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EXTENSIBLE SUPPORTING STAND FOR MULTIPLE NUMBERS OF ELECTRICALLY OPERATING SURGICAL NEEDLES.

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1,311,495. Patented July 29, 1919.

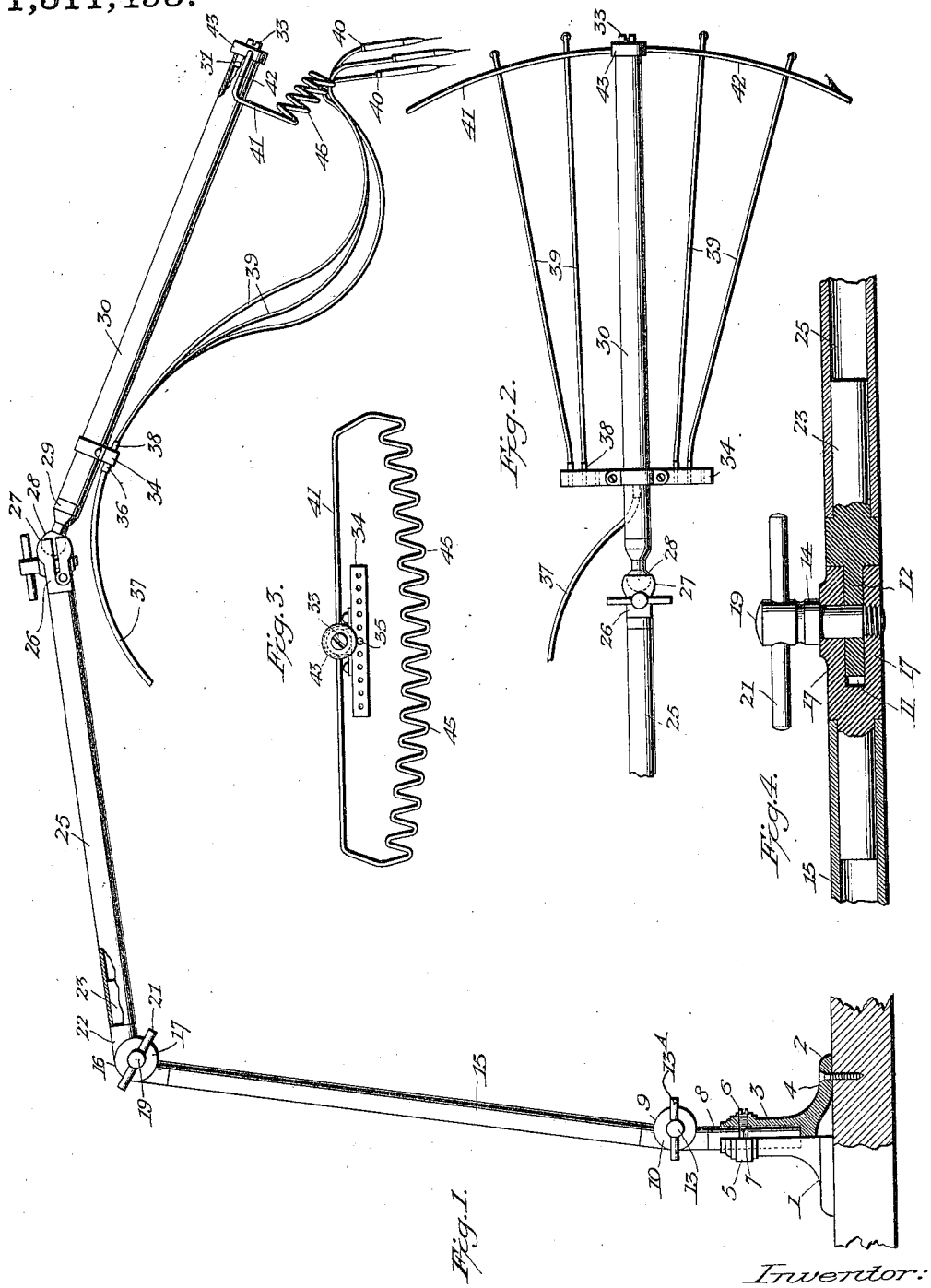


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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EXTENSIBLE SUPPORTING-STAND FOR MULTIPLE NUMBERS OF ELECTRICALLY-OPERATING SURGICAL NEEDLES.

1,311,495. Specification of Letters Patent. Patented July 29, 1919.

Application filed March 13, 1919. Serial No. 282,291.

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 Extensible Supporting-Stand for Multiple Numbers of Electrically-Operating Surgical Needles, of which the following is a specification.

My invention relates to an improved extensible supporting stand for a multiple number of electrically operating surgical needles.

And the objects of my invention are:

First, to provide a supporting-stand for surgical needles, that will turn rotatively around on its supporting base plate.

Second, to provide a supporting stand for surgical needles that is provided with a plurality of vertically disposed extensible arms that will fold upwardly against each other into vertical positions, and into a compact group projecting vertically above their supporting base plate.

Third, to provide a supporting stand for surgical needles, in which a multiple group of extensible arms is provided with a universal joint between two of its arms, that permits of sidewise angular movements laterally of the extensible movements of the arms.

Fourth, to provide a supporting stand for a multiple group of surgical needles in which a cross-bridge is secured to the terminal arm, to which an electric current circuit wire is connected, and to which a multiple number of small circuit wires are connected at one end, and from which they extend to a supporting and separating comb-member, which can be turned on its axis to stand in a horizontal or substantially horizontal position regardless of the position of the terminal arm.

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

Figure 1 is a side elevation of the extensible surgical needle supporting stand.

Fig. 2 is a plan view of the outer arm; and some of the other parts of the stand; showing the ball and socket-joint and the parts carried by the outer arm.

Fig. 3 is an end view of the outer arm; showing the comb; that supports the circuit wires of the needles, and also showing the cross-bar to which the circuit wires are attached.

Fig. 4 is a sectional view illustrating the arrangement of the circular form of disk joints between the first, second and third joints of the arms.

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

Referring to the drawings, the numeral 1, designates the supporting-base-plate of my multiple surgical-needle supporting stand.

This base plate comprises a flange portion 2, from which projects a short vertical standard 3.

The flange 2, is adapted to rest on a table or other suitable support, and it is provided with screw receiving apertures 4, by which it may be securely fastened to the table or other support by suitable wood screws.

The upper portion of the vertical standard of the base plate, is provided with a projecting band portion 5, through which a screw 6, is threaded, the inner end of which is pointed, and is adapted to project into a groove 7, that is formed in the lower end portion of a vertically projecting standard 8, which preferably consists of a short piece of brass or other metal tubing.

The standard 8, consists of a round piece of metal preferably tubing, and on its upper end a circular disk-shaped pivotal joint 9, is formed. This joint consists of two disks 10, between which a recess 11, is formed and in which a single disk 12, is fitted snugly but turnably, and through these three disks a shouldered clamping screw 13, is extended the inner end of which is threaded into the disk farthest from the shouldered portion 14, of the clamping screw, and the single disk turns on this screw between the two fixed disks.

This single disk 12, is formed on the lower end of, or is made separately and is then attached to the lower end of an arm 15, which is preferably a piece of brass tubing that is preferably about from twelve to fourteen inches long including the joints at each end of it. A hand grasping stem 13^A, extends through the head on the screw 13.

The arm 15, at its upper end has a joint 16, that also consists of a pair of circular

disks 17, that are like the disks 10, of the short tubular standard 8, that turns in the base plate 1, and these disks 17, have a recess between them in which a single disk 12, fits snugly but turningly and is pivoted therein on a screw 19, that is provided with a shoulder adjacent to its head portion through which a hand grasping stem 21, is extended. The opposite end of this screw 19, is threaded into the farthest disk from the head of the screw, this form of hand grasping clamping screw being preferably used in all of the turning joints of my supporting stand.

The joint disks 12, are either formed on or cast on a short piece of rod 22, that is provided with a reduced shouldered end portion 23, that is fitted into the end of a tubular arm 25, the opposite end of which is provided with one part 26, of a universal joint 27, the other part of which is formed or cast in the form of a ball 28, that has a short stem 29, that fits into and is secured in one end of a tubular arm 30, in the opposite end of which a plug 31, is inserted and secured, and through the center of which a threaded aperture is formed in which a screw 33, is threaded.

The stub ends of the several turning joints of my supporting stand that extend into the opposite ends of the tubular arms are preferably secured therein by either being pinned or soldered thereto.

The universal joint illustrated, may be of any other form of construction, it only being formed so as to permit the terminal end arm of the stand to be swung at its outer end in any direction desired to support the needles where they can be most advantageously used, as will be fully described hereinafter.

I have preferably only illustrated three extension arms to this surgical needle supporting stand, but more may be used if desired.

Upon the terminal arm of the stand preferably close to its universal joint I mount a cross-bar 34, which is preferably clamped thereto but may be secured to the arm in any suitable manner.

This cross-bar is provided with an aperture 35, which is adapted to receive a plug 36, that is attached to one end of an electric current circuit wire 37, that is extended from the plug to a source of supply.

This aperture 35, is preferably positioned in the center of the cross bar and on both sides of it at short distances apart a row of smaller apertures are formed through the bar; as illustrated five small apertures are formed on each side of the central aperture 35, the plug for which enters it on the side of the bar nearest to the universal joint end of the arm 30, while the small apertures are to be entered from the opposite or the terminal end side of the arm 30, by smaller sized plugs 38, that are attached to the ends of smaller sized circuit wires 39, which may be of any predetermined length but which are connected at their opposite ends also to plugs 40, which are adapted to be inserted into the ends of my surgical-needle-supporting-device that is illustrated and described in a copending application Serial Number, 282,289 filed March 13, 1919, and the length of these small wires should be that which will best allow the surgical needles to be used on persons to the best advantage.

In the present state of the art of applying surgical needles to persons desiring their use, it is customary to employ a plurality of needles, and it is necessary to keep the needles and their circuit wires separated from each other in a conveniently arranged support that will permit of a tilting adjustment that will enable an operator to adjust it into any desired position that will enable the needles to be used most conveniently regardless of the angular position of the arms as they project from their base and on which they have a turning movement independent of the base which may be and should be secured to a table in a fixed position.

My invention contemplates any mechanism for supporting a plurality of needles so that they can be easily grasped and used by an operator one at a time, or two or more of the wires on the stand when desired, at a time, and with this object in view I preferably provide an open frame toothed needle-supporting comb-member 41, that extends across the end of the arm 30.

My needle supporting comb member is made of wire and it is made of one or more pieces of wire bent into the shape of an oblong spaced frame the top wire 42, of which terminates in a disk 43, through which an aperture is formed that allows the disk to fit snugly over the screw 33, and is clamped by this screw 33, against the end of the arm 30, and as this is a pivotal joint the comb can be tilted either up or down at its outer ends slightly to allow it to stand either in a horizontal or in a slightly angular or tipped up position as the operator may desire, as its ends project several inches from the end of the arm 30.

The lower part of the wire frame of my needle support is bent into a succession of angular shaped teeth 45, these angular shaped wire teeth may be bent into any desired angle that will best support a circuit wire in each of them, and at the same time separate the wires from each other. The angle of the sides of the teeth between which the circuit wires are placed should be steep enough to slightly pinch them when they are pushed down to the bottom of the spaces between the teeth.

My needle supporting comb is also

slightly curved rearwardly from the end of the arm 30, toward the cross-bar 34, which is an advantage in some positions of the arms.

The operation of my surgical needle supporting stand and the manner in which it supports and facilitates the use of a multiple number of needles can be plainly seen from the description and the illustrations in the drawing without further description of it, except to state that the arms can be moved into any angular position relative to each other that practice may require, and that several more circuit wires and needles may be used than the number illustrated, if desired.

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

In a support for electrically operated surgical needles, the combination of the base adapted to be secured to a supporting member and provided with an aperture in its upper end, a short stem rotatably mounted in said base and provided with an annular groove within said base, and a screw threaded through said base into said groove whereby said short stem is free to rotate in said base said screw being adapted to secure said stem in adjusted positions against rotative movement, a pair of pivotal joint forming disks formed on the outer end of said stem, an arm provided with a disk shaped tongue fitting between the disks of said stem, and a hand grasping clamping screw extending loosely through one disk of said stem and through said tongue and threaded into the other disk of said stem, whereby said tongue is clamped between the disks of said stem in adjusted positions, a second arm pivotally connected in the outer end of the first named arm and provided with a clamping screw, a terminal arm pivotally connected to the end of the second arm by a ball joint provided with a clamping screw, a circuit wire connecting cross bar on said terminal arm, a plurality of circuit wires, a wire frame provided with a disk at the center of the upper wire of said frame, said disk being provided with an aperture, a clamping screw extending through the aperture in said disk and threaded into the end of said terminal arm, said wire frame having its lower wire bent into a continuous row of angular sided members having reversed curves at their opposite ends, said row of angular sided wire members being arranged to form interstices between them adapted to receive and support the circuit wires of the surgical needles.

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."