

No. 777,065.

PATENTED DEC. 13, 1904.

W. Y. A. BOARDMAN.
NEEDLE FOR SEWING MACHINES.

APPLICATION FILED DEC. 26, 1903.

NO MODEL.

 *Fig. 1.*

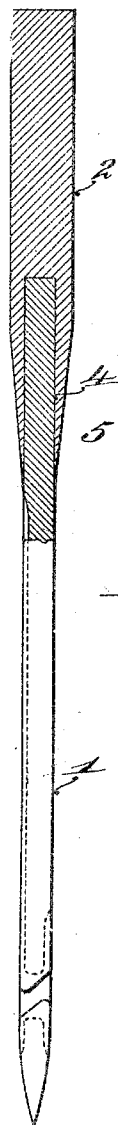


Fig. 2.

Witnesses

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NEEDLE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 777,065, dated December 13, 1904.

Application filed December 26, 1903. Serial No. 186,615. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM Y. A. BOARDMAN, a citizen of the United States, residing at Hydepark in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Needles for Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improvement in needles for sewing-machines.

Eye-pointed sewing-machine needles as usually made have shanks of uniform size for each style of sewing-machine, while the body of the needle is made to vary with the size of thread or the kind of material. The shanks of the needles are flattened to secure the proper position of the needle-eye with relation to the other parts of the machine. The body and shank merge by a gradual taper, so that there shall be no angle at their junction tending to facilitate breaking at this point. One reason for making the shanks of needles of larger diameter than the bodies is that the shank must be of sufficient size and strength to afford an adequate means of securing the needle to the needle-bar. In order that needles of the kind described may be sufficiently durable and that the points may not bend or break, it is highly desirable to make the working part of the needle of high-carbon steel, which may be hardened and tempered. This is particularly desirable in the case of open-eye needles—needles in which a slot is cut through the side of the needle and into the eye—to permit threading the needle without reeving the end of the thread through the eye. Such needles are structurally weak at the eye and require the use of the best steel to make them sufficiently strong. No practicable method of making such needles of high-carbon steel has yet been proposed. The steel wire of which the needles are made must be of a diameter equal to the finished shank, and the body of the needle must be reduced in diameter by swaging or grinding. The swaging process is expensive, as it involves the frequent annealing of the wire if high-carbon steel is used,

owing to the hardening of the surface by the percussion of the dies, and it is further impracticable to swage high-carbon steel, as its strength is impaired by the process. Moreover, it is difficult to swage the body exactly concentric with the shank, as is desirable, in order that the needle may register properly with other parts of the sewing-machine. The grinding process is expensive and involves considerable waste of metal, and since the “skin” of the metal is removed the needle is not as strong as when made by other methods.

The object of the present invention is to avoid the disadvantages of needles made in the ways above described, and to this end the invention consists in a needle of which the body and shank are made of separate pieces of metal, the body being made of high-carbon-steel wire drawn to the right diameter, so as to require no subsequent reduction, and the shank being of greater diameter and having a socket in which the body is secured.

In the drawings, Figure 1 is a plan of the needle, and Fig. 2 is a side elevation of the needle, showing a portion thereof in section.

The illustrated embodiment of the invention is constructed as follows: A body portion 1 is made of a piece of high-carbon-steel wire drawn to the finished size of the needle and has a point, an eye, and thread-grooves, as usual. The shank 2 is flattened at 3 and provided with a socket 4 to receive the end of the body. The body is hardened and tempered before the parts are secured together, and it is then inserted in the shank and the parts are soldered together by a solder melting at a heat insufficient to draw the temper of the body or secured together by any suitable cement. The lower end of the shank is tapered at 5 to avoid an angle at the junction of the parts. The needle so constructed is as strong as a single piece of steel, since the joint may be made as long as desired.

High-carbon steel may be drawn into wire without impairing its strength, and since the wire is drawn to the size of the finished body it is not necessary to remove the compact skin produced in the drawing process.

Since swaging is dispensed with by this construction, the shank as well as the body may

be of high-carbon steel; but it is preferable to make it of milder steel, as this is cheaper and easier to work. The illustrated needle is of the open-eye form, to which, as above
5 pointed out, this construction is particularly applicable. Needles of different diameter for different grades of work may be made by using steel wire of different gages, the shanks being preferably all of one diameter, so that the needles
10 may be interchangeable.

Having thus described my invention, I claim as new and desire to secure by Letters Patent of the United States—

An eye-pointed needle for sewing-machines

comprising a shank for securing the needle to
15 the needle-bar of the machine, said shank having a socket therein, and a body of uniform size fitting and secured in the socket of the shank formed of high-carbon-steel wire drawn to the finished size, and provided with an open-
20 sided eye, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM Y. A. BOARDMAN.

Witnesses:

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