Nov. 14, 1950 H. VAN STEENBRUGGHE 2,530,136

DISMOUNTABLE ARTICULATING PART FOR SURGICAL OR OTHER INSTRUMENTS

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Fig.1

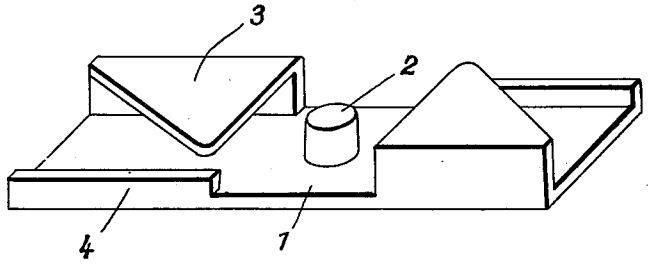


Fig.2

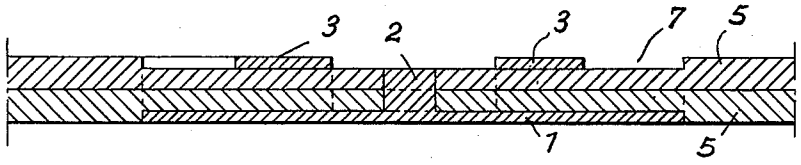


Fig.3

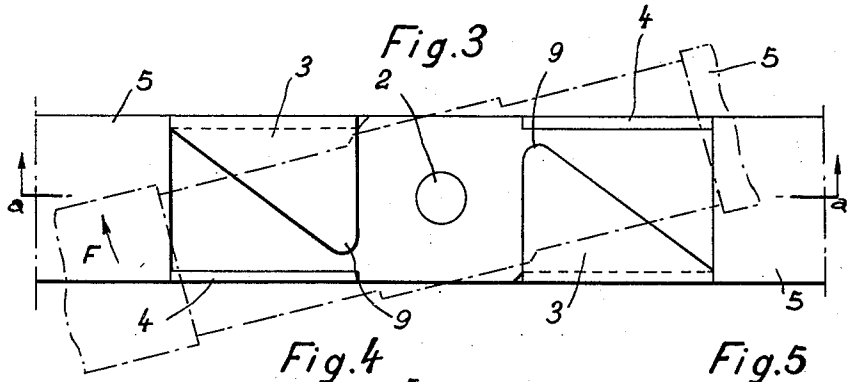


Fig.4

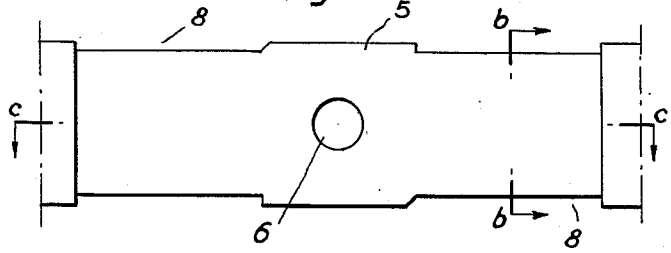


Fig.5

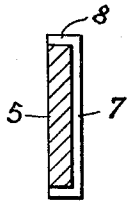
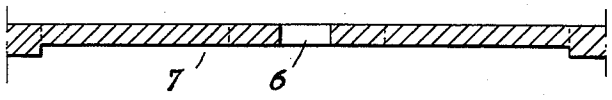


Fig.6



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Fig. 7

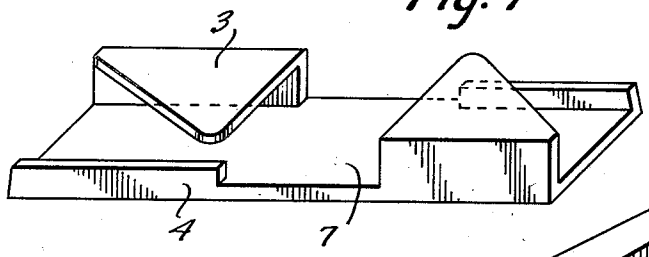


Fig. 8

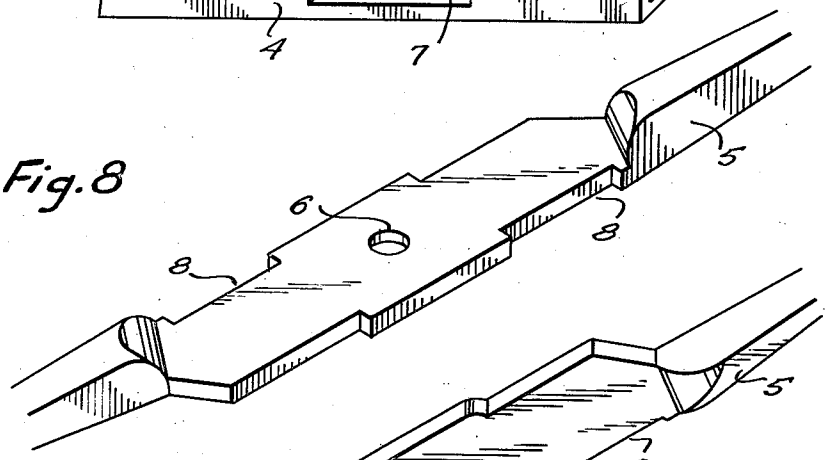
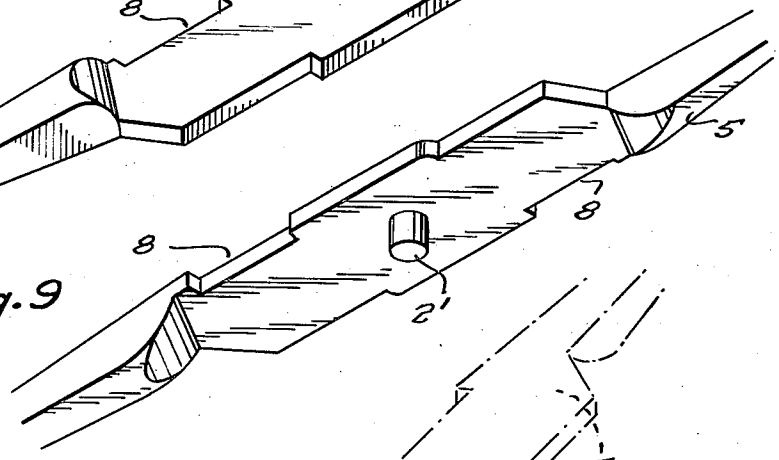


Fig. 9



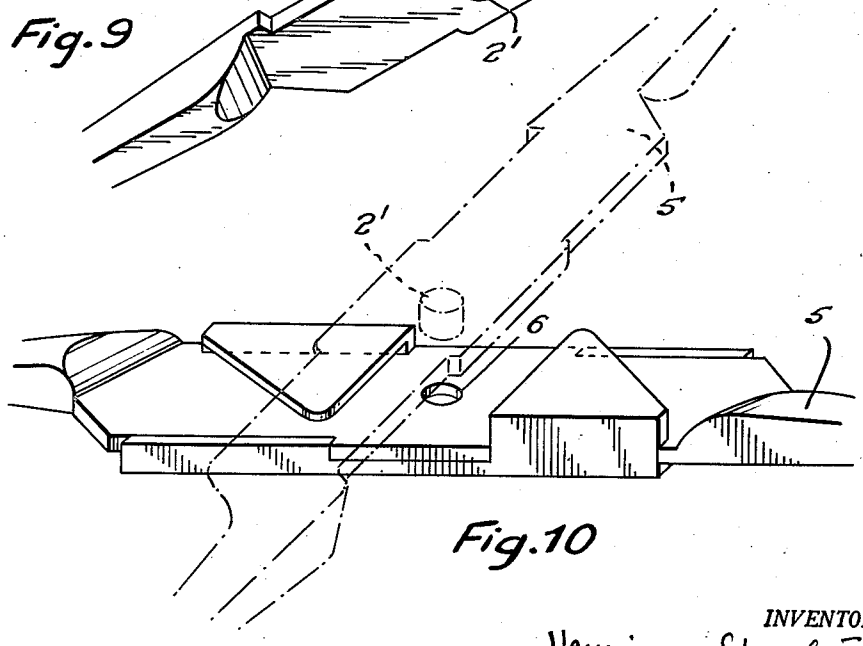


Fig. 10

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Patented Nov. 14, 1950 2,530,136

UNITED STATES PATENT OFFICE

2,530,136

DISMOUNTABLE ARTICULATING PART FOR SURGICAL OR OTHER INSTRUMENTS

Henri van Steenbrugghe, Paris, France

Application May 17, 1947, Serial No. 748,710
In France June 18, 1946

9 Claims. (Cl. 287—64)

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The present invention relates to surgical or other instruments, and more particularly to a dismountable connecting device for the operating arms of such instruments.

It is an object of the present invention to provide a connecting device of the kind described which is simple to manufacture.

It is another object of the present invention to provide a connecting device of the kind described which allows an accurate adjusting of the instrument.

It is a further object of the present invention to provide a surgical instrument having two similar arms so that the expense in manufacturing the instrument is reduced.

A connecting device for the operating arms of a surgical or other instrument according to the present invention comprises in combination a coupling part which is independent of said operating arms of the instrument and provided with means for engaging, maintaining and rotating said operating arms by a simple manner of taking in place the said arms into the coupling part, the dismantling operation being performed by the reverse handling of said arms out of the coupling part.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings, in which:

Fig. 1 illustrates in perspective view the fitting part constituting the dismountable link.

Fig. 2 shows the device arranged in order to constitute the instrument according to a longitudinal cross section made through the line A—A of Fig. 3;

Fig. 3 is a plan top view of Fig. 2;

Fig. 4 shows a partial top view of one arm of the instrument;

Fig. 5 is a transverse cross-section thereof by the line B—B;

Fig. 6 is a longitudinal cross-section by the line C—C.

Fig. 7 is a perspective view of a second embodiment of the invention.

Figs. 8 and 9 are perspective views of the arms of the instrument to be used with the connecting member shown in Fig. 7.

Fig. 10 shows the member shown in Fig. 7 and the arms shown in Figs. 8 and 9 being assembled.

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According to the invention the coupling part is constituted by a rectangular plate 1 comprising in its centre a pin 2.

Towards each of its ends, the plate 1 has, at one side, a lug 3 including a part set at a right angle to the plate 1 and a substantially triangular part having a direction parallel to the plate, and at the other side, an abutment 4 which has the same length as the part at a right angle to the lug 3, and the height of which is at the most equal to the half distance between the plate 1 and the part of the lug 3 which is parallel to the plate 1, said part being preferably slightly pressed towards the plate in order to maintain itself subsequently upon one of the arms of the instrument for which it is designated.

The pin 2 constitutes the axis of symmetry of the two lugs and of the two abutments. The spacing of the lugs measured in the longitudinal direction of the plate 1 is at least equal to the width of the arms 5 of the instrument.

Each of the arms 5 is drilled with a hole 6 for the passage of the pin 2 and, in order to avoid any projection of the coupling part, the latter is located in recesses 7 and 8 of the arms.

In order to perform the assembly of the instrument, the operation is as follows:

The hole 6 of an arm 5 with its recess 7 directed downwards is engaged upon the pin 2 of the coupling part held perpendicularly to the arm.

As soon as the arm sufficiently engages upon the pin in order that it may pass by rotation under the lugs 3, it is brought by a pivoting motion into longitudinal alignment with the coupling part.

In that position the abutments 4 will be situated in juxtaposition with the recesses 8 and the arm is pushed against the plate 1.

The second arm is placed in the same manner, its recess 7 being directed upwards.

A rotation in the direction of the arrow F performs the locking which becomes effective as soon as the arm is engaged beneath the points 9 of the lugs 3.

The coupling part may be made in a very simple way; it may be made by drop forging, stamping, casting or by cutting and bending, the pin being connected to it by riveting or otherwise and generally made of a metal different from that of the arms.

The arms may be drop forged or stamped without any subsequent machining.

The articulating part may be made of steel of very high strength and subjected to a special

hardening without any modification of the steel or the metal of the arms or of their treatment.

Finally in order to make the interchange more easy a number of types of articulating parts may be made in different sizes and provided with numbers in order to correspond to the various sizes of the instruments.

A modification of embodiment, which is illustrated in Figs. 7–10 and affording no change of the principle of the invention consists in suppressing the pin 2 (Fig. 7), while mounting a pin 2' upon one of the arms 5 (Fig. 9), the other arm preserving its hole 6 (Fig. 8). Fig. 10 shows how the parts are assembled.

It must be well understood that the forms of embodiment shown and described are only given in the way of examples and that the outer profile of the coupling part shall be adapted to that of the arms of the instrument.

Having thus described my invention, I claim:

1. A connecting member for the operating arms of surgical and other instruments, comprising in combination, an oblong base plate; a lug including a part arranged substantially at right angles and adjacent to one longitudinal edge of said plate and a substantially triangular part arranged parallel to said plate; and an abutment arranged at the other longitudinal edge of said plate opposite to said lug.

2. A connecting member for the operating arms of surgical and other instruments, comprising in combination, an oblong base plate; a lug arranged at each end of said longitudinal plate, said lugs each including a part arranged substantially at right angles and adjacent to one longitudinal edge of said plate and a substantially triangular part arranged parallel to said plate; and abutments arranged, respectively, at the other longitudinal edge of said plate opposite to said lugs.

3. A connecting member for the operating arms of surgical and other instruments, comprising in combination, an oblong base plate; a lug arranged at each end of said longitudinal plate, said lugs each including a part arranged substantially at right angles and adjacent to one longitudinal edge of said plate and a substantially triangular part arranged parallel to said plate; and abutments arranged, respectively, at the other longitudinal edge of said plate opposite to said lugs, said lugs being arranged at opposite edges of said plate.

4. A connecting member for the operating arms of surgical and other instruments, comprising in combination, an oblong base plate; a lug including a part arranged substantially at right angles and adjacent to one longitudinal edge of said plate and a substantially triangular part arranged parallel to said plate; and an abutment having a height not greater than the thickness of an arm of the instrument and being arranged at the other longitudinal edge of said plate opposite to said lug.

5. A connecting member for the operating arms of surgical and other instruments, comprising in combination, an oblong base plate; a lug including a part arranged substantially at right angles and adjacent to one longitudinal edge of said plate and a substantially triangular part arranged parallel to said plate at a distance from said plate substantially equal to twice the thickness of an arm of the instrument; and an abutment arranged at the other longitudinal edge of said plate opposite to said lug.

6. A connecting member for the operating arms of surgical and other instruments, comprising in combination, an oblong base plate; a lug including a part arranged substantially at right angles and adjacent to one longitudinal edge of said plate and a substantially triangular part arranged parallel to said plate at a distance from said plate substantially equal to twice the thickness of an arm of the instrument; and an abutment having a height not greater than the thickness of an arm of the instrument and being arranged at the other longitudinal edge of said plate opposite to said lug.

7. A connecting member for the operating arms of surgical and other instruments, comprising in combination, an oblong base plate; a lug arranged at each end of said longitudinal plate, said lugs each including a part arranged substantially at right angles and adjacent to one longitudinal edge of said plate and a substantially triangular part arranged parallel to said plate at a distance from said plate substantially equal to twice the thickness of an arm of the instrument; and abutments having a height not greater than the thickness of an arm of the instrument and being arranged, respectively, at the other longitudinal edge of said plate opposite to said lugs, said lugs being arranged at opposite edges of said plate.

8. A connecting member for the operating arms of surgical and other instruments, the arms each having a hole, comprising in combination, an oblong base plate; a lug arranged at each end of said longitudinal plate, said lugs each including a part arranged substantially at right angles and adjacent to one longitudinal edge of said plate and a substantially triangular part arranged parallel to said plate; abutments arranged, respectively, at the other longitudinal edge of said plate opposite to said lugs, said lugs being arranged at opposite edges of said plate; and a central pin arranged on said plate adapted to be located in the hole of the arms of the instrument.

9. A connecting member for the operating arms of surgical and other instruments, the arms each having a hole, comprising in combination, an oblong base plate; a lug arranged at each end of said longitudinal plate, said lugs each including a part arranged substantially at right angles and adjacent to one longitudinal edge of said plate and a substantially triangular part arranged parallel to said plate at a distance from said plate substantially equal to twice the thickness of an arm of the instrument; abutments having a height not greater than the thickness of an arm of the instrument and being arranged, respectively, at the other longitudinal edge of said plate opposite to said lugs, said lugs being arranged at opposite edges of said plate; and a central pin arranged on said plate adapted to be located in the hole of the arms of the instrument.

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No references cited.