(No Model.) 2 Sheets—Sheet 1.

F. W. MALLETT.

ATTACHMENT FOR SEWING MACHINES.

No. 393,252. Patented Nov. 20, 1888.

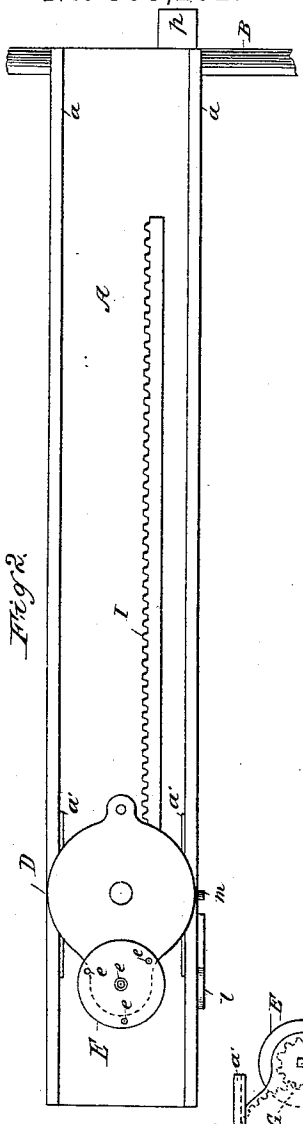

Fig. 2.

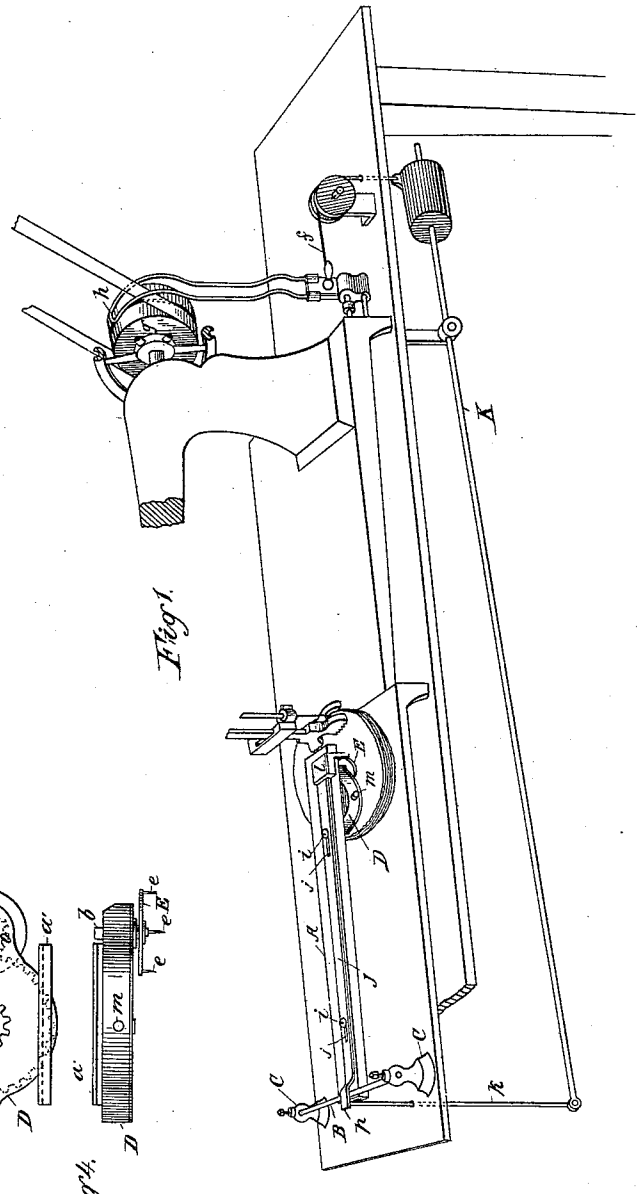

Fig. 1.

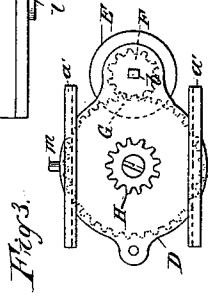

Fig. 3.

Fig. 4.

WITNESSES:

Charles Austin McMahon.

Patrick Henry Brown.

INVENTOR,

Francis W. Mallett,

BY

Augustus T. Gurlitz.

ATTORNEY.

(No Model.) 2 Sheets—Sheet 2.

F. W. MALLETT.

ATTACHMENT FOR SEWING MACHINES.

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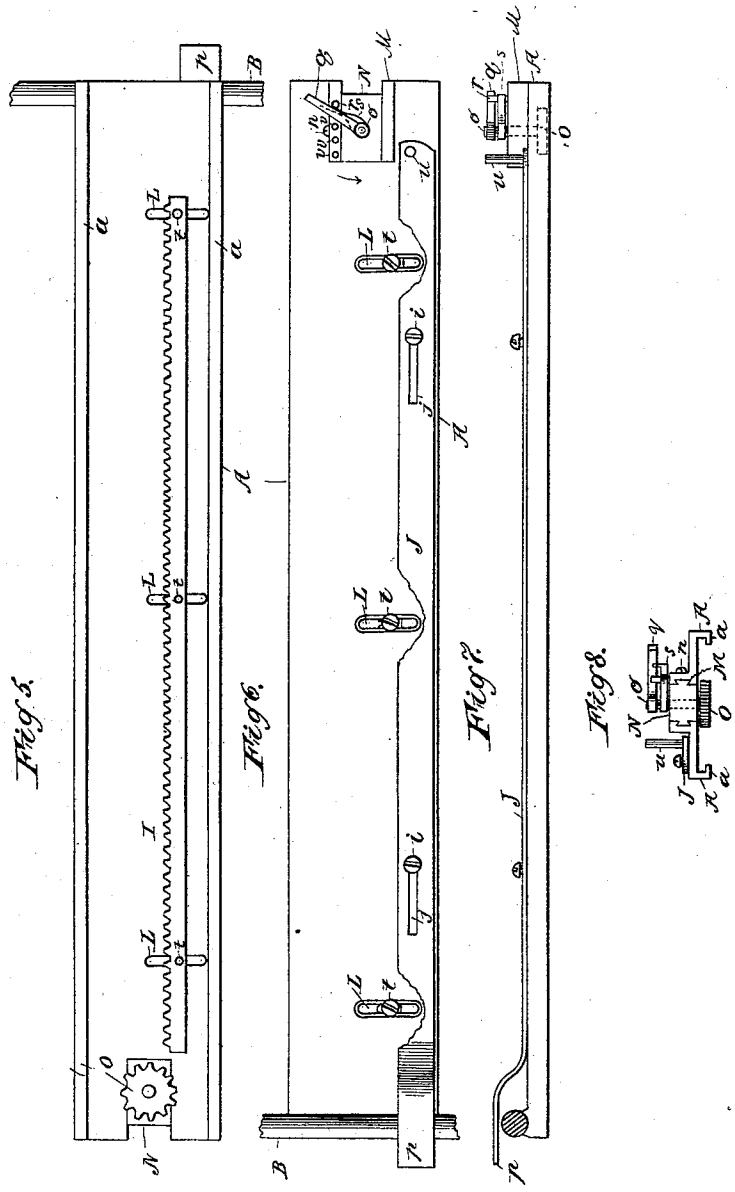

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

WITNESSES:
Charles Austin M. Mahony.
Patrick Henry Brown.

INVENTOR,
Francis W. Mallett.
BY
Augustus T. Gurlitz,
ATTORNEY.

UNITED STATES PATENT OFFICE.

FRANCIS W. MALLETT, OF NEW YORK, N. Y., ASSIGNOR TO THE ZUCKER & LEVETT CHEMICAL COMPANY, OF SAME PLACE.

ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 393,252, dated November 20, 1888.

Application filed May 8, 1888. Serial No. 273,167. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS W. MALLETT, of the city of New York, in the county and State of New York, have invented a certain new and useful Attachment for Sewing-Machines for Guiding Material to Receive the Seam in a Spiral Form; and I do hereby declare that the following is a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements whereby the material to be sewed may be fed to the needle in such a manner as to receive the seam in a regular spiral direction, and also to end the seam in a circle, if desired, and its nature is particularly set out in the claims herein presented.

In the drawings, Figure 1 is a perspective view of my invention adjusted to a sewing-machine. Fig. 2 is an enlarged view of the guideway A, the under side up to show the relation of the parts. Figs. 3 and 4 are detail views of the case D. Figs. 5, 6, 7, and 8 show an arrangement of parts by means of which the spiral seam is finished centrally in circular form.

Similar letters of reference indicate like parts.

My invention is intended to be employed with sewing-machines such as are well known and in common use, having a suitable presser-foot, needle, and feeder, and it comprises, essentially, a swinging or pivoted guideway, A, having a suitable shaft, B, attached to one end, by means of which it is hung or pivoted in bearings C C, so that its free end may be raised and lowered and pressed down upon the material to be sewed, as desired, and by means whereof it may be turned over out of the way when not in use. This guideway A is provided with suitable guides or rails, *a a*, which support and guide a traveling case, D, so that the same may move from end to end of the way A along the guides *a a*. The case D is provided with parts, as the recessed strips *a' a'*, to play into the guides *a a*, and it carries a plate, E, having two or more pins, *e e*, projecting therefrom, which are designed to pierce the material intended to be sewed and turn the same as it is fed into a spiral path.

The plate E is secured by a spindle, *b*, to a spur-wheel, F, arranged to revolve within the case D, and this spur-wheel F meshes into a larger spur-wheel, G, also arranged to revolve within the case D, so that when the plate E is revolved the spindle *b*, attached to it, will revolve the wheel F, and also the wheel G. The spindle of the wheel G projects out of the case D, and to it on the other side of the case another spur-wheel, H, is secured to revolve with it.

Arranged lengthwise of the guideway A a rack, I, is secured in such position that when the case D is inserted in and moved along the guides *a a* this rack I and the spur-wheel H will come into engagement.

The operation of this part of my invention is as follows: The guideway A, with the case D, having been arranged in a suitable position relative to the sewing-machine, is lifted up or swung back out of the way and the material to be sewed is placed in position on the sewing-machine table. The guideway A, with the case D, is then lowered upon the material, which is to be in such position that the central pin of the plate E pierces that part of the material which is intended to be the center toward which the spiral seam is to made. The seam is then started at the outer point of the spiral, and as the presser and feeder of the machine forward the material under the needle the material turns with the central pin of the plate E as its center. As the material turns, it revolves the plate E, and that causes the spur-wheels F, G, and H to revolve. The wheel H meshes into the rack I, forcing the case D, and with it the plate E, forward toward the needle of the sewing-machine, the rack I terminating when the point is reached at which the seam is to end centrally. The machine may then be stopped, the guideway A, and with it the case D, lifted up, and the material removed. The weight of the guideway A and the case D, which are most conveniently made of metal, is sufficient to keep the pins *e e* in place during the operation. I also provide an automatic attachment by which to stop the sewing-machine at the desired point. This consists of a suitable upsetting device arranged to engage with the case D or some projection on it when it has reached the point where the sewing is

intended to stop. A convenient device for this purpose consists of a strip, J, suitably slotted at *j j* and guided along the way A by screws *i i'*. One end, *p'*, of this strip projects beyond the shaft B. Under the sewing-machine table a weighted lever, K, is suspended in suitable bearings and connected with the belt-shifter by a cord, *f*, in such a way that when free to act it will throw the belt from the driving-pulley *g* to the loose pulley *h*. The light end of the lever projects upward by an elbow or rod, *k*, arranged to be held in place by the projecting end *p* of the strip J. At a suitable point on the strip J an engaging-piece, *l*, is provided, so as to be in the path of a pin, *m*, projecting from the case D. These parts are to be so adjusted relatively to each other that as the case D approaches the end of the seam the pin *m* will draw the strip J along with it and when the end of the seam is reached the projecting end *p* of the strip J will be drawn away from the rod *k*, allowing that rod to move up and the weighted end of the lever K to descend, and thereby to throw the belt onto the loose pulley *h* and stopping the machine.

By the device above described the convolutions or space between the spirals cannot be varied, and as in some cases it is desirable to have the spirals wider apart than in others I may make my attachment adjustable in that respect. This is accomplished by varying the size of the spur-wheel H. It is apparent that with every revolution of that wheel the case D will be carried along the rack I a distance coresponding to the number of teeth in the wheel H, and that when a large wheel is used the progress of the case D and the space between the convolutions or spirals will be greater than when a smaller wheel, H, is used. In order to make my device adjustable, I arrange for shifting the rack I transversely on the way A. This may be done by providing two or more transverse slots, L L, in the guideway A, and screws *t t* to pass through them and into the rack, as shown in Figs. 5 and 6, so that by means of the screws *t t* the rack may be adjusted at the proper distance to mesh into a spur-wheel, H, of the desired size, these spur-wheels also being removable from their spindle.

For the purpose of finishing the seam at the center in circular form, I arrange the device shown in Figs. 5, 6, 7, and 8. On the loose end of the guideway A a suitable boss, M, is provided, into which slides a block, N, which is secured in varying positions by means of a screw, *n*. A spindle, *o*, projecting above, passes through this block, having a spur-wheel, O, attached to it, into which the wheel H will mesh when it has been carried to it along the rack I. To the upper end of the spindle *o* an arm, *q*, is attached, which is held against a pin, *r*, fixed in the guideway A by a suitable retracting-spring, *s*. Instead of having a projection, *l*, on the upsetting-strip J, a pin, *u*, is fixed therein in the path of the arm *q*.

The operation of this part of my invention will be as follows: When the wheel H on the case D reaches the end of the rack I, the point at which the spiral seam is to end, the spur-wheel H will mesh into the wheel O and revolve therewith, turning the material in a circle, and the wheel O will be rotated by the wheel H. As the wheel O is rotated, the arm *q* is carried around until it strikes against the pin *u*, and thereby pushes the strip J along until the rod *k* is released, allowing the weighted end of the lever K to fall and shifting the belt, thereby stopping the machine. By means of the movable block N the spur-wheel O may be adjusted in position to mesh with spur-wheels H of varying sizes, giving them room to clear the end of the rack I. By providing a series of holes, *v v*, in the guideway A the pin *r* may be moved when desired, so that the tripping device can be operated when a large wheel, H, is used before the circular seam is doubled upon itself.

When it is not desired to have the central portion of the seam in circular form, the part of the invention employed for that purpose may be omitted from the structure.

It will be seen that my invention is capable of being attached to and employed with any of the well-known sewing-machines, and that its object is to control the direction in which the material is forwarded by the machine, so that the same will be presented to the needle to receive the seam in a spiral direction or in a spiral ending in a circular direction, as above specified.

I do not claim, broadly, an attachment for feeding material to receive a spiral seam; but, having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. An attachment for sewing-machines, consisting of a swinging guideway, A, provided with a rack, I, and suitable guides, as *a a*, case D, having recessed strips *a' a'*, plate E, provided with pins *e e*, and spur-wheels F, G, and H, substantially as described.

2. An attachment for sewing-machines having a guideway, A, case D, provided with a plate, E, and spur-wheels F G H, in combination with a rack, I, adjustable to mesh into a spur-wheel, as H, of varying size, substantially as described and shown.

3. An attachment for sewing-machines having a guideway, A, adjustable rack I, case D, provided with spur-wheels, as F G H, and cloth-engaging plate E, connected therewith, in combination with a weighted lever, K, connected to a suitable belt-shifter of the machine, and a movable strip, J, adapted to support the lever K, and to be withdrawn to release said lever and thereby to shift the belt, substantially as described and shown.

4. An attachment for sewing-machines, consisting of a guideway, A, plate E, and suitable connections adapted to turn the material fed to the machine into a spiral path, in combination with an upsetting device consisting of a weighted lever, K, strip J, and engaging parts,

as the pin *m* and projection *l*, substantially as described and shown.

5. In an attachment for sewing-machines, a guideway, A, adjustable rack I, case D, carrying a cloth-engaging plate, E, and suitable spur-wheels, F G H, in combination with a spur-wheel, O, arranged in the path of the wheel H and adapted to mesh therewith and change the direction of the feed from a spiral to a circular seam, substantially as described and shown.

6. In an attachment for sewing-machines, a guideway, A, adjustable rack I, case D, carrying a cloth-engaging plate, E, suitable spur-wheels, F G H, in combination with a spur-wheel, O, disposed in a movable block, N, and provided with an upsetting-arm, *q*, strip J, and lever K, with its connections, substantially as described and shown.

7. An attachment for sewing-machines, consisting of a swinging guideway, A, provided with an adjustable rack, I, case D, carrying a cloth-engaging plate, E, and suitable spur-wheels, F G H, in combination with a spur-wheel, O, arranged in a movable block, N, and carrying an arm, *q*, the upsetting-strip J, and lever K, arranged to shift the belt from the fast to the loose pulley when free to act, substantially as described and shown.

FRANCIS W. MALLETT.

Witnesses:
PATRICK H. BROWN,
HARRY L. HAAS.