

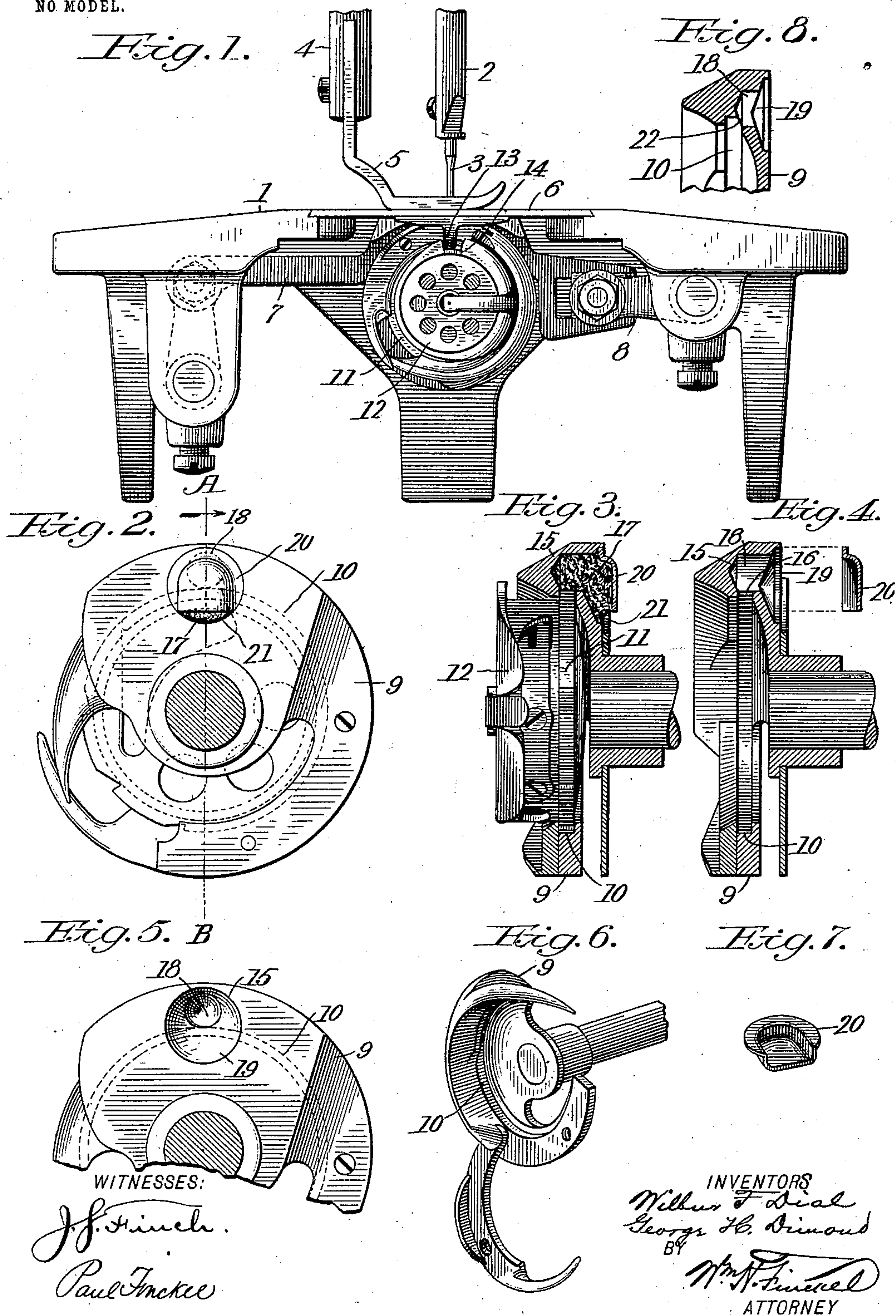
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W. F. DIAL & G. H. DIMOND.  
LOOP TAKER FOR SEWING MACHINES.

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NO MODEL.





# UNITED STATES PATENT OFFICE.

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## LOOP-TAKER FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 723,371, dated March 24, 1903.

Application filed September 19, 1902. Serial No. 124,057. (No model.)

*To all whom it may concern:*

Be it known that we, WILBUR F. DIAL and GEORGE H. DIMOND, citizens of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented a certain new and useful Improvement in Loop-Takers for Sewing-Machines, of which the following is a full, clear, and exact description.

10 This invention has for its main object to provide means whereby the contacting surfaces of the bobbin-case and loop-taker of a sewing-machine will be properly lubricated without endangering the soiling of the sewing-  
15 thread and without undue care on the part of the operator as to frequent oilings. Especially in machines running at high speed—say from three thousand to four thousand stitches a minute—is it necessary to keep the under-  
20 thread mechanism well lubricated and at the same time guard the thread from being soiled. In the well-known Wheeler & Wilson No. 61 machine the bobbin-case has a radial fin which engages an annular groove in the  
25 loop-taker, and lubricant must be supplied to these engaging parts. For purposes of illustration, but without thereby limiting the applicability of the invention, the improvement will be described in connection with these  
30 parts.

The invention comprises a bobbin-case receiver (which in the instance selected is the grooved loop-taker) having a lubricant-well arranged relatively to the part to be lubricated, so as to deflect the lubricant when the receiver is in motion and permit it to feed when said receiver is at rest, thus automatically controlling the feed of lubricant and preventing oversupply, all as will be fully  
40 described, and particularly pointed out and claimed.

In the accompanying drawings, illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1  
45 is a front elevation of a portion of the stitch-forming mechanism and adjacent parts of a Wheeler & Wilson No. 61 sewing-machine, representing one adaptation of this invention. Fig. 2 is a rear elevation of the loop-  
50 taker of the machine shown in Fig. 1 sup-

plied with our invention. Fig. 3 is a sectional elevation taken substantially in the plane of line A B, Fig. 2. Fig. 4 is a cross-section of the loop-taker with the well-cover detached. Fig. 5 is a rear elevation of a portion of the loop-taker with the cover detached. 55  
Fig. 6 is a perspective view of the loop-taker having the usual loop-seizing point and cast-off and provided with a hinged flange to permit of the removal of the bobbin-case. Fig. 60  
7 is a perspective view of the cover detached. Fig. 8 is a cross-section of part of the loop-taker, showing a modified form of the lubricant-well.

For the purposes of illustration there are 65 herein shown only such portions of a sewing-machine as are deemed necessary for a proper understanding of the invention. The particular class of sewing-machines or the specific construction of loop-taker, bobbin, or  
70 bobbin-case are not essential so long as the combination includes a bobbin-case frictionally supported within the cavity formed in the loop-taker or other receiver for such bobbin or bobbin-case. 75

Referring to the drawings, 1 is the bed-plate, 2 the needle-bar, 3 the needle, 4 the presser-bar, 5 the cloth-presser, 6 the throat-plate, 7 the feed-bar to which the feed-dogs are attached, and 8 is the feed-lifter, all 80 of which are common to the well-known Wheeler & Wilson sewing-machine commercially known as "No. 61," and all of such parts may be as herein illustrated and described or of any other usual or approved 85 construction.

The loop-taker 9 is provided with an annular groove 10 for the reception of the fin 11, Figs. 1 and 3, formed on the periphery of the bobbin-case 12. When the loop-taker 90 and bobbin-case are in operative position, as shown in Fig. 1, the bobbin-case is held against rotation by the lug 13 entering the notch 14 in the bobbin-case, as is common in the construction of the Wheeler & Wilson 95 sewing-machine herein referred to.

It will be understood that in the operation of the machine the loop-taker is caused to rotate around the restrained bobbin-case and that it is essential to the practical oper- 100



ation of the machine when running at high speed that the frictionally-engaged surfaces of the two should be kept properly lubricated and without endangering the soiling of the sewing-thread. To meet these requirements, we have located an oil-well 15 in such relation to the axis of rotation of the loop-taker and to a duct, such as 16, Fig. 4, between the well and the annular groove in the loop-taker, that the centrifugal force of the rotating loop-taker will cause the lubricant to be held away from said duct and groove; but when such loop-taker is at rest the lubricant will be delivered through the duct in sufficient quantity to properly lubricate the frictional surfaces, it being understood that should the machine be brought to rest with the oil-well uppermost and be left in this position for a considerable length of time—as, for instance, from one day to the next—an excess of lubricant would be delivered to the frictional surfaces; but it is well known in the operation of sewing-machines that such superfluous lubricant is quickly and easily removed by running the machine for a very short time—a minute or two—on scrap material, which is the common method employed to clean a loop-taking mechanism when for any reason it has been excessively oiled. The oil-well is supplied with any suitable packing 17 in order to hold the lubricant.

As a preferred form of construction of oil-well we have provided the loop-taker with a bore 18, which connects with an outer funnel-shaped mouth 19, over which is placed a cover 20, leaving an opening 21 for the insertion of the packing and through which oil is applied, and the bore 18 has the duct 16 opening into the annular groove at right angles to both.

Fig. 8 illustrates a modified form of construction in which the duct 22 between the bore 18 and the annular groove is at the side of the groove instead of in line with the periphery of said groove, and while the first-described construction is preferred the modified form might be used with substantially the same beneficial result, and other variations are possible.

In making the oil-well the larger hole 18 is first drilled within the rear wall of the loop-taker a short distance, and the smaller hole 16 is next drilled, so as to barely cut the outer edge of the annular groove 10. The entrance between the annular groove and oil-well thus established is then broached, so as to remove any bur that may be present and render the edges perfectly smooth. After the loop-taker has been hardened and polished and otherwise fitted for service the oil-well is provided with the cover 20, which is secured within the larger hole 18 by soldering or otherwise. It will be observed that the entrance to the thus-covered oil-well points inwardly toward the center of the loop-taker, so that the oil will be thrown out by centrifugal action.

It will be readily understood that the lubricant contained in the packing will by the centrifugal force exerted by the rotation of the loop-taker be held at its outermost diameter of rotation and that when such loop-taker is brought to rest the lubricant will resume its normal position in the packing and escape thence through the duct into the groove 10.

What we claim is—

1. A bobbin-case receiver, having a lubricant-well, the main body of which is located radially beyond the bobbin-case, so that in the rotation of the receiver the lubricant in the well will be carried away from the receiver by centrifugal action, and having communication with the receiver and bobbin-case to supply them with lubricant when the receiver is at rest.

2. A bobbin-case, combined with a bobbin-case receiver having a lubricant-well, the main body of which is located radially beyond the bobbin-case, so that in the rotation of the receiver the lubricant in the well will be carried away from the receiver by centrifugal action, and having communication with the receiver and bobbin-case to supply them with lubricant when the receiver is at rest, and also having a cover provided with an opening for the introduction of packing and oil.

3. The combination with a bobbin-case, of a rotary loop-taker provided with a well to contain oil for lubricating the parts of the bobbin-case that contact with the rotary loop-taker, said well having a cover closed toward the periphery of the loop-taker to prevent the escape of oil from said well due to centrifugal action.

4. The combination with a bobbin-case, of a rotary loop-taker provided with a well to contain oil for lubricating the parts of the bobbin-case that contact with the rotary loop-taker, said well formed as a bore arranged transversely in the loop-taker, having an outer funnel-shaped mouth and a cover over said mouth closed toward the periphery of the loop-taker to prevent the escape of oil from said well when the loop-taker is running.

5. A loop-taker for sewing-machines, grooved to receive a bobbin-case, and having a lubricant-well arranged in its rear and near the periphery, and communicating with the groove, a cover for said well opening toward the axis of rotation of said loop-taker, and packing material arranged in said well beneath the cover and accessible through said opening.

In testimony whereof we have hereunto set our hands this 17th day of September, A. D. 1902.

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Witnesses:

J. V. MEEKS,  
F. W. OSTROM.