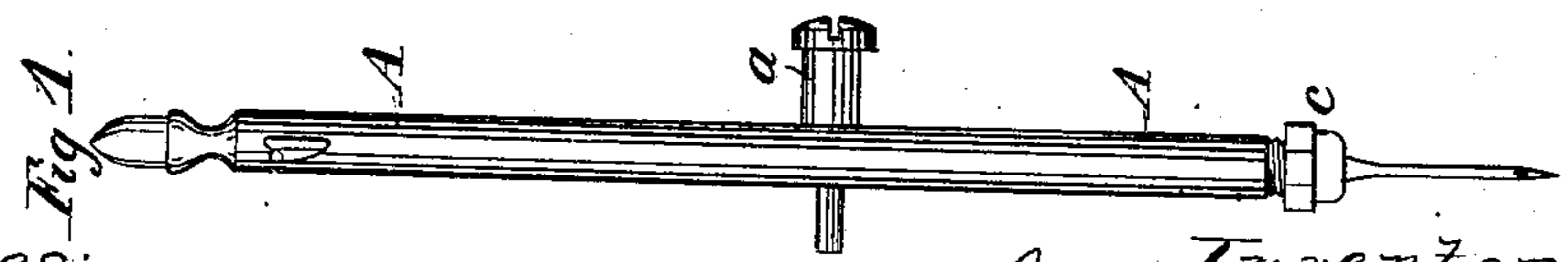
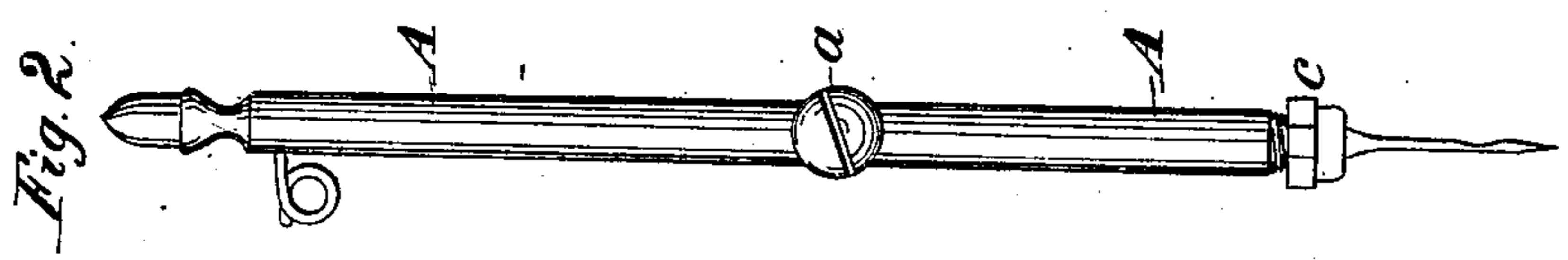
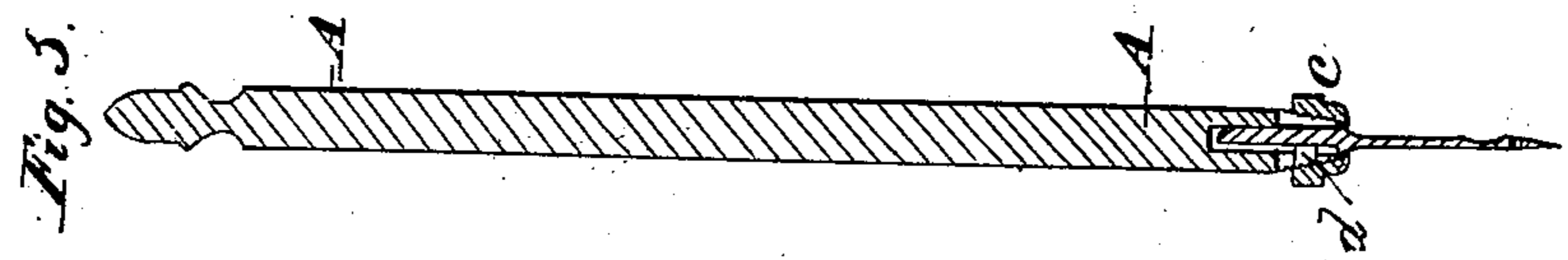


C. H. WILCOX.  
 ADJUSTING AND SECURING SEWING MACHINE NEEDLES.  
 No. 29,448.                      Patented July 31, 1860.



Witnesses:  
*John B. Rely*  
*W. Fairfax.*

Inventor:  
*Chas. H. Wilcox by*  
*A. Pollard*

# UNITED STATES PATENT OFFICE.

CHARLES H. WILLCOX, OF NEW YORK, N. Y., ASSIGNOR TO JAMES WILLCOX.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 29,448, dated July 31, 1860.

*To all whom it may concern:*

Be it known that I, CHAS. H. WILLCOX, of New York, of the county of New York and State of New York, have invented a certain new and useful Improvement in Adjusting and Securing Sewing-Machine Needles in their Stocks or Holders; and I do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figures 1 and 2 represent longitudinal front and side views of a sewing-machine-needle stock or holder with needle attached, constructed according to my improvement; Fig. 3, a longitudinal view of the needle detached; Fig. 4, a sectional view of the same; Fig. 5, a longitudinal section of the stock with its needle, and Fig. 6 a view of the elastic or needle-clamping portion of the stock and nut detached.

In sewing-machines, both for stitching with a single thread as well as for sewing with two threads, it is necessary, to secure good or proper sewing, or sewing at all, that the several working parts of the machine should occupy a certain relationship in position, when in action, to each other, and many of these parts require a frequent adjustment to effect this. It is not only the tension of the thread and the action of the feed that have to be regulated from time to time, nor yet the shuttle or its equivalent when such be used, but also the needle in the stock or holder of the machine. This will be readily understood when it is considered that the needle, which is here supposed to be an eye-pointed one, has to bring the thread through the cloth in such a manner as in one of its strokes to form or leave a loop which has to have passed through it, by a shuttle or other device, a secondary thread, or which is held and twisted or turned or otherwise acted upon by a hook or looper, either to effect its interlacing with a secondary thread or with a subsequent loop of the same thread in or by the further or repeated action of the needle. The needle, then, and needle-eye must lie or occupy, when moving or when reaching a certain point, in a certain relationship to the path of the shuttle or hook or looper, to secure the interlacing of the loops of the needle-thread either with each other or with a secondary thread, or with both; and as the course of the shuttle or hook or looper is a defined one and in a given

direction, so must and is the course of the needle, or rather so must be the position of the needle, when and where it forms or leaves the loop, to effect the interlacing or interlocking of the successive loops to produce the required stitch. Were it not necessary to remove the needle at different periods, then it would be easy to meet the requirement here spoken of by first setting the needle right; but the needle in time wears dull or gets bent or broken, and is often required to be replaced for either of these causes, or when a finer or stouter needle is wanted for work of a differing character or to work thread of different kinds, or in some cases to facilitate the passing of the thread through the eye of the needle; also, the needle, under certain constructions of holders, may turn or shift from its prescribed position, so as to change the position of the eye relatively to the line of feed or path of the shuttle or looper. Consequently the adjustment of the needle is an important feature in sewing-machines, and as it commonly falls to the lot of persons inexperienced in mechanics—such as women and children employed in working these machines—to properly fit into the stock every freshly-inserted or replaced needle, or to adjust it when in the stock, such operation is often attendant with difficulty to many and with trouble and annoyance and great loss of time to others. It has therefore long been a desideratum to meet this difficulty by an automatic action or such arrangement of the parts as to secure, without failure and without the exercise of much or any skill, the proper position and adjustment of the needle, and this my invention accomplishes in a most perfect manner, as well as secures such a firm hold of the needle as makes it steady in its action and prevents its shake in the socket of the holder—another evil attendant upon many or most previous arrangements, and an evil which one part of my invention most effectually remedies. And here I would observe, preparatory to describing my invention, that I altogether discard, for the purposes named, angular or polygonal-shaped sockets to needle-holders, either as the sole means or when acting in combination with a side set-screw, which is apt to work loose, and forms at best a very imperfect clamp, as such are, if not impossible, at any rate very difficult, to construct, and present angles or corners liable by wear to affect the

adjustment, but also involve an intricate nicety in the construction of the needle, and are objectionable in the action of the needle as regards its freedom from shake or play; and in this remark I include or refer to sockets made slotted to receive the needle from or through the side of the stock or holder, as such has been tried and found wanting. My improvement has nothing in common with such arrangements.

Referring to the accompanying drawings, the part marked A represents a needle stock or holder of a sewing-machine, with a cross-pin, *a*, for its attachment to the working-beam or needle-arm of the machine. The socket-hole at bottom of this holder to receive the needle-shank I prefer to make round, as such admits of being easily and nicely formed by drilling. The bottom *b* of the socket is made taper, and has a screw-thread cut upon it, and is split or divided longitudinally, and in any number of places, so as to make it constitute a spring jaw or clamp round and on the needle, to hold it steady by means of and in concert with a screw-cap, *c*, which, after the needle is inserted in the socket, is passed up over the needle and screwed onto the taper end of the socket, and so compresses the wings formed by the divisions in the socket as to make them bend on and tightly hold the needle all round. This, it will be seen, constitutes a most efficient yet simple needle-clamp, to keep it in its set position and steady. To facilitate and make certain the proper adjustment or set of the needle in the socket, with the eye of the needle in the required position before referred to, and to make any other position or adjustment of the needle an impossibility, I introduce in one of the slits or divisions of the socket *b* a guide and locking-spline, *d*, which may be a thin piece of metal let into the slit of the socket. This spline I prefer should stand so as to form a radial

projection for any desired length into the eye or hole of the socket; and I further form the needle B with a longitudinal slot or depression, *e*, in its shank, for to receive, when putting the needle into the socket, the spline *d*, and so effect the lock and proper adjustment of the needle with its stock or holder. An obvious modification of my said invention, and which embraces substantially the same principle of invention, is to provide the needle with a projecting stud on its shank, and to construct the socket of the needle-holder or the hole into which the needle-shank is to be inserted with a longitudinal slot or depression arranged to correspond in position with the stud on the needle-shank, so as to render it impossible to insert the needle in any other position relatively to the hook than that which is requisite to perform its work with unfailing accuracy.

The screw-cap *c* may be screwed on and off the socket by the fingers of the operator or by a small key or wrench; or it need only be slightly slackened or partially unscrewed, so as to relieve the taper spring-socket of its tight grip of the needle when the latter is required to be removed or replaced.

Having thus described my invention, I claim—

The method herein described of securing the proper adjustment of the needle in the socket of its stock or holder by means of an inner spline or locking-guide to the socket, in combination with a needle grooved or slotted longitudinally at its shank, substantially in the manner and for the purposes set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

CHAS. H. WILLCOX.

Witnesses:

JAMES KILNER,  
MOREAU MORRIS.