

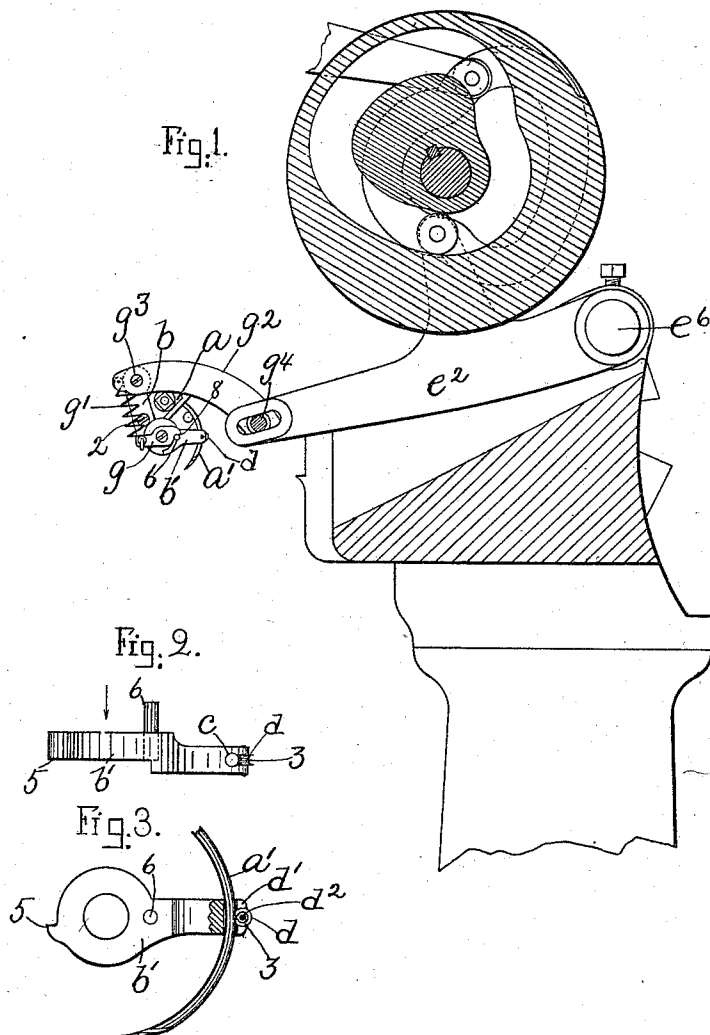
(No Model.)

W. H. McLEOD.

ANTIFRICTION NEEDLE GUIDE FOR SEWING MACHINES.

No. 535,918.

Patented Mar. 19, 1895.



Witnesses.

Lauritz W. Moller.
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UNITED STATES PATENT OFFICE.

WILLIAM H. McLEOD, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE GOOD-YEAR SHOE MACHINERY COMPANY, OF PORTLAND, MAINE.

ANTIFRICTION NEEDLE-GUIDE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 535,918, dated March 19, 1895.

Application filed June 4, 1894. Serial No. 513,362. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. McLEOD, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Antifriction Needle-Guides for Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

This invention is an improvement in sewing machines of that class employing a curved needle, such, for instance, as are adapted to sew turned work or to attach welts to boots or shoes, as shown and described in United States Patent No. 317,759, dated May 12, 1885.

In sewing machines employing a curved needle, the latter usually has co-operating with it a guide having an eye or a hole substantially the diameter of the needle, so that the latter, while free to move in and through its guide, fits the same somewhat snugly. The needle guide referred to, may and preferably will be positively moved to follow the movement of the curved needle after the manner shown and described in the patent referred to. In practice, it has been ascertained that a considerable friction is created by the movement of the needle through its guide, and as a result, the needle becomes sufficiently heated to destroy the temper of the same, thereby rendering the needle soft, liable to become bent and practically inoperative, after some use, for sewing boots and shoes, besides rendering the said needle liable to damage the work.

This present invention has for its object to overcome the defects of sewing machines employing the curved needle moving in opposite directions through a needle guide, and this object is accomplished by providing the needle guide with an antifriction device, which may and preferably will be a roller, which, for the best results, is provided with an annular concavity or groove of substantially semi-circular shape to conform with the rounded shape of the needle. These and other features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 represents in section and elevation a sufficient portion of a sole sewing machine provided with a needle guide embodying this

invention, to enable the invention to be understood; Fig. 2, a detail on an enlarged scale of the form of needle guide preferred by me, and Fig. 3, a detail of the needle guide partially broken out and on an enlarged scale showing the needle in engagement with the antifriction device, Fig. 3, being a view of Fig. 2 looking in the direction of the arrow on Fig. 2.

Referring to Fig. 1, the needle segment or carrier *a*, the curved needle *a'*, the block *b* attached to it by the screw 2, the lever *g* joined by the spring *g'* with the short arm of a lever-like link *g²* having its fulcrum as at *g³* on the block *b*, the bolt *g⁴* extended into the slot *g⁵* and by which the lever-like link *g²* is adjustably connected to the lever *e²*, pivoted as at *e³* to the framework of the machine and operated by the cam shown in said figure, are and may be of substantially the same construction as shown in the Patent No. 317,759 above referred to, wherein like letters designate like parts.

The needle guide *b'* provided with a toe or projection 5, which is engaged by a shoulder on the block *b*, to positively move the needle guide in one direction, that is, to lift the needle guide so as to follow the needle when withdrawn from the work; and provided with the stud or pin 6, which is engaged by the shoulder 8 on the lever *g* acted upon by the spring *g'*, to turn the said lever and move the needle guide in the opposite direction, that is, so as to follow the needle when the latter is descending to enter the work, may be of substantially the same construction as shown in the patent referred to, except in the particulars hereinafter to be referred to.

The needle guide *b'* is provided with an eye or opening *c* through which the needle *a'* passes, the said eye or opening being of substantially the same diameter as the diameter of the needle *a'*, so as to steadily guide the said needle and prevent vibration of the same, yet of sufficiently greater diameter to permit of free and easy movement of the said needle.

In accordance with this invention, the needle guide *b'* is provided with an antifriction device so located with respect to the eye or opening *c* as to practically form a part of the circumference of the same, so that the needle

a' in its movements in the opposite directions through the eye or opening *c* will engage the said antifriction device. This antifriction device may and preferably will be made as
5 herein shown, it consisting of a roller or drum *d* fitted into a slot *d'* in the end of the needle guide *b'* and mounted on a shaft or arbor *d²* supported by the said needle guide, the said roller or drum for the best results being pro-
10 vided with an annular groove or concavity 3 (see Figs. 2 and 3) of substantially semicircular shape, so as to substantially conform to and complete the circumference of the eye *c*, and thereby substantially conform to the
15 rounded shape of the needle *a'*.

The antifriction drum or roller *d* is loosely mounted on its shaft *d²*, so as to be free to revolve in the passage of the needle through the eye *c*, thereby permitting the needle to pass
20 freely through its guide with a minimum amount of friction and without creating sufficient friction to heat the needle so as to destroy its temper and thereby render it soft and practically inoperative.

I prefer to employ the form of antifriction 25 device herein shown, but I do not desire to be limited to any particular form of antifriction.

I claim—

1. In a sewing machine provided with a 25 curved needle, a needle guide provided with 30 an antifriction bearing for the said curved needle, substantially as described.

2. In a sole sewing machine, the combina-
tion with a curved needle and means to sup-
port it, of a needle guide provided with an eye 35 through which the curved needle is passed, means to move the said needle guide, and an antifriction bearing for the said needle carried by the needle guide, substantially as de-
scribed. 40

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

WILLIAM H. MCLEOD.

Witnesses:

WILLIAM A. SARGENT,
JOSEPH WARREN.