No. 707,980. Patented Aug. 26, 1902.

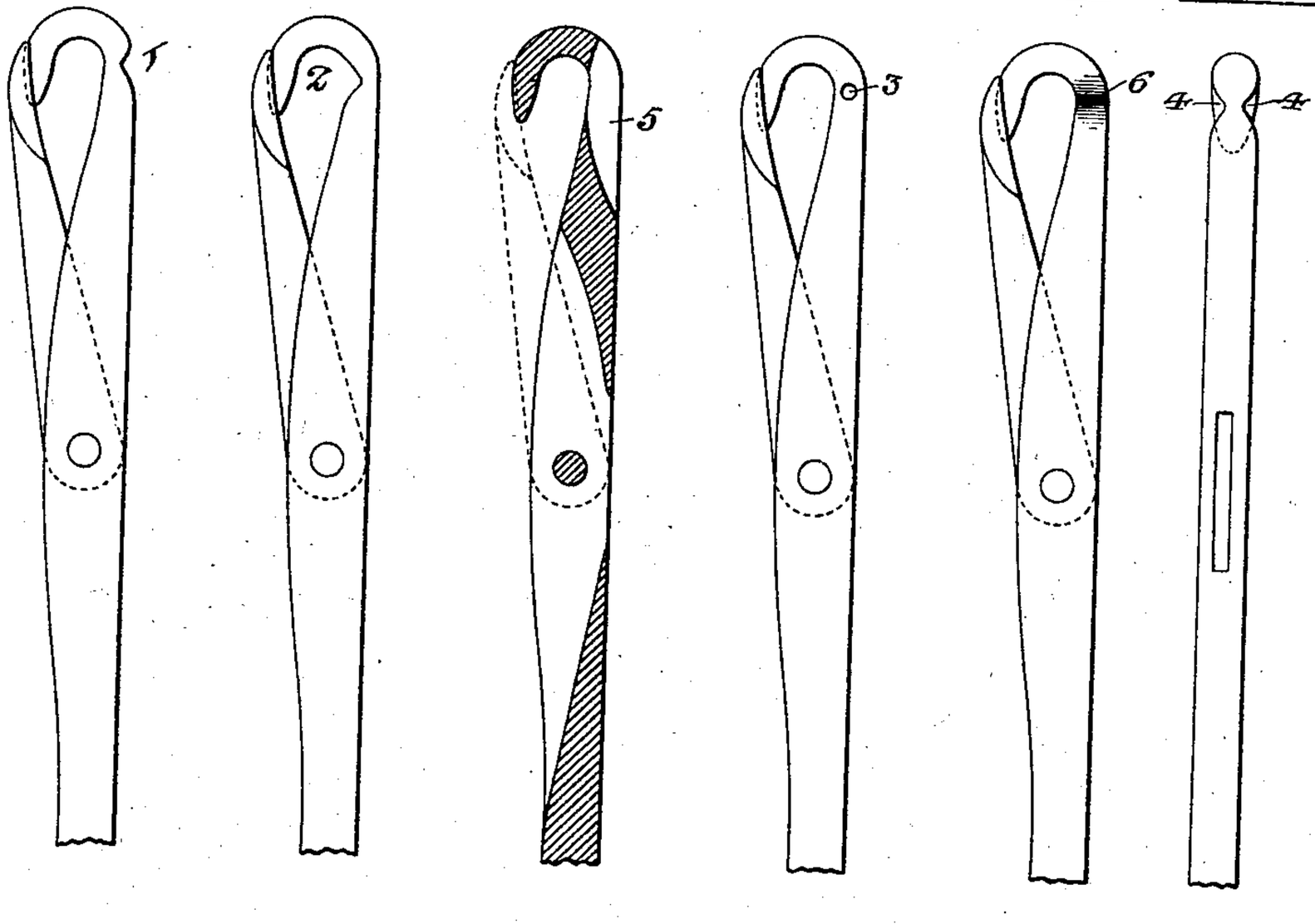
R. W. SCOTT.

KNITTING MACHINE NEEDLE.

(Application filed Oct. 18, 1901.)

(No Model.)

Fig. 1. Fig. 2. Fig. 6. Fig. 3. Fig. 4. Fig. 5.



Witnesses:-
Hamilton D. Turner
Herman E. Metius.

Inventor
Robert W. Scott,
by his Attorneys
Howson & Howson.

UNITED STATES PATENT OFFICE.

ROBERT W. SCOTT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO LOUIS N. D. WILLIAMS, OF ASHBOURNE, PENNSYLVANIA.

KNITTING-MACHINE NEEDLE.

SPECIFICATION forming part of Letters Patent No. 707,980, dated August 26, 1902.

Application filed October 18, 1901. Serial No. 79,110. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. SCOTT, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Knitting-Machine Needles, of which the following is a specification.

This invention relates to that class of knitting-machine needles which are commonly known as "latch-needles;" and it consists of an improvement whereby the damage to the knitted web caused by the breakage of the needles is largely prevented.

In the accompanying drawings, Figures 1, 2, 3, and 4 are side views of the upper or hooked end of a knitting-machine latch-needle, showing different embodiments of my invention. Fig. 5 is a back view illustrating another embodiment of the invention, and Fig. 6 is a sectional view illustrating still another method of making the needle in accordance with my invention.

In operating knitting machinery employing latch-needles the principal cause of the breakage of the needles is the presence of knots or lumps in the yarn, which being too large or thick to pass through the hook of the needle when the latch is closed upon it result in the breaking or distortion of some part of the needle, so as to render it incapable of performing its intended duty, the consequence being that the yarn loads up on the broken or distorted needle and interferes with the neighboring needles on each side, thus spreading the trouble until, if the machine is not stopped, the whole set of needles is involved, and serious damage to the cams and other delicate parts of the machine results. Sometimes the knot or lump laterally deflects the latch to such an extent that said latch fails to properly perform its function of directing the stitch over the hook of the needle, thus permitting yarn after yarn to engage with and be caught and held by the hook. In other cases there is a partial straightening of the hook or a complete straightening of the same, or, again, a breaking off of the point of the hook, the latch in each case being rendered inoperative, with the resulting objectionable loading up of the yarn on the needle. I overcome this objection by locally weakening the upper portion of the needle in such manner that when undue strain is exerted upon the hook the latter will be so broken that the yarn cannot be caught and held, the result being that the needle simply drops its stitch, the trouble being confined to the needle or needles originally broken. Hence instead of causing a large and unsightly hole in the knitted web incapable of being mended a drop-stitch alone results, which can be readily mended and the web thereby saved.

That method of carrying out my invention shown in Fig. 1 consists simply in nicking or notching the back of the hook, as at 1, at the point where it joins the stem of the needle, while in the needle shown in Fig. 2 the same result is effected by a nick or notch 2 in the throat of the hook at the same point, and in the needle shown in Fig. 3 an opening 3 is there formed, while in the needle shown in Fig. 5 the shank is thinned by depressions or nicks 4 in the sides of the same or only in one side, as desired.

In that form of needle shown in Fig. 6 the intended result is attained by forming a slot 5 in the back of the hook, and in the needle shown in Fig. 4 the weakening of the hook is effected by hardening the same, as at 6, at the desired point of breakage. In each of these cases undue strain upon the hook will cause the same to break at the point where it is locally weakened, and the upper end of the needle-stem will then present no portion capable of catching and retaining the yarn. Hence the loading up of work upon the needle and the damaging results due to such action are effectually overcome.

While it is preferable to locally weaken the hook of the needle, so that in the event of breakage the bent upper portion of the hook will be the only part carried away, the weakening may be at a point lower down on the stem of the needle so long as the part broken off is not such as to interfere with the proper continuance of the knitting operation by the other needles.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A knitting-machine latch-needle having

its upper portion locally weakened so as to cause breakage at a predetermined point when the hook is subjected to undue strain.

2. A knitting-machine latch-needle having its hook locally weakened whereby, when said hook is subjected to undue strain, the bent portion of the same will be broken off.

3. A knitting-machine latch-needle having the upper portion of the same recessed at a point below the bend of the hook so as to locally weaken the same.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT W. SCOTT.

Witnesses:
F. E. BECHTOLD,
JOS. H. KLEIN.