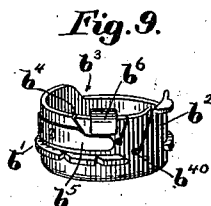
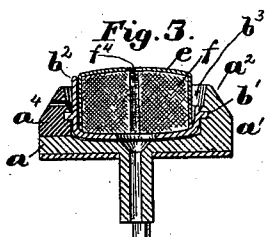
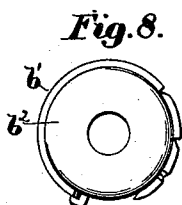
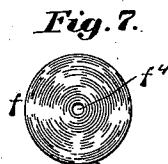
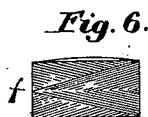
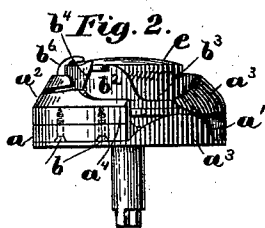
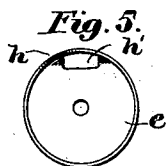
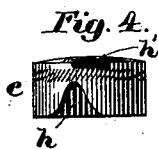
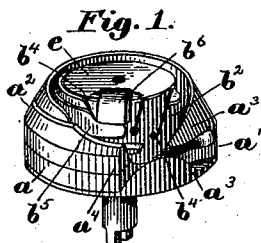


(No Model.)

W. F. DIAL & G. H. DIMOND.
LOOP TAKER FOR SEWING MACHINES.

No. 578,138.

Patented Mar. 2, 1897.



Witnesses:

Walter E. Lombard.
Thomas Drummond;

Inventors:

*Wilbur F. Dial,
George H. Dimond,
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Attys.*

UNITED STATES PATENT OFFICE.

WILBUR F. DIAL AND GEORGE H. DIMOND, OF BRIDGEPORT, CONNECTICUT,
ASSIGNORS TO THE WHEELER & WILSON MANUFACTURING COMPANY,
OF SAME PLACE.

LOOP-TAKER FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 578,138, dated March 2, 1897.

Application filed February 27, 1896. Serial No. 580,996. (No model.)

To all whom it may concern:

Be it known that we, WILBUR F. DIAL and GEORGE H. DIMOND, of Bridgeport, county of Fairfield, State of Connecticut, have invented an Improvement in Loop-Takers, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In the use of sewing-machines it is a great desideratum to increase the holding capacity of the bobbin-case holding the under thread which is passed through the loop of needle-thread in the production of a lock-stitch.

In our invention we take a circularly-moving hook or loop-taker having its inner vertical wall provided with a groove, and in said loop-taker we locate a thread-case having at its periphery a projection to enter said groove, a part of the said projection being cut away to afford space for the entrance of one-half the loop of needle-thread in passing about the thread-case, and to thereafter permit the discharge of said loop of needle-thread, and inside the said thread-case we insert a cop-cover and shield containing a ball of thread, the said thread, when used, being drawn from the interior of the ball without rotating the latter. The cop-cover is composed of an end piece and a vertical wall or rim, the space within the rim being entirely unobstructed, the rim entering the thread-case leaving the cop-cover to receive the half of the loop of needle-thread which passes over the front of the thread-case and insure the passage of the said loop without obstruction or danger of breaking down the cop. We shall preferably provide the thread-case with a lip to partially overlap the cop-cover to thus aid in keeping it in the open circular chamber at the face of the thread-case and hook or loop-taker.

Every extra yard of thread which can be practically contained in a hook, loop-taker, or other device presenting an under thread and passing it through a loop of needle-thread is of value, because any increase in the length of the under thread enables the machine to be run just so much longer without renewing

the under thread, which in machines for sewing with a lock-stitch, as now ordinarily made, has to be done frequently.

Figure 1 in perspective shows a hook or loop-taker having a thread-case and cop-cover embodying our invention; Fig. 2, a different view of the same parts; Fig. 3, a cross-section thereof to show the cop inside the cop-cover. Figs. 4 and 5 show a side elevation and inner end view of the cop-cover detached. Figs. 6 and 7 show the substantially solid ball of thread in side and in top view. Figs. 8 and 9 show the thread-case, looking at its inner end and in perspective.

The hook or loop-taker consists, essentially, of a back a , from which rises a circular wall a' , beveled inwardly at a^2 , the said wall at one end being cut or shaped to form a point a^3 . The heel a^4 of the hook is made in a separate piece attached to the back by suitable screws b .

The inner surface of the wall of the hook and of the detachable heel-piece are grooved, as shown in Fig. 3, and in this groove enters a projection b' from the exterior of a thread-case b^2 , the thread-case being retained permanently in said hook or loop-taker, the thread-case being capable of removal only after removing the heel-piece, it being of a length sufficient when removed to afford a space through which the thread-case can be withdrawn laterally from the cavity in the face of the hook or loop-taker. The vertical circular wall of the thread-case thus permanently applied to the hook or loop-taker is for part of its length cut away to leave an open space b^3 , the remaining part of the wall being provided with holes intersected by threading-slots b^4 b^{40} for the easy introduction of the under thread and under a suitable tension-spring b^5 , the said case having also, preferably, a lip or finger b^6 to extend across the open space in the thread-case.

The projection b' (see Fig. 8) is cut away to leave a space into which the point of the hook or loop-taker, when in engagement with the loop of needle-thread, draws one-half of said loop, the said half remaining in said notch in the rotation of the hook while expanding the

loop of needle-thread and casting it about the thread-case.

The cop-cover *e* is composed of an end piece having a circular wall or rim deep enough to enter the thread-case nearly to its bottom, the space between the rim being entirely unobstructed by any pin or tube, the closed top of the cop-cover passing under the lip *b*⁶, the top sustaining the thread as it crosses the open face of the thread-case, the wall of the cop-cover, by embracing the outer wall of the ball *f*, protecting the same and preventing the loop of needle-thread from contact with the edges of said ball at its outer side, which would break down the wall of thread, as the ball in the process of being unwound becomes thin and weak by unwinding the thread from its interior.

The loop of needle-thread is discharged through the space between the ends of the projection after it has been passed about the thread-case and its contained cop-cover and cop.

The thread-case is cut away (see Fig. 9) at its upper end opposite the inwardly-turned fixed lip *b*⁶, thus affording a space into which the cop-cover containing the cop or ball may be inserted laterally and diagonally to facilitate the easy lifting of the cop-cover.

The hook or loop-taker and the thread-case herein shown are described and made subject of claim in application Serial No. 574,229, filed January 3, 1896; but herein said loop-taker and thread-case are claimed only in connection with a peculiar cop-cover, referred to.

The side wall or rim of the cop-cover is shown as provided with a notch *h*, while the top or end of the case has a lip-receiving opening *h*¹.

The thread led laterally from the bottom of the central opening *f*⁴ of the cop or ball is entered into one of the thread-receiving notches of the thread-case, the notch obviating the drawing of the thread across the edge of the rim of the cop-case, and also obviating any possibility of the cop-thread from being nipped between the edge of the rim of the cop-cover and the thread-case.

The lip-opening *h*¹ is made for the reception of the lip *b*⁶, said lip by entering the opening

*h*¹ serving to keep the notch *h* in correct position with relation to the threading-slot *b*⁴.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination with a rotatable hook or loop-taker, having an unobstructed chamber at its face, and a thread-case normally retained in said hook or loop-taker leaving the latter free to be rotated about it, said thread-case having its open end exposed to present an unobstructed central cavity, and having a part of its circular wall cut away to gain access to the cop-cover, said hook, in action, passing the loop of needle-thread about the thread-case and between the latter and the hook, of a cop-cover composed of an end piece and vertical walls leaving a centrally-unobstructed interior to contain a ball of thread, the walls of said cop-cover entering the cavity of the thread-case and inclosing said ball of thread, the end piece of the cop-cover shielding said ball from the action of the loop of needle-thread, substantially as described.

2. The combination with a rotatable hook or loop-taker having an unobstructed chamber at its face, and a thread-case normally retained in said hook or loop-taker, leaving the latter free to be rotated about it, said thread-case having at its open exposed end an inwardly-turned lip under which is an unobstructed central cavity, the wall of the thread-case opposite said lip being cut away, of a cop-cover composed of a notched end piece to be entered by said lip and having vertical walls leaving a centrally-unobstructed interior to contain a ball of thread, the walls of said cop-cover entering the cavity of the thread-case and inclosing said ball of thread, the end piece of the cop-cover shielding said ball from the action of the loop of needle-thread, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILBUR F. DIAL.
GEORGE H. DIMOND.

Witnesses:

ISAAC HOLDEN,
GEO. HALL CORNWELL.