J. S. TURNER.

SURGICAL NEEDLE.

APPLICATION FILED FEB. 6, 1911.

**1,110,468.** Patented Sept. 15, 1914.

Fig. 1.

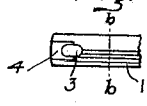



Fig. 2

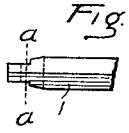



Fig. 3.

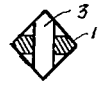






Fig. 4.

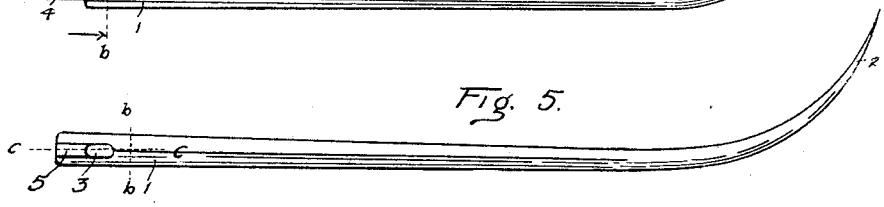



Fig. 5.

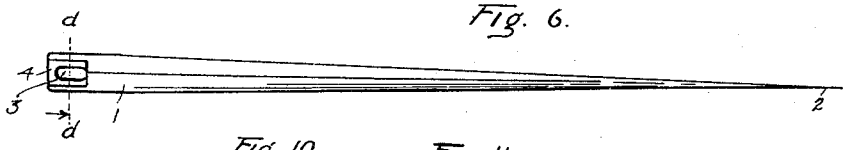



Fig. 6.

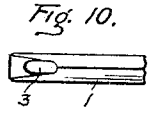



Fig. 10.

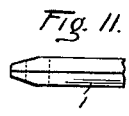



Fig. 11.

Fig. 7.

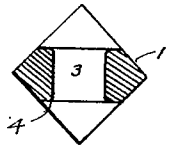



Fig. 8.

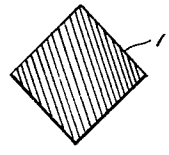
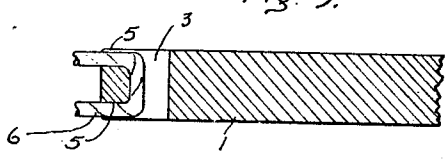



Fig. 9.




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# UNITED STATES PATENT OFFICE.

JOSEPH S. TURNER, OF LOS ANGELES, CALIFORNIA.

## SURGICAL NEEDLE.

1,110,468. Specification of Letters Patent. Patented Sept. 15, 1914.

Application filed February 6, 1911. Serial No. 606,767.

*To all whom it may concern:*

Be it known that I, JOSEPH S. TURNER, a citizen of the United States, residing at Los Angeles, California, have invented a new and useful Surgical Needle, of which the following is a specification.

My invention consists of a new and improved construction in surgical needles, the uses and purposes of which are herein fully set forth.

In the accompanying drawings the details and novel features of construction are shown, and in these drawings: Figure 1 is a side view of the shank of a surgical needle; Fig. 2 is a top view of the part shown in Fig. 1; Fig. 3 is a cross sectional view taken on the dotted line *a*—*a* in Fig. 2; Fig. 4 is a side view of another form of surgical needle embodying my improvements; Fig. 5 is another type of needle embodying my new features; Fig. 6 is a top plan view of the needle shown in Fig. 4; Fig. 7 is an enlarged cross sectional view taken on the dotted line *d*—*d* in Fig. 6; Fig. 8 is an enlarged cross section taken on the dotted line *b*—*b* in Fig. 1, Fig. 4 or Fig. 5; Fig. 9 is an enlarged fragmental longitudinal cross section taken along the line *c*—*c* in Fig. 5. also showing a ligature threaded through the eye of said needle; Fig. 10 is a side view and Fig. 11 a top plan view of a needle having a similar construction to the one shown in Fig. 1 except in one detail.

Throughout the several views like characters refer to like parts, and referring to the details of construction: 1 is a rectangular shank formed on any size or type of surgical needle; 2 refers to the point of a surgical needle, and this may be straight, curved or flattened in any desired manner and for any purpose; 3 refers to the eye of the needle; 4 is a flattened portion of the needle at or near the eye end of the needle in the type of needle shown in Figs. 1 and 4; 5 is a groove formed in either side of the needle shown in Fig. 5 and is adapted to receive the ligature, and 6 is a ligature or thread.

It will be seen in the drawings that the shank of the needle in all of the forms of construction shown is made square with two of the opposite edges of the said shank in alinement with the longitudinal center of the eye of the needle. The length of the eye as ordinarily constructed is made about twice its width. The length, shape and other characteristics of the needle outside of the eye and shank portions may be of any desired kind, size and form and these features are no part of this invention. The object in making the shank rectangular is to provide a satisfactory means for holding the needle in a forceps or needle holder having a suitable rectangular notch cut in its jaws. With a round or oval needle shank there is no absolute means for preventing the needle from turning in the forceps and with the point of the needle obscured from vision, it is impossible to determine just where the point is going. Great damage often results from accidentally penetrating tissues in this manner. With a square shank, the corners of which are in a known relation to the eye and to the direction of the point, the needle can be guided with great ease and precision.

In the use of a surgical needle of ordinary construction the ligature passing through the eye offers a serious and abrupt obstacle to the passage of the needle through the opening in the tissues made by the needle and it is a common occurrence to break needles in the attempt to force this enlarged section through the smaller and elastic opening in the tissues made by the point. To overcome this difficulty I place the eye of the needle within or in close proximity to the square shank of the needle. Means is then provided for allowing the ligature to enter the opening made by the needle while the shank of the needle holds the tissues in the clear of the ligature.

In the form of needle shown in Fig. 5 the eye is formed in the rectangular portion of the shank and a groove 5 is cut in the two opposite sides of the needle from the eye to the back end of the needle. This groove receives the ligature and the sides of the groove hold the tissues apart while the ligature is entering.

In the needle of the type shown in Fig. 10, and which I regard as the most desirable of the several forms shown, the eye is cut in the square shank, the needle is grooved from the eye to the back end as above described, and the needle from about the center of the eye to the back end is tapered or beveled as shown in said Fig. 10 and in Fig. 11. This holds the tissues apart until the ligature enters the opening made by the needle and then allows the tissues to close

upon the ligature, but after the shoulder formed by the ligature has passed into the tissues.

Fig. 1 shows a needle identical with the one shown in Fig. 10 except that shoulders are formed by the flattening of two opposite sides of the shank from the center of the needle back instead of the taper shown in Figs. 10 and 11.

In the form of needle shown in Fig. 4, I place the eye of the needle at the exact end of the square shank and the beginning of the flattened portion of the shank at this point provides shoulders on each side of the needle which will hold open the tissues which have been gradually separated by the taper of the needle, until the ligature held in the eye can enter the opening so made.

The length of the square portion of the shank is varied according to the length of the slot in the jaws of the forceps or needle holder to be used and according to the length and shape of the needle used.

A needle constructed of suitable material with a rectangular shank and shoulders or projections for protecting the ligature may be used for many purposes, also the shape of the shank may be slightly varied and I do not desire to limit myself to one exactly square in construction. Other rectangular or diamond shaped shanks may be used.

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

In a surgical needle, a suitably shaped point, a square shank on said needle, an eye through said needle, the axis of the eye lying in the plane of two opposite edges of the rectangular shank, a groove extending from each end of the eye to the rear end of the needle, whereby the construction of the grooves removes the material from the rectangular shank only at two opposite edges thereof.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."