E. M. CAMP.

ELECTRICALLY OPERATING SURGICAL NEEDLE DEVICE.

APPLICATION FILED MAR. 13, 1919.

1,311,494. Patented July 29, 1919.

Fig. 1.

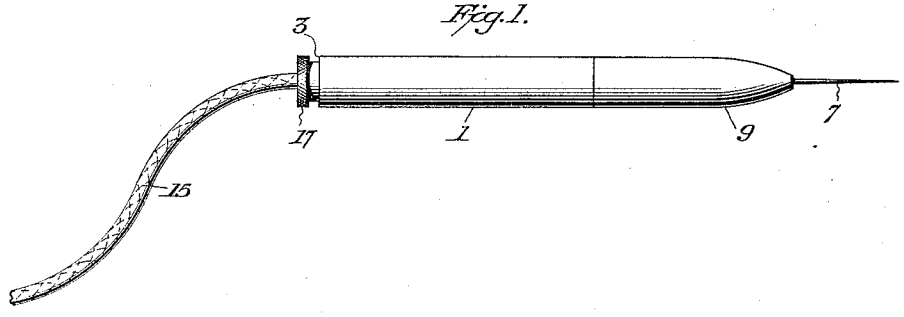


Fig. 2.

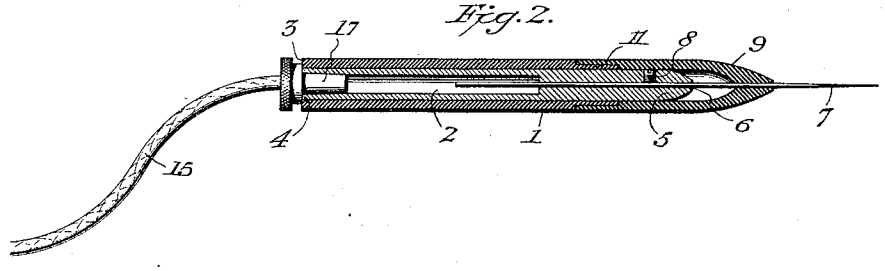
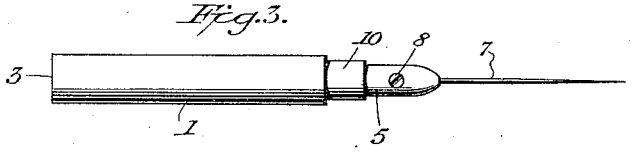


Fig. 3.



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UNITED STATES PATENT OFFICE.

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ELECTRICALLY-OPERATING SURGICAL-NEEDLE DEVICE.

1,311,494. Specification of Letters Patent. Patented July 29, 1919.

Application filed March 13, 1919. Serial No. 282,289.

To all whom it may concern:

Be it known that I, ERVIN M. CAMP, a citizen of the United States of America, residing at the city and county of Denver and State of Colorado, have invented a new and useful Electrically-Operating Surgical-Needle Device, of which the following is a specification.

My invention relates to an electrically operating surgical needle device; and the objects of my invention are:

First, To provide a surgical needle holding device in which the electrically operated needle is provided with a needle gripping chuck that is arranged to positively hold the needle in adjusted positions.

Second, To provide a surgical needle in which the needle is longitudinally adjustable in a positively needle gripping chuck to project any predetermined distance beyond the end of the chuck and its non-conductive supporting body and its removable cap portion.

Third, To provide a surgical needle holding device that is arranged to be connected to an electric current and that is adapted to be used for the removal of superfluous hair or blemishes from persons; in which the circuit needle and its holding chuck are insulated by a body and cap portion that prevents the flesh of persons receiving this treatment from being burned, and in which the removable cap portion is secured to the body portion by a frictional-slip-joint that allows the cap to be quickly removed from over the chuck and the needle by an operator and the needle adjusted as desired to project any desired distance beyond the end of the chuck and the cap which can be quickly replaced over the needle and the chuck.

I attain these objects by the mechanism illustrated in the accompanying drawings: in which:

Figure 1 is a side elevation of my improved electric circuit operating surgical needle device.

Fig. 2 is a longitudinal sectional view through the same; and

Fig. 3 is a plan view of the needle holder, the frictional slip joint cap being removed to show the needle clamping screw.

Similar letters of reference refer to similar parts throughout the several views.

Referring to the drawings the numeral 1 designates the chuck supporting body of my improved needle; which consists of a small tube made of any non-conductive material, but preferably made however of rubber.

This small non-conductive tube surrounds a conductive tube 2 of metal that fits tightly within it, the rear end 3. of which is preferably made even with the rear end 4. of the conductive tube 2, while the opposite end of this conductive inner tube 2. extends beyond the opposite end of the non-conductive tube 1. and a needle holding chuck 5. is formed on its end.

This chuck 5. has a needle receiving aperture 6. that extends all of the way through it, and that is adapted to receive a needle 7. which is held positively in the chuck in predetermined parts of the length of the needle by a set-screw 8, that is threaded into the chuck.

The needle is made enough longer than the shortest length of its point that can be used practically beyond the cap member 9. of the body 1, of the surgical needle as a whole, to allow its inner end to extend back into the conductive tube 2, to near its rear end, then when the set screw of the chuck is loosened the needle can be moved forward any desired and predetermined practical distance beyond the shortest distance it is practical to use it, and it can be held firmly in any position in which it is set by the set screw, the head of which is adapted to receive a screw-driver by which it may be either tightened or loosened.

The body member 1, of the surgical needle as a complete invention; is provided with a reduced shoulder portion 11, which is preferably made a trifle larger in diameter than the diameter of the chuck 5. and this shoulder portion is made long enough to form a good bearing for the cap 9. which is a hollow sleeve portion at its rear end, that is made to fit with a reasonably tight frictional slipping movement over the reduced shoulder portion of the body portion 1, that enables the cap to be easily and quickly taken off from or placed on the body 1, by an operator.

This cap 7. is made of non-conductive material preferably of rubber like the body 1, and it fits loosely over the chuck 5. its outer end is tapered to a point and a small hole is made centrally through it, just large enough to allow the flesh piercing needle to be moved slidingly through it.

The frictional sliding fit of this cap 9. on

the body of the surgical-needle-device enables an operator to very quickly remove the cap and to adjust the projecting length of the needle by loosening the set-screw 8. and then moving the needle through the chuck to suit the requirements of the operator.

This frictional fitting joint of the cap on the body of the surgical-needle-device is the simplest and the most practical way of securing the cap onto the body, as it has been found in practice that a threaded connection will not last long as the threads soon wear away; owing to the fact that the threads have to be of fine pitch and the threads are too soft to last long. My joint also makes a lighter and a smaller needle than threads.

A split flesh-piercing-needle holding device that clamped the needle when the cap was screwed onto the body has also been tried but was found to be unsatisfactory as the cap could not be screwed tight enough onto the needle holder without in a short time stripping the threads in it and on the body.

The operative connection by which an electric current is transmitted to the flesh-piercing-needle of the non-conductive body 1 of the surgical-needle-device is as follows:—

A circuit-wire 15. is connected at one end to a battery, which I do not illustrate; and the opposite end of the circuit wire 15. is connected to a short plug 17. that is tapered and made to fit tightly into the end 4. of the conductive tube 2. of my surgical-needle-device, which is pressed onto the plug 17. tight enough to stay firmly onto it as long as the operator desires it to remain there.

The electric current flows through the conductive tube 2, and through the chuck into the flesh piercing needle 7. to its point from which it flows into the flesh of the person the needle is inserted in.

A circuit is then established through the body of the person being operated on and back to the battery, in a well known manner.

My invention provides a simple and practical surgical needle-device; that will positively hold a flesh piercing needle at any predetermined practically operating distance from the non-conductive point of the cap of the body of the device, while at the same time I provide the new and valuable feature of a longitudinally adjustable flesh piercing needle that has a large range of longitudinal adjustments that are valuable for different characters of such work as an instrument of this character is adapted to do.

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

1. In a surgical-needle-device; the combination of the electric current conductive chuck; a conductive flesh piercing needle extending through and beyond both ends of said chuck; a set-screw threaded into said chuck and arranged to positively clamp said needle in said chuck in different projecting predetermined positions relative to said chuck and the length of said needle; with a non-conductive body member arranged to support said chuck, and a non-conductive cap member fitting over said chuck; and secured to said body member by a frictional pressure joint and through which the point of said needle projects.

2. A surgical needle applying device; comprising a conductive tube provided with a needle holding chuck at one end and adapted to be connected to a supply of electric current at its opposite end said chuck being provided with a needle holding set-screw; a longitudinally adjustable conductive needle extending through and beyond said chuck and adapted to be positively held therein by said set-screw; a non-conductive member surrounding said tube and its chuck and supporting and carrying the same; and a non-conductive cap member provided with an aperture through which the point of said needle extends, arranged to surround said chuck and to be connected to said non-conductive member by a frictional-slip joint.

3. In an electrical current supplying surgical-needle applying and supporting device; the combination of the conductive tube and its needle supporting chuck provided with a needle clamping set-screw; and a conductive flesh piercing needle of sufficient length to have an adjustable longitudinal movement through said chuck; and the insulating body portion supporting and carrying said chuck and its tube; and the insulating cap removably secured to said body portion; said body portion being provided with a reduced shoulder portion on which said cap fits and is pressed; said cap being adapted to fit over the point of said needle and over said chuck.

4. In a device of the character described; the combination of the non-conductive tube provided with a reduced shouldered portion and a pointed cap member provided with an aperture in its pointed end adapted to fit snugly but loosely over a conductive needle; and to fit at its opposite end with a frictionally engaging slip joint onto the reduced shoulder portion of said tube; with a conductive tube within said non-conductive tube one end of which is adapted to receive a plug on the end of an electric circuit wire; the opposite end of which is provided with a needle holding chuck; a set screw in said chuck adapted to hold the needle positively against accidental displacement; and a conductive steel needle fitting and extending through both ends of said chuck; and longitudinally adjustable in said chuck to project any predetermined part of its length beyond the end of said cap.

5. The combination in a surgical device; of the outer non-conductive and the inner conductive tubes; the chuck; and the needle; with the cap fitting over said needle and said chuck and frictionally and removably held on the outer tube; and with the electric current circuit wire provided with a plug arranged to fit in the inner tube.

In testimony whereof I affix my signature in presence of two witnesses.

ERVIN M. CAMP.

Witnesses:
G. SARGENT ELLIOTT,
FLORENCE J. ALLEN.

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