



(11) **EP 3 593 739 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
18.03.2020 Bulletin 2020/12

(51) Int Cl.:
A61B 17/128 (2006.01)

(43) Date of publication A2:
15.01.2020 Bulletin 2020/03

(21) Application number: **19185820.8**

(22) Date of filing: **11.07.2019**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

- **CRESTON, Brian**
Madison, CT 06443 (US)
- **PILLETIERE, Roy J**
North Haven, CT 06473 (US)
- **ZAMMATARO, Thomas A.**
Hamden, CT 06517 (US)
- **THOMAS, Justin**
New Haven, CT 06512 (US)
- **DININO, Matthew A.**
Newington, CT 06111 (US)

(30) Priority: **13.07.2018 US 201862697418 P**
29.03.2019 US 201916369199

(74) Representative: **Soames, Candida Jane**
Maschio & Soames IP Limited
30 Carlton Crescent
Southampton SO15 2EW (GB)

(71) Applicant: **Covidien LP**
Mansfield, MA 02048 (US)

(72) Inventors:
• **BARIL, Jacob C**
Norwalk, CT 06851 (US)

(54) **ROTATION KNOB ASSEMBLIES FOR HANDLE ASSEMBLIES**

(57) Rotation knob assemblies for handle assemblies of surgical instruments rotatably support a laparoscopic end effector relative to a housing of the handle assemblies. The rotation knob assemblies may include

friction reducing screws, bearing members, snap rings, and/or bearing assemblies to facilitate rotation of an outer knob relative to an inner collar.

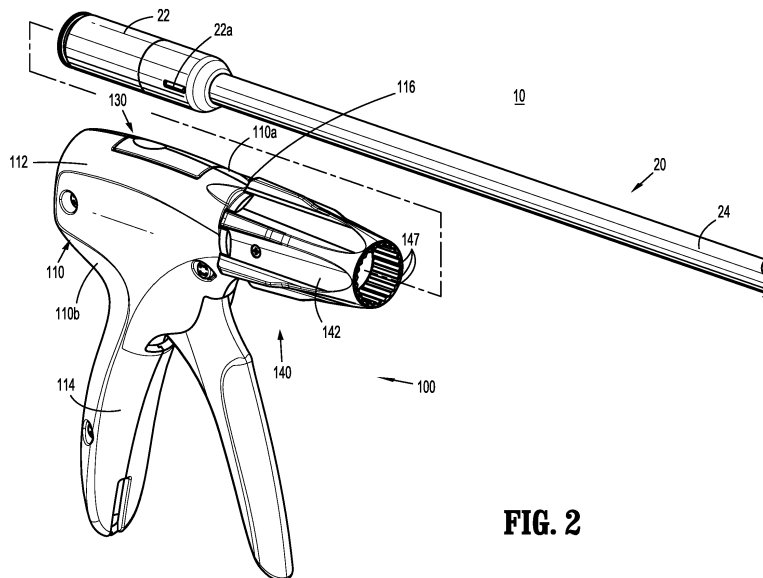


FIG. 2

EP 3 593 739 A3



5

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

10

Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

15

No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

20

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

25

see sheet B

30

All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

35

As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

40

Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

45

None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

50

1-4

55

The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

EP 19 18 5820

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-4

Rotation knob assembly with an outer knob and an inner collar with an annular groove. A plurality of screws with ball portions protrudes from the outer knob into the annular groove. The ball portions can slide along the annular groove. This group of claims is directed towards solving the technical problem how to adjust the friction force between outer knob and inner collar.

2. claims: 5-7

Rotation knob assembly with an outer knob and an inner collar with an annular groove. A bearing assembly includes a ring in the groove and protrusions fixing the bearing in the outer knob. This group of claims is directed towards solving the technical problem how to fix an annular bearing between the outer knob and the inner collar.

3. claims: 8-12

Rotation knob assembly with an outer knob and an inner collar with an annular groove. A snap ring including alternating annular and flange segments is received in the groove and in the outer knob. This group of claims is directed towards solving the technical problem how to minimize manufacturing costs of the bearing between the outer knob and the inner collar.

4. claims: 13-15

Rotation knob assembly with an outer knob and an inner collar with a bearing surface. A bearing assembly includes an annular housing and a plurality of paired ball bearings. The annular housing is secured to the handle assembly. This group of claims is directed towards solving the technical problem how to minimize angular play between inner collar and outer knob.

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 19 18 5820

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

06-11-2019

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 9050133	B1	09-06-2015	US 9050133 B1 09-06-2015
			US 9918727 B1 20-03-2018
			US 10492807 B1 03-12-2019
			WO 2011087852 A2 21-07-2011
US 9510895	B2	06-12-2016	AU 2011323281 A1 23-05-2013
			CA 2816899 A1 10-05-2012
			CN 103298419 A 11-09-2013
			EP 2635205 A1 11-09-2013
			JP 5992425 B2 14-09-2016
			JP 2013545532 A 26-12-2013
			US 2012116266 A1 10-05-2012
			US 2012116388 A1 10-05-2012
			US 2012116395 A1 10-05-2012
			US 2012116396 A1 10-05-2012
			US 2017042569 A1 16-02-2017
			WO 2012061640 A1 10-05-2012
WO 2018035796	A1	01-03-2018	AU 2016420481 A1 17-01-2019
			CN 109640844 A 16-04-2019
			EP 3503819 A1 03-07-2019
			JP 2019524326 A 05-09-2019
			WO 2018035796 A1 01-03-2018
US 6530880	B2	11-03-2003	NONE
WO 2017079895	A1	18-05-2017	AU 2015414380 A1 12-04-2018
			CA 2999907 A1 18-05-2017
			CN 108348261 A 31-07-2018
			EP 3373830 A1 19-09-2018
			JP 6609699 B2 20-11-2019
			JP 2018535741 A 06-12-2018
			US 2018317927 A1 08-11-2018
			WO 2017079895 A1 18-05-2017
US 8864785	B2	21-10-2014	AU 2003291352 A1 13-05-2004
			US 2003073998 A1 17-04-2003
			US 2004082960 A1 29-04-2004
			US 2004236317 A1 25-11-2004
			US 2005021030 A1 27-01-2005
			US 2005033297 A1 10-02-2005
			US 2005113833 A1 26-05-2005
			US 2013066159 A1 14-03-2013
			US 2013310876 A1 21-11-2013
			US 2015038798 A1 05-02-2015
			WO 2004037074 A2 06-05-2004

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

55

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 19 18 5820

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

06-11-2019

10

Patent document cited in search report	Publication date	Patent family member(s)	Publication date

15

20

25

30

35

40

45

50

EPO FORM P0459

55

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

专利名称(译)	把手组件的把手布置		
公开(公告)号	EP3593739A3	公开(公告)日	2020-03-18
申请号	EP2019185820	申请日	2019-07-11
[标]申请(专利权)人(译)	柯惠有限合伙公司		
申请(专利权)人(译)	COVIDIEN LP		
当前申请(专利权)人(译)	COVIDIEN LP		
[标]发明人	CRESTON BRIAN THOMAS JUSTIN DININO MATTHEW A		
发明人	BARIL, JACOB C CRESTON, BRIAN PILLETERE, ROY J ZAMMATARO, THOMAS A. THOMAS, JUSTIN DININO, MATTHEW A.		
IPC分类号	A61B17/128		
CPC分类号	A61B17/1285 A61B2017/0046 A61B2017/2929 A61B17/2909 A61B2017/00367 A61B2017/0042 A61B2017/2912		
审查员(译)	FRANZ, VOLKER		
优先权	62/697418 2018-07-13 US 16/369199 2019-03-29 US		
其他公开文献	EP3593739A2		
外部链接	Espacenet		

摘要(译)

用于外科器械的手柄组件的旋钮组件相对于手柄组件的壳体可旋转地支撑腹腔镜末端执行器。旋钮组件可以包括减小摩擦的螺钉，轴承构件，卡环和/或轴承组件，以促进外旋钮相对于内套环的旋转。

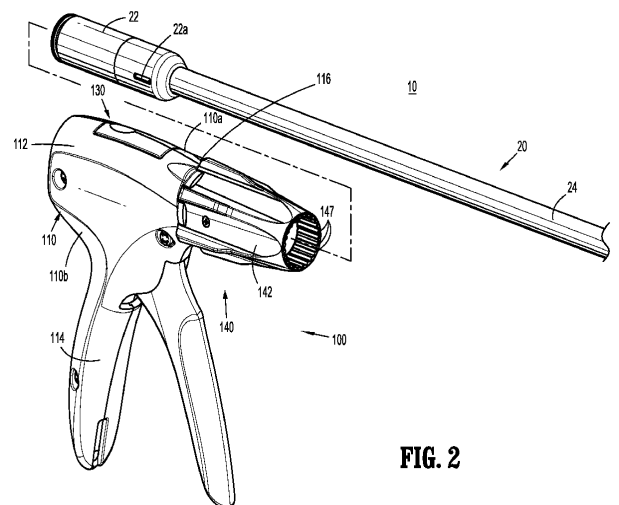


FIG. 2