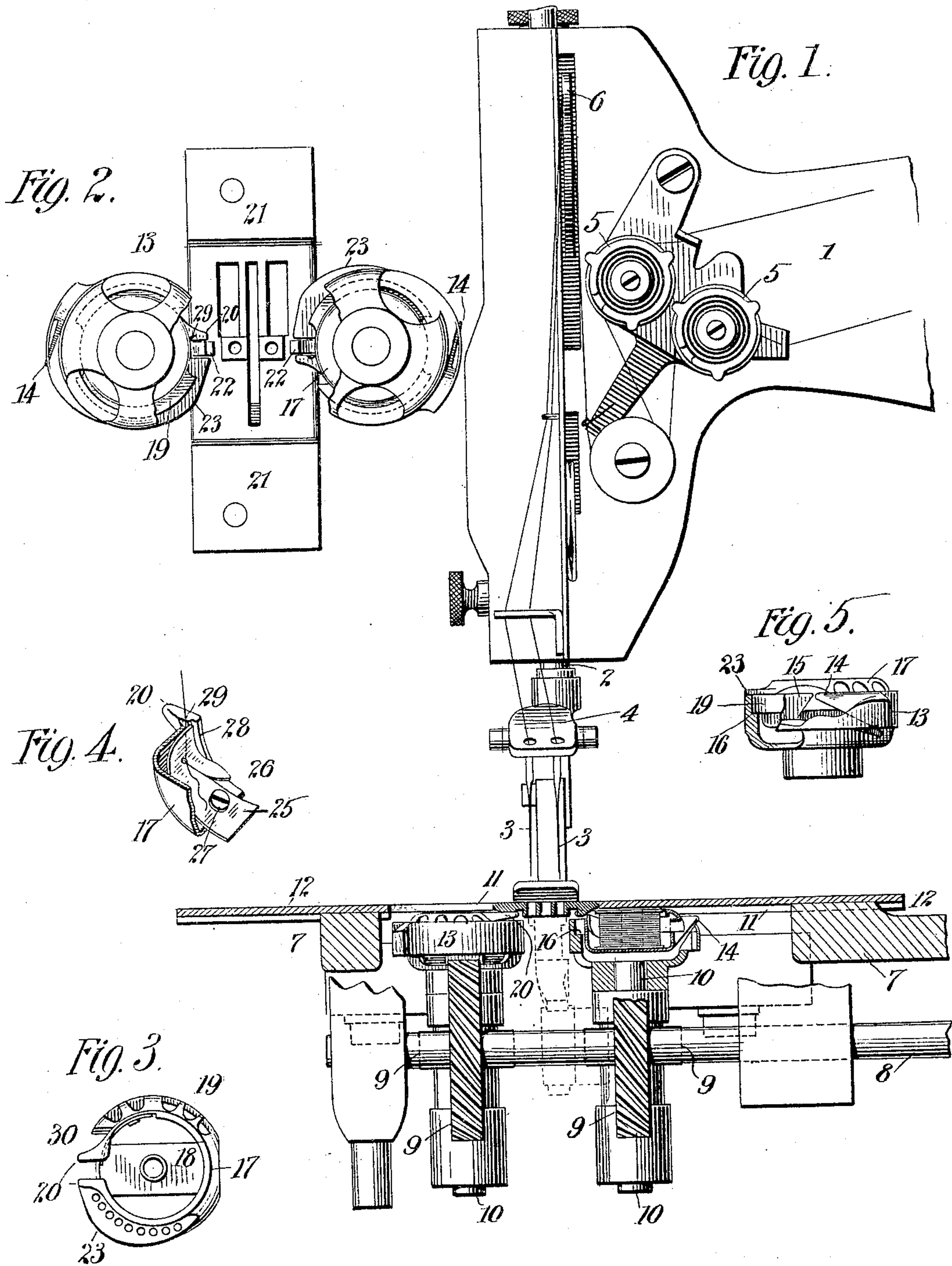


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PATENTED SEPT. 12, 1905.

M. HEMLEB.
ROTARY HOOK SEWING MACHINE.

APPLICATION FILED JUNE 27, 1903.



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ROTARY-HOOK SEWING-MACHINE.

No. 799,334.

Specification of Letters Patent.

Patented Sept. 12, 1905.

Application filed June 27, 1903. Serial No. 163,380.

To all whom it may concern:

Be it known that I, MARTIN HEMLEB, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Rotary-Hook Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates more particularly to the construction and arrangement of the stationary bobbin-case in that class of revolving-hook machines in which the bobbin-case is removably supported within an open-topped
15 cup-shaped loop-taking hook mounted upon the upper end of a vertical supporting-shaft deriving its rotations from suitable connections with the main shaft of the machine.

The invention has for its object partly to
20 provide a means whereby the thread-case may be held securely in position in the normal operation of the machine, while readily removable for insertion of the mass of lower thread for adjustment and for convenience in clearing
25 the hook of lint and other accumulations of foreign matter due to the continued operation of the machine, partly in a means of insuring the proper action of the hook upon the needle-thread loops cast about the thread-
30 case, and partly in a particular form and arrangement of tension-spring acting upon the lower thread substantially at the point from which it is led from the thread-case.

The invention consists in the constructive
35 features herein shown and described, and set forth in the claims annexed.

In the accompanying drawings, Figure 1 is an elevation with the bed-plate and one of the loop-taking hooks with its inclosed thread-
40 case in section of the front end of the two-needle revolving-hook sewing-machine forming the subject of my pending application, Serial No. 159,737, filed June 2, 1903, and embodying the present invention. Fig. 2 is
45 an under side plan view of the loop-taking hooks with their contained thread-cases and the throat-plate, the hooks being partly broken out in their adjacent portions to expose the interlocking connections of the thread-cases
50 with the holding-lugs upon the bottom of the throat-plate. Fig. 3 is a top plan view of one of the thread-cases detached. Fig. 4 is an enlarged perspective view of a portion of the thread-case to show the form and position of

the tension-spring therein. Fig. 5 is an elevation viewed at a right angle to that of Fig. 1, showing the hook and its contained thread-case removed from the machine, the hook being partially in section.

The head of the overhanging arm 1 is shown
60 provided with the reciprocating needle-bar 2, carrying the needles 3, mounted in the common needle-clamp 4, and with the thread-tensions 5 and take-up 6, through and around which, with the usual intermediate thread-
65 guides, the needle-threads are led from the source of thread-supply to the needles.

Beneath the bed-plate 7 is mounted the lower shaft 8, connected by pairs of spiral gears 9 with the vertical rotary hook-shafts 10, disposed each directly beneath the opening 11 in
70 the bed-plate, normally closed by the sliding plate or slide 12.

Upon the upper end of each of the hook-shafts 10 is mounted a cup-shaped loop-taking
75 hook 13, provided with a tangentially-disposed loop-seizing beak 14, having a throat cut away in such manner as to form in the wall of such member an opposed loop-detaining point or spur 15, the loop-taker 13 having its inner
80 wall formed intermediate the bottom and upper edge above the inner or lower end of the throat of the hook with an annular thread-case-supporting ledge or shoulder 16, above
85 which is a clear uncontracted cylindrical space.

The body of the thread-case 17 is of substantially cylindrical shape, open at the top, and is shown provided with the axial hollow bobbin-supporting pin 18, projecting from its
90 bottom. This case is provided externally with a peripheral bearing-flange 19, interrupted adjacent the loop-seizing position to permit the easy release of the needle-loops, said flange being so disposed above the bottom that when
95 resting upon the supporting-ledge 16 of the loop-taking member the usual clearance-space for passage of the needle-thread loops will be left between the bottoms of the loop-taker and the thread-case. The thread-case is designed
100 to project slightly above the top of the loop-taker and is formed upon the upper edge with the laterally-projecting forked lug 20, entered by one of the holding-lugs 22 upon the under
105 side of the throat-plate 21, disposed substantially in line with the needle-holes, adjacent to which forked lug and upon the loop-discharging side thereof is formed an overhanging guard-flange 23, projecting outwardly

slightly beyond the loop-detaining spur 15 of the loop-taking member 13. The inner wall of the thread-case is provided adjacent the forked lug 20 with a flat tension-spring 25, having a thread-leading slit 26, terminating in a round hole in the body of the spring, through which the thread is led from the contained mass of lower thread intermediate the said spring and the wall of the thread-case and through a thread-guiding notch 29 at the base of one of the members of the lug 20 to the adjacent needle-hole in the throat-plate 21, as indicated in Fig. 4. This spring 25 is held in position by means of a combined tension adjusting and holding screw 27 and a confining-rib 28 upon the inner edge of the thread, and its pressure upon the inner wall of the thread-case or the interposed lower thread is adjusted by means of the screw 27 in the usual manner. As indicated in Figs. 3 and 4, the overhanging rib 28 extends around nearly the entire circumference of the thread-case, being interrupted only in the space between the two members of the forked lug 20 and above the upwardly-extending guide-finger of the tension-spring 25 to facilitate the introduction of the bobbin-thread intermediate the end portion of the spring and the adjacent wall of the thread-case. The principal object of this overhanging rib 28 is to encircle the top flange of the bobbin to prevent the accidental introduction of the needle-thread under the same as its loop is cast about the thread-case.

In the use of the machine after a bobbin has been run out the slide 12 is withdrawn, as indicated at the left in Fig. 1, to afford access to the thread-case, which is then readily withdrawn and its empty bobbin replaced by a filled one, the thread from which latter is drawn through the slit 26 into the guide-hole of the tension-spring 25, the free end of the thread passing beneath the tongue formed between such slit and the edge of the spring and being drawn under the body of the latter into the notch 29 of the thread-case. If necessary, the loop-taking member is cleared of lint, after which the thread-case is merely dropped in its position therein, where it is held merely by gravity, the closing of the slide 12 over the same insuring it from being displaced by reason of any abnormal pull upon the bobbin-thread in the stitching operation. In the formation of stitches the loop-taker seizes and spreads a needle-thread loop by means of its beak 14 in the usual manner, and in carrying the same around the thread-case one limb of the loop is caught by the loop-dividing hook 30 of the thread-case, while the other limb continues its progress around the greater portion of the circumference until by the action of the take-up it is cast off the beak and is caught and detained by the spur 15, upon which it hangs until about opposite the needle-hole, when the further action of the take-up causes the loop to

be drawn up through the needle-hole of the throat-plate into the goods being stitched. As the pull upon the thread as the loop-taker approaches its cast-off position is nearly circumferential, the needle-thread loop when it is drawn off the beak 14 would be liable to escape the detaining-spur 15, and so become jammed between the ledge 16 and bearing-flange 19, were it not for the guard-flange 23, which distends it sufficiently at such point to insure its being caught by the spur 15, serving to hold it until its arrival at the cut-away portion of the bearing-flange 19, where upon its release it may be withdrawn from the loop-taker without friction.

Having thus set forth the nature of the invention, what I claim herein is—

1. In a revolving-hook machine, the combination with a vertical hook-shaft and means for actuating it, of an open-topped cup-shaped loop-taking hook mounted upon the upper end of said hook-shaft and provided upon its inner wall with an annular thread-case-supporting shoulder with a clear uncontracted space above the same and having a loop-seizing beak with adjacent throat extending below said thread-case-supporting shoulder, a stationary thread-case supported removably within the said hook and formed with a peripheral bearing-flange adapted to rest upon the shoulder of said loop-taking hook, said thread-case being formed at its upper edge with a laterally-projecting holding-lug engaging a stationary part of the machine, and with an overhanging annular rib partly cut away near said holding-lug, a tension-spring secured upon the inner wall of said thread-case having one end locked from displacement beneath said overhanging rib and the other end secured in place by means of a fastening-screw, and having a thread-directing slit and adjacent guiding-finger entering the cut-away portion of said overhanging flange, and means for maintaining said thread-case in position in said hook.

2. In a revolving-hook sewing-machine, the combination with a vertical hook-shaft and means for actuating it, of a loop-taking hook mounted upon said shaft, and a thread-case supported within the same and provided with means for preventing its rotation with said hook, and a flat tension-spring secured upon the inner wall of said thread-case and provided with a thread-directing portion extended to the upper edge of the thread-case to facilitate the introduction of thread under said spring.

3. In a revolving-hook sewing-machine, the combination with a vertical hook-shaft and means for actuating it, of a loop-taking hook mounted upon said shaft, and a thread-case supported within the same and provided with means for preventing its rotation with said hook, said thread-case being provided with an

overhanging annular rib partly cut away at
one side, and a tension-spring secured upon
the inner wall of said thread-case at one end
by a fastening-screw with the other end rest-
5 ing against said overhanging rib to lock it
from displacement.

In testimony whereof I have signed my name

to this specification in the presence of two sub-
scribing witnesses.

MARTIN HEMLEB.

Witnesses:

HENRY J. MILLER,

HENRY A. KORNEMANN.