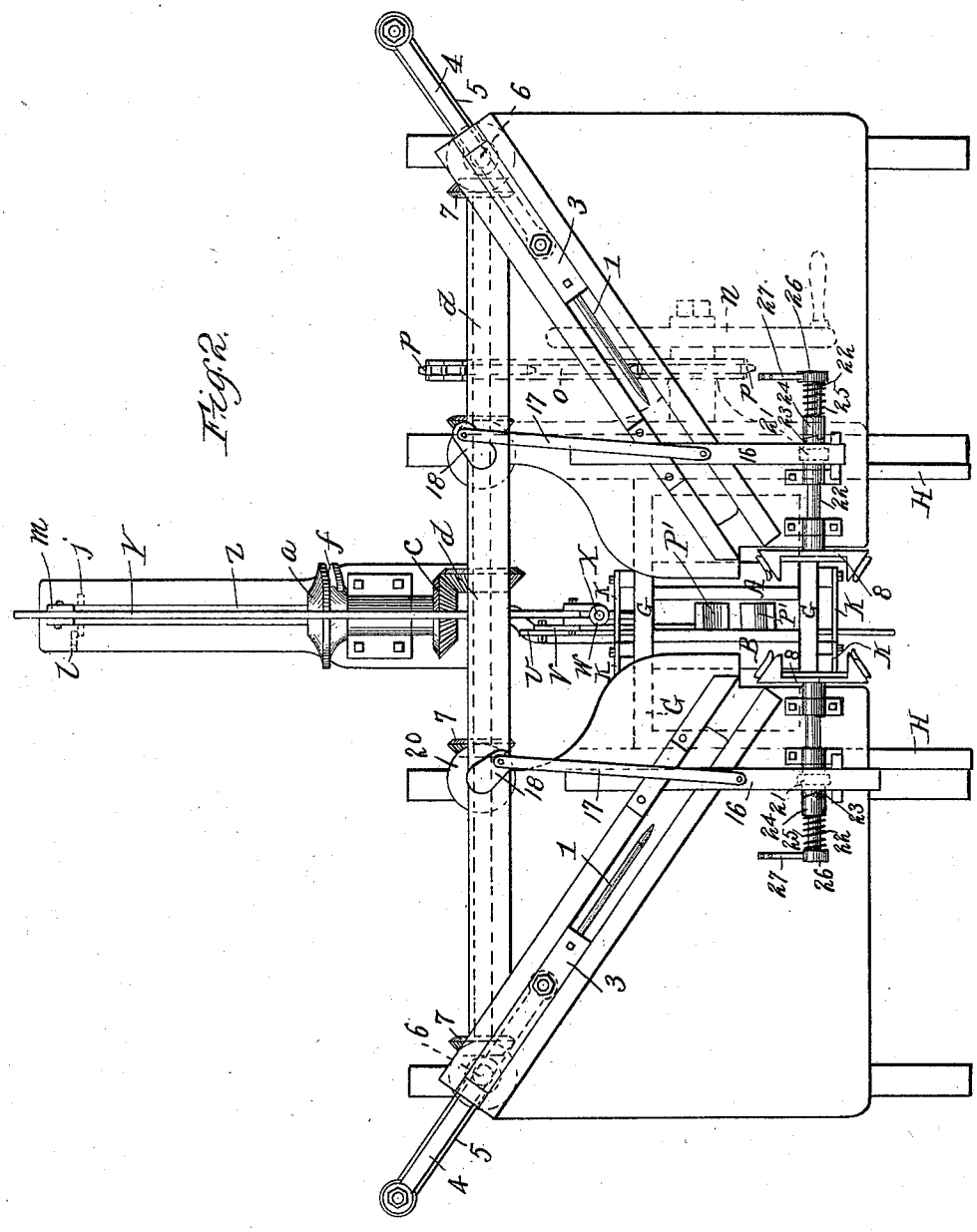
Fig. 2.



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BROOM SEWING MACHINE.

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Fig. 3.

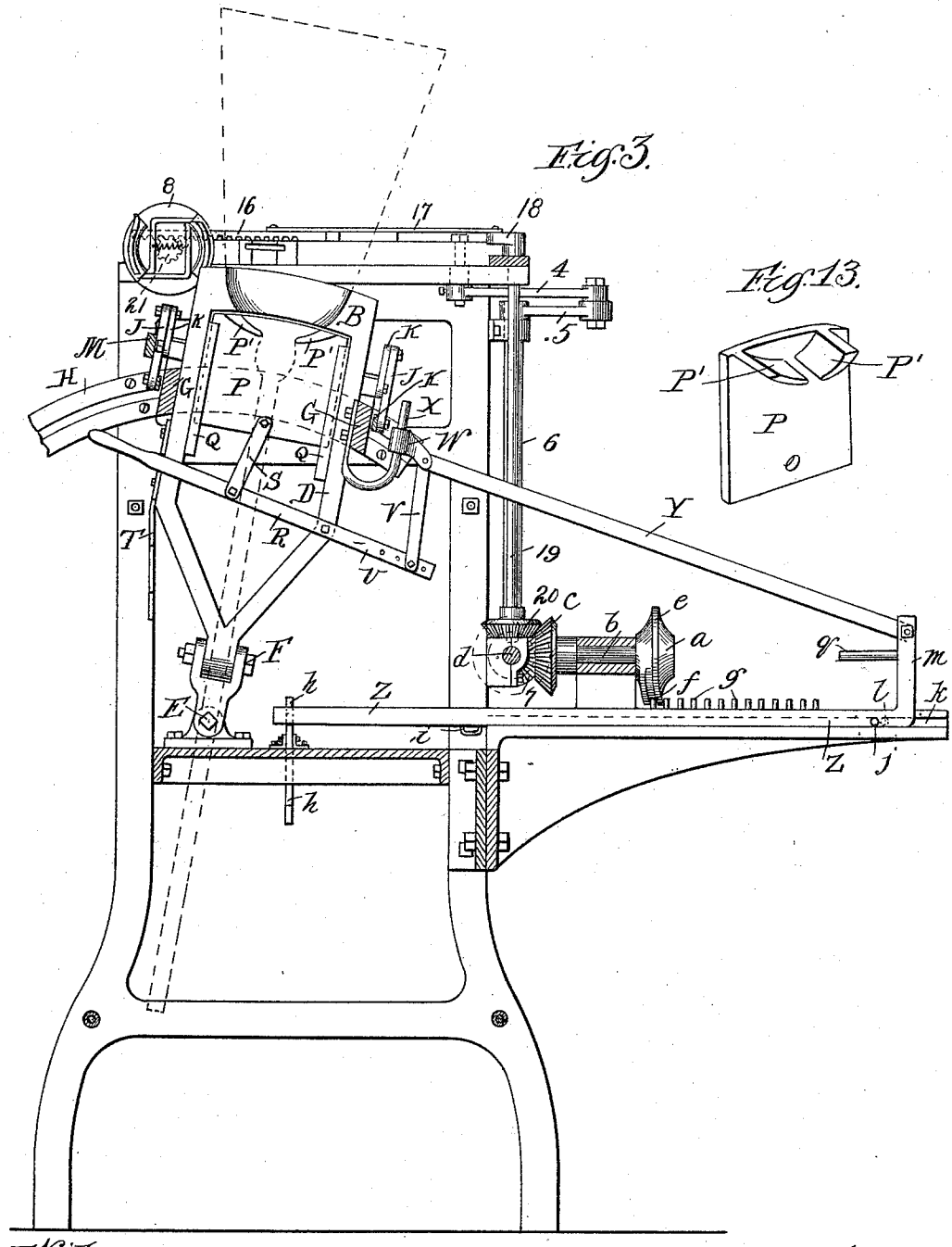

Fig. 13.

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BROOM SEWING MACHINE.

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Fig. 4.

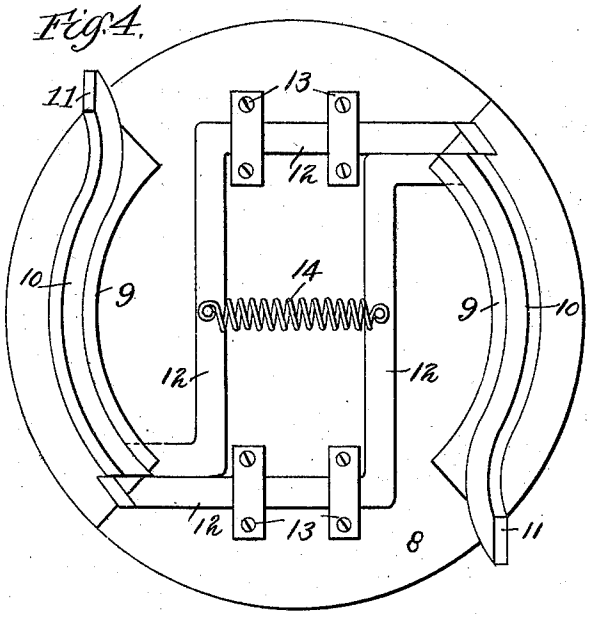


Fig. 5.

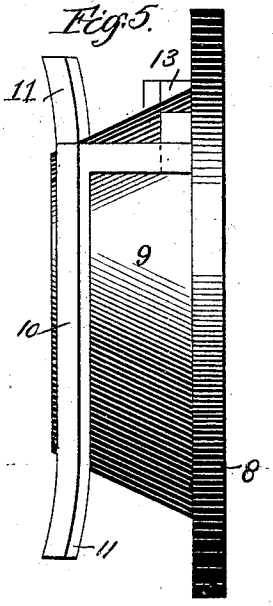


Fig. 6.

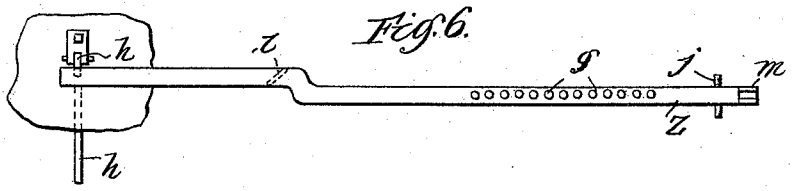


Fig. 7.

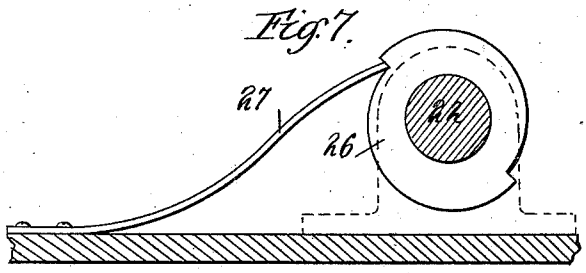
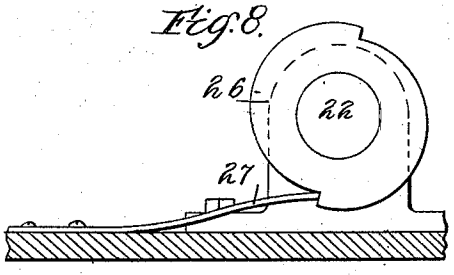


Fig. 8.



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(No Model.)

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O. C. FLETCHER.

BROOM SEWING MACHINE.

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Fig. 9.

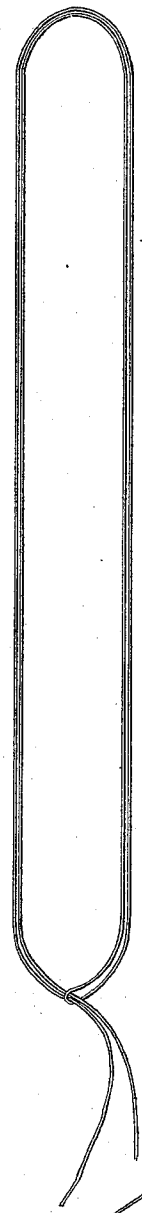


Fig. 10.

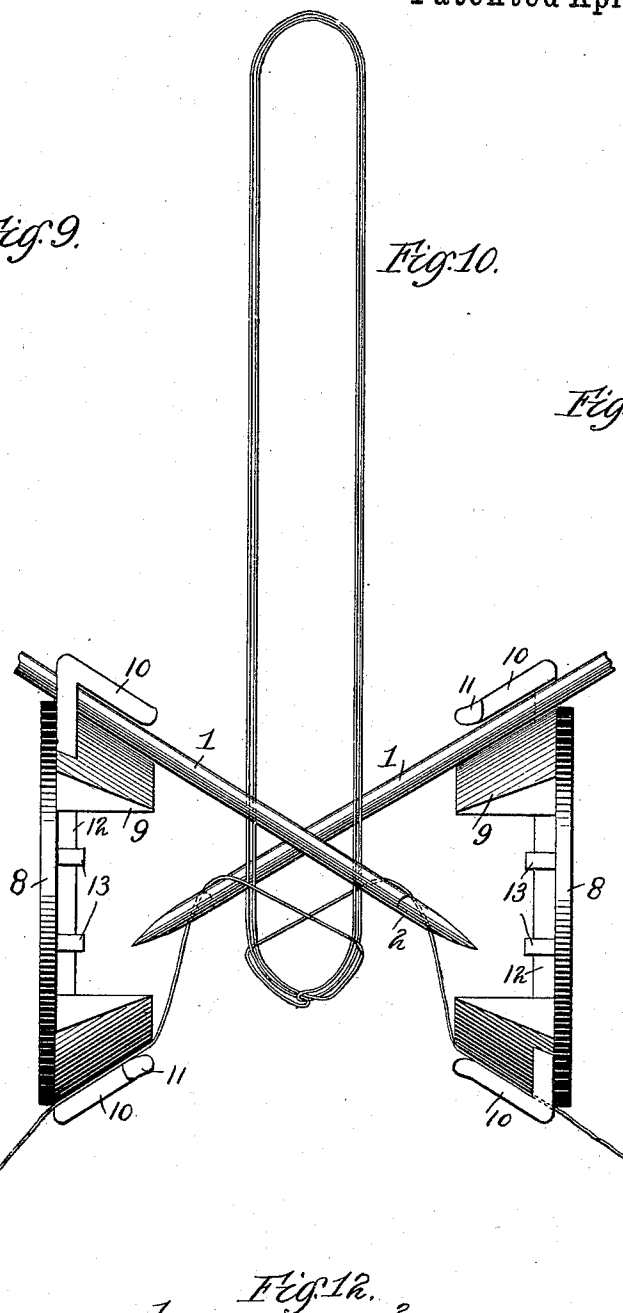


Fig. 11.

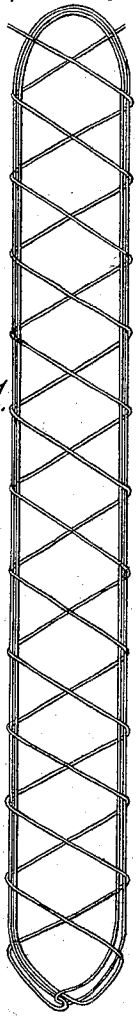
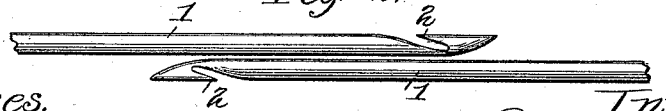


Fig. 12.



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UNITED STATES PATENT OFFICE.

ORLAND C. FLETCHER, OF CHICAGO, ILLINOIS.

BROOM-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 537,427, dated April 9, 1895.

Application filed June 5, 1894. Serial No. 513,509. (No model.)

To all whom it may concern:

Be it known that I, ORLAND C. FLETCHER, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Broom-Sewing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to improvements in broom sewing machines, for sewing or stitching the broom with threads after the broom-straws have previously been bound by a wire, or other suitable fastening, to the broomstick, the broom-straws, by my machine, being shaped and stitched or sewed together near the butts thereof with any desired number of lines of sitching.

My invention has among its primary objects such adjustability of the broom holding and actuating devices that both the line of sewing and the length of the stitches may be simultaneously adjusted, according to a predetermined length of stitching for a particular line of sewing.

Another primary object of my invention is an intermittent feed for the broom-press or holder, whereby the said press will remain stationary during the time the needles are passing back and forth through the broom, and which feed will be automatically arrested upon the finishing of each line of stitching.

A still further object is to enable the sewing of the broom with loose threads, that is, threads of a predetermined length, the ends of which are loose, and which are automatically and at proper intervals brought into line for engagement with the reciprocating needles, after the needles have pierced the broom.

Another object is to have the machine of such construction that the broom-press, needles and thread-carriers are all operated from a single power-shaft by independent gearing and connection, whereby the maximum degree of simplicity, compactness and efficiency is attained.

These and other objects that will appear in the specification and be particularly pointed out in the claims, are attained by the devices illustrated in the accompanying drawings, in which—

Figure 1 represents a front elevation of a broom sewing machine embodying my invention. Fig. 2 represents a top plan view thereof. Fig. 3, a central vertical section taken through the machine on the line 3—3 of Fig. 1, looking in the direction indicated by the arrows; Figs. 4 and 5, detail face and side views, respectively, of the thread-carriers; Fig. 6, a detail plan view of the actuating bar for the broom-press; Figs. 7 and 8, detail views of the pawl and ratchet detents for the thread-carrier shafts; Figs. 9, 10, and 11, diagrammatic views illustrating respectively a thread in its initial application to a broom, the process of forming the stitches and the completed stitching or sewing; Fig. 12 is a front elevation of the ends of the needles showing the relative positions thereof; and Fig. 13, a detail view of the adjustable broom-support of the broom-press.

Similar letters and numerals of reference indicate the same parts in the several figures of the drawings.

For a clearer understanding of the mechanisms to be described farther on, I will first explain generally the operation of the machine.

The broom-press or holder is oscillatory, being moved into one position by hand to begin the sewing, and being intermittently and automatically moved to its opposite extreme position during the sewing operation. When in the outer extreme position, which carries it beyond the general frame of the machine, the jaws of the press are opened and the broom inserted in position and, after the jaws are clamped, a thread of predetermined length is doubled and looped around the broom at the proper point, so as to leave the two ends thereof loose or free for engagement with the needles. The press is then thrown back to its innermost position, carrying the broom in between the needles, and power is then applied so as to cause the needles to pierce entirely through the broom-straws near the forward or outer edge thereof. The ends of the threads are then engaged respectively with the hooks of the needles by hand, while the latter are projected beyond the broom at opposite sides. From this time on, the threading and sewing operation is entirely automatic, the broom moving intermittently past the needles, which pierce the broom from opposite sides suc-

cessively, the thread-carriers automatically threading the needles and the latter drawing the ends of the threads through the broom in opposite directions, crossing at the center and leaving the ends in position for the thread-carriers to carry over for the next threading operation. The result is a line of oblique stitches through the broom, embracing the body of the thread which is tied about the broom, and the expansion of the broom-straws, when released from the press, will be sufficient to firmly hold the threads so that no knotting or tying of the ends thereof is necessary. When the press has completed its movement and the last stitch is made, the machine will be automatically stopped, when the press may be opened, the position of the broom in the press slightly changed, and another line of stitches made through the broom above the first line, and so on. The operation may be repeated until any desired number of lines of stitching is made, the usual number being from three to five. When the last stitching is completed, the press will be in proper position for the removal of the finished broom and the insertion of the next broom to be sewed.

Referring now by letters and numerals to the accompanying drawings, A, B, indicate the two opposing jaws of the broom-press or holder, which jaws have two movements, one a lateral independent movement toward and away from each other in clamping and releasing the broom, and a joint longitudinal movement in carrying the broom into and out of the path of the needles, such movements being effected by a double pivotal support for the jaws at right angles, and a longitudinally movable guide for supporting and carrying the jaws in operation. To this end the extreme lower ends of the shanks, C, D, of the jaws are pivoted at E to a stationary portion of the machine upon transverse pivots, while, a suitable distance above the pivots, E, the shanks are jointed and the two parts pivotally connected by longitudinal pivots, F, these latter pivots, F, permitting a lateral movement of the jaws toward and away from each other and the former pivots permitting the joint longitudinal oscillations of the jaws.

The shanks, C, D, near the jaws, A, B, work in a suitable longitudinally movable frame, G, which frame has a tongue and groove, or other suitable sliding connection, with segmental guides, H, rigidly secured to the frame of the machine, which serve to support, guide and steady the jaw frame, and consequently the jaws in their oscillations, the frame, G, itself, serving as a guide for the lateral movements of the jaws in clamping and releasing the broom.

Suitably journaled upon the frame, G, is a rock-shaft, I, having fixed thereon two crank arms or a two-armed or bell-crank lever, J, one of which arms is connected by a link, K, with one of the jaws, while the other arm is connected by a link, L, with the other jaw. To one end of the shaft, I, is secured a hand-lever, M, carrying an ordinary hand-operated spring latch, N, for engagement with a segment rack bar, O, for the purpose of locking the lever in any adjusted position. Whenever this lever is moved so as to rock the shaft in either direction, the jaws, through the bell-crank lever, J, and the links, K and L, are caused to move in opposite directions, that is to say, when the lever, M, is moved in one direction, the jaws will be caused to approach each other and, when moved in the opposite direction, the jaws will be caused to recede from each other, thus enabling the gripping and pressing or releasing of the broom at the will of the operator. It will, of course, be understood that there is a duplication of the levers, J, and links, K and L, at the rear side of the jaws, and that the jaws firmly clamp the butt of the broom immediately above their point of attachment to the broom-stick, and, of course, the opposing faces of the jaws are concave, as shown by the dotted lines in Fig. 1, and full lines in Fig. 3, so as to properly shape the butt of the broom in the pressing operation.

Lying between and below the jaws is a vertically adjustable support for the broom, consisting of a plate, P, provided with a pair of laterally projecting curved lugs, P′, upon which rest the butt of the broom, and between which passes the wired portion of the broom, where the straws are secured to the broom-stick, the position of the broom in the machine being clearly shown in dotted lines in Fig. 3. This support or plate, P, slides vertically on the upper portion of the shank, D, of the jaw, B, between suitable guides, Q, and is adjustable to any desired position by means of the lever, R, pivoted to the shank, D, and connected by a link, S, with said plate, the outer or handle end of said lever engaging a toothed rack, T, attached to the said shank, so as to lock the support, P, in any adjusted position. The purpose of the vertical adjustability of the support, P, is to enable a change of the position of the broom with relation to the jaws, and consequently with relation to the needles, in changing from one line of stitching to another, it being, of course, necessary that the position of the broom shall change, and the support thereof is given sufficient range of action to take in the maximum number of lines of stitching. I may here state, however, that I do not desire to confine myself to the particular construction or mode of operation of the broom-supporting devices herein shown and described, for, obviously, they may be greatly varied without departing from the spirit of my invention, the essential feature of such support being that it shall be adjustable with relation to the jaws, and whether it is carried by one part or another of the press, or operated in one way or another, is entirely immaterial.

The lever R is prolonged beyond its pivot, as at U, and such prolongation is connected

by a link V with a block W, having a sliding connection of any suitable kind with the frame G of the broom-press, such, for instance, as that shown more particularly in Fig. 3 in which the block W is provided with an eye fitting over a vertically disposed rod X rigidly secured to the frame G. The block W is also connected by a link Y with a sliding rack-bar Z, so that when power is applied to move the rack-bar in either direction, a corresponding bodily movement of the broom-press upon its pivots E is produced through the connections previously described. This rack-bar Z is the feed power of the machine and is given an intermittent movement in one direction so as to intermittently feed the press forward, such intermittent action measuring the length of the stitches, and as it is desirable that these stitches shall be shorter in each successive line of stitching, by means of the lever R the position of the broom-support with relation to the press-jaws, and the point of connection of the link Y, through the block W, with the press-frame are simultaneously adjusted to a predetermined relation. In other words, as the support P is moved down step by step for each row of stitching, the block W is moved up a corresponding distance away from the pivot E of the press and, hence, the throw or movement of the press under the action of the rack-bar is lessened and the stitches made shorter each time the block is moved up or away from the pivot of the press, it being understood, of course, that in all positions of the parts the actuating rack-bar moves the same distance each time.

The rack-bar is intermittently actuated by a cam-screw *a* mounted upon a suitable shaft *b* driven by a bevel-gear or other desirable connection *c* from the power-shaft *d* at the rear of the machine. The cam-screw *a* has a portion *e* of its thread, at right angles to the axis of said cam-screw, that is, without pitch, and a portion *f* thereof at an angle to said axis, so that when the said cam-screw is engaged with the teeth *g* of the rack-bar, the rack-bar will remain at rest as long as the part *e* is in contact with said teeth, but will move forward whenever the part *f* is in contact with said teeth, thus giving the rack an intermittent forward movement, the thread on the cam-screw being arranged like an ordinary worm-screw, that is, continuous so that the thread thereof will remain continuously in engagement with the teeth of the rack-bar, and during the continuous rotation of the cam-screw will produce the desired intermittent action of the rack-bar. The rack-bar at its forward end rests upon a pivoted weighted catch *h*, from which it is automatically disengaged by a cam *i* (see Fig. 6) thereon which engages with said catch causing the catch to move laterally from under the bar which then drops by gravity, thereby withdrawing the teeth *g* from engagement with the cam-screw *a* and thus arresting the feed movement of the broom-press. The rear end of the rack-bar is provided with trunnions or suitable lateral projections *j* working in grooves *k* in the frame of the machine, which, when the press is thrown back into the operative position shown in Fig. 3, carrying the rack-bar with it, strike against pins or projections *l* lying in said grooves near the rear end thereof, thus arresting the rearward movement of the said rack-bar so that the continued rearward movement of the press, through the link Y, exerts a pressure upon the upturned end *m* of the rack-bar converting the guide-pins or projections *j* into fulcrums and automatically throwing up the opposite forward end of said bar into engagement with the catch *h*, which, of course, brings the teeth *g* thereof into engagement with the cam-screw *a* when the feeding operation may be repeated.

Obviously the shaft *d* may be driven in any suitable manner either by power or hand, but for convenience of illustration and manipulation I have shown in the drawings a hand arrangement consisting of a crank-wheel *n* mounted upon a stud-shaft suitably journaled in the frame of the machine at the right-hand side thereof, which shaft is connected by sprocket-wheels and chains *o*—*p* with the power shaft *d* at the rear of the machine, from which latter all of the moving parts of the machine, except the press-jaws and adjusting devices, are actuated. On the upturned end *m* of the feed-bar is a pin *q* adapted and arranged to strike against the end of the shaft *b* or the cam-screw *a*, so as to prevent the press from falling forward from between the guides on the completion of the forward feed thereof, but, of course, the same result could be accomplished in many other ways such, for instance, as having the pins or projections *j* strike the ends of the grooves *k* or the ends of the grooves in the guides *h* might be closed and accomplish the same result.

The needles 1 are at the top of the machine above the press so as to pierce the broom at opposite oblique angles immediately above the jaws of the press and each terminates in a sharp end with oppositely-turned hooks 2 on the respective needles just back of the ends thereof, the relative arrangement of the hooks and needles being more clearly shown in Figs. 10 and 12 where it will be seen that the needles lie in different horizontal planes so that when they pierce the broom from opposite directions the points will pass by each other and protrude from the broom at opposite sides. As the thread is tied above the body of the broom immediately above the jaws of the press, the end of the lower needle is curved downward to a point in a plane with the lower surface thereof, while the upper needle is correspondingly curved upward, the purpose of this being to insure that the lower needle will pass under the body of the thread and lift the same to proper position, while the upper needle serves to prevent too great an elevation of the body of the thread so that the body of the thread will be sure to come at all

times between the two needles which are thereby enabled to form the stitching over the body of the thread. The needles are rigidly secured at their rear ends to reciprocating guide-blocks 3, which guides are connected by links 4 with crank-arms 5 on the upper end of short vertical shafts 6 at each rear corner of the machine, which shafts have a bevel-gear or other suitable connection 7 with the power-shaft *d* so that upon a rotation of said power-shaft the needles will have imparted thereto a reciprocating action through the medium of the shafts 6, crank-arms, and links before referred to.

The thread-carriers consist of a pair of opposing disks 8 having laterally conical flanges or extensions 9, which flanges or projections may be continuous or annular, or they may be segmental as shown. These disks are arranged just forward of the path of travel of the needles so that when the needles are projected forward so as to pierce the broom the needles will lie up close against the periphery of the conical or angular projections or flanges 9 as more clearly shown in Fig. 10. Each disk is provided at opposite sides of its center with a spring-actuated finger 10 curved to conform to the curvature of the flanges or projections 9, and having backwardly turned ends 11 to permit the passage of the needles between said fingers and the flanges or projections 9 when the disks are rotated.

In the operation of the machine the needles first move forward to pierce the broom past the disks and projections, and the disks are immediately afterward rotated so as to carry the fingers 10 around to embrace the needles between them and the projections 9 on said disks, the fingers being forced outwardly by contact with the needles. The disks have an intermittent action and now remain at rest until the needles have pierced the broom, engaged the thread and withdrawn from both broom and from between the fingers 10 and the projections on the disks, leaving the ends of the threads yieldingly clamped between said fingers and projections. During the continued retreating and advancing movement of the needles the disk is given a half-rotation which carries the threads. The thread remains in this position between said fingers and projections. As the needles move forward again the disks begin to rotate and have made about a quarter-turn when the needles have again pierced the broom, and the continued movement of the disks in making the half-turn carries the ends of the thread over the needles and engages them with the oppositely-turned hooks so that when the needles are again withdrawn they carry the ends of the threads back with them drawing them from under the fingers by which they were carried and leaving them under the other fingers ready for a repetition of the operation. In the drawings I have shown these fingers as provided with angularly bent and oppositely disposed shanks 12, the ends of which work through suitable guides 13 attached to the faces of the disks, while between said ends and the fingers proper the shanks are connected by a spring 14 so that either finger may be moved outwardly or laterally with relation to the disk independently of the other. I desire to state, however, that I do not limit myself to the particular construction or arrangement of these spring-actuated fingers, for my invention broadly contemplates any kind of spring-actuated fingers carried by the disks 8 that will subserve the intended purpose, those shown being a simple form in which I have embodied my invention in an operative machine.

The disks of the thread-carriers are given an intermittent rotation, but always in the same direction, by means of reciprocating toothed racks 16, connected by links 17 with crank-arms 18 upon the upper ends of short vertical shafts 19 at the rear side of the machine connected by suitable gears 20 with the power-shaft *d*, the disposition of the crank-arms 18 and the arrangement of their driving-gears being such as to impart to the thread-carriers a rotation always in opposite directions, for such movement of the thread-carriers is necessary by reason of the opposite disposition of the hooks on the needles.

The rack 16 engages with the pinion 21, shown in dotted lines in Figs. 2 and 3, which pinion is loose on the shaft 22 by which the disks 8 are carried, and has rigidly secured thereto a half-clutch 23 adapted and arranged to engage with another half-clutch 24 splined upon the shaft 22 and yieldingly held in engagement with the half-clutch 23 by a spring 25 sleeved upon the shaft 22 and confined between the half-clutch 24 and a ratchet-wheel 26 on the end of said shaft, said ratchet-wheel being engaged by a spring-pawl 27 secured at one end to the frame of the machine and with its other end in position to engage the two oppositely disposed teeth of said ratchet so as to prevent reverse rotation of said ratchet and, consequently, of the shaft 22. It will thus be seen that when the rack-bar is moved in one direction, say forwardly, the teeth of the half-clutches will transmit the motion of the pinion 21 to the shaft 22, but when the racks 16 are moved rearwardly in the reverse direction, the pawl and ratchet 26 and 27 will prevent the reverse rotation of the shaft 22, and the teeth of the half-clutches 23 and 24 will pass by each other, the half-clutch 24 moving longitudinally on the shaft 22 to permit this operation.

In commencing the operation of sewing the broom, the press carrying the broom is thrown by hand to the position shown in Fig. 3 and then by turning the crank-wheel *n* the needles will be caused to pierce the brooms near the forward ends thereof, in position to receive the ends of the thread which has been previously tied about the body of the broom at a point which would be in a plane between the two needles, one of which passes through

the broom above the body of the thread and the other below the same. The loose ends of the thread are then engaged by hand with the hooks of the needles and as the power is again applied to the machine the needles will withdraw from the broom carrying the ends of the threads back through with them and leaving them caught by the fingers 10 on the side of the disk through which the needles pass. During the retreat and advance of the needles the thread-carriers make a quarter-turn, and complete the half-turn after the needles have pierced the broom so that the ends of the threads which are carried around by the fingers are caused to automatically engage the hooks of the needles which will again draw the ends back through the broom leaving them engaged with the fingers at the opposite side of the thread-carrier.

Fig. 9 is a diagrammatical illustration showing a very simple way of looping the thread around the broom to leave the ends loose in position for beginning the sewing operation.

Fig. 10 shows the operation after the first stitch has been made and from which time the operation of threading the needle is automatic, while Fig. 11 shows the completed stitching.

Obviously, many different mechanisms will readily suggest themselves for imparting to the thread-carriers an intermittent rotation continually in one direction but oppositely as to each other, and I therefore do not desire to limit myself to the particular devices herein shown and described, and which are identical for both thread-carriers excepting that they are oppositely disposed, for any mechanism that will produce the desired result is contemplated by my invention.

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

1. In a broom sewing machine, the combination with automatic sewing and feeding mechanisms, of a holding and shaping press for the broom, comprising a pair of pivoted longitudinally vibrating jaws laterally and simultaneously movable toward and away from each other a reciprocating frame for guiding and supporting said jaws in their lateral and longitudinal movement, substantially as and for the purpose described.

2. In a broom sewing machine, the combination with automatic sewing and feeding mechanisms, of a holding and shaping press for the broom, comprising a pair of pivoted longitudinally vibrating jaws laterally and simultaneously movable toward and away from each other a reciprocating frame for guiding and supporting said jaws in their lateral and longitudinal movement, and a support for the broom adjustably carried by one of said jaws, substantially as described.

3. In a broom sewing machine, the combination with automatic sewing and feeding mechanisms, of a holding and shaping press for the broom, comprising a pair of pivoted longitudinally vibrating jaws laterally and simultaneously movable toward and away from each other a reciprocating frame for guiding and supporting said jaws in their lateral and longitudinal movement, a support for the broom adjustably carried by one of said jaws, and an adjustable connection between said press and the feeding devices for changing the length of throw of the press, substantially as and for the purpose set forth.

4. In a broom sewing machine, the combination with automatic sewing and feeding mechanisms, of a holding and shaping press, comprising a pair of pivoted longitudinally vibrating jaws laterally and simultaneously adjustable toward and away from each other, a support for the broom adjustably carried by one of said jaws, an adjustable connection between the press and the feeding mechanism for changing the length of throw of the press, and devices for simultaneously adjusting said connection and the broom support, substantially as and for the purpose described.

5. In a broom sewing machine, the combination with suitable sewing and feeding mechanisms, of a press comprising a pair of pivoted holding and shaping jaws for the broom, each having shanks jointed at right angles to their supporting pivots whereby the upper portions of the shanks carrying the jaws will have a pivotal movement both laterally and longitudinally, a reciprocating frame for supporting and guiding said jaws in their lateral and longitudinal movements and mechanism for actuating said jaws both laterally and longitudinally, substantially as described.

6. In a broom sewing machine, the combination with suitable sewing and feeding mechanisms, of a pair of pivoted holding and shaping jaws for the broom, a shank for each of said jaws jointed at right angles to its supporting pivot whereby the upper portion of the shanks carrying the jaws may move both laterally and longitudinally, a reciprocating frame for supporting and guiding said jaws in their lateral and longitudinal movements, a rock-shaft journaled upon said frame, bell-crank or doubled-armed levers on said shaft, links connecting said arms respectively with the jaws, and a lock-lever for actuating said rock-shaft, substantially as described.

7. In a broom sewing machine, the combination with suitable sewing and feeding devices, of a holding and shaping press for the broom comprising a pair of pivoted jaws, shanks for said jaws jointed at right angles to their supporting pivots whereby said jaws may have a pivotal movement both laterally and longitudinally a reciprocating frame for supporting and guiding said jaws in their lateral and longitudinal movements, and mechanism for actuating said jaws, a vertically adjustable plate constituting a broom-support carried by one of said jaws, and a lock-lever and link connecting the same with said plate for adjusting the plate, substantially as described.

8. In a broom sewing machine, the combina-

tion with suitable sewing and feeding mechanisms, of a broom holding and shaping press comprising a pair of jaws, jointed shanks therefor whereby said jaws may have a pivotal movement both laterally and longitudinally, and means for actuating said jaws, an adjustable plate constituting a broom-support carried by one of said jaws, an adjustable connection between said jaws and the feeding devices, a lock-lever pivoted to the shank of one of said jaws, and links connecting said plate and the adjustable connection, respectively, with said lever at opposite sides of the pivot thereof, substantially as described.

9. In a broom sewing machine, the combination with suitable sewing and feeding mechanisms, of a holding and shaping press for the broom comprising a pair of pivoted jaws, shanks for said jaws jointed at right angles to their supporting pivots whereby said jaws may move laterally and longitudinally, a reciprocating frame for supporting and guiding the jaws in their lateral and longitudinal movements, means for actuating the jaws and an adjustable broom-support carried by one of said jaws, substantially as described.

10. In a broom-sewing machine, the combination with suitable sewing and feeding mechanisms, of a holding and shaping broom-press comprising a pair of jaws, jointed shanks therefor whereby the jaws may have a pivotal movement both laterally and longitudinally, a frame for supporting and guiding the jaws in their lateral and longitudinal movements, said jaws being connected with and actuated by the feed mechanism, a rock-shaft on said frame, bell-crank or double-armed levers on said shaft, links connecting said levers with the jaws respectively, a lock-lever for actuating said shaft, an adjustable plate constituting a broom-support carried by the shank of one of said jaws, a lock lever pivoted to the shank of said jaw, and a link connecting said lever and plate, substantially as and for the purpose described.

11. In a broom sewing machine, the combination with suitable sewing mechanism, and a broom press comprising a pair of longitudinally reciprocating laterally movable jaws, of a sliding rack-bar, a link and an adjustable connection between said link and the broom-press, and mechanism for intermittently actuating said bar, substantially as described.

12. In a broom sewing machine, the combination with suitable sewing mechanism, and a broom-press comprising longitudinally reciprocating laterally movable jaws, of a sliding rack-bar connected with said press, a cam screw meshing with the rack bar for intermittently actuating said bar, and an automatic stop for throwing said bar out of engagement with said cam screw, substantially as and for the purpose described.

13. In a broom sewing machine, the combination with suitable sewing mechanism, and a broom-press comprising longitudinally reciprocating laterally movable jaws, of a sliding rack-bar connected with the press, a cam screw meshing with the rack bar for intermittently actuating said bar in one direction, an automatic stop for throwing said bar out of engagement with said cam screw at one limit of its travel, and mechanism for throwing said bar into engagement with the cam screw when moved to the opposite limit of its travel, substantially as described.

14. In a broom sewing machine, the combination with suitable sewing mechanism, and a broom-press comprising longitudinally reciprocating laterally movable jaws, a sliding rack-bar supported at its rear end upon a fulcrum and provided at its forward end with a catch, a connection between said bar and the press to the rear of its fulcrum, means for intermittently actuating said bar, a cam for disengaging the bar from the catch so as to disconnect said bar from its actuating mechanism at the limit of its feed movement, said bar being restored to operative position and moved by its connection with the press to the limit of its backward movement, substantially as described.

15. In a broom sewing machine, the combination with suitable sewing mechanism, and a broom-press comprising a pair of longitudinally reciprocating laterally movable jaws, and an adjustable broom-support carried by one of said jaws, of a sliding rack-bar, means for intermittently actuating said bar, a link pivotally connected at one end with said bar and at its opposite end adjustably connected with the press, and a lever for simultaneously actuating said adjustable connection and adjustable broom-support, substantially as described.

16. In a broom sewing machine, the combination with suitable sewing mechanism, and a broom-press comprising a pair of longitudinally adjustable laterally movable jaws, of a sliding rack-bar connected with said press, and a cam-screw engaging and intermittently actuating said bar in one direction, substantially as described.

17. In a broom sewing machine, the combination with suitable broom holding and feeding mechanisms, of a sewing mechanism comprising a pair of obliquely reciprocating needles and a pair of intermittently actuated revolving thread-carriers therefor, substantially as described.

18. In a broom sewing machine, the combination with suitable broom holding and feeding mechanisms, of a sewing mechanism comprising a pair of obliquely reciprocating needles, and a pair of intermittently actuated revolving thread-carriers therefor, operated to engage the threads with the respective needles after each thrust of said needles through the broom, substantially as described.

19. In a broom sewing machine, the combination with suitable broom holding and feeding mechanisms, of a sewing mechanism comprising a pair of obliquely reciprocating nee-

dles working in different horizontal planes and having oppositely disposed hooks thereon and a pair of intermittently but oppositely actuated rotary thread-carriers for engaging the threads with the respective hooks after each thrust of the needles through the broom, substantially as described.

20. In a broom sewing machine, the combination with suitable broom holding and feeding mechanisms, of a sewing mechanism comprising a pair of obliquely reciprocating needles and a thread-carrier for each needle consisting of an intermittently rotating disk provided with yielding radially movable fingers for successively embracing the needle and catching the thread on the withdrawal of the needle, substantially as described.

21. In a broom sewing machine, the combination with suitable broom holding and feeding mechanisms, of a sewing mechanism comprising a pair of horizontal obliquely reciprocating needles working in different planes and a pair of intermittently rotated opposing thread-carriers provided with engaging devices for the needles and threads operated to automatically catch the threads on the withdrawal of each needle and carry the same over into engagement with the other needle on the next thrust thereof, substantially as and for the purpose described.

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