

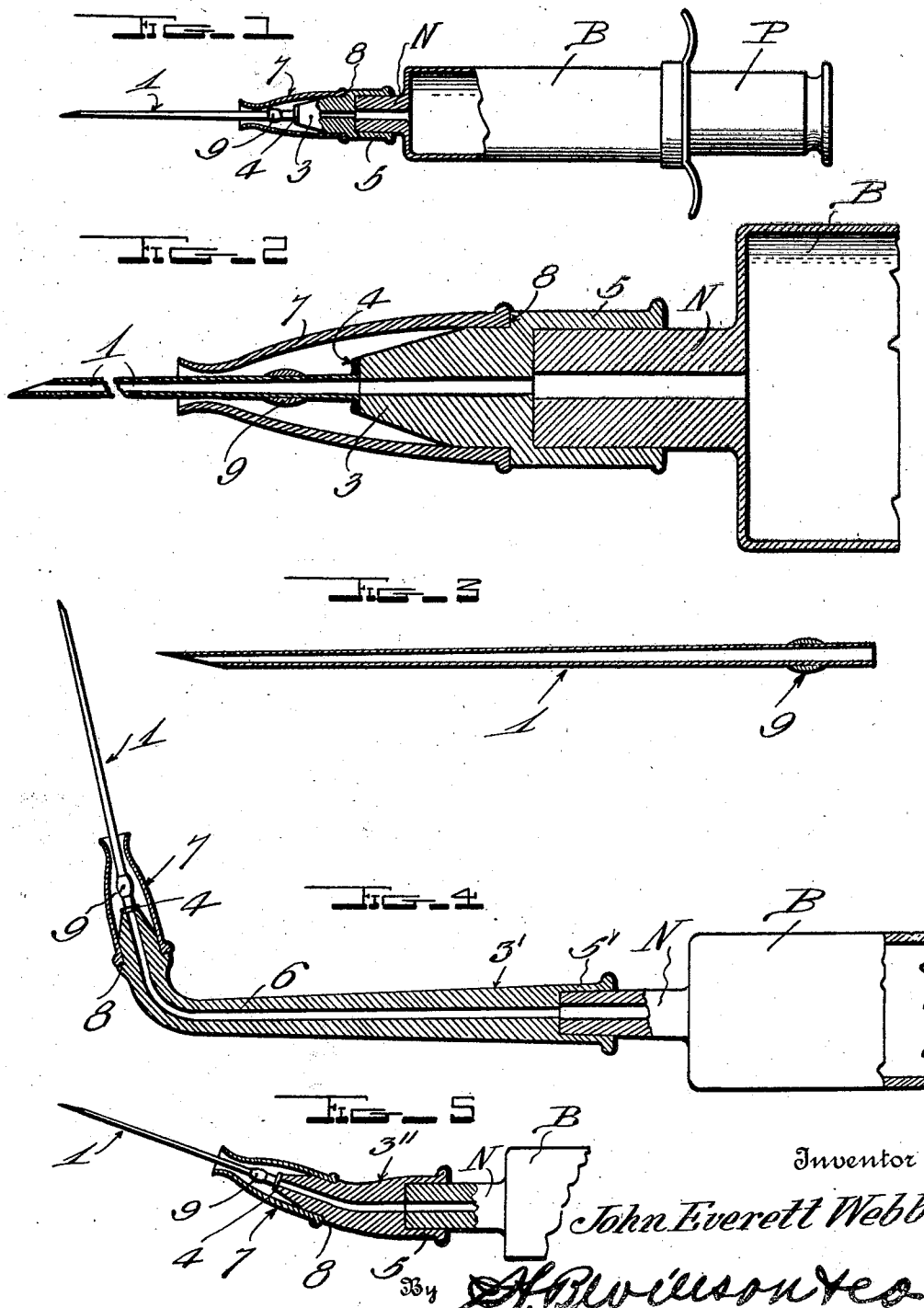
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J. E. WEBB

HYPODERMIC NEEDLE

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Inventor

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UNITED STATES PATENT OFFICE.

JOHN E. WEBB, OF McGREGOR, IOWA.

HYPODERMIC NEEDLE.

Application filed April 14, 1922. Serial No. 552,494.

To all whom it may concern:

Be it known that I, JOHN EVERETT WEBB, a citizen of the United States, residing at McGregor, in the county of Clayton and State of Iowa, have invented certain new and useful Improvements in Hypodermic Needles; and I do 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 hypodermic syringes and has special reference to an improved type of needle, needle carrier and guard.

One object of the invention is to so construct the needle and guard that when the syringe is in use, and the needle breaks from the carrier, its outward movement through the forward end of the guard will be limited and thus the broken needle caused to be withdrawn from the tissue and thus prevented from being left in the tissue when the syringe is withdrawn. It often happens that in injecting cocaine and other fluids with a hypodermic needle, the needle will break and will remain in the tissue in which it has been inserted; but with the improved construction disclosed, this will be prevented as the outward movement of the needle through the guard will be prevented and therefore the needle caused to be withdrawn from the tissue. It should be noted that a needle is always soldered to the carrier which fits upon the neck at the forward end of the barrel and since this is the weakest point, breakage occurs at this connection instead of intermediate the length of the needle when bone or other obstructions are encountered.

Another object of the invention is to so construct the carrier for the needle that it may be straight throughout its length or provided with a bend so that the needle, which will be straight, may extend at a desired angle to the barrel of the syringe and thus permit of insertion where insertion of a needle extending longitudinally of the barrel would be difficult.

This invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a view showing the syringe partially in elevation and partially in section.

Figure 2 is an enlarged view of the portion shown in section in Fig. 1.

Figure 3 is an enlarged sectional view of the needle.

Figure 4 is a sectional view showing a modified form of needle carrier.

Figure 5 is a view similar to Fig. 4 showing another modification of the needle carrier.

This improved needle, needle carrier, and guard will be used in connection with a conventional structure of hypodermic syringe having the usual barrel B provided with the usual outlet neck N and having a conventional structure of plunger P so that cocaine or other fluid may be forced from the barrel through the outlet passage of the neck N. The needle 1 which is of the usual hollow construction so that fluid may pass through the needle has its rear end portion secured against the outer end of the needle carrier or hub 3 by solder as shown at 4 in Fig. 2 so that the needle will be normally held in engagement with this carrier but may break off at this connection when the point of the needle strikes bone or other obstruction and thus prevents the needle from being broken intermediate its length. This carrier 3 is provided with a socket portion 5 which fits upon the neck N of the barrel B and therefore this carrier will be removably held upon the neck of the barrel. This neck may be simply slipped into the socket 5 or if desired the neck and socket may be provided with threads so that the neck will be screwed into the socket and thus firmly held in place but permit of easy removal when desired.

In Fig. 1, the needle carrier is shown relatively short and straight throughout its length so that the needle will extend longitudinally of the barrel as shown in Fig. 1. In Fig. 4, this carrier which is indicated by the numeral 3' is elongated so that the head portion which is indicated in general by the numeral 6 is positioned relatively far away from the socket portion indicated by the numeral 5' in this figure. Adjacent the head 6, the carrier is bent so that it extends to one side as shown thus causing the needle 1 to extend out of alinement with the body portion of the carrier and barrel. This form will be used for applying cocaine or other drugs where easy access could not be had to the portion which it is desired to deaden if the form shown in Fig. 1 were used. In the form shown in Fig. 5, the carrier which is indicated by the numeral

3'' is only slightly longer than the form shown in Fig. 1 and intermediate its length is bent so that the needle extends out of alinement with the barrel but not to such an extent as it does in Fig. 4.

The guard 7 fits upon the carrier and has its rear end abutting against the shoulder 8 of the carrier, this guard being simply slipped upon the carrier until it engages the shoulder 8 or having threads to engage co-operating threads of the carrier. The guard extends longitudinally beyond the forward end of the carrier and has its forward end portion tapered so that it will engage the needle and provide guard means which will serve to brace the needle but still permit the needle to have movement independent of the guard so that if the needle breaks, it will break off at the soldered joint 4 instead of intermediate its length. When the needle breaks, it is desired to prevent it from being left in the tissue and therefore the needle has been provided with a shoulder 9 formed as an enlargement which extends about the needle. This abutment shoulder is positioned intermediate the outer end of the guard and the inner end of the needle and therefore will be positioned within the guard. From an inspection of Fig. 2, it will be readily seen that when the needle breaks off from the carrier 3 this abutment shoulder will prevent the needle from passing entirely through the forward end of the guard. Therefore, when the hypodermic syringe is moved to withdraw the needle, the abutment shoulder will prevent the needle from passing entirely through the forward end of the guard and as the syringe is drawn rearwardly, the needle will be drawn out of the tissue.

I claim:

1. In a structure of the character described, a needle carrier, a needle fitting against and readily breakable from the end of said carrier, and abutment means carried by the needle adjacent its rear end.

2. In a structure of the character described, a needle carrier, a needle soldered to the end of the carrier for causing breaking of the needle from the carrier prior to breaking of the needle intermediate its length when the needle is subjected to transverse strain, and abutment means carried by the needle adjacent its rear end.

3. In a structure of the character described, a needle carrier, a needle carried by said carrier and breakable therefrom, a

guard carried by the carrier and fitting about the rear end portion of the needle, and means within the guard for limiting outward movement of the needle through the forward end of the guard when broken from the carrier.

4. The structure of claim 3 having the guard in the form of a sleeve having its forward end portion contracted to provide a reduced needle passage, the portion of the needle between the needle carrier and reduced forward end of the guard being provided with an abutment limiting outward movement of the needle through the contracted forward end of the guard.

5. The structure of claim 3 having the guard in the form of a sleeve having its forward end portion contracted to provide a reduced needle passage, and an enlargement upon the portion of the needle between the needle carrier and the forward end of the guard to limit outward movement of the needle through the forward end of the guard.

6. A structure of the character described, a needle carrier adapted for connection with a syringe barrel and having a fluid passage, a hollow needle connected with the carrier and having its fluid passage registering with the passage of the carrier, a guard carried by said carrier and extending about the rear end portion of the needle, and means between the rear end of the needle and forward end of the guard for limiting outward movement of the needle through the forward end of the guard when the needle becomes detached from the carrier.

7. In a structure of the character described a needle carrier having its rear end provided with a socket for receiving the neck portion of a barrel and having its forward portion provided with an abutment shoulder, a needle secured against the forward end of the carrier, a guard sleeve fitting upon the forward end portion of said carrier and abutting against the shoulder thereof and having its forward end portion extending beyond the forward end of the carrier and tapered to fit closely about the needle, and an abutment element carried by the needle intermediate the rear end thereof and forward end of said guard to limit outward movement of the needle through the guard.

In testimony whereof I have hereunto set my hand.

JOHN E. WEBB.