

(No Model.)

3 Sheets—Sheet 1.

F. W. MERRICK.

THREAD CARRIER MECHANISM FOR SEWING MACHINES.

No. 490,856.

Patented Jan. 31, 1893.

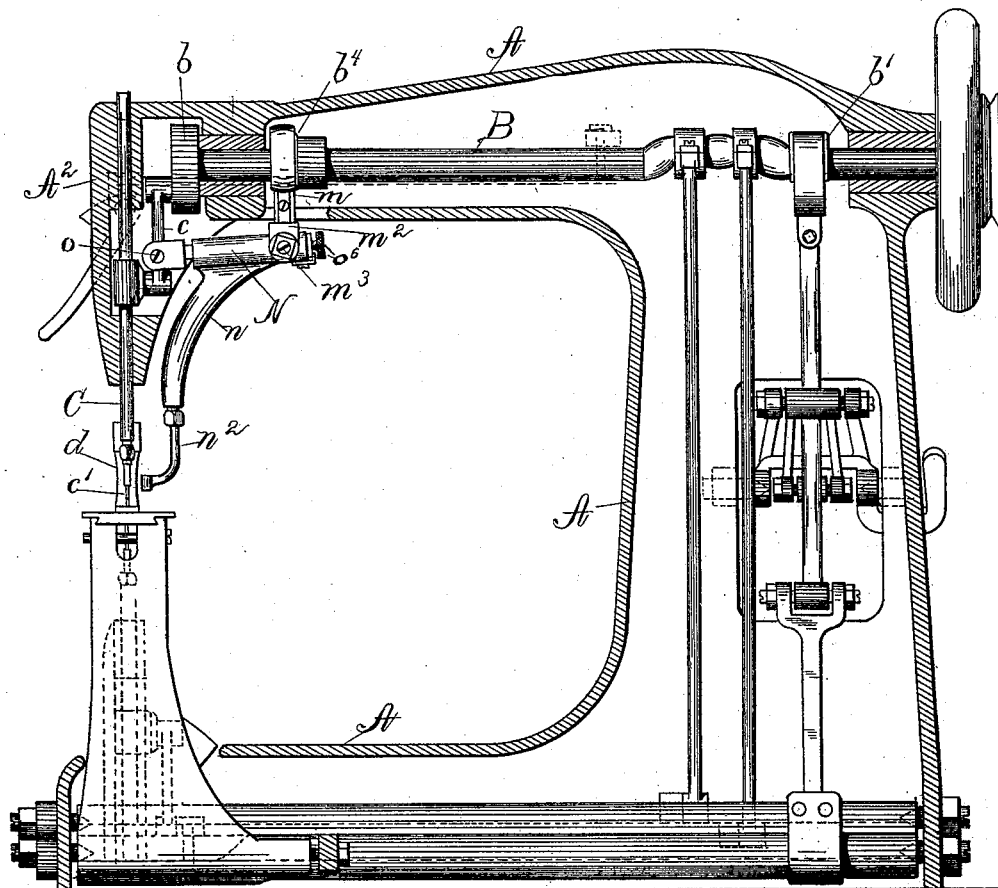


FIG. 1.

WITNESSES—

Arthur F. Raudall,
Robert Wallace.

INVENTOR

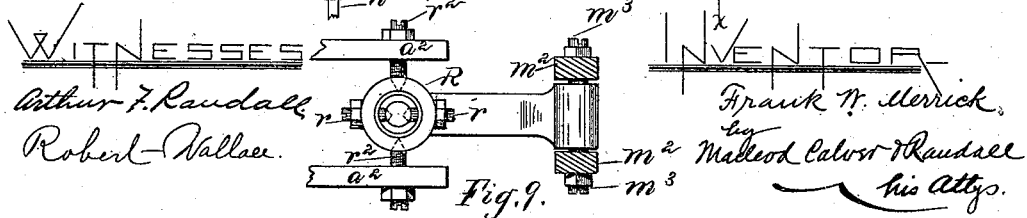
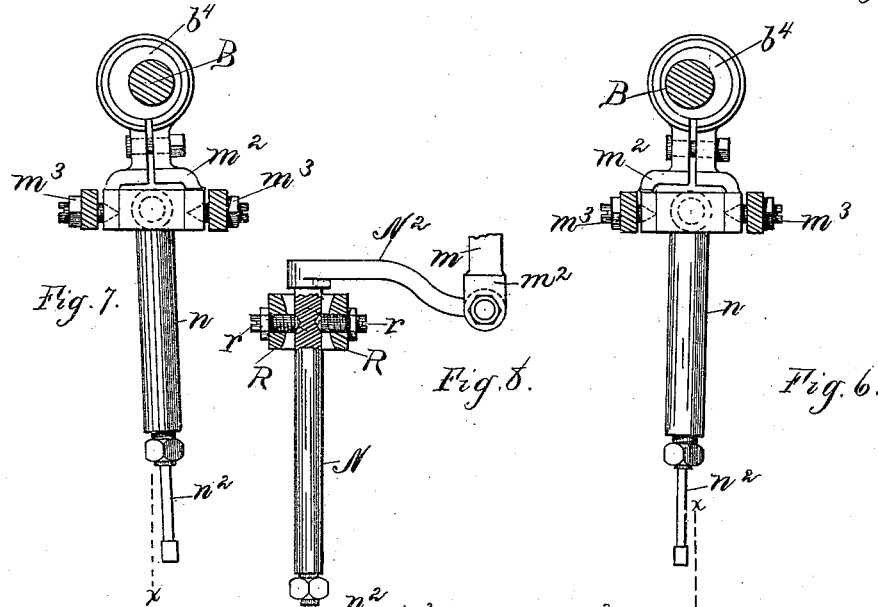
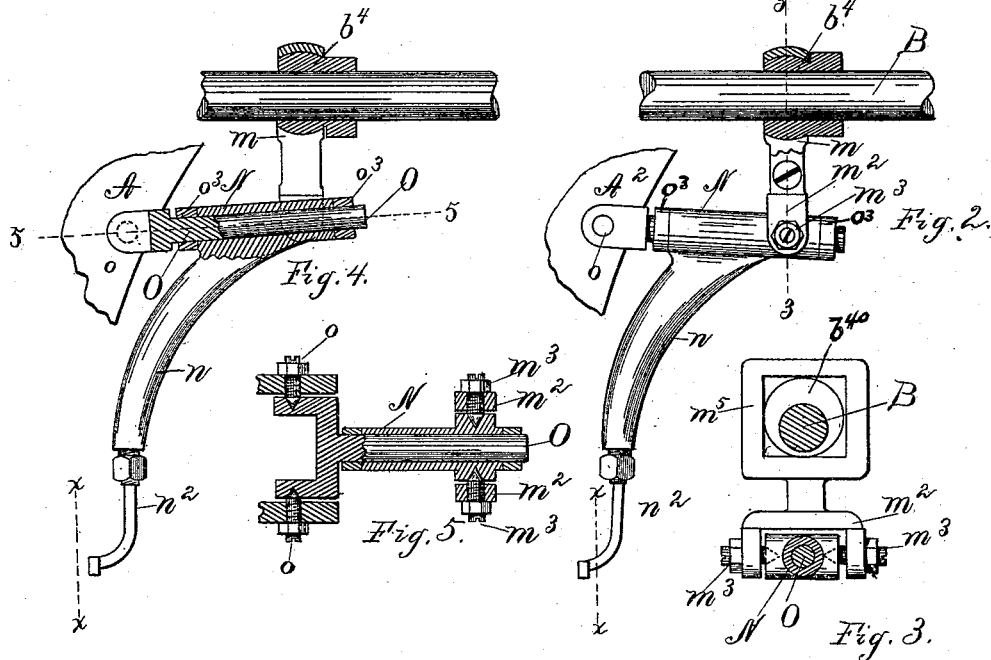
Frank W. Merrick.
By Macrod Calver Raudall,
his Atty.

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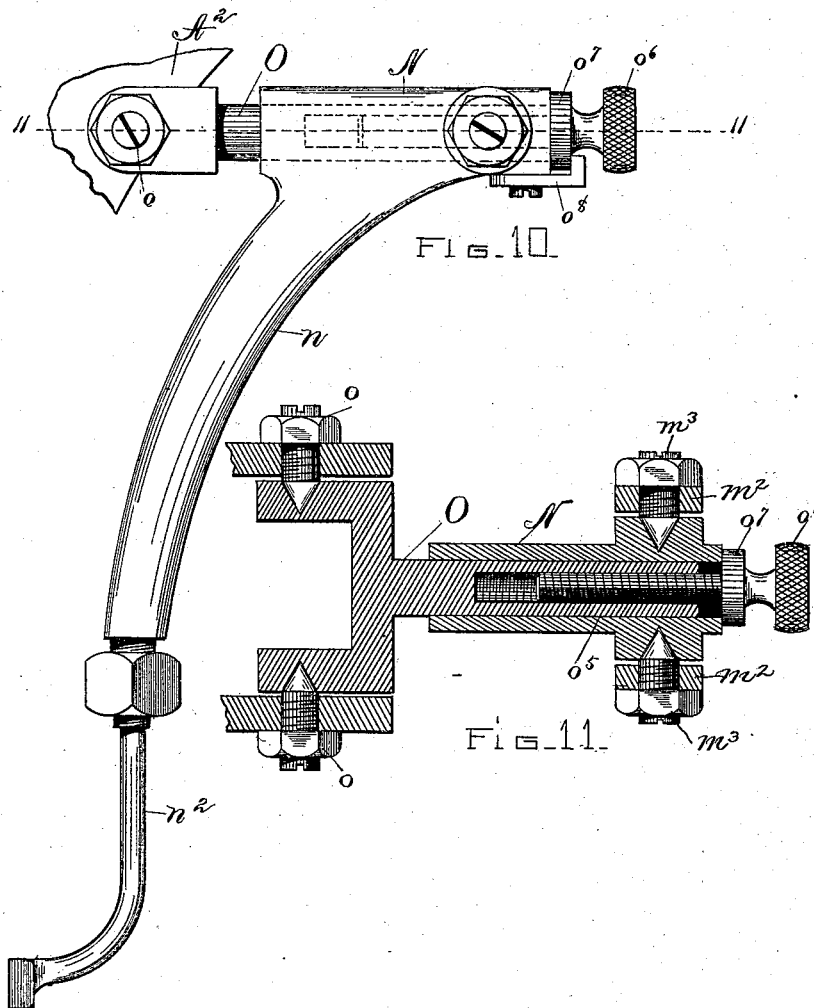
3 Sheets—Sheet 3.

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Arthur F. Raudall
Robert Wallace

INVENTOR
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UNITED STATES PATENT OFFICE.

FRANK W. MERRICK, OF BOSTON, MASSACHUSETTS.

THREAD-CARRIER MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 490,856, dated January 31, 1893.

Application filed March 7, 1892. Serial No. 424,015. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. MERRICK, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Thread-Carrier Mechanism for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object to provide a thread carrier mechanism for sewing machines which will be strong and positive in operation and capable of accurate and speedy adjustment and adapted for machines capable of running at a high rate of speed.

The particulars of my invention are set forth in the following specification and the novel features thereof are pointed out in the claims which are appended hereto.

In the accompanying drawings, Figure 1 is a side view of a sewing machine of that class employing barbed or hooked work-feeding needles, the frame work thereof being in section; and showing my invention applied to the machine. Fig. 2 is a front view of the thread carrier arm and connected mechanism. Fig. 3 is a section on line 3—3 Fig. 2, but showing instead of the eccentric a cam working in a yoke. Fig. 4 is a front view similar to that shown in Fig. 2 with the thread carrier arm partially in section and showing the parts in a different position. Fig. 5 is a section on line 5—5 Fig. 4. Figs. 6 and 7 are end views showing the parts in different positions. Figs. 8 and 9 are details showing a modification. Fig. 10 is an enlarged view of the thread carrier arm showing a modified form of adjustment. Fig. 11 is a section on line 11—11, Fig. 10.

A denotes the frame of the machine, in the upper part of which is journaled the driving shaft B having at its forward end a crank-disk b connected by a pitman c with the awl-bar C carrying the awl c' and reciprocating in the usual manner in the head A^2 , at the forward end of the arm forming a part of the frame of the machine, the presser bar carrying the presser foot d , being also supported by and vertically movable in the said head in the usual manner.

The driving shaft B carries near its rear end the feed operating cam b' by means of

which the feed mechanism is actuated. As this mechanism is the subject of my pending application for Letters Patent No. 404,354, filed August 31, 1891, and is not essential to this case and is not herein claimed I do not deem it necessary to describe it or the other parts of the machine at length, but shall confine myself in the following description to the mechanism which forms the subject of this application.

The shaft B is provided at its forward end with an eccentric b^4 having a convex surface and surrounded by a strap m provided at its lower end with a fork m^2 in the arms of which are tapped the screws m^3 engaging a rocking sleeve N provided with the depending arm n to the lower end of which is attached the thread carrier n^2 . Instead of the eccentric b^4 a cam b^{40} working in a yoke m^5 , as in Fig. 3, or a crank might be employed. The rocking sleeve N is mounted on a lever O pivoted on center screws o tapped in lugs projecting from the head A^2 .

From the foregoing it will be clear that as the eccentric b^4 is rotated with the shaft B the thread carrier at the lower end of the arm n will be moved from the position shown in Fig. 4 to that denoted by Fig. 2 and back again owing to the vertical throw of the said eccentric, and will also be moved from the position shown in Fig. 7 to that shown in Fig. 6 and back again owing to the lateral throw of the the said eccentric, which lateral throw causes the sleeve N to rock on the vertically vibrating lever O by which it is carried. Thus the lower end of the thread carrier will be caused to travel in a circular or elliptical path around the vertical path of the needle, which is denoted by dotted lines x Figs. 2, 4, 6 and 7, to lay the thread in the barb of the needle when the latter is projected up through the work. The thread carrier may be adjusted laterally to bring it to its proper position by variation of the center screws o on which the lever O is pivoted, and the rocking sleeve N will be adjusted on said lever O by varying the positions of the collars o^3 which are secured to said lever by suitable set screws and between which the said sleeve is held. See Figs. 2 and 4. It will be obvious that by moving the said sleeve nearer to the fulcrum of the lever the throw of the thread guide due to the vertical

movements of the said lever will be increased so that the horizontal path described by said carrier will be changed from one which is nearly or quite circular to one which is more or less elliptical, as may be desired, to get the best results according to the style of needle and kind of thread which may be in use or the class of work which is being done. To provide for a finer and more perfect adjustment of these parts, I prefer to construct them as shown in Figs. 1, 10, and 11. In this form of my invention a screw o^5 , provided with a head o^6 which may be seized and turned by the thumb and finger, is tapped into the lever O as shown. A shoulder o^7 on the said screw o^5 bears against the end of the sleeve N, see Fig. 11, and an arm o^8 is secured to the under side of the sleeve, the free end of said arm being bent upwardly at right angles so as to engage the outer face of the shoulder o^7 and prevent the screw from moving laterally relatively to the said sleeve N.

In the form of thread carrier mechanism shown in Figs. 8 and 9, the thread carrier n^2 is attached to the lower arm of a bell-crank lever N^2 pivoted on the screws r tapped in a sleeve or ring R which in turn is pivoted on the screws r^2 tapped in the lugs a^2 of the head A^2 , the outer end of the upper arm of the lever N being jointed to the lower forked end m^2 of the eccentric strap m so as to be operated from the eccentric b^4 in the same manner as the thread carrier hereinbefore described. In both forms of my improved thread carrier mechanism the parts by which the thread carrier is held and by which it is operated are pivoted in two different planes at right angles, or approximately so, to each other and are operated from a single eccentric or equivalent device of which both the lateral and vertical throws are utilized to move the thread carrier in such manner as to make the oper-

ative end thereof travel entirely around the vertical path of the needle.

What I claim is:—

1. In a sewing machine, the combination with a hooked or barbed needle and its operating mechanism, of a rotating shaft having an eccentric, a rocking sleeve with which said eccentric is connected, said sleeve having a depending arm, a thread carrier attached to said arm, and a pivoted lever on which said rocking sleeve is mounted; whereby both the vertical and horizontal throws of said eccentric will be utilized to move the operative part of said thread carrier around the vertical path of the needle, substantially as shown and described.

2. In a sewing machine, the combination with a hooked or barbed needle and its operating mechanism, of a rotating shaft, an eccentric thereon, a rocking sleeve connected with said eccentric, and having a depending arm, a thread carrier attached to said arm, a pivoted lever on which said sleeve is adjustably mounted and means for adjusting said lever laterally, substantially as shown and described.

3. In a sewing machine, the combination with a hooked or barbed needle and its operating mechanism, a thread carrier and its supporting arm, a support, as O, on which said arm is pivoted and an adjusting screw whereby the position of said arm longitudinally of said support and relative to the path of the needle may be varied, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK W. MERRICK.

Witnesses:

WM. A. MACLEOD,
ROBERT WALLACE.