April 6, 1965 W. Z. YAHR 3,176,689

CLAMP CLOSING DEVICES

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Fig. 1

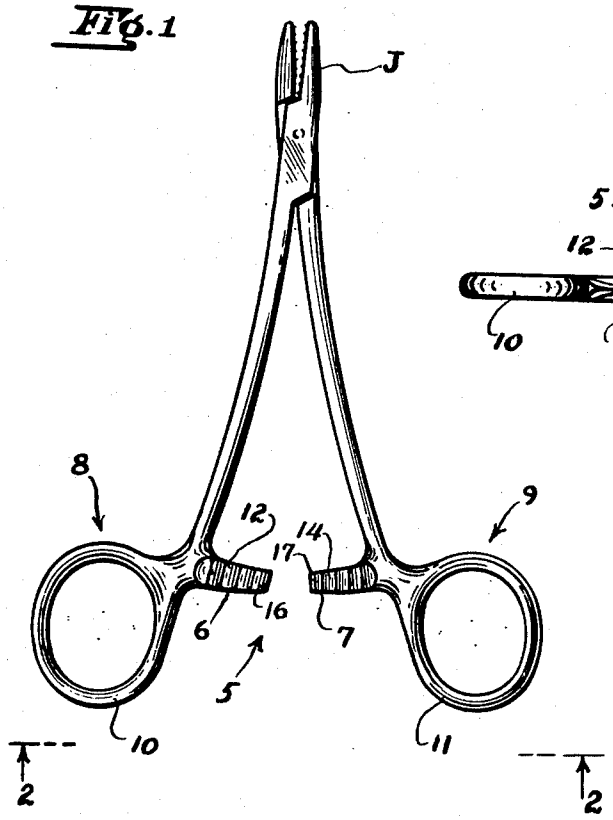


Fig. 2

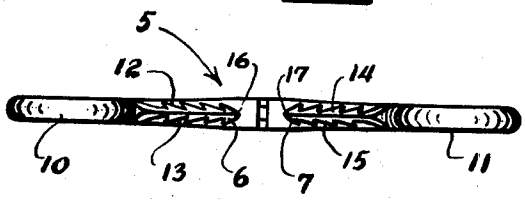
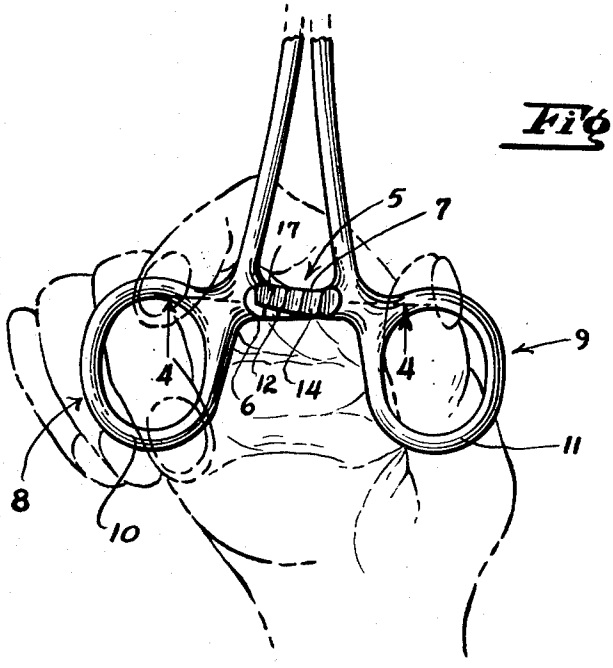


Fig. 3



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Fig. 4

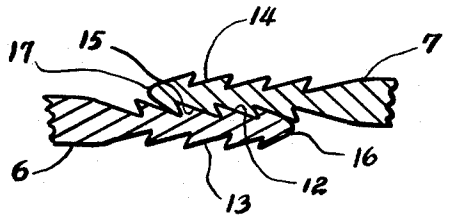


Fig. 5

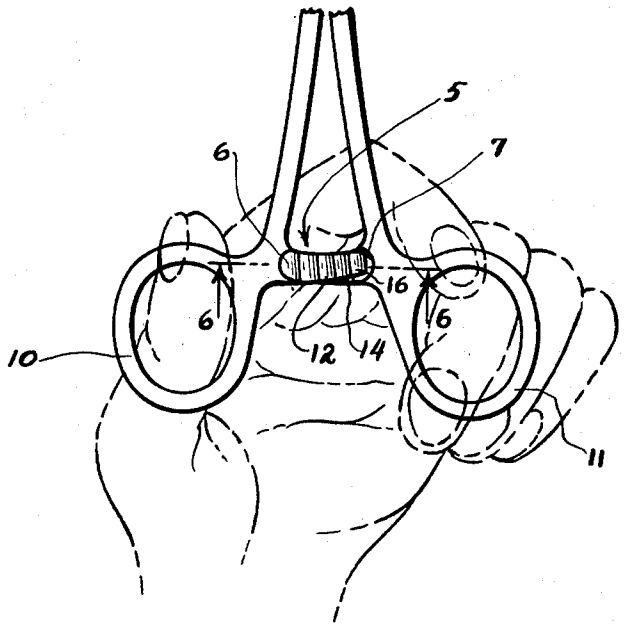
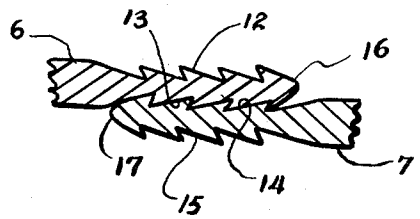


Fig. 6



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3,176,689

CLAMP CLOSING DEVICES

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5 Claims. (Cl. 128—321)

Generically, the invention relates to clamping devices. Specifically, it encompasses a clamp closing device for use in both general and specialty instruments which can be employed in hospital operating rooms, emergency treatment rooms, physicians' offices and wherever required. Said instruments may be and often are employed in both household and mechanical work.

The majority of surgeons and physicians are right-handed but many are left-handed, that is they prefer to use that hand in selecting, handling and using instruments in the operating room and elsewhere, though some are ambidextrous.

Heretofore, left-handed medical practitioners have encountered difficulty in closing and locking conventional surgical clamps which are designed and manufactured for those who are right-handed. In these clamps the thumb and opposing finger loops opposite the clamping ends have depending latching elements, with that below the thumb provided with inside serrations adapted to engage serrations on the inside of the element extending above the middle finger. In practice the right-handed surgeon's thumb exerts pressure outwardly and downwardly with the opposing finger pressing inwardly and upwardly to cause the oppositely disposed clamping members to close on the vein, artery, needle, tissue or object to be held, the serrations engaging and holding the clamp positively locked.

When a right-handed instrument is used in the left hand difficulty is encountered in closing and especially opening the instrument.

As a physician, I have, after extensive experimentation and testing, devised a clamp closing device capable of being employed with equal facility by both left-handed and right-handed surgeons, physicians, internists, also householders, mechanics and hobbyists.

A principal object is the provision of a clamp closing device which may be utilized by left as well as right-hand persons.

Another object is a closing device which will positively lock regardless of the direction of opposing pressure on the handle elements.

A still further object is an instrument which can be manufactured without expensive dies or change from usual fabricating procedures.

A still further object is a clamp closing device which can be incorporated in all general and specialty instruments requiring a clamping and locking action which can be purchased by hospitals and others, and utilized by both left-handed and right-handed surgeons and physicians. It would not be economically feasible for a hospital and others to invest in instruments designed only for left-handed surgeons and physicians. My invention can be purchased and used by both left-handed and right-handed medical practitioners.

These and other objects will be manifest after a reading of the specification.

Briefly described, my clamp closing device includes oppositely disposed, cooperating latching members depending from and integral with the finger holds of an instrument for locking the instrument in closed position by either a left-handed or right-handed person. Serrations are formed on both sides of the depending members.

In the drawings:

FIG. 1, a front plan view showing open lock position,

FIG. 2, an end plan view taken on line 2—2 of FIG. 1,

FIG. 3, enlarged partial plan view showing right hand locked position,

FIG. 4, fragmentary enlarged section view taken on line 4—4 of FIG. 3,

FIG. 5, enlarged partial plan view,

FIG. 6, fragmentary enlarged sectional view taken on lines 6—6 of FIG. 5 showing left hand locked position.

With reference to the drawings, the clamp closing device **5** includes a pair of latching members **6, 7** depending from and formed integral with a pair of handles **8, 9** having finger loops **10, 11**. The handles **8, 9** in one useful surgical instrument, the needle holder depicted in FIG. 1, are pivoted and terminate in a pair of gripping jaws J. FIG. 1 serves to illustrate one of the manifold instruments for surgeons and physicians in which my locking device may be utilized, as for example needle holders, hemostatic clamps, tissue holding clamps, vascular compressing clamps, approximating and holding clamps, miscellany such as sponge sticks, sterilizer forceps, and in fact all general and specialty instruments requiring a gripping and locking action.

The sides of members or legs **6, 7** are each provided with opposing transverse serrations **12, 13** and **14, 15** respectively, and it is to be noted that while a series of four serrations are shown in the drawing, one serration on each side, or any desired number may be fabricated, depending on the size of the instrument and kind of object to be gripped. A cardio-vascular clamp, by way of example, would require five or more serrations on the opposing sides of members **6, 7**.

As well shown in FIG. 2, when in extreme open position, the members **6, 7** are aligned in the same plane.

The handles **8, 9** are sufficiently resilient so that when compressed by either the right or left hand, member **6** will slide by member **7** on one side or the other thereof to the locked positions indicated in FIGS. 4 and 6, respectively.

When the thumb and opposing fingers of the left-handed surgeon are placed in the finger loops, the normal directions of pressure of left thumb, opposing finger and guiding index finger against handles **8, 9** will cause the serrations **14** of element **7** to latch with serrations **13** of element **6**. As shown in FIGS. 5 and 6, this manipulation of a clamping device by a left-handed person has hitherto been impossible as referred to at the outset of the specification. Furthermore the closing device can be unlocked with ease with the left hand. With reference to FIG. 3, the right-handed surgeon closes the clamping device **5** with serrations **15** of element **7** locking with serrations **12** of element **6**. This closed position is difficult to open with the left hand.

It is obvious that my device is useful for both left and right-handed persons since positive locking of elements **6** and **7** is assured through provision of serrations **12, 13** and **14, 15** on opposing sides of the elements. Elements **6, 7** have V-shaped terminals **16, 17** which insure that members **6** and **7** will slide on either side of the other when handles **8, 9** are pressed together for gripping.

My clamp closing device is adaptable for use in all types of surgical instruments, general and special, which require a clamping action of the gripping members, and is of manifest advantage to the multitude of primarily left-handed surgeons and physicians, also mechanics and householders utilizing such instruments in work such as the manipulation of wiring in electronic equipment. Some housewives use a surgeon's clamp to hold a match when igniting a gas fired stove. My clamp closing device is also, as has been set forth, useful not only for left-handed but also right-handed persons, and the surgeon, when faced with a difficult operation in a hospital, will be assured at

the outset in the array of instruments, that they can be used with facility, whether he be right or left-handed.

The clamp closing device can be fabricated of stainless steel or standard materials with the manufacturing procedures heretofore used.

It is intended that all references to clamping devices and clamp closing devices shall include instrument devices and instrument closing devices, as well as tools. Reference to serrations is intended to include detents, teeth, ratchets and equivalent latching means.

Since certain changes in carrying out the invention and certain modifications in the article which embody the invention may be made without departing from its scope, it is intended that all matter contained in the above description or shown in the drawings, shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. In a clamp closing device of the class described for use in an instrument having a pair of gripping members at one end for manual manipulation, the improvements which comprise:

(*a*) a pair of resilient pivoted handles with finger loops at the end opposite the gripping members

(*b*) a pair of aligned opposed legs depending from and integral with the pair of handles

(*c*) latching means comprising interengaging surface configurations on the opposite external surfaces of each of said legs and in substantially the plane of each of the said looped handles when the latching means are not engaged so that one or the other side of one leg will releasably engage an adjacent side of the other leg when the handles are compressed by the right or left hand and one leg moves by the other.

2. A clamp closing device for manual manipulation for use in an instrument having a pair of pivoted handles with finger loops on one end and gripping means on the opposite end, the improvements comprising:

(*a*) a pair of latching members depending from and integral with each of the said handles

(*b*) serrations formed on the external surfaces of both latching members and in substantially the plane of the looped handles

whereby the clamp closing device is adapted for releasable engagement when used by either the left hand or the right hand with the members engageable with each other on both sides of each member.

3. A clamp closing device for use in an instrument having a pair of pivoted handles with finger loops on one end and gripping means on the opposite end, the improvements comprising:

(*a*) a latching member depending from and integral with each of the said handles

(*b*) said members having their outer terminals opposing each other when the device is in unlocked and open position and including means whereby one member will slide to one side or the other of the opposing member when the handles are compressed

(*c*) each latching member having serrations on their opposite external surfaces for releasable engagement with the other member, said serrations being in the plane of the looped handles

the clamp closing device adapted to be releasably engaged in clamping position by a person using either hand, with the latching members adapted to slide on either side of each other for such releasable engagement.

4. A clamp closing device for use in a surgeon's and physician's instrument provided with a pair of pivoted handles with finger loops on one end and gripping means on the opposite end, the improvements comprising:

(*a*) a pair of cooperating latching members depending from and integral with the respective pair of handles, said latching members positioned in the plane of the looped handles

(*b*) said members in alignment when the device is in unlocked position and having V-shaped terminals opposed to each other in such position

(*c*) each latching member having transverse serrations on the opposite their external surface for releasable engagement of one member with the other when the handles are compressed with the members engageable regardless of the sides of the members which face each other when the device is closed.

5. A clamp closing device for use in a surgeon's instrument having a pair of pivoted handles with finger loops at one end and gripping clamps on the opposite end, the improvements comprising:

(*a*) a pair of oppositely disposed latching members depending from and integral with the respective pair of handles

(*b*) said members aligned when the device is in unlocked position and provided with V-shaped terminals opposed to each other in such position

serrations on the opposite external surface of the opposed legs of each member and in the plane of the looped handles whereby the members are releasably engageable when the handles are compressed to cause one member to slide by the other on one side when manipulated by the left hand and also so engageable when the handles are manipulated by the right hand to cause the first mentioned member to slide by the opposite member on the other side.

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RICHARD A. GAUDET, *Primary Examiner.*