(No Model.) 2 Sheets—Sheet 1.

F. AMES.

SEWING MACHINE ATTACHMENT FOR SEWING CARPETS.

No. 551,200. Patented Dec. 10, 1895.

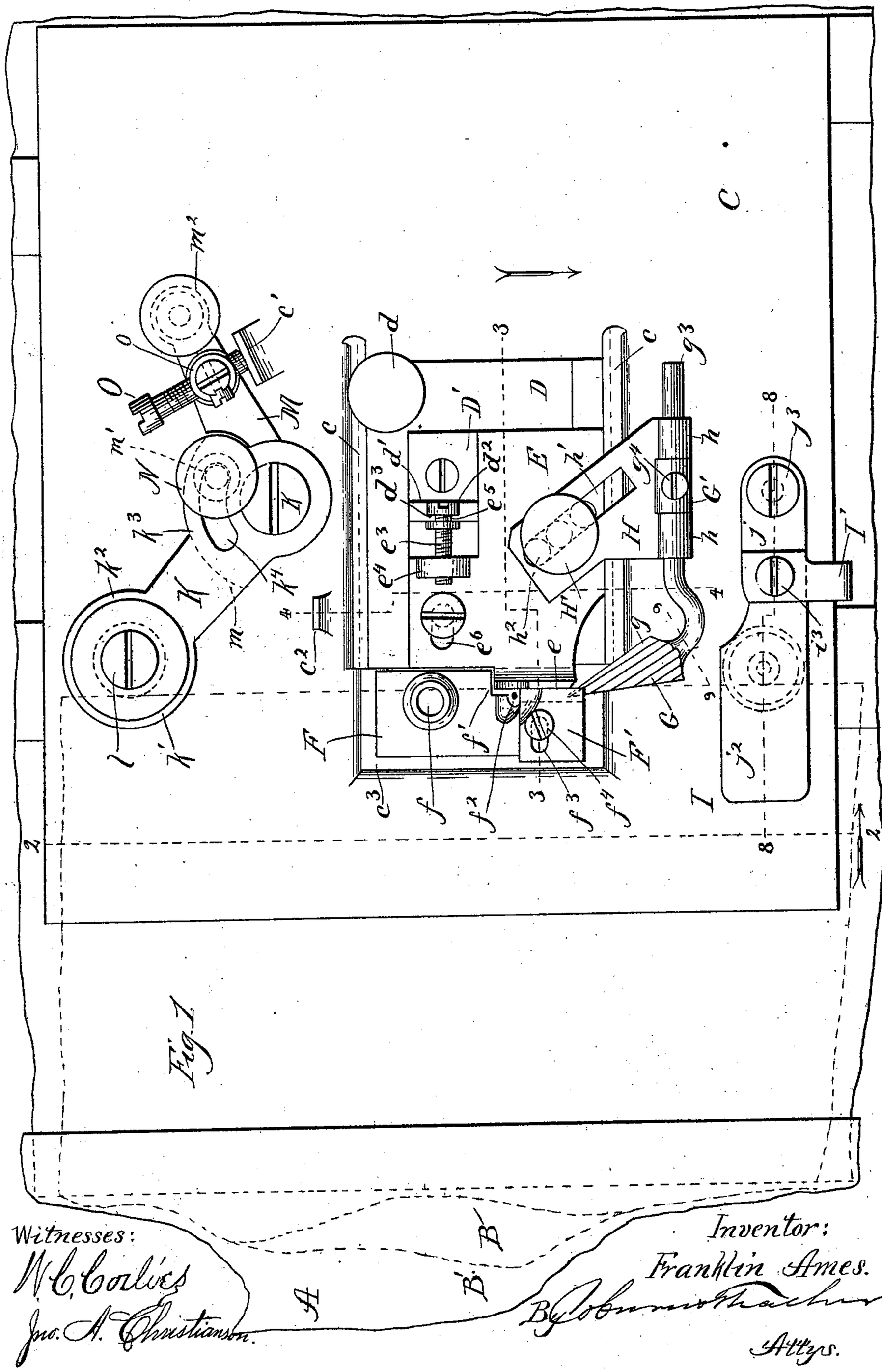

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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SEWING MACHINE ATTACHMENT FOR SEWING CARPETS.

No. 551,200. Patented Dec. 10, 1895.

Fig. 2.

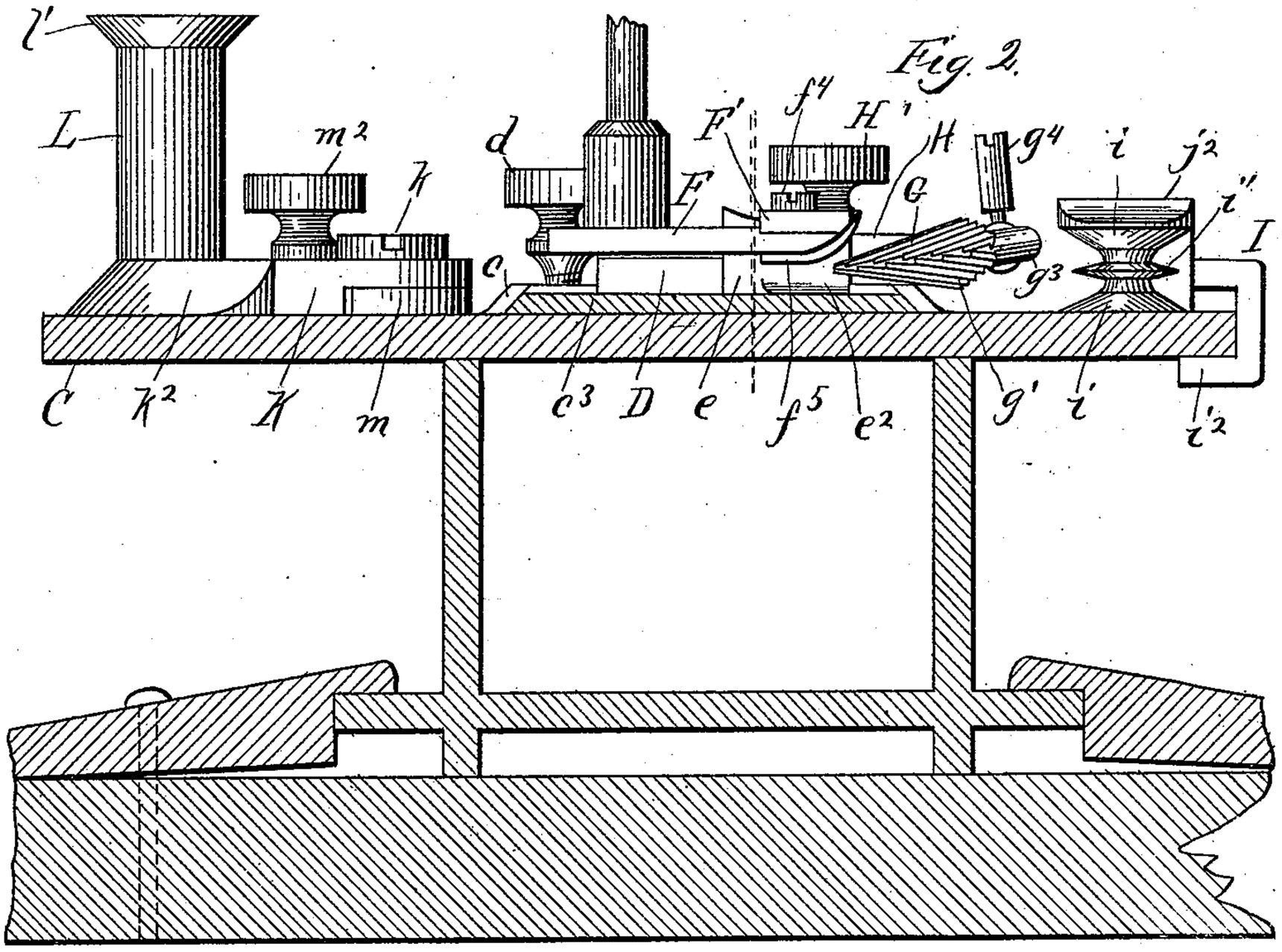


Fig. 3.

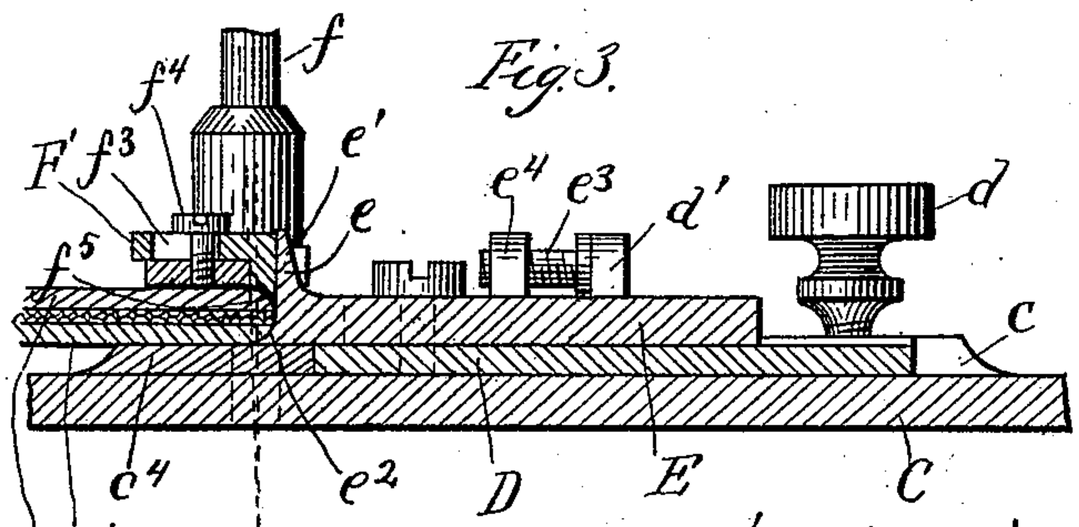


Fig. 4.

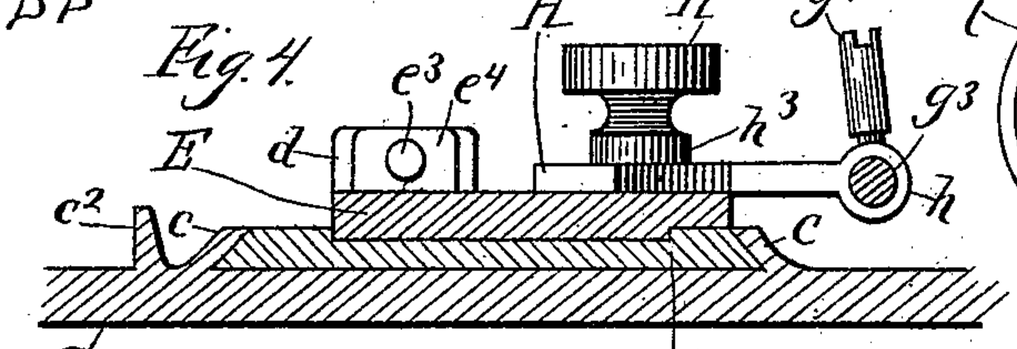


Fig. 5.

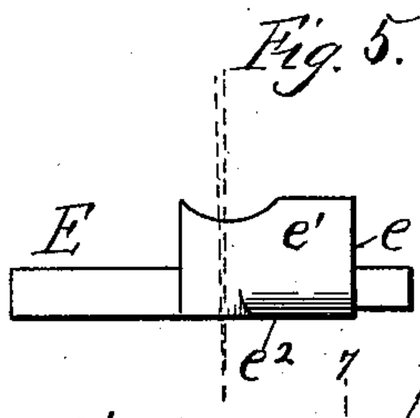


Fig. 6.

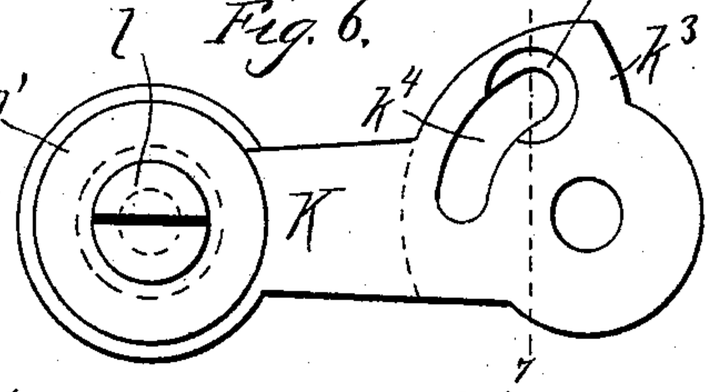


Fig. 7.

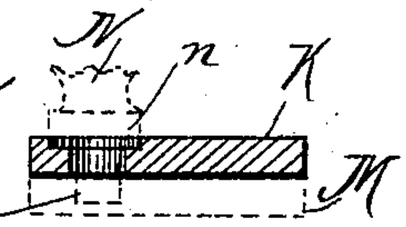


Fig. 8.

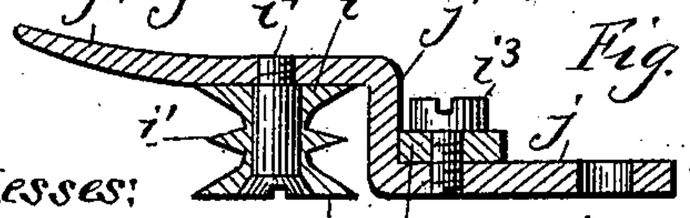
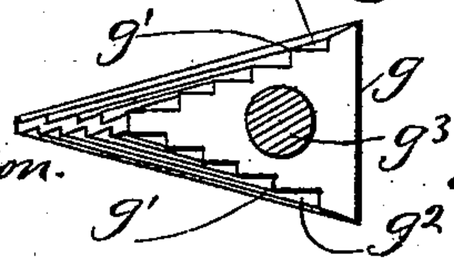


Fig. 9.



Witnesses:
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Jno. A. Christianson.

Inventor:
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UNITED STATES PATENT OFFICE.

FRANKLIN AMES, OF CHICAGO, ILLINOIS.

SEWING-MACHINE ATTACHMENT FOR SEWING CARPETS.

SPECIFICATION forming part of Letters Patent No. 551,200, dated December 10, 1895.

Application filed May 22, 1893. Serial No. 475,079. (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 certain new and useful Improvements in Sewing-Machine Attachments for Sewing Carpets, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a plan view of a sewing-machine carriage and bed-plate of the sewing-machine with the attachments constituting my invention; Fig. 2, a section of the same taken on the line 2 2 of Fig. 1, looking in the direction of the arrow; Fig. 3, a detail section taken on the line 3 3 of Fig. 1; Fig. 4, a similar section taken on the line 4 4 of Fig. 1; Fig. 5, a front elevation of the gage-plate; Fig. 6, a detail plan of the guide for the carpet edges; Fig. 7, a detail section on the line 7 7 of Fig. 6; Fig. 8 a detail section on the line 8 8 of Fig. 1, and Fig. 9 a rear elevation of the pile or nap displacer detached, with its shank in section on the line 9 9 of Fig. 1.

In the drawings all of the figures are upon one scale with the exception of Fig. 9, which is upon a scale by itself enlarged from that of the others.

My present invention relates in a general way to carpet-sewing machines, and more particularly to devices on the sewing-machine itself for evening the carpet edges, forcing back the nap or pile out of the way of the needle, holding the carpet edges firmly together at the point of stitching, and moving the stitched carpet edges away from the needle on the return travel of the machine.

The present invention is an improvement upon certain parts of the machine shown in my prior Letters Patent, No. 464,211, dated December 1, 1891, which are designed for similar purposes set forth in the said patent.

The general mechanism for sewing carpets, to which my invention relates, is of the type shown in my above-mentioned patent and my prior patent, No. 454,404, dated June 16, 1891, in which a long table is employed on which the carpet-lengths are stretched, and the sewing-machine is mounted upon a carriage that travels back and forth along a track at one side of the table. In the present instance it will not be necessary to show and describe in detail these main parts of the apparatus, and they will only be referred to in a general way, as may be required, in describing the construction and operation of the improvements which are the subject-matter of the present invention.

In the drawings, A represents the table upon which the carpet is stretched preparatory to sewing, the two lengths of the carpet B B′ being shown in the drawings, one imposed upon the other.

The machine is mounted upon a traveling carriage, as in my said former patents, and C represents the bed of the sewing-machine thus mounted. On this bed there is mounted a sliding plate D, which is arranged between guideways *c* on the bed-plate and is adjustable on the latter, being secured in any position of adjustment by a screw *d*, and a narrow strip c^3 is fastened to the bed C, running along the front end of the plate D and of the same thickness. A gage-plate E is mounted on this plate D and arranged to slide back and forth lengthwise thereof. At its front end it carries the gage *e*, which is provided with an upright face *e′*, at the lower edge of which is a slightly-projecting horizontal lip e^2, as seen in Figs. 3 and 5. This plate is adjusted in and out by means of an adjusting-screw e^3, which fits a threaded lug e^4 on the plate, and is provided with a groove e^5 in its head, which is seated and held in a small stop-plate D′, fixed on the slide D in the rear of the said lug. This stop-plate has a short upright flange *d′*, in which is cut a vertical recess d^2, with lips d^3 projecting slightly inward from each wall and arranged to fit into the groove in the head of the adjusting-screw, as seen in Fig. 1. The said screw will thus be held from longitudinal movement, and by turning it the gage-plate may be adjusted in and out. This gage-plate must be held firmly in any position to which it isadjusted, as the upright wall of the gage at the front end thereof determines the position of the carpet edges, and therefore must be immovable in order to secure an unchangeable relation of the carpet edges to the needle, which reciprocates at the side of the gage just in rear of the bottom lip thereon, as indicated in Figs. 2 and 5. The gage projects

out a little beyond the front edge proper of the plate E and overhangs the front edge of the slide D, as seen in Fig. 1. As a further device for securing the gage-plate firmly in position on the sliding plate D, the former is provided with a slot e^6 at one corner in front of the adjusting-screw, in which is fitted a binding-screw, which is received by a threaded aperture in the plate D below. The opening e^6 is elongated slightly to provide for the required adjustment of the gage-plate, and when the latter is adjusted to the position required the binding-screw is turned down sharply upon the upper plate and holds it firmly in position. The presser-foot F is carried by a bar f, to which it is attached as usual, the latter being in rear of the gage. The presser-foot is adapted to the front edge of the gage-plate and gage, by the side of which it is intended to move, and for this purpose the inner edge is cut out at the forward end of the foot, providing a kind of notch f', which fits around the gage, as seen in Fig. 1. At the inner edge of this front portion of the foot there is also a shallow groove or notch f^2 for the accommodation of the needle. A toe-piece F′ is secured to the forward end of the presser-foot by means of a slot f^3 in the toe-piece and binding-screw f^4, the slot running transversely of the presser-foot, so that the toe-piece may be adjusted laterally thereon. This toe-piece is beveled on the under side at the outer end thereof to correspond with the usual form of the presser-foot and provide a flaring mouth or opening for the fabric to pass in between it and the bed-strip c^3 below. This toe-piece is also provided at its inner edge with a slight flange or lip f^5, depending vertically therefrom, as seen in Fig. 2, and the toe-piece is intended to be adjusted on the presser-foot, so that its inner edge will fit closely against the gage, as seen at Fig. 3, thereby providing a space for the reception of the carpet fabric between the toe-piece and bed-strip, the edges of the carpet being received between the two lips e^2 and f^5, which are slightly curved. With this construction the carpet fabric passes in freely between the presser-foot and bed-plate, and is securely fixed when the presser-foot is brought down, which movement also presses the extreme edges between the two lips mentioned, thereby accurately fixing the said edges in proper position for successful sewing, as seen in Fig. 3. The toe-piece being mounted on the presser-foot, of course has a vertical movement therewith which facilitates the entrance of the fabric underneath the same, and this piece being movable transversely of the presser-foot, it may be adjusted always to correspond with the adjustment of the gage-plate, so as always to work in contact with the gage, as described.

I have also improved the device for pushing back the nap or pile between the matched edges of the carpet in front of the sewing devices. In my prior patent, No. 464,211, this device is a smooth cone. I have changed the form of this device by making the head G in such a way as to give a kind of wedge shape to that portion entering in between the edges of the carpet. This I effect by giving the head such form that, taking the back thereof as a base, a cross-section at right angles thereto anywhere along the length of the head will be an isosceles triangle, an illustration of which is seen in Fig. 9, in which the back g of the head is taken as the base. The two sides g' of this head gradually decrease in width from the shank, to which it is attached, to the front end thereof, which terminates in a point, as seen in Figs. 1 and 2, the taper to produce this result, however, being all on the edge of the head opposite to the back, which is made perfectly straight. Each of these side faces is also stepped, the steps g^2 being parallel with the back of the head, thus giving these two sides of the head a kind of corrugation. This head is provided with a shank g^3, on one end of which it is formed, the shank being bent so that the head stands at a slightly-obtuse angle thereto, as seen in Fig. 1. The outer portion of the shank is mounted in bearings on a plate H, the bearings h being at the outer edge thereof and the shank passing directly through them and freely turning therein. The shank is secured against longitudinal movement in its bearings by means of a loose sleeve G′, arranged between the two bearing-lugs h, and secured to the shank, when the latter is properly adjusted by means of a binding-screw g^4, passing through the sleeve and setting on the shank. This prevents the latter from sliding lengthwise in its bearings, but at the same time leaves it free to turn therein. The shank-plate H is set on the gage-plate in such position that the bearings of the shank will stand at right angles to the line of the stretched carpet edges, and as the head stands out therefrom at an obtuse angle when properly adjusted the wedge-shaped point of the head will enter between the matched carpet edges just in front of the gage, as seen in Fig. 1, and will thus press back the nap or pile of the carpet between the two widths of the latter right in front of the gage and presser-foot where the edges are properly clamped and formed for stitching, as explained above. The stepped or corrugated surfaces of this wedge-shaped head serve to increase the efficiency of the device in pushing back the carpet pile, these ridges lying at an angle to the carpet edges, as seen in Fig. 1. It is desirable to have this head adjustable to and from the carpet edges, so that the wedge-shaped edge thereof may be entered between the carpet edges more or less, as required by the difference in the fabric. If the pile is light this entrance is slight, but if heavy the edge should be entered further in order to effectually do its work. The required adjustment of the head for this purpose is provided for by means of the sleeve and binding-screw above mentioned,

for it is obvious that by loosening said screw the shank of the head may be set back and forth in its bearings at any point desired, which movement adjusts the head with reference to the carpet edges. It is also desirable to provide for the adjustment of the head in line with the carpet edges, so as to secure its proper position with reference to the gage-entrance opening for the carpet provided by the gage and presser-foot. As shown in the drawings, this adjustment is effected by attaching the plate H to the gage-plate, so that it may be adjusted thereon, which is effected by providing a long slot h' in the former which receives lugs h^2 on the gage-plate, and the former is secured to the latter by a binding-screw H', which is set through the slot between the lugs into the gage-plate and is provided with a collar h^3, which is set down upon the plate H, securing the latter in any position to which it may be adjusted. Obviously by adjusting the head-plate H inward and outward upon the gage-plate the head will be correspondingly adjusted with reference to the gage and presser-foot. This alone would be effected by arranging the slot in the head-plate parallel with the face of the gage; but in order to effect at the same time an adjustment of the head with reference to the carpet edges I prefer to make the slot inclined with reference to the head-shank in its bearings, as seen in Fig. 1. Obviously with this construction the adjustment of the head-plate will not only adjust the head with reference to the entrance opening for the carpet, but also with reference to the carpet edges, this latter adjustment being in nature like that obtained by the longitudinal adjustment of the head-shank. By these devices the head may be adjusted with great nicety for the performance of efficient work with carpeting of various kinds. As the shank of the head is free to turn in its bearings, the latter may be thrown back out of the way whenever desired—for instance, in running the machine back after sewing two widths together or in adjusting the machine to its required work. It is also important that the edges of the carpet widths be brought to the machine evenly adjusted, so that they exactly overlap each other. To effect this I provide what may be called an "evener-gage" I, which is mounted on the bed C in front of the head G, as seen in Fig. 1. This evening device is a kind of small drum or wheel, the ends i of which are enlarged and beveled on the inside toward the center, while at the latter there is provided an annular flange i, the faces of which are beveled so as to give the said flange a wedge shape, as seen in Fig. 8. This gage is mounted on a supporting-arm J, which is constructed with a base or foot portion j, an upright section j' at one end of the latter, and a second horizontal section j^2 extending outward from the upper end of the latter, as seen in Fig. 8. This supporting-arm is fastened to the bed by means of its foot, and in such position that the free end thereof, which is the elevated section j^2, extends outward beyond the edge of the bed and directly over the carpet-widths on the table A, as seen in Fig. 1. The arm may be secured to the bed in any suitable way. In the drawings the fastening device is shown as a screw j^3 passing down into the bed, and the arm is held from turning on this pivot connection when in operation by a clip I', which is provided at its outer end with an angular hook i^2, adapted to engage the forward edge of the bed, as seen in Fig. 2, while its inner end is passed over the foot of the arm and secured thereto by a screw i^3. The gage is secured to the overhanging end of the supporting-arm by means of a journal-screw i^4, which is passed through the gage and into the under side of the arm, so that the gage depends therefrom, as seen in Fig. 8. The gage is free to turn on this journal-pin as a bearing. This evener-gage and its support are constructed and locked on the machine so that the circumference of the gage-drum will be just on the line required for the carpet edges in proper sewing, and in this position the central flange of the gage enters in between the two widths of carpet and the edges of the latter are brought respectively between this central flange and the respective ends or heads of the gage-drum. As the sewing-machine travels along, this gage-drum rotates by contact with the carpet edges, and there is just enough pressure against the latter to bring them both into contact with the gage, and thus place them accurately in line with each other in the adjustment required for sewing.

The gage-support is free to turn on its fastening-pivot except for the hooked clip. As the sewing-machine at work moves forward in the direction shown by the arrows in Fig. 1, the tendency of contact between the gage and carpet edges will, of course, be to swing the said support inward toward the needle. The hooked clip prevents this and holds the gage in proper adjustment; but, on the reverse movement of the machine, there is nothing to prevent the outward swinging of the gage-support, and this movement relieves the gage from unnecessary contact with the carpet after stitching.

As stated in my aforesaid prior patent, No. 464,211, it is found desirable to provide a kind of offsetting device which will act on the reverse or return travel of the sewing-machine to offset the sewed edges of the carpet sufficiently to hold them away from engagement with the needle or feed devices of the sewing-machine and so avoid any injury to the latter. This device, which may be called an "offsetting-gage," I have also improved. For this offsetting device I provide an arm K, which is pivoted at one end to the bed C in rear of the sewing devices by means of a screw-pin k. This arm is extended inward toward the carpet-table, and at its free end is provided with an enlarged head k', beveled

on its upper edge so as to present a circular bevel face k^2. A long roller L is mounted on the free end of this arm by means of a pivot-screw l passing down through the roller into the arm. The roller is provided with an enlarged head l', preferably beveled on its under side, as seen in Fig. 2. This arm is intended to be swung out, so as to bring the roller into contact with the carpet edges. On the forward movement of the machine, during the operation of sewing, it is obvious that this contact will have a tendency to swing the arm outward away from the carpet, and so the device will have no effect in the direction of displacing the carpet edges; but on the reverse movement of the sewing-machine; the contact with the carpet edge will have a tendency to turn the arm inward toward the sewing devices, which will result in offsetting or forcing outward the sewed edges of the carpet as the arm turns, and thus carry them away from the needle and feed devices sufficiently to prevent any contact of the stitched carpet-seam therewith. The friction of the stitched edges against the offsetting device is, of course, relieved by the roller, against which the edges will be carried by the bevel on the head at the end of the arm, as seen in Fig. 1. In order to provide for the ready manipulation of this offsetting-arm, I provide a second arm M, which is mounted on the same pivot as the former. For working adjustment these two arms are connected together rigidly, so as to make a kind of bell-crank lever, as seen in Fig. 1. The device by which they are thus fastened, as shown in the drawings, is as follows: The arm K is provided with a segmental enlargement k^3, in which is cut a segmental slot k^4, struck from the axis of the pivot-pin as a center. The arm M is provided with a similar segmental enlargement m, which is fitted underneath the projection k^3, and a binding-screw N is passed down through the slot into a threaded aperture m'. The screw is provided with a collar n, which is turned down hard upon the arm K for the purpose of fastening the two together; but I have found it practically impossible in the operation of this device to bind the two arms immovably together by setting the binding-screw upon the plain surface of the arm, and it is necessary that this connection should be absolutely rigid, as the operation of the device depends upon the fixity of adjustment. To make this fastening rigid, therefore, I provide a slight countersink k^5 in the upper surface of the arm K at the outer end of the slot k^4, which is adapted to just receive the binding-collar n on the screw N with a close fit, as seen in Fig. 7. When this binding-screw is turned down to fasten the two arms together, the collar sets into this countersink, as seen in Fig. 7, and so there can be no possible slipping and the two parts are rigidly connected. The arm M is provided at its outer end with a raised button m^2, by means of which the device is swung on its pivot readily by hand. This arm M also provides the means for limiting the outward throw of the offsetting device, which is effected by a stop c', raised on the bed C. A screw-pin O is set horizontally in a short post o, rising from the arm M, and serves as a stop-pin which arrests the outward swing of the offset by striking the stop c', as seen in Fig. 1. This screw being adjustable, the outward throw of the said device may be regulated in degree. A similar stop c^2 is provided on the bed C, just in rear of the sliding plate D, as seen in Fig. 1. This stop is placed in the path of the arm K on its inward swing against the carpet and is intended to limit this movement of the said arm at the point of its greatest outward throw, which, of course, is when the arm is perpendicular to the line of travel of the machine. The stop for the other arm M is intended to prevent the outward swing of the offsetting device farther than necessary to relieve friction with the carpet edges.

It will be seen from the description that provision is made for disconnecting the two arms of the device. This is done because the device is only useful in sewing the straight edges of carpet-lengths together. When the apparatus is used for some other purpose—such, for instance, as sewing miters or corners—it is desirable to move this device out of the way, which is effected by turning up the binding-screw when the two arms are detached and then throwing the roller-arm K back where it will not interfere with other devices. With these improvements, which I have put in actual practice, the practical work of the apparatus in sewing carpets is materially benefited, both in the quality of the work done and the facility with which it is accomplished. The advance evener-gage brings the edges of the carpet perfectly in line, so that they are evenly laid as they enter the sewing-machine, and consequently there is no irregularity in the seam, which would make it unseemly in appearance and not uniform in strength. The nap or pile regulator, which next comes into action on the carpet edges in its improved form, is greatly increased in efficiency and certainty of operation. In the construction shown this device is unfailing in laying the nap back within the edges, whatever be the quality of the carpet, so that all danger is removed of a ragged seam caused by bunches of the nap protruding at different points from the matched edges of the carpet-widths, and the two means for adjusting this device provide for quickly and easily regulating its position with great nicety to suit all kinds of carpet. The construction whereby the entrance-passage for the fabric to the sewing devices is formed by a stationary member—the bed-strip—and a movable member—the presser-foot—is an important improvement. The presser-foot is always brought down firmly upon the fabric, and as it is always yielding it accommodates itself to dif-

ferent thicknesses of the fabric, so that the carpet edges will be pressed firmly together and formed to make a satisfactory seam, whatever may be the nature and thickness of the carpeting, and will be firmly held in this position while the stitch is made. Furthermore, these edge-forming devices are brought nearer to the needle by this improvement than is the case with the device called a "toe-piece" in my said prior patent, No. 464,211, so that there is no possibility of any derangement of the edges thus formed in the entrance-mouth of the machine between the forming devices and the needle at the point of stitching. It will be noticed that the path of the needle is immediately back of the toe-piece on the presser-foot. The offsetting device for throwing the seam out of contact with the needle and other parts of the machine upon the reverse travel thereof in its improved form is also advantageous to the operation of the machine. It is left free to swing on its pivot, is fixed in its operation and limited in throw, aud by its construction in two parts, as described, is easily moved out of the way when not required for use.

In using stretching-clamps of the type set forth in my Patent No. 464,211, of December 1, 1891, in which, as described in said patent, the front edges of the carpet-widths will be curved out slightly, the pressure of the edges against the gage will sometimes be so great as to heat the devices by friction. This is especially likely to occur in case of stiff heavy carpeting stretched very taut. The heating is, of course, objectionable and may be raised to a point where it will actually interfere with the working of the needle. The gage-pin O provides for obviating this effect. As explained, this pin determines the throw of the offsetting-gage in connection with the stop c', against which it acts. In case of objectionable friction, occasioned as stated above, this pin is turned up a little so as to press the offset against the carpet edges sufficiently to set them back a little and so relieve their pressure against the seam-forming devices. Care must be taken, however, not to carry this offset so far as to prevent the proper formation of the edges for the seam. It is intended that these edges shall be carried into the seam-forming devices with sufficient pressure to bring the edges tightly together and curve them over toward each other between the two curved lips, as seen in Fig. 3, in which position they completely shut in the pile which has been thrown back by the angular head, as described. This action is illustrated by Fig. 3 of the drawings, and it is obvious that to form the carpet edges as there illustrated will require some pressure. The offsetting-gage must, therefore, be adjusted to regulate this pressure, but not to entirely remove it.

In actual details of construction some changes may be made in the specific devices herein shown and described, and such changes I contemplate in the application of my invention to different machines, provided the operation and results herein set forth are still retained.

Having thus described my invention, what I believe to be new, and wish to secure by Letters Patent, is—

1. In an apparatus for sewing carpets, a table on which the carpet lengths are stretched, in combination with a sewing machine mounted on a traveling support, the supporting arm, J, fastened at one end to the bed of the machine and with its free end projecting outward and extending some distance over the carpet widths on the table, and the evener drum having beveled ends, i, and central annular flange, i', and mounted on a journal depending from said projecting arm, substantially as described.

2. In an apparatus for sewing carpets, a table upon which the carpet lengths are stretched, in combination with the bed, C, of the sewing machine mounted on a traveling support, the arm, J, pivoted at one end to the bed, C, and at its outer end provided with an elevated section, j^2, extending over the carpet widths on the table, the evener gage, I, pivotally mounted on said extended arm, and the hooked clip, I', secured to the said supporting arm and adapted to hook over the front edge of the bed, C, substantially as described.

3. In an apparatus for sewing carpets, a head for pushing back the nap, having sides sloping from back to an edge extending from the shank end to the point, said sides also decreasing in width from the shank end to point, and having the side faces stepped, substantially as described.

4. In an apparatus for sewing carpets, a table on which the carpet lengths are stretched, in combination with a sewing machine mounted on a traveling support, a tapering head adapted to be entered between the edges of the carpet to lay back the pile, and a support whereby the said head is carried, and means for adjustment of said head, by one movement without changing the angle of the head both to and from the carpet edges, and to and from the entrance passage to the sewing devices in the direction of the travel of the machine, substantially as described.

5. In an apparatus for sewing carpets, the gage plate, E, provided with lugs, h^2, arranged at an angle to the line of travel of the machine, in combination with the plate, H, provided with inclined slot, h', adapted to receive said lugs, the binding screw, H', the pile laying head, G, provided with shank, g^3, mounted in bearings at right angles to the line of travel of the machine, and fastening devices whereby said shank may be adjusted lengthwise in its bearings and secured at any point of adjustment, substantially as described.

6. In an apparatus for sewing carpets, the

gage plate, E, carrying the gage, *e*, having an upright face, *e'*, and a horizontal lip, e^2, at the bottom thereof, the presser foot, F, and the toe-piece, F', mounted on the front end of the presser foot, and provided with a depending lip, f^5, adapted to move in contact with the upright face of the gage plate, substantially as described.

7. In an apparatus for sewing carpets, the adjustable gage plate, E, carrying the gage, *e*, having upright face, *e'*, and bottom horizontal lip, e^2, in combination with the presser foot, F, toe-piece, F', mounted on the front end of the presser foot and provided with depending lip, f^5, and devices for fastening the toe-piece to the presser foot, which also permit the former to be adjusted laterally on the said presser foot, substantially as described.

8. In an apparatus for sewing carpets, the offsetting support consisting of the swinging arm, K, pivoted in rear of the sewing machine and provided with the segmental slot, k^4, in combination with the arm, M, mounted on the same pivot, the binding screw, N, whereby the two arms may be coupled or uncoupled, an offsetting head, L, on the end of the arm, K, and limiting stops, c', c^2, substantially as described.

9. In an apparatus for sewing carpets, the offsetting support consisting of the arm, K, pivoted in rear of the sewing machine and provided with segmental slot, k^4, having a counter-sink, k^5, at its outer end, in combination with the arm, M, mounted on the same pivot, the binding screw, N, provided with collar, *n*, adapted to fit the counter-sink in the arm, K, and an offsetting roller, L, mounted on the outer end of the arm, K, substantially as described.

10. In an apparatus for sewing carpets, the arms, K and M, concentrically pivoted at the rear of the sewing machine, in combination with devices whereby the said arms may be coupled or uncoupled, an offsetting roller, L, mounted at the outer end of the arm, K, a contact screw, O, adjustably mounted on the arm, M, and the stops, c', c^2, substantially as described.

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Witnesses:
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