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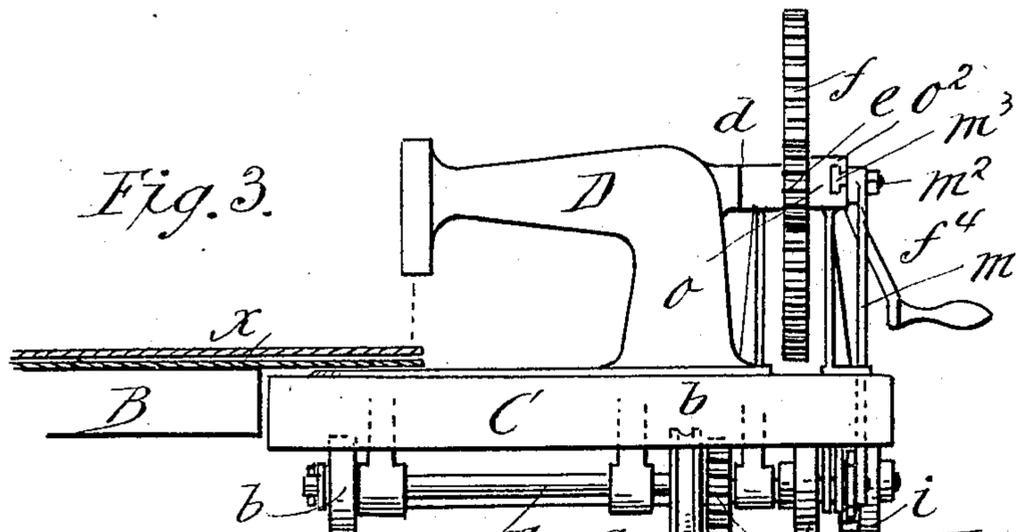
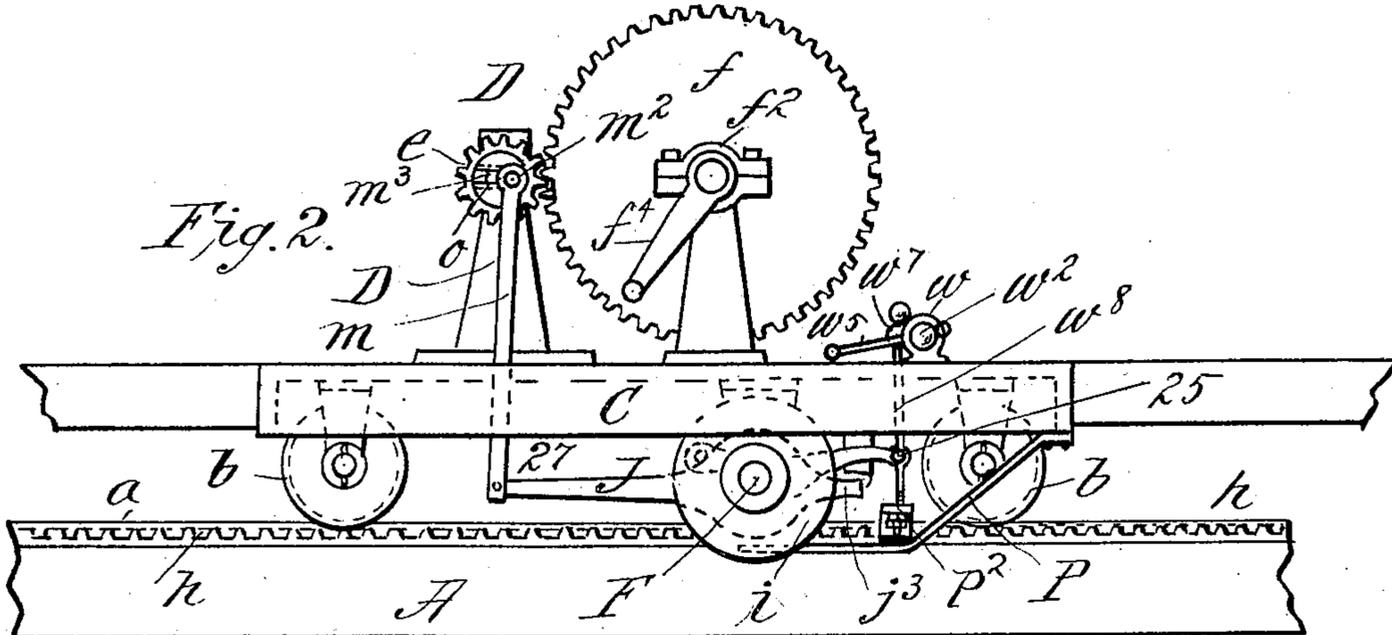
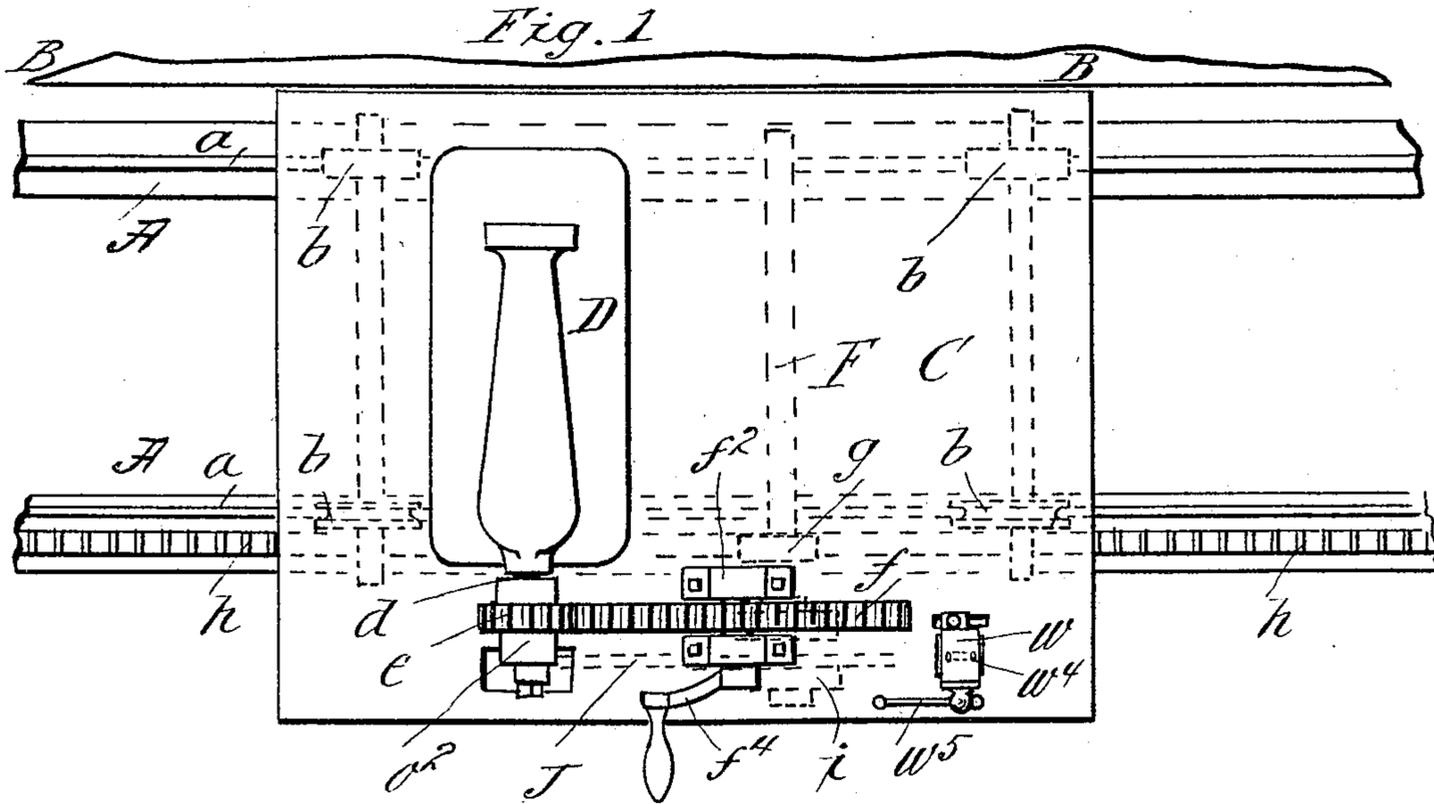
Patented Dec. 13, 1898.

W. R. WHEATON & P. R. WAGOR.  
CARPET SEWING MACHINE.

(Application filed Aug. 20, 1897.)

(No Model.)

2 Sheets—Sheet 1.



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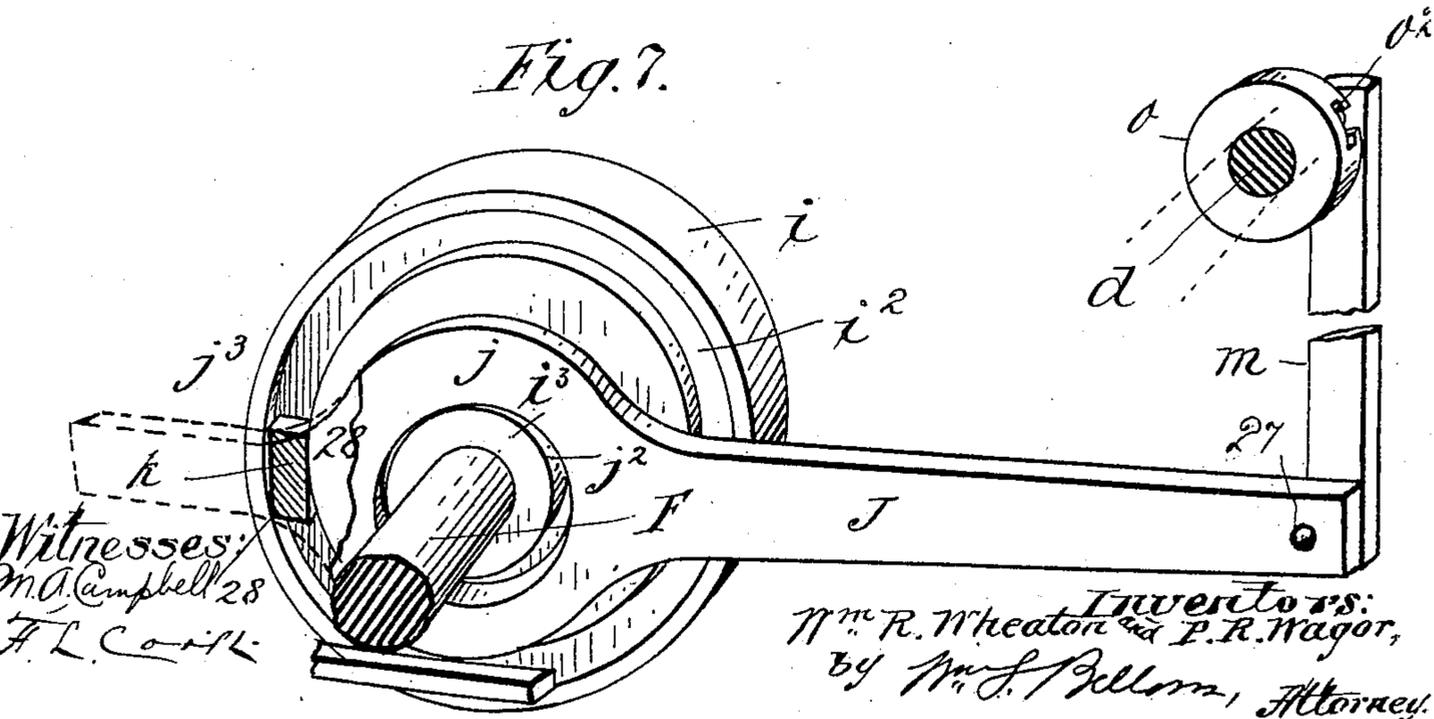
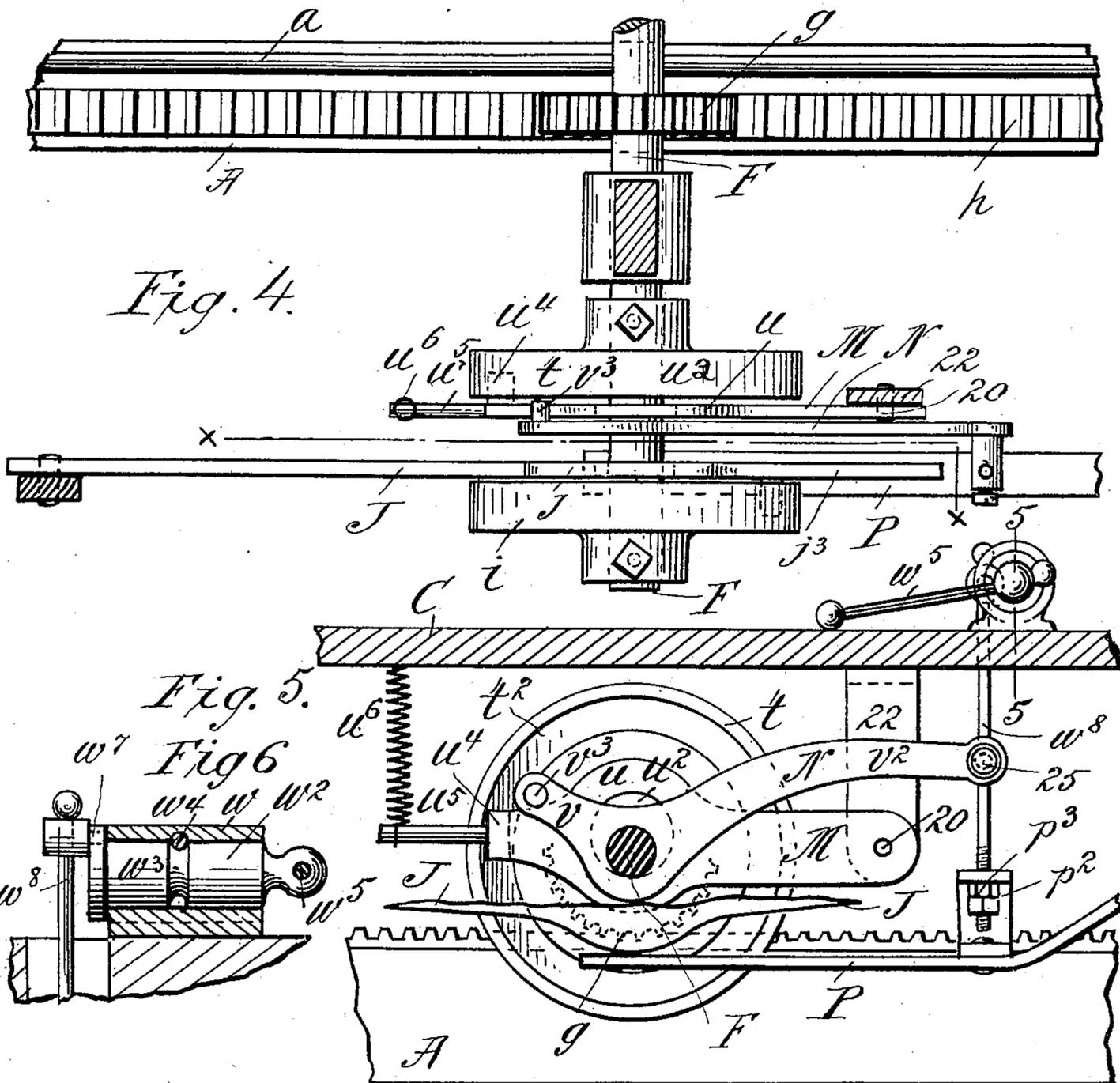
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

WILLIAM R. WHEATON AND PHILO R. WAGOR, OF SPRINGFIELD, MASSACHUSETTS; SAID WAGOR ASSIGNOR TO SAID WHEATON.

## CARPET-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 615,936, dated December 13, 1898.

Application filed August 20, 1897. Serial No. 648,923. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM R. WHEATON and PHILO R. WAGOR, citizens of the United States, and residents of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Carpet-Sewing Machines, of which the following is a specification.

This invention relates to improvements in machines for sewing together breadths of carpet of a class in which the carpet is supported with its breadths superimposed on a stationary table or bench, the machine, which sews the breadths together at their edges, running on a track along the edge of the table, it sewing said breadths together as it travels from one end of the table to the other. In machines of this class a serious difficulty to be overcome is found to arise from the tendency of the carpet to stretch or spring, whereby the stitching is uneven and imperfect, and a principal object of the invention is to devise a carpet-sewing machine comprising in its mechanism means for obviating this above-named difficulty and to devise a machine for performing this class of work which is both extremely simple in construction, practical, rapid, and efficient, and entirely satisfactory in its operation.

The invention consists in the combination and arrangement of mechanisms and parts, all substantially as hereinafter fully described, and set forth in the claims.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a plan view of the carpet-sewing machine, the carriage on which it is mounted, the track-supports on which the carriage runs, and a portion of the stationary bench or table along the edge of which the carriage runs and on which the carpet to be sewed is placed. Fig. 2 is a side elevation of the same parts. Fig. 3 is substantially an end elevation. Fig. 4 is a plan view, on a larger scale, of the propelling mechanism and devices applied in relation thereto for preventing retrograde movement of the latter while the machine is operating to seam the carpet. Fig. 5 is a side elevation of the same with a portion understood as broken away or removed for clearer

illustration. Fig. 6 is a cross-sectional view in detail, taken on line 6 6, Fig. 5. Fig. 7 is a perspective view illustrating an important part of the carriage-propelling mechanism.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A A represent parallel horizontal beams or rails, which are understood as suitably supported above the floor at about the usual convenient height of an ordinary work-table adjacent and parallel with the edge of a long work-table B, on which the carpet is to be supported.

The parallel beams A A support the tracks *a a*, on which the truck wheels or rollers *b b* for the sewing-machine carriage C run.

One set of the truck-wheels *b b*, comprising the pair of wheels at one side of the carriage, are grooved, as indicated at the right-hand portion of the front view, Fig. 3, so as to engage the rounded track *a* and prevent any lateral displacement of the carriage as it runs.

D represents a sewing-machine mounted on the carriage, with its gooseneck-standard crosswise thereof and having its needle-bar and throat-plate near that edge of the carriage which is alongside the edge of the work-table B. The top surface of the carriage is at about the same height as the top of the work-table. The sewing-machine shaft *d* has thereon the gear-wheel *e*, with which meshes the larger gear-wheel *f*, which is mounted in suitable journals *f*<sup>2</sup> of the standards or brackets *f*<sup>3</sup>, mounted on the carriage C. The crank-arm *f*<sup>4</sup> is provided for turning the gear-wheel *f* by hand, which results in operating the sewing-machine by turning its shaft, as usual, and also results in imparting a step-by-step feed movement to the carriage through mechanism dependent thereon, to be shortly described, so that as the sewing-machine sews or seams the carpet, which is placed and retained stationary on the work-table, the machine has a traveling movement along the carpet corresponding to the progress of the sewing.

There is crosswise and horizontally supported in suitable journals under the carriage C a shaft F, having fixed thereon the spur-

wheel or pinion  $g$ , which meshes in the rack-bar  $h$ , fixed upon the top of one of the supporting-beams A, parallel with the track  $a$ . The said shaft F has provided and fixed thereon a disk  $i$ , having in its face the concentric groove  $i^2$ .

J represents a lever having a suitable enlarged portion  $j$ , which is provided with the aperture  $j^2$ , which is larger than the hub  $i^3$  of the disk  $i$ , the said apertured portion of this lever embracing the said hub and having the upper portion or edge of its aperture resting upon the top of the said hub  $i^3$ , whereby when the lever J is given its swinging movement it has the center of such movement at the place of the bearing of the upper margin of its hole upon the top of the disk-hub  $i^3$ , whereby the center of oscillation of the lever is eccentric to the center of the shaft F and of the groove-disk  $i$  thereon.

The member  $j^3$  of the lever J has the laterally-extended rib or engagement member  $k$ , (seen in Fig. 7,) which has its position within the circular groove in the disk  $i$ , this projection  $k$  having the width approximately though slightly less than the width of the groove. It will be perceived that when the lever is swung in one direction—that is, with its right-hand end downwardly, Fig. 6, which is a view looking in the opposite direction to Figs. 2 and 5—that is, from the back toward the front instead of toward the rear, as in said Figs. 2 and 5—the member  $k$  assumes, regarding it as to its length or vertical dimension, a position angular or oblique to the circular line of the groove, whereby its diagonally opposite corners bite or bind against the peripheral margins of the groove and move the disk as one with the lever.

On the reversal of the swinging movement of the lever the engagement member plays freely backwardly in the slot without tendency to rotate the disk.

A regular vibratory movement is imparted to the lever J by the connecting-rod  $m$ , pivoted to said lever and having an engagement, as seen in Figs. 2, 3, and 7, with the stud  $m^2$ , which is an outward projection of the slide-block  $m^3$ , which moves diametrically in the way  $o$  formed undercut or dovetailed in the face-plate  $o^2$  provided at the outer end of the sewing-machine shaft  $d$ . The greater the eccentricity of the stud  $m^2$  to the axis of the sewing-machine shaft the greater will be the thrust of the lever J, and consequently the length of feed of the carriage through the rotational movement of the shaft  $f$  and its pinion-and-rack connection described.

A spring may be advantageously applied for pressing downwardly on the lever, so that it may have its fulcrum positively at the upper margin of its aperture  $j^2$  upon the hub of the disk  $i$ ; but this is not essential.

The mechanism for propelling the carriage which has been described is so adjusted and timed relative to the operation of the needle-bar that the clutch mechanism is operated to

feed the carriage forward immediately the needle is clear from the fabric and between the time of its clearing and of its next descent.

In a machine of the character described it is very necessary that there be no yielding or giving of the carriage reversely of its direction of feed, although oftentimes there is a considerable rearward strain thereon because of the reaction of the carpet being sewed, which is often held in considerable tension and exerts a tendency to crowd rearwardly against the needle and to overcome any possibility of the traveling machine to yield as a whole should there be any backlash between the pinion and rack-bar. Therefore we have provided a detent device in conjunction with the propeller-shaft which in no way obstructs the step-by-step propulsion of the carriage, but effectually resists any rearward yielding of the carriage except when the detent device is disengaged purposely to permit the carriage to run backwardly over the track to assume a position for the commencement of the making of a new seam, and this device, together with the releasing appliances therefor, will be now described.

Upon the propeller-shaft F, opposite and slightly to the rear of the disk  $i$ , is a similar disk  $t$ , having the concentric groove  $t^2$  therein, which, as here arranged, faces forwardly of the machine, while the groove  $i^2$  in the aforementioned disk  $i$  is understood as facing rearwardly. Disk  $t$ , like the disk  $i$ , is fast on shaft F.

M represents a lever having its fulcrum or pivot support 20 in the depending bracket or hanger 22, secured to the under side of the carriage C. This lever M has the enlarged portion  $u$ , with the hole  $u^2$  therein considerably larger than the diameter of the shaft F, surrounded by this apertured enlarged part  $u$  of the lever M. The member or portion of the said lever M opposite the pivot 20 has a laterally-extended projection  $u^4$ , similar in form to the projection  $k$  hereinbefore described as provided on the propeller-lever J; but it is so arranged in its position and mounting on the lever M and in its projection into the groove  $t^2$  of the disk  $t$  as to stand angularly to the peripheral walls, one or both, of said grooves and substantially in contact thereagainst, all whereby as the shaft is propelled through the action of the lever J and its engaging projection  $k$  the disk-walls constituting the peripheral boundaries of the groove  $t^2$  may pass the pawl-like projection  $u^4$  without obstruction or impediment thereby as the carriage is forwardly impelled.

The end portion or extension  $u^5$  of the lever M is sustained by the spring  $u^6$ , so that the pawl-like projection  $u^4$  is held to its position shown in Fig. 5 in the drawings, the lower boundary of the aperture  $u^2$  in the lever being in contact against the under side of shaft F. Immediately any tendency is exerted by the carpet to draw the carriage rearwardly at the end of each forward positive

movement imparted by the propulsion means described, whereby the disk  $t$  would be caused to rotate in the backward direction, such rotation is resisted by the bite of the check projection  $u^4$  against the peripheral wall of the disk-groove. There are, furthermore, provided in conjunction with this mechanism devices as follows: A lever  $N$  is pivotally hung and supported for a swinging movement on the shaft  $F$ , (it being preferably so supported, though not necessarily so, as will be obvious,) this lever having the two members  $v$  and  $v^2$ , the one  $v$  having the laterally-extending stud  $v^3$ , which rests against the upper edge of the lever  $M$  adjacent the engagement member  $u^4$  thereof. There is mounted on the carriage  $C$  a cylindrical journal bearing or barrel  $w$ , in which is set a rocking shaft  $w^2$ , having between its ends a peripheral groove  $w^3$ , with which engages a key or feather  $w^4$ , which prevents the displacement of the rock-shaft without interfering with its rotational movement. This rock-shaft has at its end a handle  $w^5$  by which to oscillate it when desired. The rock-shaft has also at its opposite end the eccentric pin  $w^7$ , engaged with which is the upper end of the rod  $w^8$ , which intermediately of its length has connection at 25 with the arm  $v^2$  of the aforementioned lever  $N$ .

$P$  represents a bar bent into substantially a step form, having a depending support below the carriage  $C$ , being supported by the latter, and having its free extremity occupying a position closely under the enlarged portion  $j$  of the lever  $J$ , though not necessarily in contact thereagainst. This bar  $P$  being constructed of thin metal is sufficiently flexible so as to permit of its free extremity being lifted to raise the lever  $J$  as the latter is permitted to be elevated because of the height of its aperture in excess of the diameter of the hub  $i^3$  of the disk  $i$ .

The lower end of the rod  $w^8$  is screw-threaded and is passed through an angular ear  $p^2$  of the bar  $P$  and has the abutment constituted by the adjustable nut  $p^3$ , which bears against the under side of the angular member of the ear  $p^2$ .

By swinging the handle  $w^5$ , causing the elevation of the rod  $w^8$ , the lever  $J$  is lifted, it having a swinging movement from its point 27 of pivotal connection with the thrust-bar  $m$ , causing the corner 28 of the engagement member  $k$  to assume a position free of the peripheral wall of the groove, so that the shaft may be turned in the rearward direction without being obstructed by the part  $k$ , and at the same time that the arm  $v^2$  of the lever  $N$  is lifted and its opposite member  $v$  is lowered the stud  $v^3$  so presses the lever  $N$  downwardly against its spring  $u^6$  that the engagement member  $u^4$  in moving downward in the groove  $t^2$  of disk  $t$  (see Fig. 5) assumes a freed or disengaging position, so that it also ceases to in any manner obstruct the shaft  $F$  from being turned in the reverse direction as the car-

riage is reversely run, and the pinion  $g$  incidentally causes the turning of said shaft  $F$  in the reversed direction.

The operator has simply to swing the handle  $w^5$  and push the carriage rearwardly when he desires to place it at the starting position on the track. In the action of the mechanism described the detent device comprising engagement member  $u^4$  will exert its checking action, should any be required, at the incidents between the positive forward impulses of the carriage and when the needle-bar is lowered in forming the stitches.

In practice the track and work-table may extend throughout a length of many feet—say, for instance, forty—and the machine is operated by having the superimposed breadths  $x x$  of carpet on the work-table with their adjoined edges carried over beyond the edge, so as to be subject to the sewing action of the traveling machine, and a person grasping the crank and turning it with regular speed and walking along with the traveling carriage will insure the sewing of the carpet from end to end.

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

1. In a carpet-sewing machine, the combination with a support for the carpet, a trackway, a carriage having trucks running on said trackway and having a sewing-machine thereon, means for turning the driving-shaft of the sewing-machine, a rack-bar on the trackway, a gear wheel or pinion in mesh with the rack-bar and a pinion-shaft supported to rotate on the carriage, a grooved disk, fixed on the pinion-shaft, and provided with a hub, and a lever having an aperture larger than the diameter of said hub and having its upper margin resting for its fulcrum on the upper peripheral portion of said hub, and having an engagement member entering the groove of said disk, and when moved in one direction binding against the peripheral wall of the groove, becoming free therefrom when the lever is swung in the reverse direction, a connection between the sewing-machine shaft and said lever for causing from the rotation of the former the swinging movement of the latter, substantially as and for the purposes set forth.

2. In a carpet-sewing machine, the combination with a support for the carpet and the trackway, of a carriage running on said trackway and having a sewing-machine thereon propelling means for the carriage comprising a shaft having a grooved disk fixed thereon, a swinging lever having an engagement member for engaging in the wall of the groove in its swing in one direction for turning the disk and shaft, a second grooved disk on the shaft, a swinging lever or carrier which also has a member for engagement with the wall of the second grooved disk, and having means combined therewith and also with the said first-named swinging lever,

whereby, at pleasure, both of the said levers may be thrown relative to their respective disk-grooves, into positions for non-engagement therewith, and a connection between  
 5 the sewing-machine and the said first-named swinging lever, whereby the movement for operation of the sewing-machine causes the swinging of such lever, substantially as and for the purposes described.

10 3. In a sewing-machine for carpets of the character described, the combination with a trackway, and a carriage to run on said trackway having a sewing-machine mounted thereon, said carriage having the shaft F  
 15 which has a propulsive engagement with the trackway, and which shaft is provided with the disk *t*, of the lever M, pivotally mounted, and having the engagement member *w*<sup>4</sup>, the pivotally-mounted lever N having, by a pro-  
 20 jection thereof, engagement with said lever M, whereby the swinging movement of lever N releases the lever M from its position of engagement with the said disk, and mechanism actuated by the sewing-machine and op-  
 25 erating to impart an intermittent rotational movement to said shaft F, substantially as described.

30 4. In a sewing-machine for carpets of the character described, the combination with a trackway, and a carriage mounted to move along said trackway and a sewing-machine mounted on the carriage, said carriage being also provided with the shaft F, which has the  
 35 disk *t* and also the disk *i*, and said shaft having a propulsive engagement with the trackway, the lever J having an engagement member adapted to operate as a driver for the disk *i* and a lever N adapted to operate as a  
 40 check device on the disk *t* for preventing retrograde movement of the shaft between its feeding impulses, the lever N having by a projection thereof an engagement with the lever M, a rod engaging the lever N, a movable part adapted to engage said lever J, said  
 45 movable part being engaged also by said rod,

and connections between the sewing-machine and said lever J, whereby the motion of the former imparts a reciprocatory swinging motion to the latter, substantially as and for the  
 50 purposes set forth.

5. In a carpet-sewing machine, the combination with the carriage and the shaft comprising in the propelling mechanism thereof having the disk *t* with the groove therein, the  
 55 lever M pivotally hung and having an apertured portion widely surrounding said shaft adjacent the disk and having the projecting engagement member operating in the groove of said disk as a check-pawl and having the  
 60 supporting-spring *w*<sup>6</sup> for maintaining the lever M with the lower boundary of its aperture against the under side of the shaft, and means for depressing the lever, together with  
 65 means for intermittently positively forwardly driving the shaft, substantially as and for the purposes set forth.

6. In a carpet-sewing machine of the character described, the combination with the carriage, carrying a sewing-machine as provided with shaft F having the disks *i* and *t* the actuating and check devices comprising the levers  
 70 J and M having respectively the engagement members *k* and *w*<sup>4</sup>, the flexible bar P adapted to engage the lever J, the lever N mounted to engage the lever M, the rod *w*<sup>8</sup> connected with both the lever N and said bar P, the rock-shaft *w*<sup>2</sup> with which said rod is engaged at an eccentric portion of the said  
 75 rock-shaft and means for turning the rock-shaft all substantially as described and shown.

80 In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 19th day of August, 1897.

WILLIAM R. WHEATON.  
 PHILO R. WAGOR.

Witnesses:

WM. S. BELLOWS,  
 M. A. CAMPBELL.