United States Patent [19]

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[54] SURGICAL NEEDLE HOLDER

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[52] **U.S. Cl.** **128/340,** 128/321

[51] **Int. Cl.** **A61b 17/06**

[58] **Field of Search** ..... 128/340, 321, 322, 334 R

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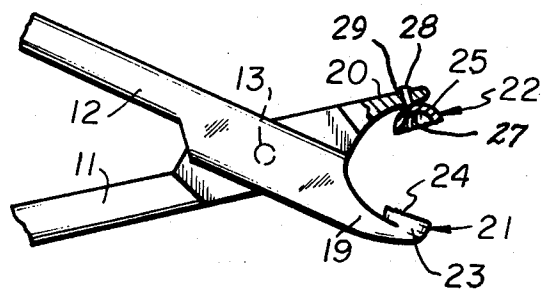
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[57] **ABSTRACT**

A surgical needle holder having a pair of grasping jaws movable in opposition to each other in response to elongated scissor arms which are pivotally mounted to each other, at the jaws being offset from the plane of movement of the scissor arms, at least one of the jaws comprising a hemispherical member rotatably mounted to one of the offsets and engageable to the opposing jaw upon movement of the arms toward each other.

4 Claims, 6 Drawing Figures



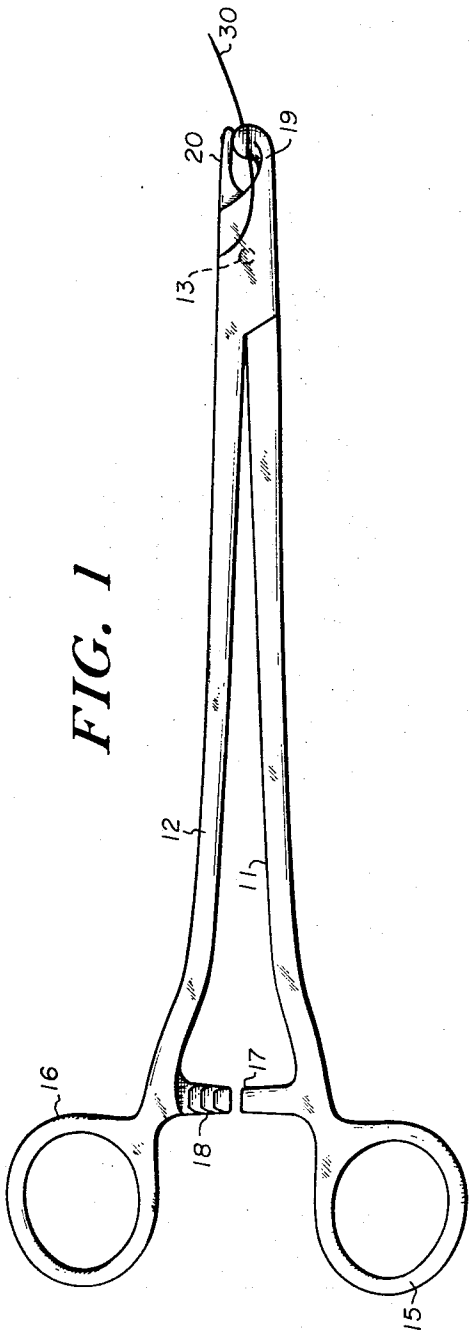


FIG. 1

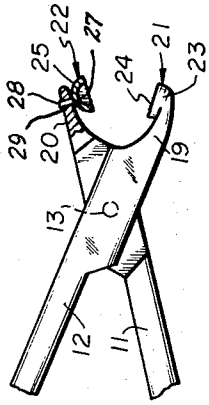


FIG. 3

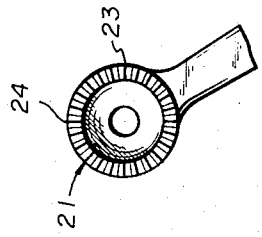


FIG. 6

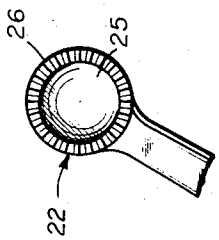


FIG. 5

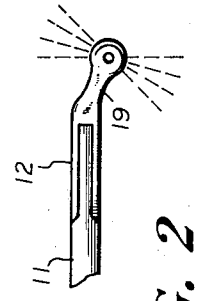


FIG. 2

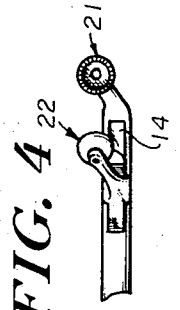


FIG. 4

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SURGICAL NEEDLE HOLDER

BACKGROUND OF THE INVENTION

A wide variety of surgical needle holders are known. Almost all comprise a pair of scissor handles pivotally mounted to each other and having a pair of gripping jaws movable in opposition to each other. Most of the jaws are provided with opposed serrations or other means for gripping a needle.

Surgical needles are almost invariably arcuate and many have a non-circular cross-sectional configuration. In some cases, the cross-sectional configuration varies along the needle.

When in use, the holder is generally inserted within an incision to a remote, tissue bearing area where the needle must be employed for suturing. As a result, the needle must be oriented at various angles to the plane of movement of the scissor handles depending upon the particular location which must be reached.

It is among the objects and advantages of the present invention to provide a surgical needle holder which may tightly grasp a needle in an infinite number of positions in a plane generally perpendicular to the plane of movement of the scissor like arms of the holder.

Another object of the present invention is to provide a needle holder as aforesaid in which the jaws are adapted to accommodate for irregularities in the shape of the needle without sacrificing rigidity during use.

A further object of the present invention is to provide a needle holder as aforesaid in which at least one of the jaws of the holder is rotatably mounted to the end of an offset displaced from the plane of movement of the scissor like handles to provide great latitude of positioning of the needle and ease of change of position thereof.

SUMMARY OF INVENTION

A surgical needle holder comprising a pair of arms pivotally mounted to each other intermediate their ends, offsets on the ends of each of the arms on one side of the pivot displaced from the plane of pivotal movement of the arms, a pair of jaws on the offsets engageable to each other when the arms are drawn together, at least one of said jaws being rotatably mounted to an offset and rotatable in a plane generally normal to the plane of pivotal movement of the arm.

PREFERRED EMBODIMENT OF INVENTION

The objects and advantages aforesaid as well as other objects and advantages may be achieved by the surgical needle holder claimed herein a preferred embodiment of which is illustrated in the drawings in which:

FIG. 1 is a side elevational view of the surgical needle holder;

FIG. 2 is a top plan view of the surgical holder;

FIG. 3 is an enlarged side elevational cross-sectional view of the jaws of the needle holder spaced apart from each other;

FIG. 4 is an enlarged, end elevational view of the jaws of the needle holder spaced apart from each other.

FIG. 5 is a plan view of an oscillatable jaw mounted on an offset on one of the arms of the needle holder;

FIG. 6 is a plan view of an immovable jaw mounted on an offset on the other arm of the needle holder.

Referring now to the drawings in detail, the needle holder comprises a pair of arms **11** and **12** which are pivotally mounted to each other by means of a pin **13**. The arm **12** is provided with a slot **14** through which the end of arm **11** passes. The pin **13** being internal to the slot **14**. The ends of the arms **11** and **12** are provided with the usual rings **15** and **16** respectively. In addition, the arms **11** and **12** are also provided with interlocking legs **17** and **18** which are adapted to interengage to hold the jaws of the holder together.

The arms **11** and **12**, their pivotal juncture, the finger rings **15** and **16** and the interlocking elements **17** and **18** are conventional and their specific structure a mere matter of choice.

A pair of offsets **19** and **20** are formed on the ends of arms **11** and **12** respectively on the side opposite the pivot point or pin **13**. The offsets **19** and **20** are displaced to one side of the plane of movement of the arms **11** and **12**.

A pair of jaws **21** and **22** are formed on the terminal ends of offsets **19** and **20** respectively and are engageable with each other upon drawing arms **11** and **12** together.

Jaw **21** comprises a generally hollow, hemispherical body **23** having an annular serrated clamping face **24**.

The opposing jaw **22** comprises a generally hollow, hemispherical body portion **25** and an annular, serrated clamping surface **26**. A pin **27** formed on the bottom of the hollow, hemispherical body **25** extends through a transverse bore **28** in the offset **20**. The end **29** of the pin **27** is deformed to retain it to the offset **20**. The pin **27** and bore **28** are dimensioned to rotatably mount the jaw **22** to the offset **20** as well as to provide limited rocking movement of the jaw **22**.

In operation, a suturing needle **30** is clamped between jaws **21** and **22**. Since the jaws **21** and **22** are located on the ends of offsets **19** and **20**, the needle **30** may take any number of positions about a plane generally perpendicular to the plane of pivotal movement of the arms **11** and **12** as illustrated in FIG. **2**. Preferably, the offsets **21** and **22** are more narrow than the body of arms **11** and **12** and the clamping jaws **21** and **22** are sufficiently displaced from the plane of pivotal movement of the arms **11** and **12** to permit a needle **30** to be gripped therein and extend generally parallel to the plane of arms **11** and **12**. Thus, the needle **30** may be oriented both parallel to the plane of the arms **11** and **12** and perpendicular thereto and at an infinite number of positions in between.

Since jaw **22** is rotatable on offset **20**, it may move slightly to adjust its position to tightly and securely clamp a needle of any cross-sectional configuration. In addition, the slight oscillatory movement of the jaw **22** also provides for sure gripping of irregularly shaped, arcuate needles.

The foregoing description is merely intended to illustrate an embodiment of the invention. The component parts have been shown and described. They each may have substitutes which may perform a substantially similar function; such substitutes may be known as proper substitutes for the said components and may have actually been known or invented before the present invention.

What is claimed is:

1. A surgical needle holder comprising,

a. a pair of arms pivotally mounted to each other intermediate their ends,

b. generally opposed offsets on the ends of each of the arms on one side of the pivot displaced from a plane of pivotal movement of the arms,

c. a pair of generally opposed jaws on the offsets,

d. opposed annular serrated clamping surfaces on each of the jaws, the said clamping surfaces being substantially entirely engageable to each other in mating relationship when the arms are drawn together,

e. a depression in each of the jaws within the confines of said clamping surfaces,

f. at least one of said jaws being rotatable generally in the plane of its clamping surface, the axis of rotation of said rotatable jaw being limitedly oscillatable.

2. A surgical needle holder comprising,

a. the structure in accordance with claim **1** in which

b. the clamping jaws are sufficiently displaced from the plane of pivotal movement of the arms to grasp a needle lying in a plane generally parallel to but displaced to one side of the said plane of the arms.

3. A surgical needle holder comprising,

a. the structure in accordance with claim **1** in which

b. the rotatable jaw comprises a generally hollow, hemispherical body member,

c. an annular clamping surface on the rotatable jaw,

d. a pin formed on the bottom of the said body member, the pin being secured within a bore in the offset.

4. A surgical needle holder comprising,

a. the structure in accordance with claim **3** in which

b. the clamping jaws are sufficiently displaced from the plane of pivotal movement of the arms to grasp a needle lying in a plane generally parallel to but displaced to one side of the said plane of the arms.

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