Feb. 5, 1952 W. WILKINS 2,584,520

PHYSICIAN'S VENOUS BLOOD LETTING AND COLLECTING INSTRUMENT

Filed Oct. 25, 1948

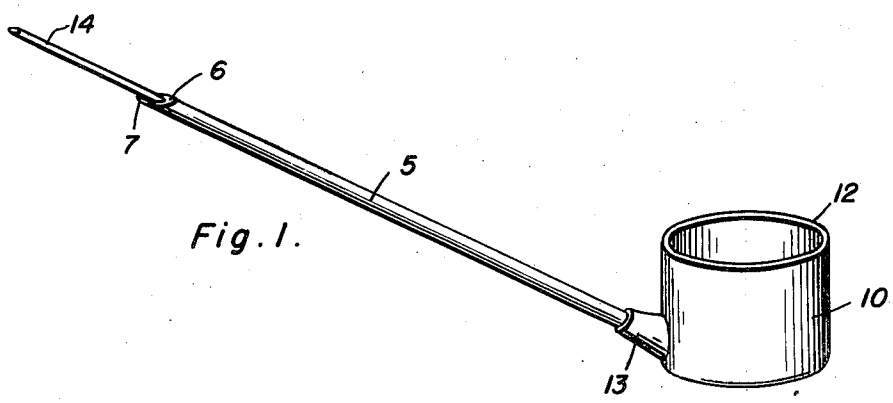


Fig. 1.

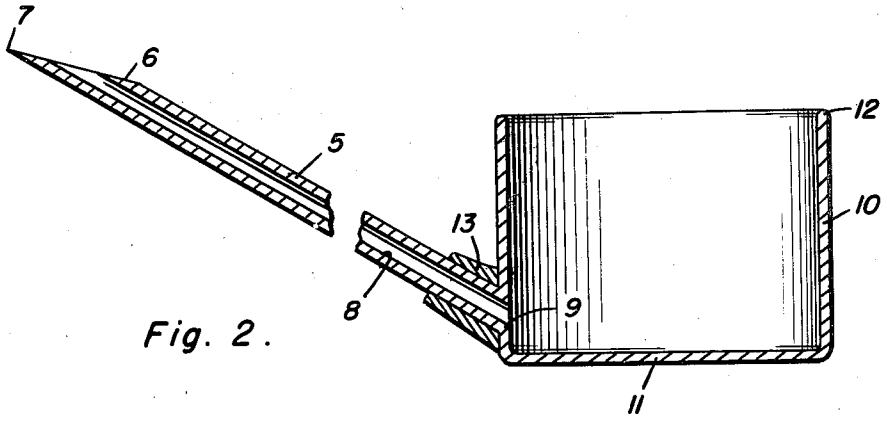


Fig. 2.

Inventor

Walter Wilkins

By *Clarence A. O'Brien and Harvey B. Jacobson*

Attorneys

Patented Feb. 5, 1952 2,584,520

UNITED STATES PATENT OFFICE

2,584,520

PHYSICIAN'S VENOUS BLOOD LETTING AND COLLECTING INSTRUMENT

Walter Wilkins, Jacksonville, Fla.

Application October 25, 1948, Serial No. 56,306

6 Claims. (Cl. 128—275)

1

This invention relates to a new and improved blood letting and trapping instrumentality which is structurally and functionally adapted for practical and efficient use by doctors and nurses when drawing and preserving venous blood for purposes of examining, testing, and for numerous analogous purposes.

There exists a constantly recurring and undeniable need in doctors' offices for a simple, safe and economical instrument which may be used with requisite finesse and dexterity while drawing and collecting small amounts of venous blood and the consensus of professional opinion implies the need for a cannula or hollow needle and available receptacle combined. Confronted with the problem thus stated, I have anticipated not only the need for my adaptation but have evolved and produced a device, of the utmost in practical simplicity, which structurally, functionally and otherwise, is calculated to resultfully achieve the wanted ends.

In keeping with the various requirements, as visualized and presumed in general to exist, I attain the wanted results by adopting a small metal cup and providing same, on one side near the cup bottom, with an angular cannulated or hollow stem, the latter being fashioned into a blood letting needle and the two parts jointly constituting what I call a ready-to-use cup needle.

The usual methods for obtaining venous blood involve the use of a hollow steel needle plus a separate container, such as a glass syringe by which and into which the testee's blood is drawn by suction, or a separate glass test tube into which the venous blood flows under its own slight pressure. In the latter case the needle may have a clamp for attaching it to the test tube (such as the Petroff and Lawshe needles).

Small amounts (a drop or two) of blood are most commonly collected by puncturing the end of a finger with a sharp (solid) instrument and drawing the blood from the surface of the skin into a hollow glass tube (pipette) or allowing the blood to "drip" into a vessel such as a glass test tube. The cup needle has nothing in common with this method of taking blood.

It is submitted that the aforementioned cup needle or needle equipped cup is an ingenious and distinct entity which is outside of the fields using the instrumentalities and techniques in the above procedure and is aptly and otherwise suitable in better fulfilling the requirements of physicians and nurses alike.

Other objects and advantages will become more

2

readily apparent from the following description and the accompanying illustrative drawings.

In the drawings, wherein like numerals are employed to designate like parts throughout the views;

Figure 1 is a perspective view of a venous blood letting and collecting instrument or so-called cup needle constructed in accordance with the invention and showing a wire in the lumen of the needle;

Figure 2 is a sectional view on an enlarged scale and presented fragmentarily.

My improved and therefore novel cup needle is characterized by a steel entity individualized by a hollow steel tube or cannula denoted by the numeral 5, the same being of uniform external diameter from end to end and having its outer free end mitered at the approximate angle shown at 6 and defining a needle point 7. The internal bore 8 is of uniform diameter from end to end and the discharge end of the bore at 9 opens through the rim or wall 10 of the cup close to the bottom 11. The upper edge portion of the rim is suitably rounded to provide a protector lip 12. At the juncture of the needle and cup a reinforcement is provided, the same comprising a suitably tapered ferrule or collar 13. The latter is made rigid with coacting parts in any suitable manner and serves to balance the overall stability of the instrument. The oblique angularity of the needle to the cup is variable but is approximately as shown to facilitate the gravitation of the sample blood into the cup.

It will be obvious that the novel cup-needle is designed for entering a vein only, is not used for injections and is not used with a rubber bulb. It is a complete instrument within itself. The cup is constantly open, has a flat bottom, a low center of gravity and is designed to stand alone on a sterile towel or tray. The needle points slightly upward when the cup is standing on a flat surface. This is to prevent contamination if the cup has to be placed on a non-sterile surface. The angle of the cup is upright when the needle is introduced into an arm that is "hanging down." If the blood is to be taken without the use of a rubber band (tourniquet) it is necessary for the arm vein to be well below the level of the heart so that there is a slight positive pressure (hydrostatic) in the vein. Otherwise the blood would not run out spontaneously.

The cup needle is designed to take such small amounts of blood from a vein (not from the skin). It has the following advantages:

1. It combines in one piece of metal the hollow needle and the container.

2. It involves no breakable glassware.

3. It avoids the necessity of transferring small amounts of venous blood from a syringe to a container which procedure often speeds up the clotting process.

4. It exposes the blood sample to a minimum of "foreign" surface and thus reduces the chances for "chemical" contamination.

5. It reduces to a minimum the "handling" or manipulating of the blood sample.

6. Wastage of blood is at a minimum since only the amount needed is drawn.

7. The instrument takes up a minimum of space and large numbers of them may be sterilized at one time in a small sterilizer.

8. It reduces the time of operation, cleaning, and maintenance of apparatus.

The numeral 14 designates an insertable and removable wire which may be used as a sanitary element for temporarily plugging and closing the bore 8.

It will be obvious that the cup-needle may be satisfactorily used for obtaining small amounts of venous blood with or without the use of a tourniquet. The needle portion may vary in length and diameter. The needle is made of laminated rustless steel and the cup is made of chromium-plated brass. When blood is to be taken the cup portion is grasped by the thumb and the second and third fingers. This gives a firm hold and the needle is then introduced into the vein in the usual manner. This device may be used with less residual discomfort than is encountered with the well known finger-puncture technique. It may be handled much more quickly than common type syringe assemblies. It is not formidable in appearance, is easily sterilized and otherwise fully meets the needs and requirements of nurses and physicians.

A careful consideration of the foregoing description in conjunction with the invention as illustrated in the drawings will enable the reader to obtain a clear understanding and impression of the alleged features of merit and novelty sufficient to clarify the construction of the invention as hereinafter claimed.

Minor changes in shape, size, materials and rearrangement of parts may be resorted to in actual practice so long as no departure is made from the invention as claimed.

Having described the invention, what is claimed as new is:

1. A physician's venous blood letting and collecting instrumentality of the class described comprising a miniature collecting cup, said cup being wholly open at its top for ready inspection of the contents and subsequent pouring of latter into a test tube or other holder and a hollow needle formed integral with said cup, said needle being oblique to the rim of the cup, whereby the testee's blood may be caused to flow from the incision, under force of gravity, into said cup.

2. The structure specified in claim 1, together with a reinforcing ferrule embracing the discharge end portion of the needle at its junctural point of connection with said rim.

3. A venous blood letting cup-needle for use in enabling a physician to take a small amount of blood flowing under its own slight pressure from the vein of a testee, comprising a miniature self-standing open-top cup of predetermined capacity, said cup being rigid and having a flat self-seating bottom and an upstanding rim terminating at its upper end in a convex brim, said rim having an inlet in a plane just above the plane of said bottom, and a hollow needle having a linearly straight bore communicating with the cup by way of said inlet, said needle being integral with said rim and adapted to deliver the sample blood, by way of gravity, into said cup, whereby the physician may inspect the blood flowing into the cup, may withdraw the needle when the wanted amount has been collected, and may promptly pour same from the cup into a test tube or the like.

4. The structure defined in claim 3, wherein said needle is linearly straight, is at an oblique angle relative to said bottom, is of uniform outside diameter, has a bore of uniform diameter and has its free upper end beveled to provide a vein penetrating point.

5. The structure defined in claim 4, wherein said beveled end is situated on a plane above the open top of said cup.

6. The structure defined in claim 4, and a bore-cleaning wire fitting removably in said bore, said wire being of a length greater than the length of said needle with its lower end projecting into said cup and its upper end protruding beyond said beveled end.

WALTER WILKINS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
552,192	Middaugh	Dec. 31, 1895
2,153,253	Hurston	Apr. 4, 1939