

(No Model.)

C. W. STIMSON.
NEEDLE.

No. 559,108.

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Fig. 1.

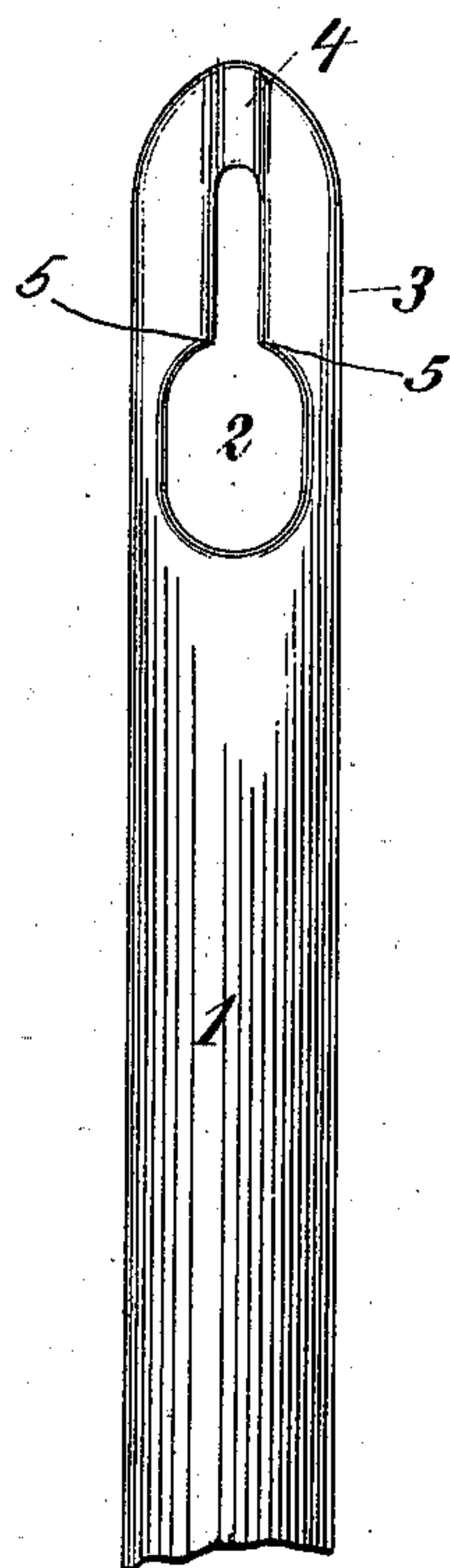


Fig. 2.

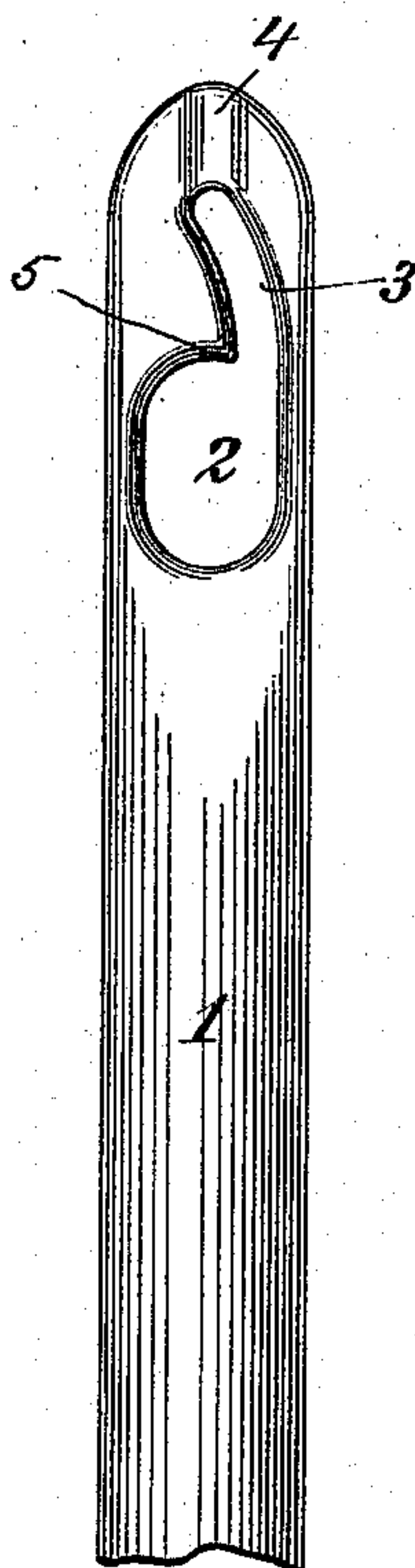
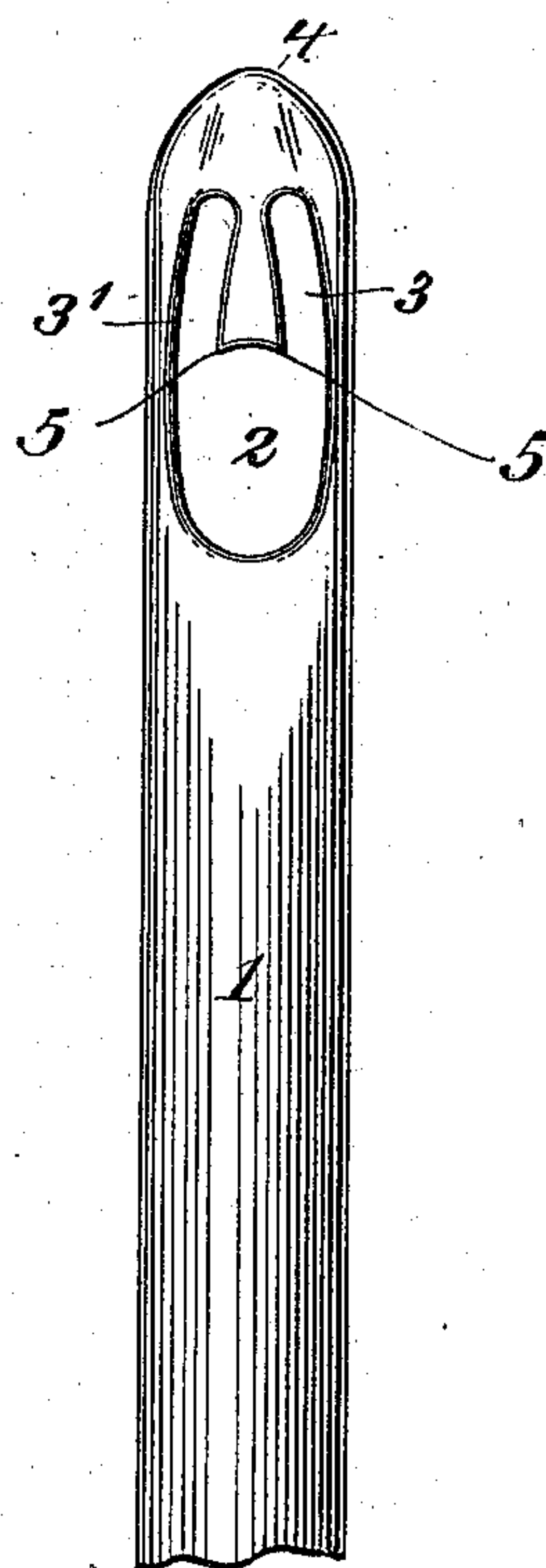


Fig. 3.



Witnesses:-

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UNITED STATES PATENT OFFICE.

CHARLES W. STIMSON, OF NEW YORK, N. Y.

NEEDLE.

SPECIFICATION forming part of Letters Patent No. 559,108, dated April 28, 1896.

Application filed February 23, 1895. Serial No. 539,353. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. STIMSON, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Needles; 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.

My invention relates to needles, and particularly to the eyes of needles, and to a shape and construction thereof whereby the needle may be used with the thread held firmly within the eye of the needle, so as to be prevented from being pulled out of the eye unintentionally while the needle is in use, or may be used with the thread loose within the eye, as in ordinary needles, at will; and my invention consists in the novel shape and construction of the needle-eye hereinafter described.

The objects of my invention are, first, to provide a needle having an eye so formed that while the needle may be threaded in the customary manner and with as great ease as is possible with the common needles now generally used, it may also be possible to secure the thread in the eye by a movement which is simple and easily performed, so that the thread may be prevented absolutely from slipping and from being drawn out of the eye unintentionally, and yet may be removed from the needle, when desired, as easily and quickly as is possible with the ordinary needle; second, to provide a needle which, while capable of holding the thread, as above specified, shall not be liable to cut or weaken the thread at the point where it is held, so that there may be no danger of undue breakage of the thread; third, to provide a needle which, while possessing the above qualities, may be used as an ordinary needle, when so desired, the thread being loose in the eye, and, fourth, to provide a needle which, while possessing the above advantages, shall be simple in construction, strong, durable, and cheap. These objects are attained in the invention herein described, and illustrated in the drawings which accompany and form a part of this application, in which the same reference-num-

erals indicate the same or corresponding parts, and in which—

Figures 1, 2, and 3 are side elevations, greatly enlarged, of the upper or head ends of needles having different forms of eyes embodying my invention.

In the drawings, 1 is the needle. It may be of the same size, form, and proportions as the ordinary needle used for the same class of work.

The needle in which my improved eye is formed may be of any class which is used with a thread, cord, or other sewing material, and my invention is not limited to hand sewing-needles.

The needle, the head of which is shown in the drawings, is an ordinary sewing-needle, and consequently the eye is in the extreme upper portion thereof. The eye consists of an enlarged portion 2, which corresponds in shape and size to the ordinary needle-eye, and a slot 3, communicating with the portion 2 at the upper end thereof and much narrower than this portion 2 and than the diameter of the thread intended to be used in the needle, and having a length considerably greater than the diameter of the thread. The sides of the slot 3 are substantially parallel. The slot does not broaden at its lower end so as to merge gradually into the larger portion 2, but terminates abruptly in this larger portion 2, so that at the end of the slot shoulders, such as 5 of Fig. 2 and 5 5 of Figs. 1 and 3, are formed, leaving in the end of the larger portion 2 of the eye a bearing-surface, against which the thread may rest, as in an ordinary needle-eye, when it is not desired to secure the thread within the eye of the needle. The edges of these shoulders are rounded to prevent possible cutting of the thread, as are all of the edges of the needle-eye. Beyond the end of this slot the needle is provided with a groove 4, corresponding to a similar groove in the common needles now in use, in which the thread lies when the needle is being drawn through the fabric, so that there may be as little disturbance of the fabric as possible. The larger portion 2 of the eye is formed in all respects similarly to the eyes of common needles, and may be round or it may be oval or "egg-shaped," as are the eyes of common needles. Since the slot 3 ter-

minates abruptly in this larger portion 2 of the eye, the upper end of this portion 2 may have substantially the shape, except at the point where the slot 3 ends, that it would have
 5 were no slot there, and because of the narrowness of the slot there is left ample bearing-surfaces, so that the thread will not enter the slot in the ordinary use of the needle unless it be intentionally pulled therein. It
 10 is possible, therefore, to use my needle as an ordinary needle, with the thread loose in the eye, or to fasten the thread in the eye at will.

The needle is threaded in the ordinary manner by passing the end of the thread
 15 through the larger portion 2 of the eye. If the thread is to be fastened in the eye, it is necessary to pass but a very small portion of the thread through the eye, so that thereby the wasting of a considerable portion of the
 20 thread, as is now often the case, is avoided, and there is much less liability of the thread becoming tangled in sewing. In order to fasten the thread in the eye after the needle has been threaded, the thread is grasped on
 25 both sides of the needle, and by a firm steady pull the bight is drawn into the slot 3 and to the bottom thereof. It may be found easier to pull the thread into the slot 3, particularly with the larger sizes of thread, and to so pull
 30 upon the thread that it will enter the slot 3 on one side of the needle before it enters on the other side, so that the thread acts somewhat as a wedge, and probably springs the sides of the needle apart slightly as it enters
 35 the slot. When so within the slot 3, the thread is pressed so firmly by the sides of the needle that that portion of it which is within the eye or very close thereto is no longer round, but has been broadened and flattened.
 40 If the slot 3 be properly proportioned for the size of thread used, however, the thread is not pressed or distorted sufficiently to weaken it, while it is held so firmly that it cannot be pulled from the eye while the needle is in use
 45 by a pull strong enough to break the thread. When it is desired to remove the thread from the needle, however, this may be done by pulling it toward the point of the needle, when the thread will move down into the larger por-
 50 tion 2 of the eye, and so will be held in the eye no longer.

If it is not desired to fasten the thread into the eye of the needle by pulling it up into the slot 3, the needle may be used as an ordinary
 55 needle, with the thread loose therein, the slot 3 being so narrow that the thread will not enter the same with the amount of tension to which the thread close to the eye of the needle is ordinarily subjected in sewing, but will remain within the larger portion 2 of the eye bearing against the bearing-surface formed in the end of the larger portion 2 by the shoulder or shoulders 5 while the thread is being
 60 pulled through the fabric. A form of eye which is especially adapted to be used in either manner—that is, with the thread loose or fastened at will—is shown in Fig. 2, wherein

the mouth of the slot 3 is not situated on the axis of the needle, but to one side thereof, and the slot then curves around toward or
 70 even beyond the axis of the needle. When the needle is in use, the thread naturally tends to lie in the center of the eye, and as the slot communicates with the larger portion 2 of the eye at the side instead of at the cen-
 75 ter there is less liability of the thread entering the slot 3 unintentionally than with the form of eye shown in Fig. 1, something that is not likely to occur in any case if thread of the proper size is used in the needle, but
 80 might occur accidentally if too small a thread were used.

Fig. 3 shows another form of eye, in which there are two slots 3 and 3', corresponding to the similar slot of Fig. 2 and placed at the
 85 sides of the needle. This needle is used in the same manner as the others, either slot being used indifferently.

I am aware that it is old to form the eye of a needle in two portions, one larger than the
 90 other, through which the thread is passed when threading the needle, the other small enough to hold the thread somewhat tightly, the two portions of the eye being connected by a narrow neck through which the thread
 95 may be pulled and which is narrow enough to prevent the thread from being passed from one portion of the eye to the other unintentionally. I have found that when the smaller of these two portions of the eye is small
 100 enough to hold the thread sufficiently tight to prevent slipping then it is almost impossible to draw the thread through the narrow neck connecting the two portions of the eye, and when this neck is made large enough to
 105 enable the thread to be passed through it then the thread is not held sufficiently tight in the eye of the needle. I am likewise aware that it is old to form a needle with a long tapering eye, larger at the lower end than at the
 110 upper. I have found, however, that in order for the thread to be held sufficiently tightly in the eye that portion of the eye within which it is held must have substantially parallel sides, as, if the sides taper perceptibly, but
 115 one portion of the thread will be held and the rest will not be held, so that either the thread will not be held sufficiently tight or else a portion only of it will be held, so that a slight pull upon the thread will break it.
 120 If the sides of a tapering eye be so nearly parallel as to avoid trouble from this cause and if the larger end of the eye be large enough so that it may be threaded in the ordinary manner, then the eye must be exceedingly
 125 long, and will unnecessarily weaken the needle, besides greatly increasing the difficulty and expense of making the same. I am likewise aware that it is old to form the eye of a needle with a larger portion corresponding
 130 substantially to the eye of an ordinary needle and merging at the upper end somewhat gradually into a narrow slot-shaped portion. This form of needle-eye obviates some of the

objections to the tapering eye above mentioned, since it does not require that the eye shall be of such extreme length as to weaken the needle, but this needle-eye still retains the objection inherent with the tapering eye that the needle cannot be used as an ordinary needle with the thread loose in the eye, but the thread will inevitably become wedged in the narrower portion of the eye with the ordinary strain due to pulling the thread through the fabric. By my invention I avoid all of these difficulties. The larger portion of the eye is or may be as large as the ordinary needle, so that the needle is as easy to thread as an ordinary needle. The slot 3 is so narrow that it changes the shape of the thread, flattening the same, though not weakening it, and since the sides of the slot are parallel, or substantially so, and since the slot is sufficiently long, so that the whole width of the thread is included within the slot, the thread is held all over, so that the maximum holding-power is obtained with the minimum danger of weakening the thread. Moreover, since the larger portion 2 of the eye does not taper gradually into the slot 3, but terminates in the same abruptly, leaving the upper end of the portion 2 of substantially the same shape as if the slot 3 were not there, it is possible, when desired, to use the needle as an ordinary needle with the thread loose in the eye, the slot 3 being so narrow that there is left sufficient bearing-surface at the end of the portion 2 so that the thread will not enter the slot 3 with the ordinary strain due to pulling

the thread through the fabric, but will remain loose within the larger portion 2 of the eye.

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

1. As an article of manufacture, the herein-described needle provided with an eye having an enlarged portion and a narrow slot-shaped portion having substantially parallel sides, and terminating abruptly in the enlarged portion, so as to leave in the end of said enlarged portion bearing-surface against which the thread may bear without being drawn into the slot-shaped portion when it is desired to use the needle with the thread loose within the eye, substantially as described.

2. As an article of manufacture, the herein-described needle provided with an eye having an enlarged portion and a slot-shaped and curved portion having substantially parallel sides, and terminating in the enlarged portion, so as to leave in the end of said enlarged portion bearing-surface against which the thread may bear without being drawn into the slot-shaped portion when it is desired to use the needle with the thread loose within the eye, substantially as described.

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

CHARLES W. STIMSON.

Witnesses:

VICTOR K. McELHENY, Jr.,
HARRY M. MARBLE.