

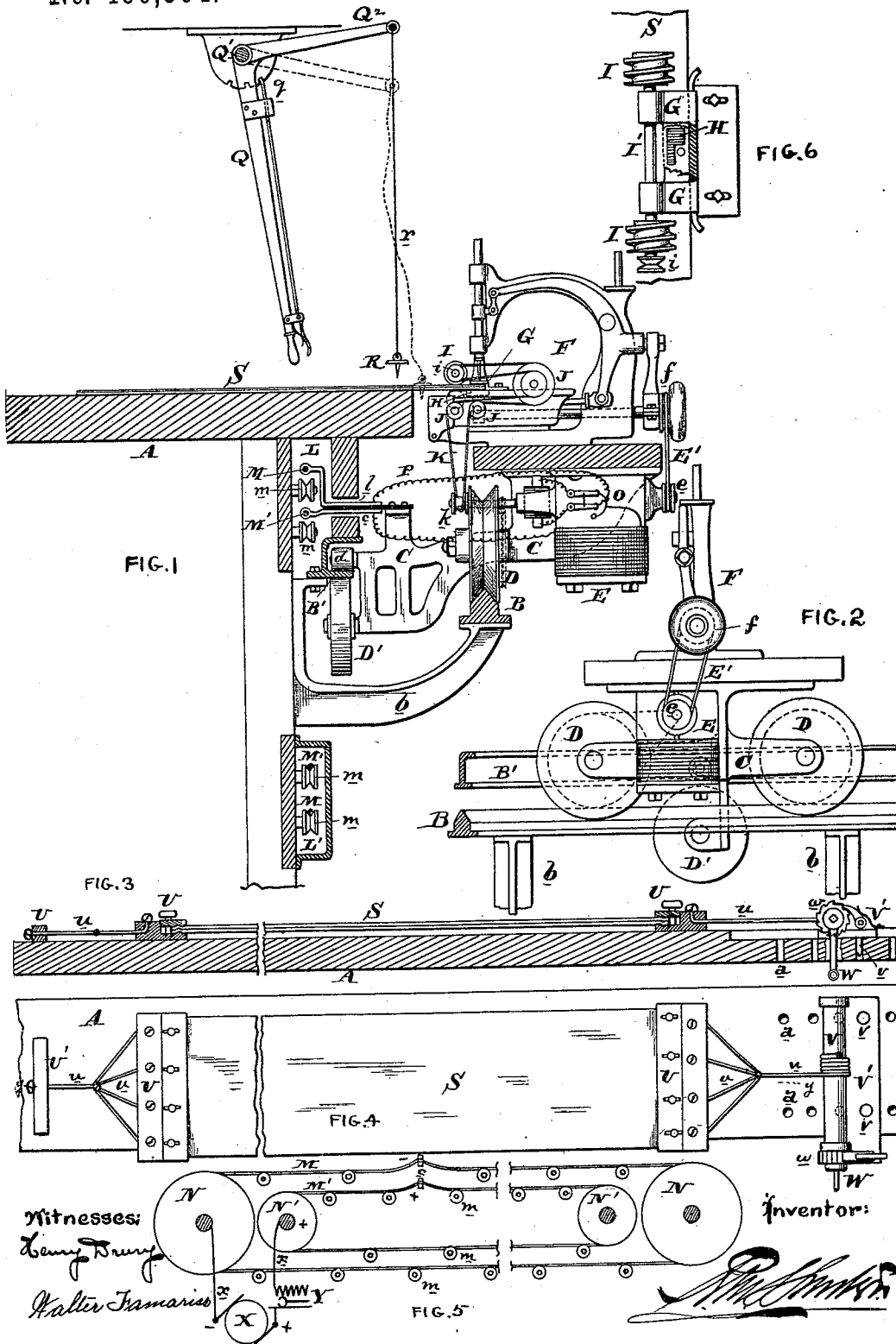
(No Model.)

R. M. HUNTER.

APPARATUS FOR HOLDING AND SEWING CARPETS.

No. 460,504.

Patented Sept. 29, 1891.



UNITED STATES PATENT OFFICE.

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APPARATUS FOR HOLDING AND SEWING CARPETS.

SPECIFICATION forming part of Letters Patent No. 460,504, dated September 29, 1891.

Application filed June 4, 1890. Serial No. 354,212. (No model.)

To all whom it may concern:

Be it known that I, RUDOLPH M. HUNTER, of the city and county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Carpet-Sewing Machines, of which the following is a specification.

My invention has reference to carpet-sewing machines; and it consists of certain improvements, all of which are fully set forth in the following specification, and shown in the accompanying drawings, which form a part thereof.

This application relates particularly to carpet-sewing machines in which electricity is the motive power, and embodies certain specific improvements, which are fully described hereinafter.

Among the essential features of my invention may be enumerated the means for supplying electrical energy to the traveling carriage, which latter is adapted to travel upon a railway, and in which the means consist of a movable conductor movable with the electrically-propelled vehicle and at all times maintained in electrical connection with a stationary source of power, current from which may be regulated, if desired. The vehicle carrying the electric motor sustains an electrically-actuated sewing-machine, the feed-motion of which, acting upon the carpet lying upon the table, may give motion to the said traveling carriage. If desired, the carriage may be propelled by the electric motor and the feed-motion dispensed with. In addition to the above mechanism I provide a guide for receiving the edges of the carpet to be sewed, which guide is adjustable to or from the carpet or laterally with respect to the table upon which the carpet is laid, and in conjunction with this guide I provide suitable means for crowding the edges of the carpet against said guide to insure the two edges lying exactly in line or superimposed one upon the other. The devices I prefer for this latter operation are rollers or brushes of rubber or other flexible material, preferably formed with spirals, the pitch of which is commensurate, or thereabout, with the speed of travel of the sewing-machine with respect to the carpet. These brushes or rubber rollers are positively driven by the electric motor directly or indirectly,

so as to act upon the carpet transversely to its length and feed it as above specified. The railway is preferably carried upon the table, and the conductors are housed in conduits or compartments, also preferably arranged upon the under portion of the table or secured to the legs thereof, so that the conductors are out of reach of the operators, and thus not in position to permit contact and consequent injury. The carriage for the sewing-machine is of peculiar construction, being guided upon an outer rail and having two V-shaped grooved wheels and sustained against rotary movement about the outer rail by inner guide-wheels running upon a flat rail, which latter is preferably near the level of the outer rail, so as to exert a proper retaining influence against the lateral tilting of the carriage. Arranged above the table is a shaft, to which is secured any number of arms desired, and from which arms hang carpet-holding pins by means of flexible cords or chains. The shaft may be rocked by a hand-lever and locked in two positions, one to allow the pins to be inserted in the carpet near its edge and the other to hold the arms sufficiently high that the pins in hanging therefrom will not touch the carpet lying on the table. By rocking the shaft and its arms all the pins may be simultaneously drawn out of the carpet after the same has been sewed.

Another feature of my invention relates to the stretching mechanism employed to stretch the carpet. I secure the carpet at each end between clamps, and one of said clamps is connected at one end to a fixed part of the table by means of a single cord and at the other end also by a single cord. The other clamp is fastened to a windlass device adjustably secured to the table. By this means the carpet may be moved laterally under the action of the friction brushes or rolls hereinbefore referred to, and the edges of said carpet kept snugly up into the guide of the sewing-machine during its travel along the table.

While I speak of my invention as a "carpet-sewing machine," it is to be understood that the apparatus may be employed for sewing together two strips of any suitable fabric—such, for instance, as strips of canvas in the manufacture of large awnings, to which it is

excellently adapted. The particular use of my invention is immaterial.

I do not limit myself to the mere details of construction herein set out, and the above features are simply general disclosures of the nature of the invention, which is more specifically described hereinafter, and shown in the accompanying drawings, in which—

Figure 1 is a transverse section through the table, conductors, rock-shaft, railway, and carriage of a carpet-sewing machine embodying my invention. Fig. 2 is a front elevation of the carriage and electrically-actuated sewing-machine. Fig. 3 is a longitudinal section on line *y y* of Fig. 4, showing the means for stretching the carpet over the table. Fig. 4 is a plan view of the table and carpet-stretching mechanism. Fig. 5 is a diagram illustrating a front elevation of the conductors for supplying electric current to the motor on the vehicle, and Fig. 6 is a plan view of the carpet-guide and adjusting-rollers for crowding the carpet into the guide.

A is the table and may be made of wood, metal, or other suitable material.

B and B' are two rails arranged nearly in the same plane, and are supported at intervals by cast-iron brackets *b*, carried by the legs of the table. The rail B is preferably made inverted-V shaped or otherwise formed to receive and center a supporting and guide wheel D of the carriage C. It is so formed that the carriage cannot shift laterally to interfere with the straightness of the line of sewing. There are two such supporting and guide wheels D running upon the rail B, (best shown in Fig. 2,) and between them and to the rear is an under-running guide-wheel D', working against the under side of the flat rail B'. A small roller *d* may also be carried by the carriage C and arranged above the flat rail B'. This construction prevents the movement of the carriage about B as a center, and yet permits the ready removal of the carriage, sewing-machine, and motor by lifting the wheels D off the rail B and then drawing the wheels D' and *d* laterally from the rail B.

F is a sewing-machine, and is provided with the usual feed H. This feed is preferably arranged above the guide and supporting wheels D or above a plane through said wheels, so that the line of action of the feed is substantially above the outer rail B and in the center of the load distributed upon the carriage.

E is an electric motor, and is furnished with a power-wheel *e*, which connects with a band-wheel *f* on the sewing-machine by a power-transmitting band E'. The operation of the electric motor actuates the sewing-machine, and the feed-motion H of said sewing-machine, acting upon the carpet S stretched upon the table, causes the vehicle and sewing-machine to travel longitudinally upon the rails at a speed commensurate with the speed of sewing.

In place of relying upon the feed of the

sewing-machine to propel the sewing-machine and carriage the electric motor may positively drive the carriage by a suitable power-transmitting device between the motor-shaft and one or both of the wheels D, as indicated in dotted lines. (See Figs. 1 and 2.)

Arranged under the table S and carried preferably by the legs thereof are conduits L and L', through which pass endless conducting-cables M and M'. The cable M passes about contact-wheels N at each end, and likewise the conductor M' passes about N' at each end, and between the said end wheels these cables are supported by grooved wheels *m*. The cables are insulated from each other, but are in continual connection with a stationary source of power *x*, which may be a battery or dynamo, by means of the conducting-wheels N and N' and the circuits *x*. (See Fig. 5.)

A current-controller or resistance-changer Y may be employed in the supply-circuit *x* to control the current flowing to the motor, and thereby control its speed and the travel of the sewing-machine. The upper conduit L is provided with a slot *l*, through which project contact-arms *c*, respectively connecting with the two conductors M and M'. These contact-arms are secured to and insulated from the carriage C, but are electrically connected by a circuit P with the terminals of the motor E, including a current-reversing switch O for the armature, so that the carriage may be run back to its original position after performing the work of sewing the length of carpet stretched upon the table.

To the sewing-machine is secured a guide G, projecting laterally so as to form, with the cloth-plate of the sewing-machine, a groove parallel with the length of the carpet, in which the carpet is received during the travel of the sewing-machine and its guide. This guide is laterally adjustable to control the distance of the stitch from the edge of the carpet. Carried by the sewing-machine is a shaft I', upon each end of which is secured rollers I, of rubber or other flexible material, and said wheels act as brushes or friction devices to crowd the carpet against the edge of the guide G. These rollers I are preferably formed of rubber and made with spiral teeth like worms, which teeth rub upon the surface of the carpet, and while feeding laterally travel longitudinally over the carpet, the pitch of the teeth or threads on the wheels or rollers being substantially equal to the distance traveled by the sewing-machine for each revolution of the said rollers. By this means there will be little or no dragging longitudinally upon the carpet. The shaft I' and its rollers I are driven in any suitable manner. As shown, these rollers are driven by an endless band K, passing about a pulley *k* on the motor-shaft and a pulley *i* on the shaft I' and guide-wheels J J. Any other method of rotating the rollers I may be employed, if desired. It is also evident that a similar set of rollers I

may be located upon the under side of the carpet, as well as the upper side thereof, as indicated by dotted lines at I².

The carpet S is clamped at each end in suitable clamps U, which are pulled away from each other by single or long cords *u*. One of the clamps by its cord is connected with a fixed piece U' on the table, while the other clamp is connected by its cord *u* to a windlass-drum V, journaled on a frame V' and adapted to be rotated by a crank W and locked in position by a pawl-and-ratchet device *w*. The table is provided with a series of holes or apertures *a* in its length, and the frame V' is provided with pins *v*, corresponding to said holes, so that the said frame may be adjusted at various places upon the table by placing its pins in the said holes. This is to compensate for different lengths of carpet to be sewed. The carpet is stretched by these devices (see Figs. 3 and 4) after the two edges have been adjusted and pinned together by the pins R, as shown in dotted lines in Fig. 1. After the sewing-machine has sewed the two edges together the rock-shaft Q' is rocked by the hand-lever Q, after releasing the lock *q*, and the arms Q² are raised, bringing the cords or chains *r* under tension and forcibly pulling all of the pins R out of the carpet simultaneously. The sewed carpet is then released from the clamps U.

I do not limit myself to the details of construction, as they may be modified in various ways without departing from the spirit of my invention.

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

1. In an apparatus for holding and sewing carpets, &c., the combination of a table, a railway arranged upon said table and slightly below its upper surface, a carriage guided upon said railway, a sewing-machine carried upon said carriage and having its guide-plate substantially in line with the upper surface of the table, an electric motor to operate said sewing-machine, and a source of electrical power to supply electrical energy to the electric motor, consisting of two endless conductors respectively connected with the positive and negative conductors of a source of electrical energy, guides for said endless conductors, and collecting devices carried by the carriage and connecting with the respective conductors and terminals of the motor.

2. In an apparatus for holding and sewing carpets, &c., the combination of a table, a railway arranged upon said table and slightly below its upper surface, a carriage guided upon said railway, a sewing-machine carried upon said carriage and having its guide-plate substantially in line with the upper surface of the table, an electric motor to operate said sewing-machine, and a source of electrical power to supply electrical energy to the electric motor, consisting of two endless conductors respectively guided at each end about

conducting-wheels of different diameters, intermediate guides for said conductors, a source of electric power having its terminals connected with the respective conductors, and current-collecting devices carried by the carriage and respectively connecting with the conductors and the terminals of the electric motor.

3. In an apparatus for holding and sewing carpets, &c., the combination of a table, a railway arranged upon said table and slightly below its upper surface, a carriage guided upon said railway, a sewing-machine carried upon said carriage and having its guide-plate substantially in line with the upper surface of the table, an electric motor to operate said sewing-machine, and a source of electrical power to supply electrical energy to the electric motor, consisting of movable conductors connected with a source of electric power and current-collecting devices carried by the carriage and respectively electrically connected with the conductors and terminals of the electric motor.

4. In an apparatus for holding and sewing carpets, &c., the combination of a table for supporting the carpet, a railway secured to the framing of the table and having two rails, one of which has its lower face exposed and the other its upper face exposed, a carriage running upon said railway and overhanging one of the rails and provided with wheels, part of which press upon the upper surface of one rail and part of which press upon the under surface of the other rail, a sewing-machine carried by the carriage, having its guide-plate substantially on a level with the surface of the table, and an electric motor supported by the carriage mechanically connected to operate the sewing-machine.

5. In an apparatus for holding and sewing carpets, &c., the combination of a table for supporting the carpet, a railway secured to the framing of the table and having two rails, one of which has its lower face exposed and the other its upper face exposed, a carriage running upon said railway and overhanging one of the rails and provided with wheels, part of which press upon the upper surface of one rail and part of which press upon the under surface of the other rail, a sewing-machine carried by the carriage, having its guide-plate substantially on a level with the surface of the table, a feed-motion mechanism carried by the sewing-machine, arranged substantially over the outer supporting guide-wheels of the carriage and outer rail of the railway, and an electric motor supported by the carriage mechanically connected to operate the sewing-machine.

6. In an apparatus for holding and sewing carpets, &c., the combination of a table, a railway supported by the framing of said table, a carriage running upon said railway, a sewing-machine carried by the carriage and having its guide-surface arranged substantially in the same plane with the surface of the table

and having a feed-motion mechanism adapted to act upon the carpet and thereby propel the carriage, an electric motor supported by the carriage and mechanically connected to operate the sewing-machine, a slotted conduit carried by the table, conductors within said conduit for supplying electricity, and a current-collecting device leading from the conductors through the slot of the conduit and connected to the traveling carriage.

7. In an apparatus for holding and sewing carpets, &c., the combination of a table, a railway supported by the framing of said table, a carriage running upon said railway, a sewing-machine carried by the carriage and having its guide-surface arranged substantially in the same plane with the surface of the table and having a feed-motion mechanism adapted to act upon the carpet and thereby propel the carriage, an electric motor supported by the carriage and mechanically connected to operate the sewing-machine, a guide moving with the sewing-machine for receiving the edges of the carpet, a rotary roller-brush acting upon the surface of the carpet near the edge thereof for crowding it into the guide, and power-transmitting devices between the electric motor and the brush for imparting motion thereto.

8. In an apparatus for holding and sewing carpets, &c., the combination of a table, a railway supported by the framing of said table, a carriage running upon said railway, a sewing-machine carried by the carriage and having its guide-surface arranged substantially in the same plane with the surface of the table and having a feed-motion mechanism adapted to act upon the carpet and thereby propel the carriage, an electric motor supported by the carriage and mechanically connected to operate the sewing-machine, a guide moving with the sewing-machine for receiving the edges of the carpet, a rotary roller-brush, formed of rubber or flexible material, acting upon the surface of the carpet near the edge for crowding it into the guide, and power-transmitting devices between the electric motor and the brush for imparting motion thereto.

9. In an apparatus for holding and sewing carpets, &c., the combination of a table, a railway supported by the framing of said table, a carriage running upon said railway, a sewing-machine carried by the carriage and having its guide-surface arranged substantially in the same plane with the surface of the table and having a feed-motion mechanism adapted to act upon the carpet and thereby propel the carriage, an electric motor supported by the carriage and mechanically connected to operate the sewing-machine, a guide moving with the sewing-machine for receiving the edges of the carpet, a rotary roller-brush, formed of rubber or flexible material and provided with spirally-arranged projections or threads, acting upon the surface of the carpet near the edge for crowding it into the guide, and power-transmitting devices be-

tween the electric motor and the brush for imparting motion thereto.

10. In an apparatus for holding and sewing carpets, &c., the combination of a table for supporting the carpet, a railway arranged in front of the table, a traveling carriage adapted to run upon the railway, a sewing-machine carried upon the carriage, so that its needle-plate is substantially in line with the surface of the table, a guide carried by the sewing-machine for receiving and guiding the edges of the carpet, a rotary roller-brush having its axis arranged parallel to the edge of the carpet and adapted to crowd the carpet into the guide on the sewing-machine, and power mechanism for imparting motion to the sewing-machine and rotation to the rotary roller-brush.

11. In an apparatus for holding and sewing carpets, &c., the combination of a table for supporting the carpet, a railway arranged in front of the table, a traveling carriage adapted to run upon the railway, a sewing-machine carried upon the carriage, so that its needle-plate is substantially in line with the surface of the table, a guide carried by the sewing-machine for receiving and guiding the edges of the carpet, a rotary roller-brush provided with spirally or helically arranged flexible projections or threads, having its axis arranged parallel to the edge of the carpet and adapted to crowd the carpet into the guide on the sewing-machine, and power mechanism for imparting motion to the sewing-machine and rotation to the rotary roller-brush.

12. In an apparatus for holding and sewing carpets, &c., the combination of a table upon which the carpet is supported, a railway, a carriage adapted to be guided upon said railway and carrying a sewing-machine having its needle-plate substantially in line with the surface of the table, a guide carried by the sewing-machine for guiding the edges of the carpet, a rotary shaft arranged in front of the guide and carrying near each end of the guide a roller-brush of flexible material to crowd the carpet into the guide, and power mechanism to operate the sewing-machine and impart rotary movement to the shaft carrying the roller-brushes.

13. In an apparatus for holding and sewing carpets, &c., the combination of a table upon which the carpet is supported, a railway, a carriage adapted to be guided upon said railway and carrying a sewing-machine having its needle-plate substantially in line with the surface of the table, a guide carried by the sewing-machine for guiding the edges of the carpet, a rotary shaft arranged in front of the guide and carrying near each end of the guide a roller-brush of flexible material formed with spiral or helical projections or teeth to crowd the carpet into the guide, and power mechanism to operate the sewing-machine and impart rotary movement to the shaft carrying the roller-brushes.

14. In an apparatus for holding and sewing

carpets, &c., the combination of a table upon which the carpet is placed, a traveling sewing-machine arranged to travel in front of the table, a shaft arranged above the table, 5 arms carried by said shaft, pins for penetrating the carpet to hold the edges in line when matching, flexible connections between the pins and arms, and means for rocking the shaft and its arms and locking them in position, so that the pins may be withdrawn from the carpet by a rocking motion given to the shaft. 10

15 In an apparatus for holding and sewing carpets, &c., the combination of a table upon which the carpet is placed, clamps arranged at each end for holding the carpet, a long flexible cord connecting one of the clamps with the table, a long flexible cord connecting the other clamp with a windlass or take-up device, a railway arranged parallel to the front edge of the table, a traveling carriage upon the railway, a sewing-machine carried by the carriage for sewing the edge of the carpet, and power mechanism for operating 25 the sewing-machine.

16. In an apparatus for holding and sewing carpets, &c., the combination of a table upon which the carpet is stretched, clamps arranged at each end for holding the carpet, 30 a long flexible cord connecting one of the clamps with the table, a long flexible cord connecting the other clamp with a windlass or take-up device, a railway arranged parallel to the front edge of the table, a traveling car-

riage upon the railway, a sewing-machine carried by the carriage for sewing the edge of the carpet, power mechanism for operating the sewing-machine, and means, substantially as set forth, moving with the sewing-machine for crowding the carpet laterally toward the sewing-machine. 40

17. In an apparatus for holding and sewing long lengths of fabric, the combination of means for supporting the fabric, consisting of a horizontal or substantially horizontal support provided with legs extending to the floor, a railway arranged at a distance above the floor and supported directly by the fabric-support and close to the same and projecting laterally therefrom, whereby the railway shall 50 not project materially from the fabric-support, a carriage sustained upon said railway and having a laterally-projecting bracket provided with wheels running upon said railway, whereby it is adapted to travel parallel to the edge of the fabric-support, a sewing-machine supported by the carriage to one side of the railway, an electric motor supported by the carriage and mechanically connected to operate the sewing-machine, and a 55 source of electrical energy for operating the said electric motor. 60

In testimony of which invention I have hereunto set my hand.

R. M. HUNTER.

Witnesses:

ERNEST HOWARD HUNTER,
MAURICE H. HOLMES.