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S. A. PETROFF

NEEDLE FOR COLLECTING BLOOD

Filed Oct. 26, 1921

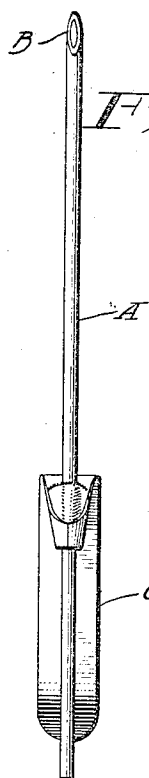


Fig. 1

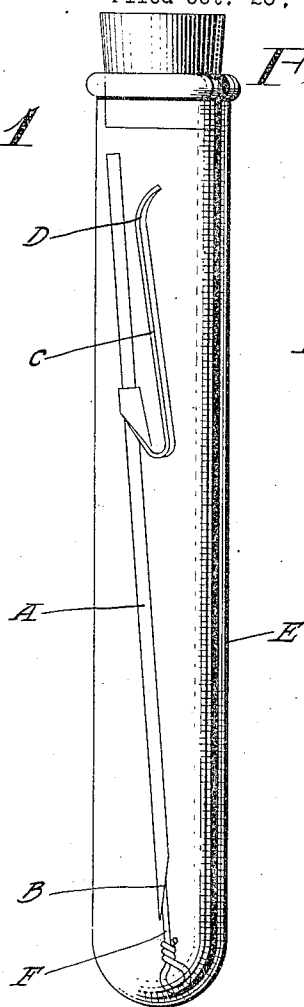


Fig. 2

Fig. 3

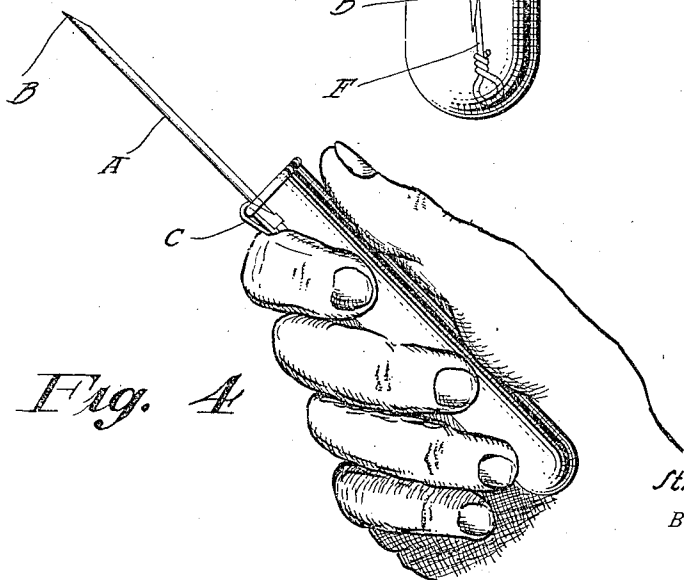
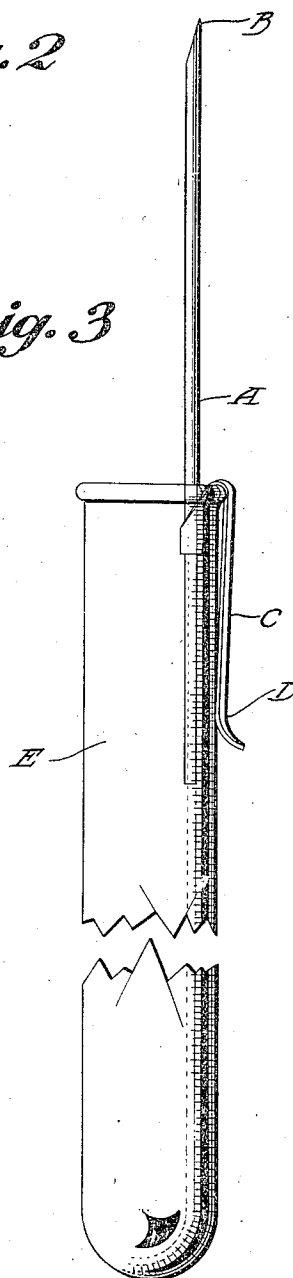


Fig. 4

INVENTOR.
Strashimir A. Petroff
BY Jas. H. Griffin.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

STRASHIMIR A. PETROFF, OF TRUDEAU, NEW YORK.

NEEDLE FOR COLLECTING BLOOD.

Application filed October 26, 1921. Serial No. 510,422.

To all whom it may concern:

Be it known that I, STRASHIMIR A. PETROFF, a citizen of the United States, residing at Trudeau, in the county of Essex, and in the State of New York, have invented a certain new and useful Needle for Collecting Blood, of which the following is a specification.

This invention is a needle adapted to facilitate the collecting of blood for serological tests.

The object of the invention is, primarily, to produce an instrument whereby such collection of blood may be accomplished in an expeditious and thoroughly sanitary manner and without infection to the patient.

A further object of the invention is to provide a needle which will be practical for physicians, hospitals and laboratory men and one which will be simple in construction, inexpensive and capable of repeated use.

Speaking generally, the present invention embodies a hollow or tubular needle, sharpened at one end to facilitate its introduction into the vein or artery of the patient, and provided exteriorly and intermediate its ends with a suitable clip, preferably of the spring variety, so formed as to enable the instrument to be securely clamped on a test tube or bottle in such manner that the blunt end of the needle will extend into the tube and its pointed end project exteriorly thereof into a convenient position for manipulation. This permits the tube or bottle to be employed as a handle for the needle while inserting such needle into the vein or artery. When so using the needle it may be steadied on the test tube by the hand of the physician which, in grasping the tube, is adapted to overlie and hold the clamp firmly in position against inadvertent shifting.

Features of the invention, other than those adverted to, will be apparent from the hereinafter detailed description, when read in conjunction with the accompanying drawings.

The accompanying drawings illustrate one practical embodiment of the invention, but the construction therein shown is to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 is an edge elevation of an instrument embodying the present invention.

Figure 2 shows the instrument housed within its protecting tube. In this view, the instrument is shown in side elevation.

Figure 3 shows the instrument removed from the tube and ready for use; and,

Figure 4 shows the manner in which the instrument and tube are held in the hand of the physician during use.

In its preferred form, the instrument is made in the form of a hollow or tubular needle A, about three or four inches in length and of any convenient calibre, e. g., from 15 to 25 gauge. One end of the needle is cut off square and the other end thereof is cut on an angle to provide a sharp point B.

Secured to the exterior of the needle and nearer the blunt end thereof is a clip C, preferably of the spring tongue variety. One end of the clip is rigidly secured to the needle and its free end extends along the needle in the direction of said blunt end. The clip is bowed outwardly adjacent its point of attachment to the needle and in a direction toward its free end is bent toward the needle. Its free end is however bent outwardly on a sweeping curve as shown at D so as to provide a finger rest for the operator when manipulating the instrument.

The instruments are made in quantities and after being thoroughly cleaned and the needles sharpened they are preferably inverted and placed in individual containers, preferably round bottom centrifuge tubes E. In order that the points of the needles may be properly protected, a wire F may be run into the end of each needle and when so assembled a needle brought into a tube will be supported in the tube with its sharpened end free from the bottom of the tube as shown in Figure 2.

The tubes with the needles therein are corked and sterilized in a dry air sterilizer for a considerable time, say at 150° C. for half an hour and are thereafter packed ready for sale and use.

When blood is to be drawn for a test, the tube containing the needle to be used is carefully uncorked and the tube tilted in the palm of the hand sufficiently to permit the instrument to slide out. Said instrument is then grasped by the clip C, care being taken not to permit the hands to touch

the mouth of the tube, and the instrument is removed and attached to the tube, after the manner shown in Figure 3, wherein the blunt end of the needle will extend into the tube while the sharp pointed end thereof will project interiorly thereof and in alignment with the tube. The clip C straddles the wall of the tube, and, because of its resilient character, grips said wall tightly for the purpose of firmly securing the instrument on the tube. The protecting wire F is now removed to condition the needle for use.

A tourniquet is now applied to the bent elbow of a patient, and, gripping the tube E and employing the same as a handle for the instrument, after the manner shown in Figure 4, the physician introduces the needle into the median basilic vein or any other desired vein or artery, and firmly holds it in position so the blood is permitted to flow from such vein or artery, without suction, through the central channel of the hollow needle and drip from the blunt end thereof directly into the tube E. During this operation, the grip of the clip on the tube may be augmented by the grip of the physician's hand, since, as shown in Figure 4, the index finger is adapted to overlie the finger rest D of the clip and steady the instrument on the tube.

The instrument is held in position in the manner described for a sufficient period to permit the amount of blood which it is desired to collect to be deposited in the tube E, whereupon the instrument is withdrawn from the arm of the patient, removed from the tube E, and the tube recorked to remain so until such time as the serological tests to be made thereon can be carried out.

It will be apparent from the foregoing description that the instrument of this invention embodies many advantages. It is simple in construction and economical, and may be sterilized and kept in sterile condition until used without the exercise of undue care. The convenience of drawing blood into a tube which may be also used for centrifuging is of importance, since it is not necessary to transfer the blood after coagulation into another tube, which practice is manifestly accompanied by numerous disadvantages. The ease and firmness with which the needle may be attached to the test tube, as well as the fact that the test tube may be employed as a handle for the manipulation of the instrument, enables said instrument to be made relatively small and compact.

Aside from the advantages enumerated, it will be manifest that because of the pronounced compactness of the article, when housed within its container in sterilized condition, the same may be conveniently carried in a physician's kit without unduly en-

cumbering the same, and nevertheless, be maintained at all times in a thoroughly sterile and sanitary condition.

I have referred, in the foregoing specification in describing the preferred practical embodiment of the invention, to particular sizes which I have found to operate efficiently. It will be understood, however, that the instrument may be made in other sizes than those referred to and may be applied to other parts of the body of the patient than to the arm.

I am aware that further details of construction may be changed without departing from the spirit of this invention, which is to be understood as broadly novel as is commensurate with the appended claims.

Having thus fully described the invention, what I claim as new and desire to secure by Letters Patent is:

1. An instrument for collecting blood embodying a hollow needle sharpened at one end and provided intermediate its ends with a clip adapted to straddle the wall of a container to support the needle on the container with the sharp end of the needle projecting from the container and the other end of the needle extending into the container, whereby blood flowing through the needle is deposited directly within the container.

2. An instrument for collecting blood embodying a hollow needle, sharpened at one end and provided on its exterior with a clip adapted to rigidly support the needle on a container, in such position to the container that blood flowing through the needle will be deposited directly in the container.

3. An instrument for collecting blood embodying a hollow needle sharpened at one end and provided exteriorly with a spring clip for rigidly mounting the needle on a container in such manner that blood flowing through the needle will be deposited directly in the container.

4. An instrument for collecting blood embodying a hollow needle pointed at one end, a spring clip rigidly secured to the needle and adapted to press against the exterior of the wall of a container into which container one end of the needle extends, while the pointed end of the needle projects exteriorly of the container, whereby blood flowing through the needle is adapted to be deposited directly in the container.

5. An assemblage of the character described embodying a hollow needle sharpened at one end and provided intermediate its ends with a spring clip, a container of greater length than the needle and provided with a filling opening through which the needle may be introduced into the container and the container thereafter sealed, said needle being adapted to be withdrawn from the container when the latter is unsealed

and firmly mounted on the container by the clip in such manner that the sharp end of the needle will project exteriorly of the container while the other end of the needle
5 will extend into the interior of the container, so that the container may be used as a handle to manipulate the needle while the blood flowing through the needle is deposited directly in the container.

10 6. An assemblage of the character described embodying a hollow needle, sharp at one end, a tube open at one end and of sufficient length to receive and completely

house the needle when the tube is sealed, and means for rigidly mounting the needle
15 on the open end of the tube after the tube has been unsealed and the needle removed therefrom, said needle being supported on the tube in such position that its pointed
20 end will project beyond the open end of the tube while its other end will extend into the tube so that blood flowing through the needle is deposited directly in the tube.

In testimony whereof I have signed the foregoing specification.

STRASHIMIR A. PETROFF.