

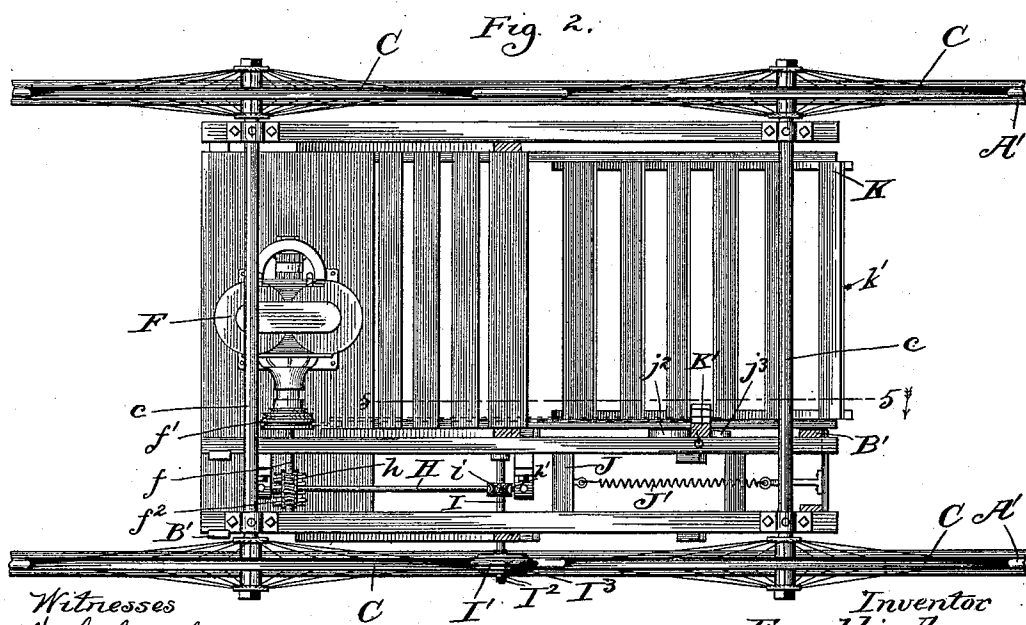
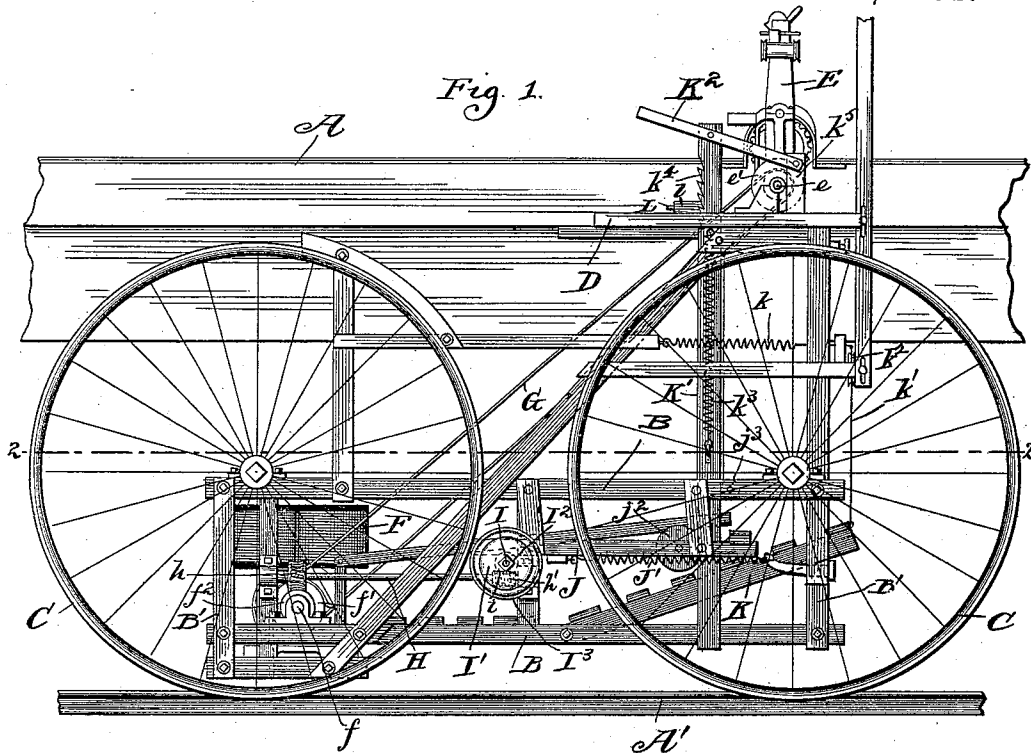
(No Model.)

4 Sheets—Sheet 1.

F. AMES.  
APPARATUS FOR SEWING CARPETS.

No. 464,211.

Patented Dec. 1, 1891.



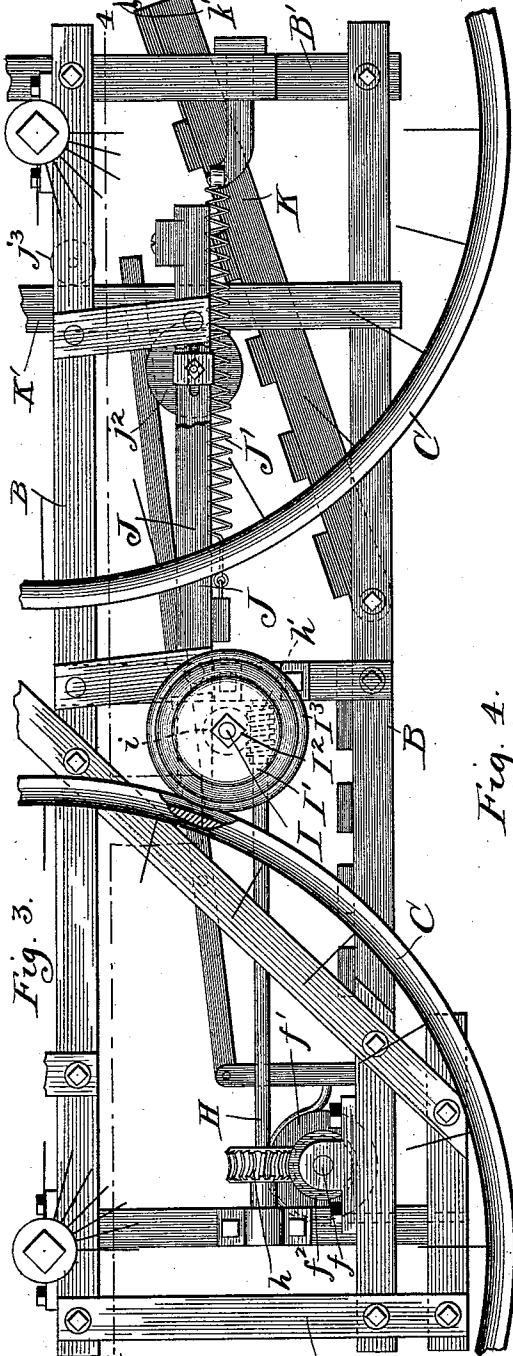
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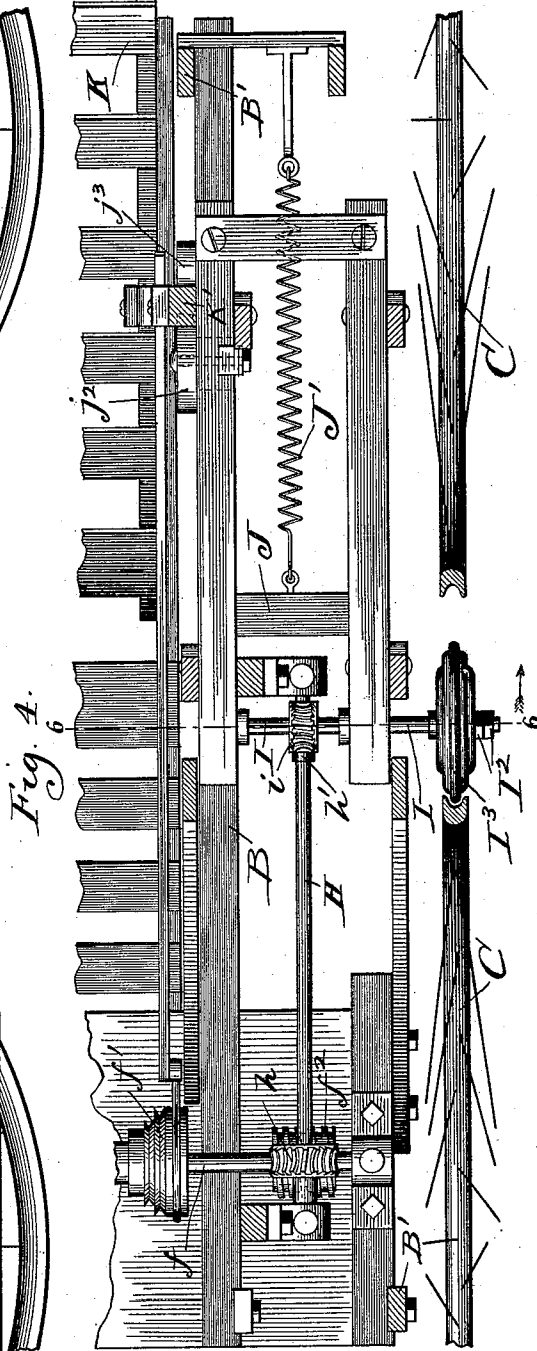
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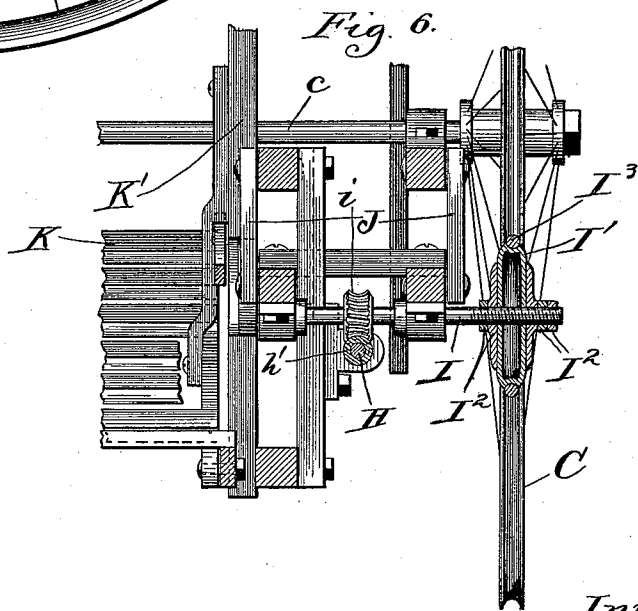
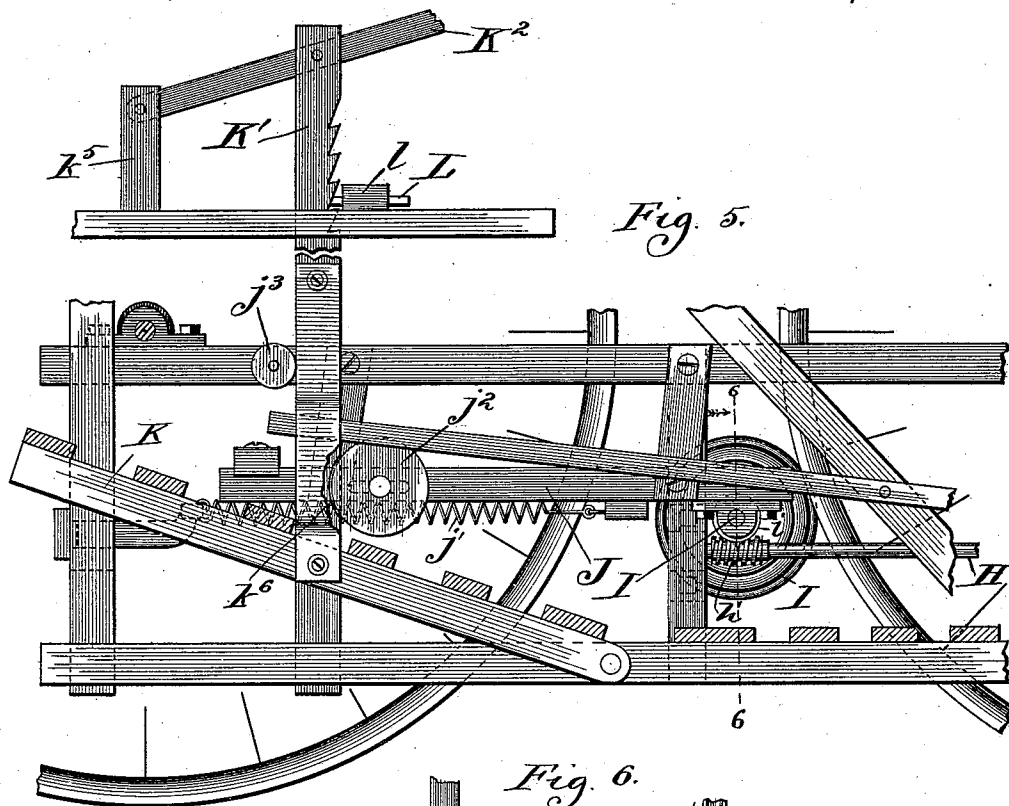
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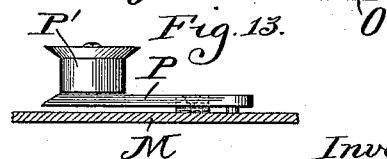


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4 Sheets—Sheet 4.

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# UNITED STATES PATENT OFFICE.

FRANKLIN AMES, OF CHICAGO, ILLINOIS.

## APPARATUS FOR SEWING CARPETS.

SPECIFICATION forming part of Letters Patent No. 464,211, dated December 1, 1891.

Application filed November 15, 1890. Serial No. 371,587. (No model.)

*To all whom it may concern:*

Be it known that I, FRANKLIN AMES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Apparatus for Sewing Carpets, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the sewing-machine carriage with my improved propelling mechanism applied thereto. Fig. 2 is a longitudinal sectional view of the same on the line 2 2 of Fig. 1, showing the wheels intact. Fig. 3 is a side elevation of the lower portion of the carriage and the contiguous portions of the propelling mechanism on an enlarged scale. Fig. 4 is a horizontal section of the same on the line 4 4 of Fig. 3. Fig. 5 is a vertical longitudinal section of the lower part of the carriage and its propelling mechanism on the line 5 5 of Fig. 2, also on an enlarged scale, and showing the opposite sides of the same from that shown in Figs. 1 and 3. Fig. 6 is a transverse vertical section on the line 6 6 of Fig. 5. Fig. 7 is a plan view of the sewing-machine carriage, showing the mechanism for shifting the sewing-machine, and also the improved presser-toe and the seam-closer. Fig. 8 is a transverse vertical section of the same on the line 8 8 of Fig. 7, including the band-wheel only. Fig. 9 is a detached plan view of the presser-toe and seam-closer on an enlarged scale. Fig. 10 is a front elevation of the same. Fig. 11 is a side elevation of the same. Fig. 12 is a detached view inside elevation of the seam-closer in operative position relative to the seam of a carpet. Fig. 13 is a detached view, inside elevation, of the device for throwing the seam out of the sewing-machine during a reversal of the carriage.

My invention relates to carpet-sewing machines, and more particularly to those of the type embraced in an application for Letters Patent filed by me February 20, 1890, and bearing the serial number 341,235; and the objects of my invention are, first, to provide a positive propulsion of the sewing-machine carriage by means of the motor which actu-

ates the sewing-machine; secondly, to provide means for forcing the nap or filling of the carpet inward just previous to the sewing action and insuring a neat seam; thirdly, to provide means for automatically throwing the seam away from the needle and feed mechanism of the sewing-machine and thereby prevent any injury to the carpet or machine during a reversed movement of the sewing-machine carriage.

To the above purpose my invention consists in certain peculiar and novel features of construction and arrangement, as hereinafter described and claimed.

In the said drawings, A designates the table upon which the widths of carpet are laid during the sewing of the seams. This table is preferably of the form and construction set forth in my previous application above referred to; but as the table forms no essential part of my present invention it is not shown in detail, and may be of any suitable or preferred form. The carriage upon which the sewing-machine, motor, and other connections are mounted is preferably composed of a number of horizontal side pieces B and vertical end pieces B', constituting a light oblong skeleton body. This carriage is mounted upon four wheels C, the axles *c* of which are shown as extending transversely of the carriage-body, and the tires of which are grooved or flanged to run upon two tracks A', extending parallel with the front of the table A. Upon the top D of this carriage and at the rear end of the same is mounted a sewing-machine E, which, so far as its internal operative mechanism is concerned, may be of any type suitable to the heavy class of work to which it is to be applied. In the lower front part of the carriage is mounted an electric motor F, which also may be of any suitable or preferred type. The power-shaft *f* of this motor carries a belt-pulley *f'*, over which runs a belt G, which runs also over a belt-pulley *e'* upon the main shaft *e* of the sewing-machine.

Beyond the pulley *f'* the power-shaft of the electric motor carries a worm *f*<sup>2</sup>, which meshes with a worm-wheel *h* upon the front end of a shaft H. This shaft H is journaled horizontally in the lower part of the carriage and

extends forward and rearward thereof, and also carries upon its rearend a worm  $h'$ , which meshes with a worm-wheel  $i$  upon a counter-shaft I. This counter-shaft I is journaled in the front part of a movable frame J, which is capable of being shifted forward and backward upon the carriage by means to be presently explained, and the said frame is held normally in its rearward or retracted position by a spring  $J'$ , one end of which is connected to the carriage-frame, while its opposite end is attached to the movable frame J. Upon its outer end the shaft I carries a friction-wheel  $I'$ , which is moved into and out of engagement with the adjacent front carrying-wheel C by the movement of the frame J. This friction-wheel is preferably an expansible and contractible wheel, as is best shown in Fig. 6—that is to say, the body of the wheel is of hollow form and is constructed of elastic material. This body portion is confined between two nuts  $I^2$   $I^2$ , which are screwed upon the outer portion of the shaft I, so that by turning the nuts so as to cause them to approach each other the body of the wheel will be compressed laterally and expanded marginally, while when the nuts  $I^2$  are turned so as to recede from each other the wheel is marginally contracted and laterally expanded. The margin or rim of this wheel is grooved to receive an elastic rubber tire  $I^3$ , which contacts with the said wheel of the carriage. As in the carriage described in my previous application above referred to, this carriage is provided with a foot-treadle K, pivoted at one end to the lower part of the carriage and held normally in raised position by a spring  $k$ , acting upon a cord or flexible connection  $k'$ , one end of the spring being attached to a fixed part of the carriage-frame and the cord running over a pulley  $k^2$  upon said frame and being connected at its lower end to the outer end of treadle. A rod  $K'$  is vertically movable in the carriage-frame, and the treadle K is connected at its outer portion to the lower part of said rod  $K'$ . This rod is also retained normally in its uppermost position by a spring  $k^3$ , one end of which is connected to a fixed upper part of the frame, while the lower end of this spring is connected to the rod. Thus the spring  $k^3$  assists also in retaining the treadle in its uppermost position. This rod  $K'$  is preferably connected to a switch (not shown) in circuit with the motor, (as explained in my said previous application,) so that a greater or less depression of the rod shall admit more or less voltage to the motor. The upper part of the rod is toothed, as at  $k^4$ , the upper surface of the teeth being substantially horizontal to receive a pin L, sliding in a boxing  $l$  on the carriage-frame, and the arrangement being such that the pin shall retain the post in more or less depressed position, as desired. This depression of the post  $K'$  is accomplished by manipulation of a hand-lever  $K^2$ , one end of

which is pivoted to a standard  $k^5$  upon the carriage-frame and to the outer portion of which is connected the upper end of the post  $K'$ . The depression of the post  $K'$  serves not only to vary the current delivered to the motor, but also serves to shift the movable frame J, so as to bring the friction-wheel  $I'$  into engagement with the carriage-wheel C. This movement of the frame J is accomplished as follows: Upon the rear portion of this frame J at one side thereof is mounted a friction-wheel  $j^2$ , the periphery of which extends into a recess  $k^6$  on one side of the post  $K'$  when said post is in its uppermost position. In this position of the parts described the spring  $J'$  holds the frame J retracted or at the rearmost limit of its movement and the friction-wheel  $I'$  is out of contact with the carriage-wheel C. Now when the post  $K'$  is depressed the periphery of the wheel  $j^2$  slides out of the recess  $k^6$  and upon the side of the post, and the frame is thus forced forward, so as to bring the friction-wheel  $I'$  into engagement with the carriage-wheel C. At this movement current is admitted to the motor and the friction-wheel is caused to revolve and thus propel the carriage. A small bearing-wheel  $j^3$ , which is journaled upon the carriage-frame, preferably, receives the thrust of the post  $K'$ . It will be seen that as the frame J is moved back and forth the worm-gear  $i$  rolls easily upon the worm  $h'$ , and thus offers no opposition to the movement of the frame. It will also be seen that the depression of the post  $K'$  accomplishes a threefold result: first, starting the motor; secondly, starting the sewing-machine, and, thirdly, starting and shifting the friction-wheel, so as to propel the carriage, and increased depression of the post causes no over-pressure of the friction-wheel on the tire, which would stop the rotation of the wheel.

In Figs. 7 to 13, inclusive, M designates the bed-plate of the sewing-machine. In order to accurately adjust the sewing-machine to its work, said machine is rendered movable upon the top D of the carriage by means of a hand-lever  $M'$ , which is pivoted beneath the top, as at  $m$ , and the inner extremity of which is connected to a pin  $m'$ , pendent from the bed-plate M and extending through the top D. Thus by moving the outer end of the lever  $M'$  in one or the opposite direction the bed-plate M is moved so as to carry the sewing-machine toward or away from the seam of the carpet, and thus insure the proper working of the said machine. The bed-plate moves between guides  $M^2$ , and the arrangement is such that when the bed-plate has been properly adjusted by the lever  $M'$  the guides  $M^2$ , having been screwed tightly upon the top D, will by their friction hold the bed-plate firmly as adjusted. In order to insure a free entrance of the edges of the carpet to the feeding mechanism and needle of the sewing-machine, a toe-piece N is attached in front of the usual heel-plate  $N'$ , and this toe-plate is provided

at its front edge with lips extending outwardly and flaring upwardly and downwardly, respectively, as shown at  $n$   $n^2$  in Figs. 10 and 11. The outer edges of the carpet are to be received within these lips and are brought close together in proper position for sewing at the inner face of the plate, as seen in Fig. 10, this piece serving as a guide for this purpose and being arranged just in front of the needle. This toe-piece is rendered adjustable laterally by means of an adjusting-screw  $N^2$ , which is carried by a standard  $N^3$ , attached to the bed-plate  $M$ , and which also enters a lug  $n'$  upon the rear of the toe-plate. The toe-plate being thus adjustable serves also the purpose of a gage regulating the position of the carpet edges relatively to the needle.

Heretofore in sewing carpets by machinery it has been impossible to prevent the nap or filling of the carpet from protruding beyond the matched edges of the carpet, thus producing a ragged seam. In order to avoid this difficulty, I provide a conical head  $O$ , the point or apex of which enters between the matched edges of the widths of the carpet, as shown in Figs. 10 and 12, just previous to the entrance of said edges to the sewing mechanism. (See Figs. 7, 9, and 11.) This conical head thus pushes the nap or filling inward beneath the edges of the carpet and insures the formation of a neat seam. As shown, the head  $O$  is formed upon one end of a crooked arm  $o$ , which extends loosely through lugs  $o'$ , of a support  $O'$ , which is attached to the top  $D$  of the carriage adjacent to the bed-plate  $M$  of the sewing-machine. The arrangement is such that the head will drop down out of the way when not in use, and can be quickly raised by the attendant and inserted between the edges of the widths of carpet when the sewing operation begins. As here shown, this conical head is arranged just in front of the guide-gage  $N$ , as seen in Figs. 10 and 11. The point of the head, in fact, almost enters the space between the lips of the guide. These two devices co-operate, therefore, to this extent: The nap is pushed back just as the edges enter the guide, which operates to close these edges down at once, so that the nap will not fly back before reaching the needle. It has also been found that when the seam has been sewed and during the reverse movement of the carriage the feed mechanism and needle of the sewing-machine are liable to be mutilated by the edges of the seam. In order to prevent this, I have provided an arm  $P$ , which is pivoted at one end upon the rear part of the bed-plate  $M$ , and which at its opposite end carries a head or roller  $P'$ . The arm and its head thus follow the feeding mechanism and needle of the sewing-machine, and said arm is so placed that while the carriage is moving forward the head travels idly along the seam. As soon, however, as the carriage is moved backward the arm is drawn forward, and the head  $P$  automatically forces the seamed edges of the carpet

out of the feed mechanism of the sewing-machine. Stops  $p$   $p'$  upon the bed-plate  $M$  limit the movement of the arm  $P$ , and the stop  $p$  is preferably adjustable, as shown. It is obvious that the worm-gearing of the propelling mechanism should be so proportioned as to cause the rate of propulsion of the carriage to accord with the feed capacity of the sewing-machine.

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

1. In an apparatus for sewing carpets, the combination, with a movable carriage and a suitable carpet-sewing machine mounted thereon, of an electric motor carried by the carriage and operatively connected to the sewing-machine and also operatively connected to the running-gear of the carriage, so as to simultaneously actuate the machine and propel the carriage, substantially as set forth.

2. In an apparatus for sewing carpets, the combination, with a movable carriage and a suitable carpet-sewing machine mounted upon the carriage, of an electric motor connected to the sewing-machine, so as to actuate the same, and a shiftable frictional propelling mechanism operatively connected to the motor and serving to propel the carriage by power derived from said motor, substantially as set forth.

3. In an apparatus for sewing carpets, the combination, with a movable carriage, a suitable carpet-sewing machine mounted upon the carriage, and an electric motor also mounted upon the carriage and connected to the sewing-machine, so as to actuate the same, of a shiftable friction-wheel operating by contact with one of the carriage-wheels to propel the carriage, power-transmitting shafts, and worm-gearing connecting the friction-wheel to the motor, whereby said motor actuates said friction-wheel, substantially as set forth.

4. In an apparatus for sewing carpets, the combination, with a movable carriage and an electric motor mounted thereon, of a shiftable and expansible friction-wheel operating by contact with one of the carriage-wheels to propel the carriage and operatively connected to the motor, so as to be actuated thereby, substantially as set forth.

5. In an apparatus for sewing carpets, the combination, with a movable carriage and a suitable carpet-sewing machine mounted thereon, of a conical head mounted in advance of the sewing-machine, with its axis at an angle to the line of travel and arranged to enter between the matched edges of the widths of carpet, substantially as set forth.

6. In an apparatus for sewing carpets, the combination, with a movable carriage and a suitable carpet-sewing machine mounted thereon, of a pivoted arm mounted at the rear of the sewing-machine and having at its free end a head serving to throw out the

seam during a reverse movement of the carriage, substantially as set forth.

7. In an apparatus for sewing carpets, the combination, with a movable carriage, of a  
5 suitable carpet-sewing machine, the flaring guide-gage N, arranged just in front of the needle, and the conical head O, arranged just

in front of said guide-gage and with its axis inclined to the line of travel, substantially as set forth.

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Witnesses:

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