

W. B. BARTRAM.

Improvement in Sewing-Machines.

No. 130,557.

Patented Aug. 20, 1872.

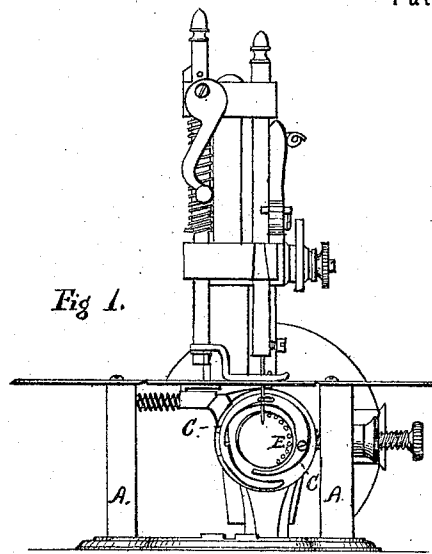


Fig 1.

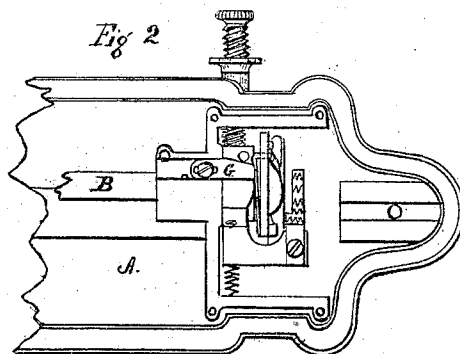


Fig 2

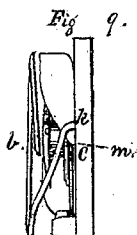


Fig 9.

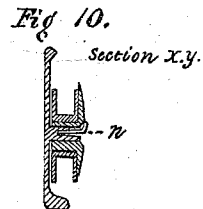


Fig 10.

Section x.y.

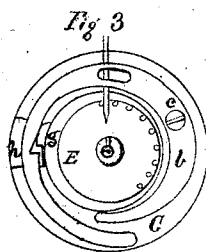


Fig 3

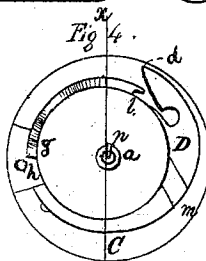


Fig 4.

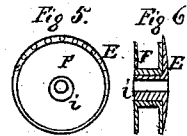


Fig 5.

Fig 6.

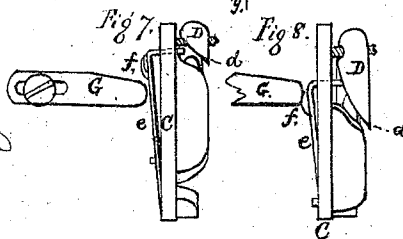


Fig 7.

Fig 8.

Witnesses.

Edward Johnson
E. H. Johnson.

Inventor.

Walker B. Bartram
by his Atty. C. A. King

UNITED STATES PATENT OFFICE.

WALKER B. BARTRAM, OF DANBURY, CONNECTICUT.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 130,557, dated August 20, 1872.

Specification describing certain Improvements in Sewing-Machines, invented by WALKER B. BARTRAM, of Danbury, in the county of Fairfield and State of Connecticut.

Nature and Objects of the Invention.

My invention relates to that class of sewing-machines in which a rotary hook is employed to take the loops of needle-thread and pass them over a disk bobbin or spool to interlace the two threads; and it consists in certain novel combinations which have for their object to produce a simple and efficient rotary-hook machine, as will be fully set forth hereafter.

Figure 1 of the accompanying drawings shows an end view of a sewing-machine with my improvements applied to it. Fig. 2 is a top view of a portion of the same, the arms and a part of the frame being broken away to show the parts beneath more clearly. Fig. 3 is a full-size view of the rotary carrier and the hook and disk-bobbin when they are in position to take the loop from the needle. Fig. 4 is a view of the carrier and the rotary hook with the outside guard-ring and the disk-bobbin removed, in order to show the shape of the hook and its position in the carrier more clearly. Fig. 5 is a view of the disk-bobbin and its supporting tension-plate. Fig. 6 is a section through the center of Fig. 5. Figs. 7, 8, and 9 are end views of the carrier and rotary hook, showing them in different positions while rotating. Fig. 10 is a sectional view through the bobbin-supporting spindle *a*.

General Description.

The frame or casting of the machine is seen at A A, and the driving-shaft at B. The main parts of the mechanism are of ordinary construction, and properly arranged to hold the material and move it forward to the looping mechanism; this part of the machine, the subject of the present invention, consisting of the rotating carrier C secured upon the end of the driving-shaft B, the rotary hook D for taking the loop of thread from the needle and the disk-bobbin F, which carries the under thread, supported on the tension-plate E. The carrier C rotates in a vertical plane and operates the hook D, to cause it to seize the needle-thread loop and throw it over the bobbin containing the under thread. The hook is supported loose-

ly in the carrier, touching only at the two points, *c* and *g*, Fig. 3, the first point of support being formed of a screw-pin, which passes through the ring *b* and through the aperture near the point *d* of the hook, and screws into the carrier; and the second being composed of the two lugs or projections, *g h*, the one on the rim of the hook and the other on the face of the carrier. These parts serve to hold the shuttle in place while it rotates with the carrier, and, from their construction, allow the loop of needle-thread to pass over the shuttle without strain. The point of the shuttle which enters and spreads the loop, gradually increases in width from the end *d* to the point where the screw *c* passes through it, and then decreases in a curve from that point to the part of the shuttle marked *m*, Figs. 4, 9. This part of the shuttle acts to open the loop sufficiently to pass over the disk-bobbin freely, so that the continued rotation of the carrier will throw the loop over the bobbin carrying the second thread without straining the thread. The ring *b* is secured to the carrier at *k*, and, by its form, acts to throw the loop over the remainder of the bobbin, the loop being thrown over a portion of it by the action of the point of the shuttle, (from *d* to *m*.) The form and position of the ring *b* is clearly shown in Figs. 3 and 9.

As the shuttle rotates to form and spread the loop of the needle-thread it moves freely upon its points of support in a lateral direction to allow the thread to pass between it and the face of the carrier; but as the point *d* approaches the needle to enter the loop this lateral movement is prevented, and the point is held up to the needle to insure its entering the loop by the device shown in Figs. 7 and 8. This consists of the spring *e* secured at one end to the side of the carrier C, and the adjustable stop G upon the frame. The spring *e* has a cam-surface, *f*, upon it, which moves in line with and strikes against the stop G as the carrier revolves, and the end of the spring *e* is bent at right angles, so as to project through a hole in the carrier and come in contact with the side of the point of the shuttle D when the spring is pressed in by the finger. A set-screw holds the finger upon the frame, and permits it to be adjusted with relation to the spring *e*, so that the point of the spring may be thrown in by it the proper distance to press against

the shuttle. Fig. 7 shows the position of the finger and spring when the point of the shuttle is approaching the needle, and Fig. 8 shows the spring and finger as acting to hold the point of the shuttle up to the needle while it is entering the loop. The disk-bobbin F is supported upon the tube *i* projecting from the center of the convex plate E, and revolves upon it. The hole through the tube *i* coincides with the center of the plate E, but the outer surface of the tube, which forms the axis upon which the bobbin turns, is made thicker at one part, so that the bobbin does not turn upon the same center as the plate E, but is held eccentrically and slightly below the center of the plate. The convex plate E, which supports the bobbin, is held upon the spindle *a* projecting from near the center of the shuttle D, and the rim of the plate is pierced with a series of holes, through which the thread from the bobbin is interlaced to obtain the necessary tension. The plate E does not turn during the operation of sewing, as it is held by the under thread, which passes from the tension-holes up into the cloth being sewed; but the bobbin revolves upon its axis *i* as the thread is drawn from it. The plate E is held upon the spindle *a* by the spring *n* projecting from the end of the spindle. (See Fig. 10.) Upon the rim of the shuttle there is a small notch, *l*, seen in Fig. 4, the office of which is to catch the loop of needle-thread from the point of the shuttle after it has passed over the shuttle and bobbin, and hold it until the point of the shuttle has entered another loop of the needle-thread. As the shuttle continues its revolution the point of the notch *l* will be withdrawn from the loop, and the latter left free to be drawn up into the cloth.

These parts, as thus constructed, act in the following manner: The point *d* of the shuttle approaches and enters the loop as the needle

is rising, and opens the loop sufficiently to allow it to pass freely around the shuttle and over the bobbin, and while the shuttle is revolving and the loop has been thrown by it nearly over the bobbin, the needle descends again to bring the thread for the second loop. The shuttle during this time has made about one-half a revolution, and as the remainder of the revolution is being made, the needle commences to rise, so that as the point *d* of the shuttle approaches the needle, it will pass between the needle and its thread just above the eye of the former. The first loop after passing around the shuttle, is caught in the notch *l* and held until the further revolution of the shuttle releases it, and allows it to be drawn up.

Claims.

1. The rotating carrier with its ring *b* and spring-lug *e*, in combination with the adjustable finger G to move the shuttle laterally when taking the loops of needle-thread, substantially as described and specified.
2. The rotating carrier, having the ring *b*, stud-pins *c*, and lugs *g h*, combined with and supporting and operating the shuttle, substantially as described and specified.
3. The disk-bobbin F, supported eccentrically upon the convex tension-plate E, constructed and operating substantially as described and specified.
4. The combination, with a rotating shuttle supported and operated as described, of a bobbin supported eccentrically upon a tension-plate, constructed and operating substantially in the manner described and specified.

WALKER B. BARTRAM.

Witnesses:

P. F. HENEYBRY,
M. H. GRIFFING.