

(19)
(12)

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(A)

(51) 。 Int. Cl.⁷
G06F 19/0010

(11)
(43)

10-2004-0018465
2004 03 03

(21)	10-2004-7000654
(22)	2004 01 15
	2004 01 15
(86)	PCT/US2002/022750
(86)	2002 07 16

(87)

WO 2003/009069
2003 01 30

(30)	60/305,957	2001 07 16	(US)
	10/196,563	2002 07 15	(US)

(71) _____, _____ 95131, _____ 801

(72) $\frac{95131}{801}$,

95131 801

95131 801

95131 801

(74)

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(54) - 4

가 (46), 가 (47), 가 (38), (38)
) , (62, 64, 66, 70), (38)
(65, 67, 69), (62, 64, 66, 70) (20)
 (14), (6
2, 64, 66, 70) (130), (38)

optic bundles), (styluses), (catheters:), (fiber

(linkage),

DC

가

가
가

가

1

2A 2B

2C 2D

2E

 $2F$

2G

3A

3B

3C

3D

3E

4A 4B

5A 5D

6A 6B

7A 7C

가

8A 8B

¹
 가 (10) / (12), (14), (16)
 가 (10) 가 (18) (26) , 가 (18)
 (20) (20)
 (20) CRT, 3-D ,
 (16)
 , 가 , 가 , , (18)
 , (16) 가 (14)
 , / ,
 1 , 가
 (20)
 / (12) (12) (22) (24) (24)
 (18) (22) (18) (24) , (12)
 가 (18) , 가,
 (18) 가
 (18) ' ' (26) (28)

(28) 4 (28)

(25) ' ' 가 (25) (25)

(18) 가 (25) (30) (25)

(25) (30) (72)

가 (18) 1 6 /

(pool cues),

(14) / (12) (12) (16)

(14) (16) (25) (25) (

) (16)

(25) 5,623,582 , 5,821,920 , 5,731,804 , 5,734,373 , 5,828,197 , 6,024,576

(32)(RS-232, USB, Firewire, ,)

(14) (16) (14) (16) (16)

(14) (16) (16) / (I/O) (16)

(14) (12) (12) (16)

(16)가 (12)

2A 2B , (25) 가

(25) (18)() , 가

(18) (40) , (40) (38) (38)

(38) (46) . DC (44) (40) (40) (18)

(46)

(25) , 4 (38)

(40)/ (18) 4 (50),

(52), 1 (yaw) (54), 2 () (56)

가

2C 2D , 가 (38)

2E (25) DC

(62) (50) (64) (yaw) (54)

, 2E (66) (52)

(70) (56)

2F (25) , 2G (72) (62)

6) (76) (160) (74) (64) (130) (10)

(646)

(77) (38)
(72, 74, 76)
(78) (65) (64) (67)
(62) (78) (69) (66)
(encoder wheel)
(56)
/ (70)

(Polhemus)()
(25)

/ DC / (torquer)(
), 가
가 가
() (25)
가
(EMF) EMF

(decoupled), (47) (46)
(18)

가 가 , 가
가
가
가

가 (25) 가 (18) 가
(18) 가 (18)

3A(), 3B(), 3C(), 3D(), 3E() (25) (38)
(38) (46) 가 2 (56) (38)
(38) (50, 52) (40)
(54, 56)

4A 4B (38) 2 () (56) (38) (46)
(70) (80) (38) 2 (56) (82)
(71) (56) (38) A
(84) (38) (84) (86)
(82) (88) (tensi
oning)

(38) 1 (yaw)(54) (100)
(110) (110) (112) B (100)
(104a, 104b) (112) 가 , B (54)
(106) (102) (104a)
(38) (64) (74) (104b) (102)
(38) (38) (102) 가
(114) (102) (106)

(110)

5A, 5B, 5C, 5D (38) (112) (110) 5A
 가 (102) (120) (112)
 (118) (102) (120)가 (118)
 (118)

6A 6B (38) (52)
 (130)() 1 (46) (66)
 (76) (38) (130) (132) 가 (1
 (134) (136) (130) (140) (140)
 38) (6a), (140) (6a (138)
 (130) (142) 2 (144)
 (138) (142) 2 (144)
) (130) (134) (146) (132) (132)
 30) (146) (130) (38) (130)
 -, (66) (130) (66) (

(66) (138) (40) (18)
 가 (136) (130) 1 가
 (130) 2 가 (170) (142) (170)

(50) (160) (6a) 1
 (46) (62) (72) (38)
 160) (162) (164) (166)
 (160) 1 (161) (169) (7a) (40)
 (160) 2 (162) (170) (40)
 (160) 2 (168) (164) (164)
 (172) (162) (162) (174)
 (38) (62) (72)
 (62) (160) 1 2
 , 1 가 (40)(3)
 , 2 가

7A 7C (38), 가 (50)

8A 8B (38)

4 (18) 4 가 가
 가 가
 가 ()
 가
 , 가 A 가
 A

(25)

(gimbal)

(play)

(57)

1.

가 가 ;

2.

1 ,

3.

1 ,

4.

1 ,

5.

1 ,

6.

1 ,

7.

1 ,

8.

1 ,

ptic bundles),
(hand grips)

(catheters),
(styluses),

(hyperdermic needles),
(joysticks),

(wires),
(screw drivers),

(fiber o
(pool cues)

9.

1 ,

10.

1 ,

11.

10 ,

12.

11 ,

DC

13.

11 ,

14.

10 ,

15.

10 ,

16.

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가 가 ,

가

16 17.

16 18.

16 19.

16 20.

16 21.

16 22.

16 23.

(laparoscopic tool) (trocar)

24.

16 ,

ptic bundles), (catheters), (hyperdermic needles), (wires), (fiber o
(styluses), (joysticks), (screw drivers), (pool cues)
(hand grips) .

25.

16 ,

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26.

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가 ,

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가 ,

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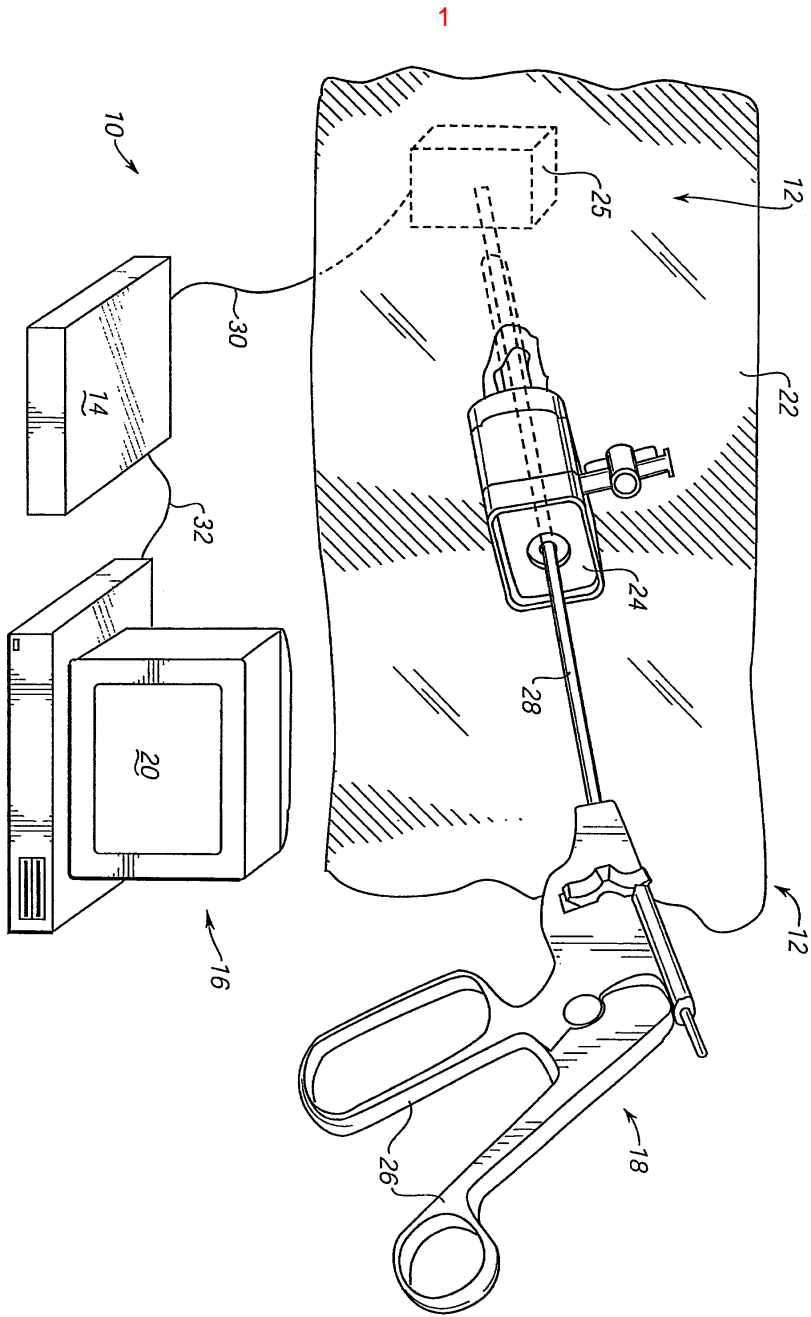
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27.

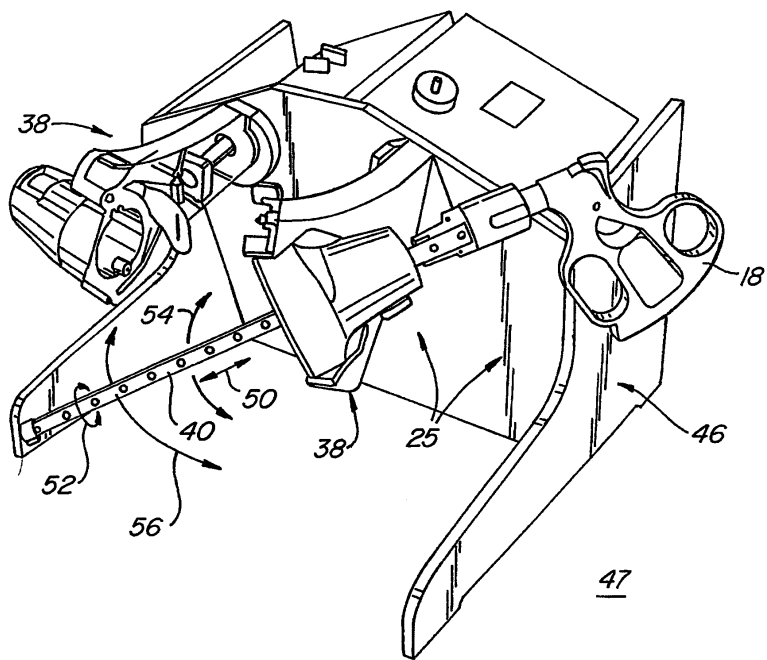
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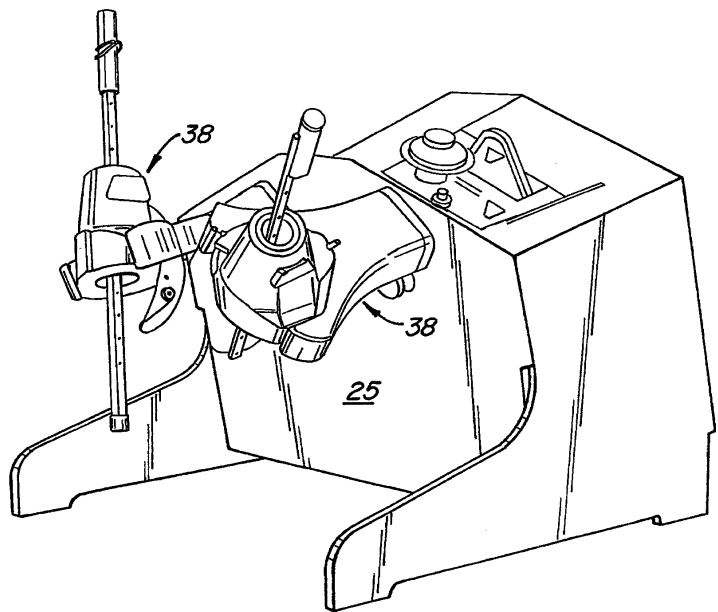
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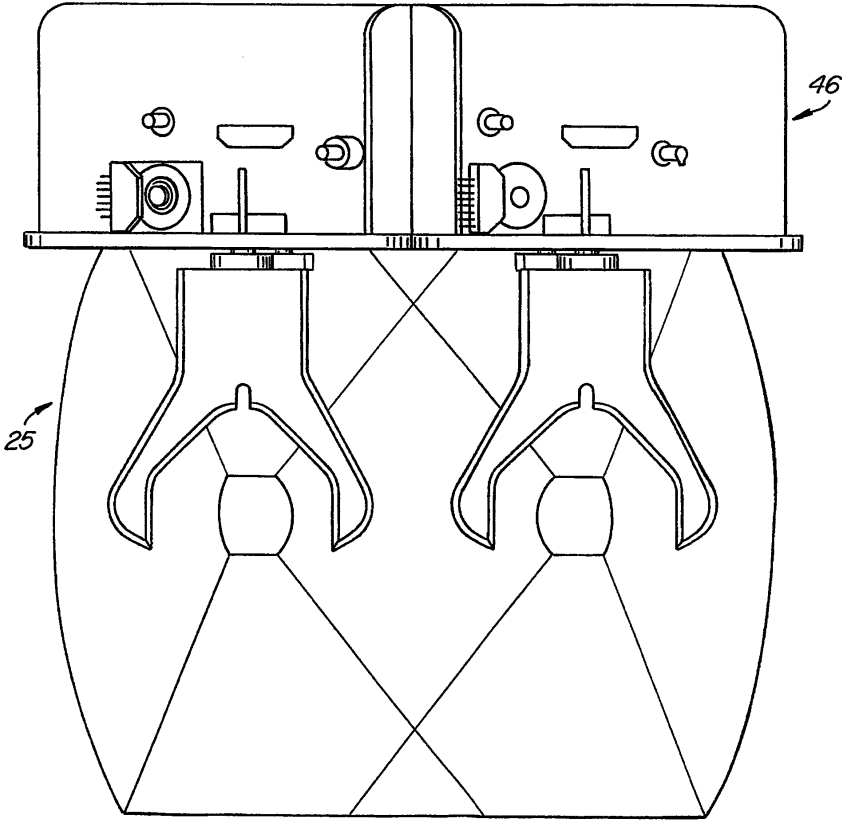
2A

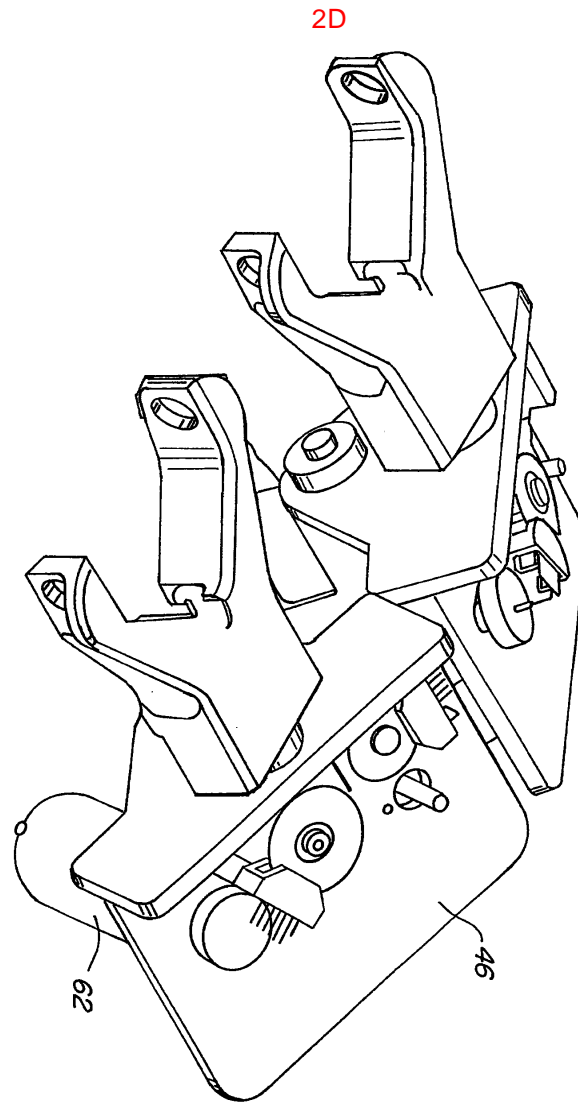


2B

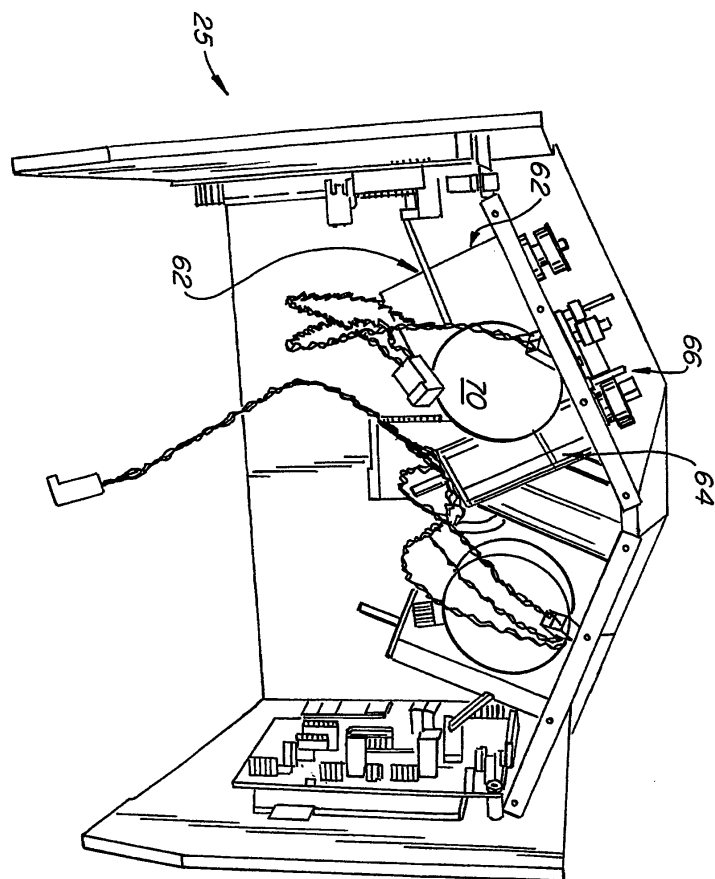


2C

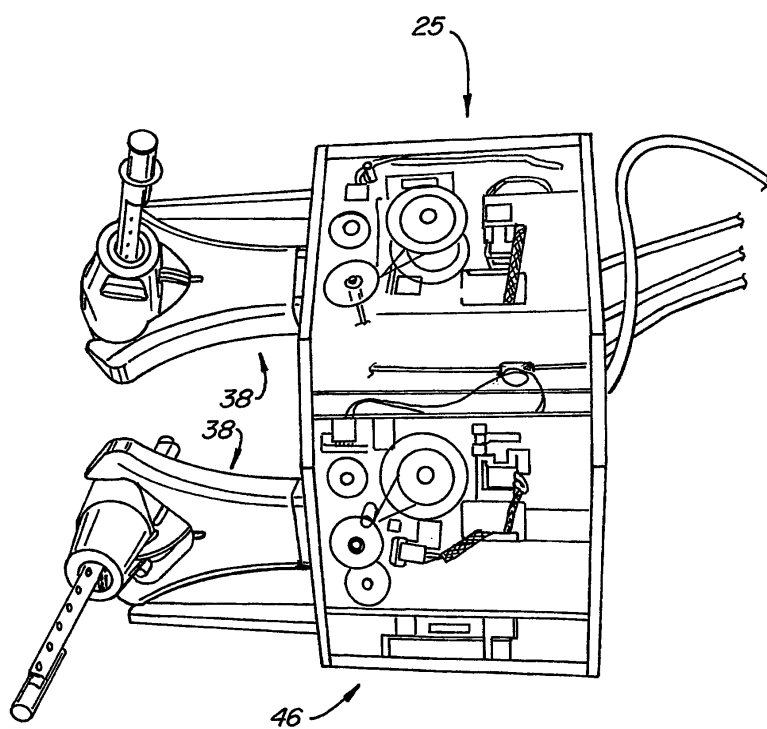




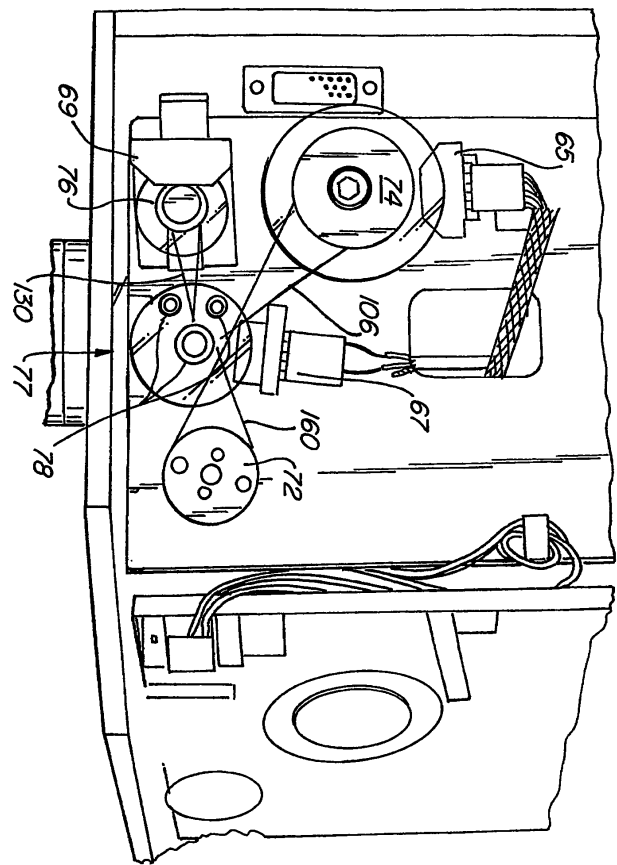
2E



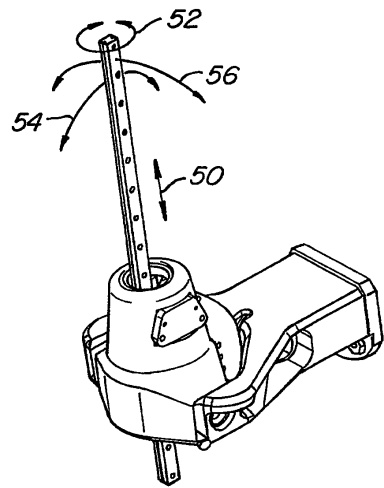
2F



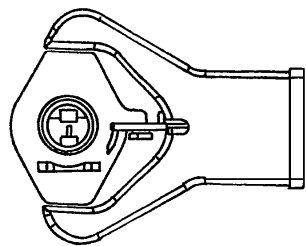
2G

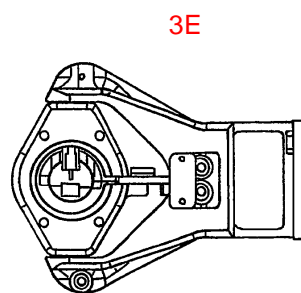
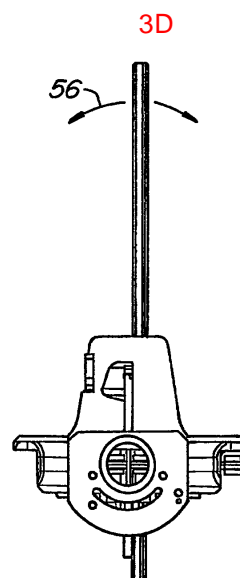
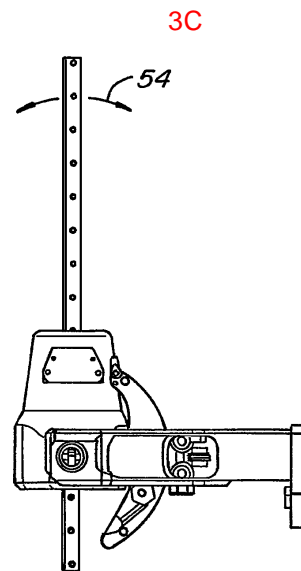


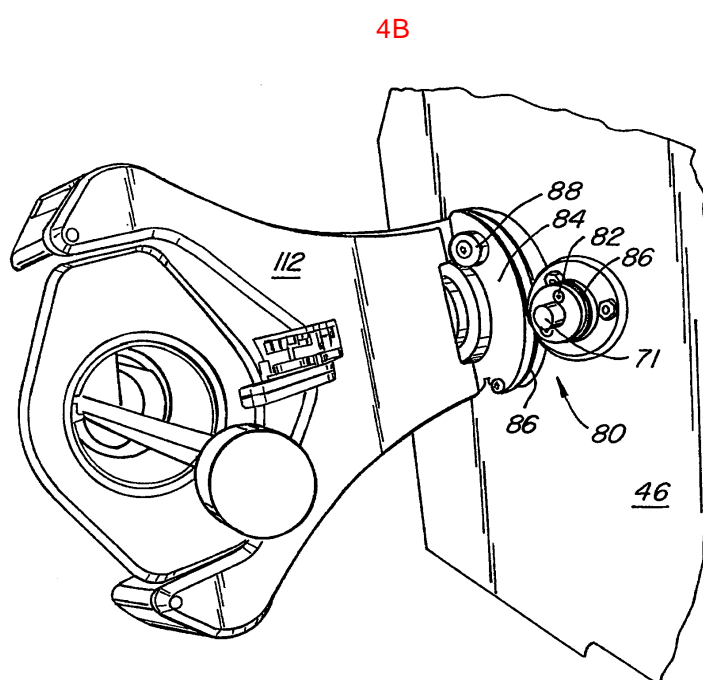
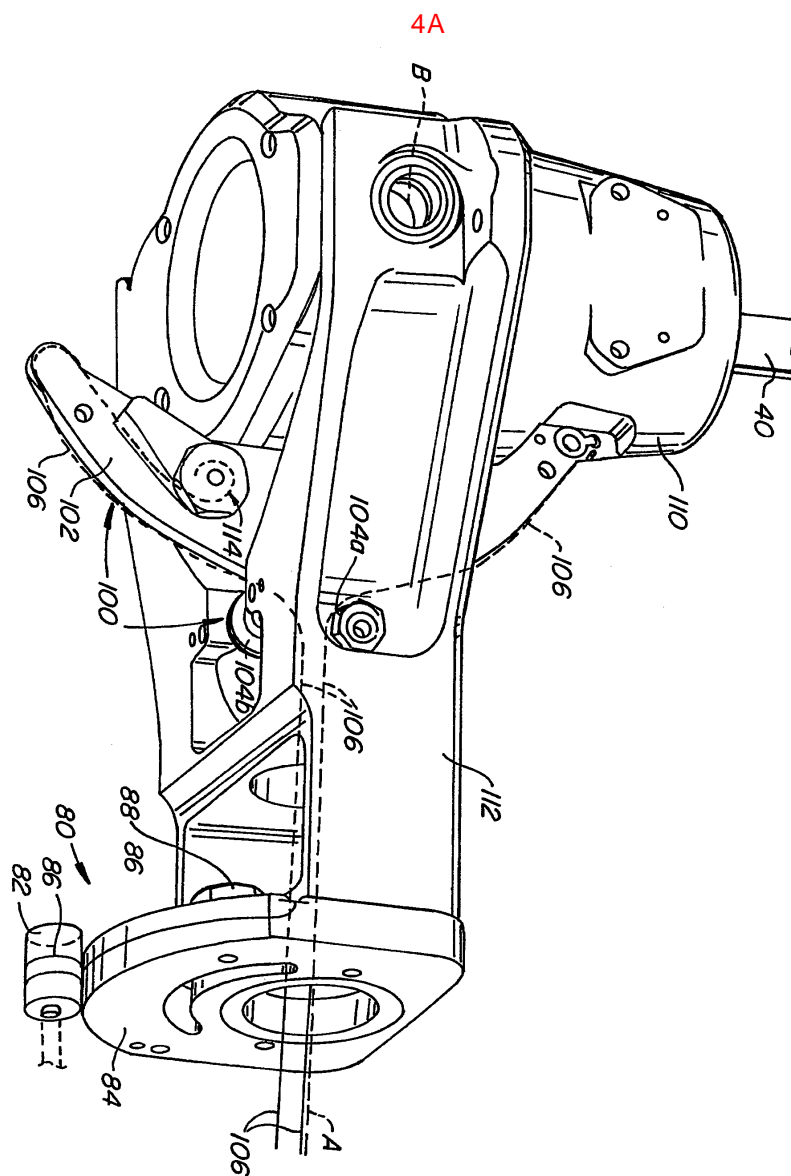
3A



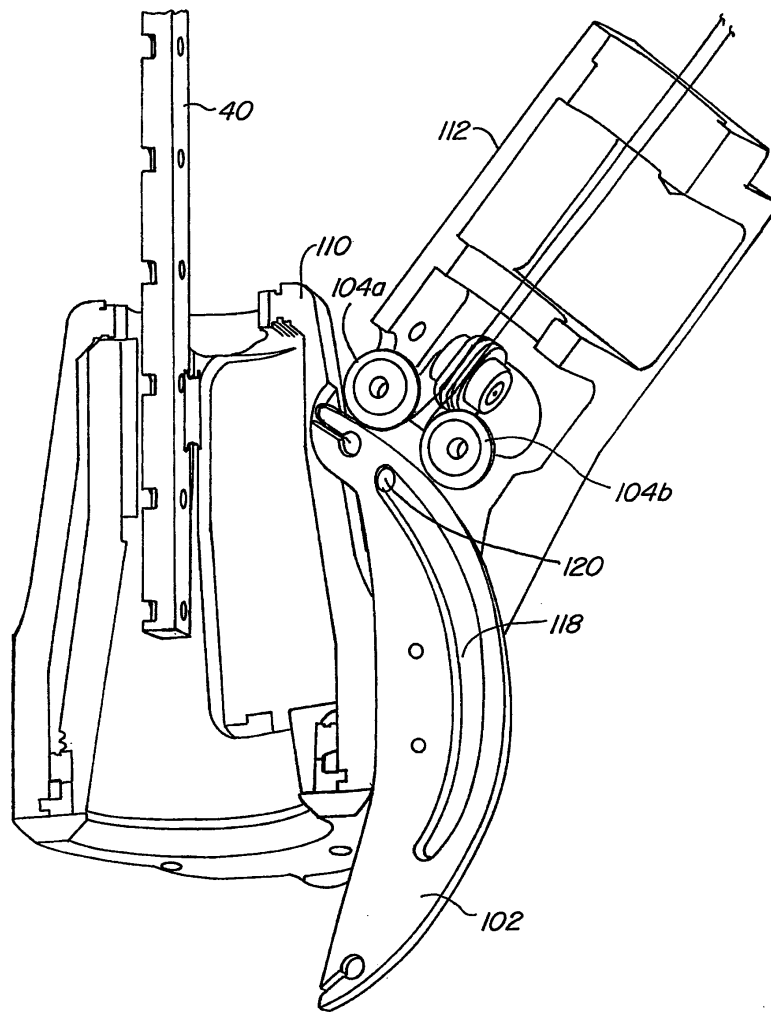
3B



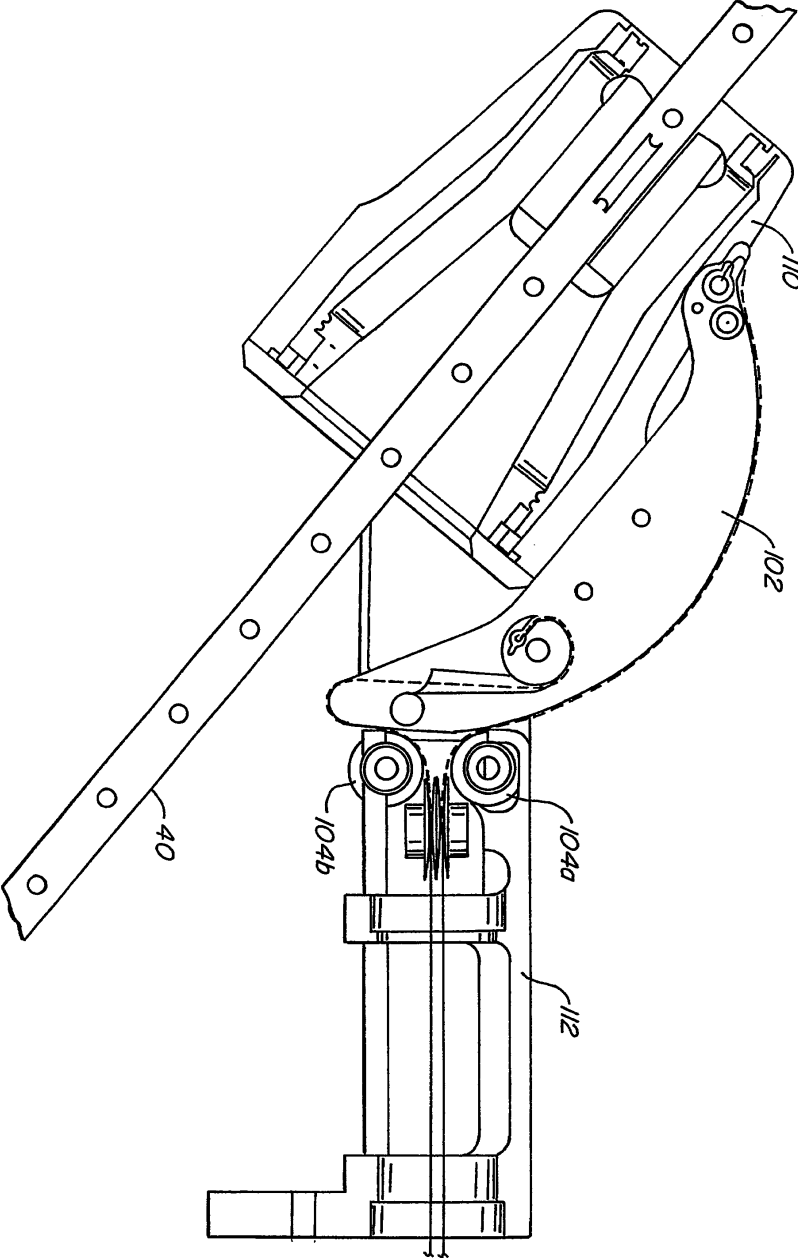




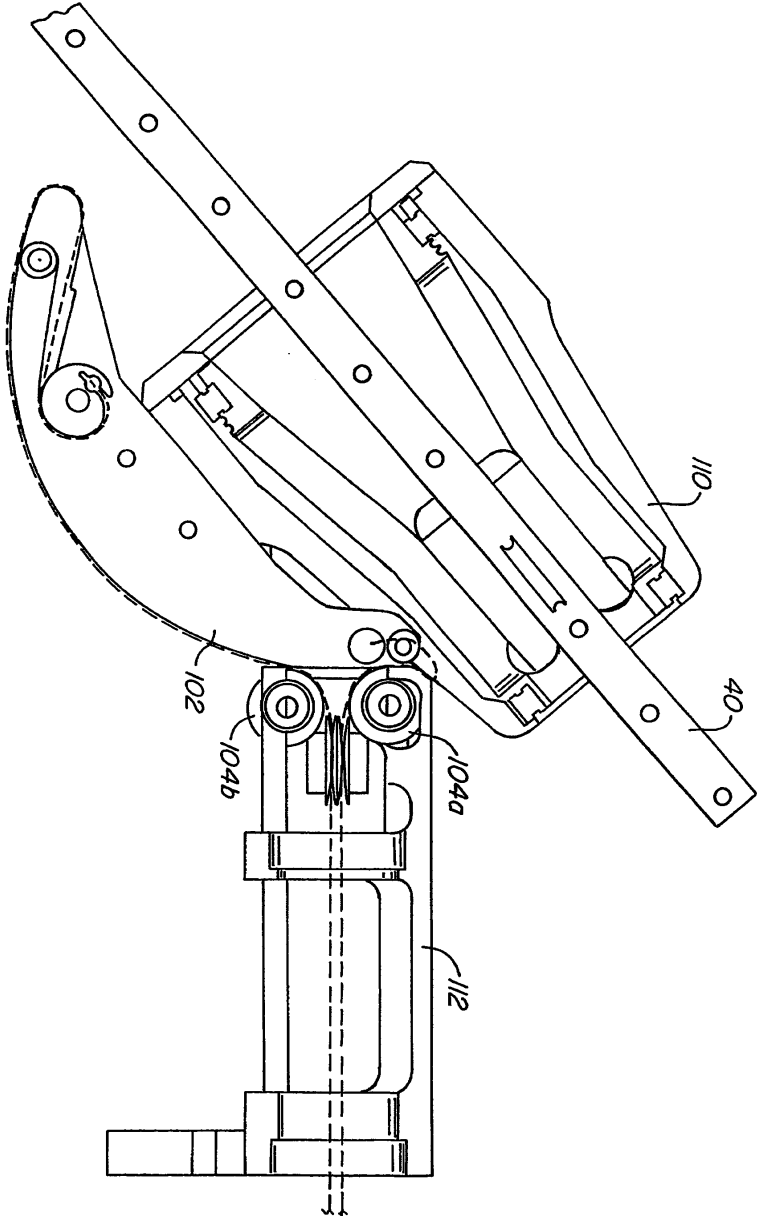
5A



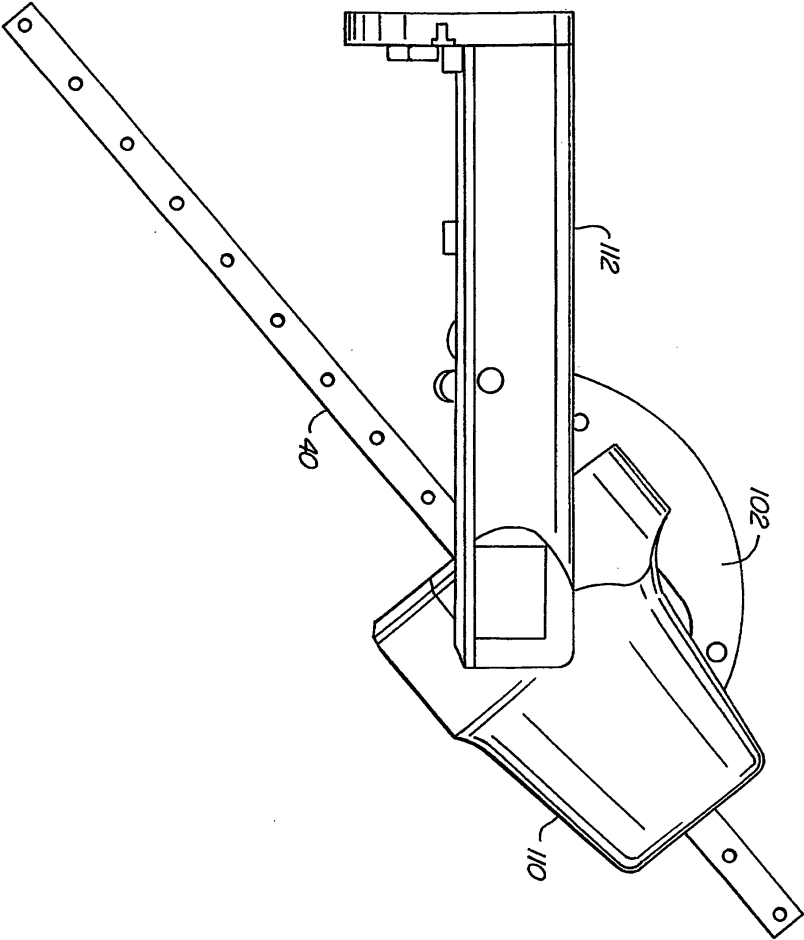
5B

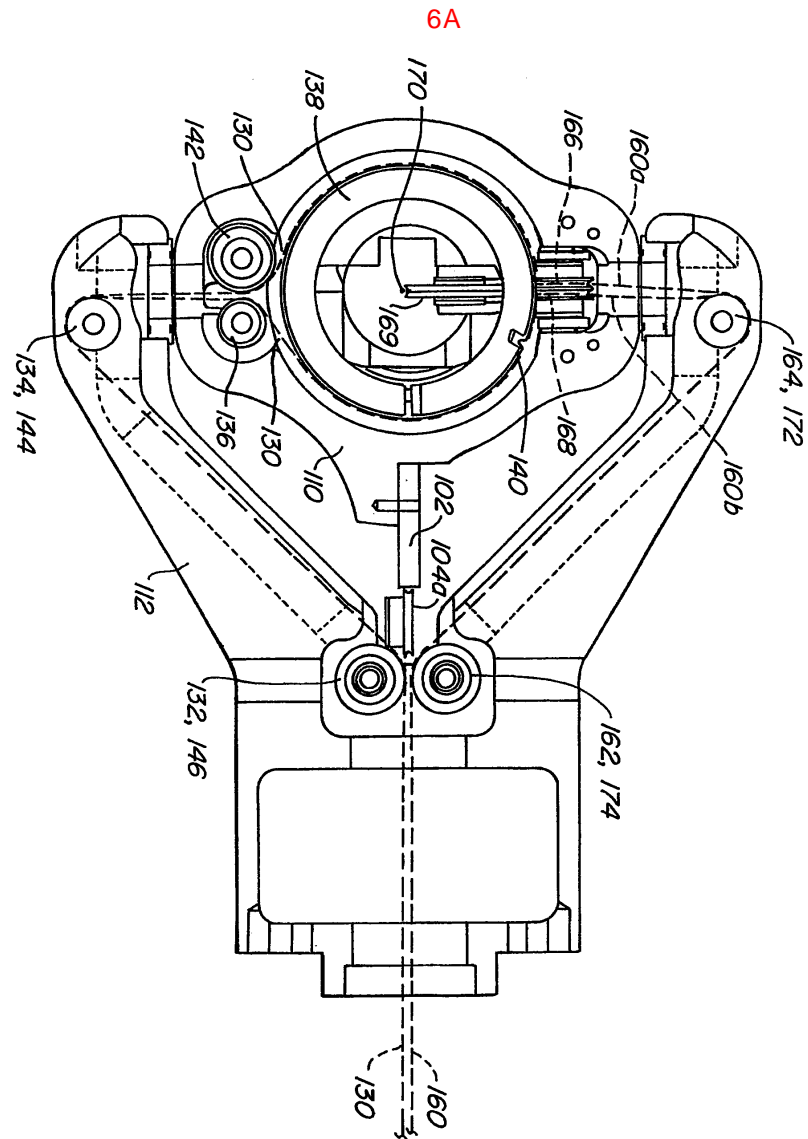


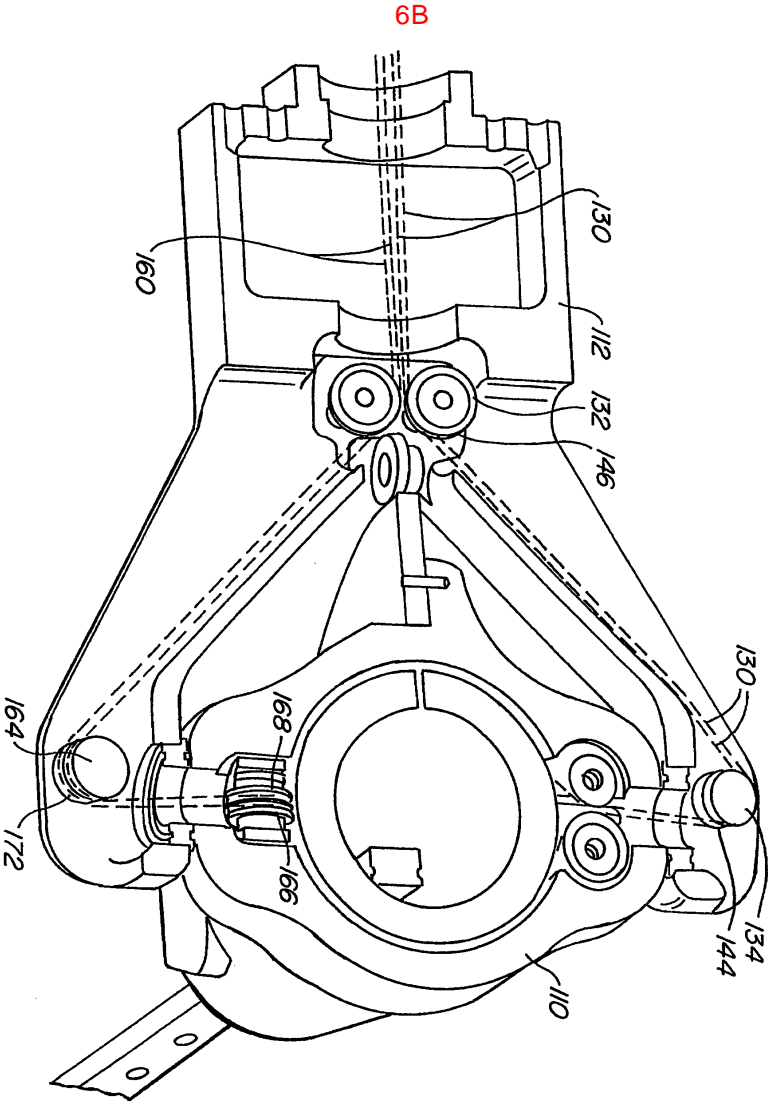
5C



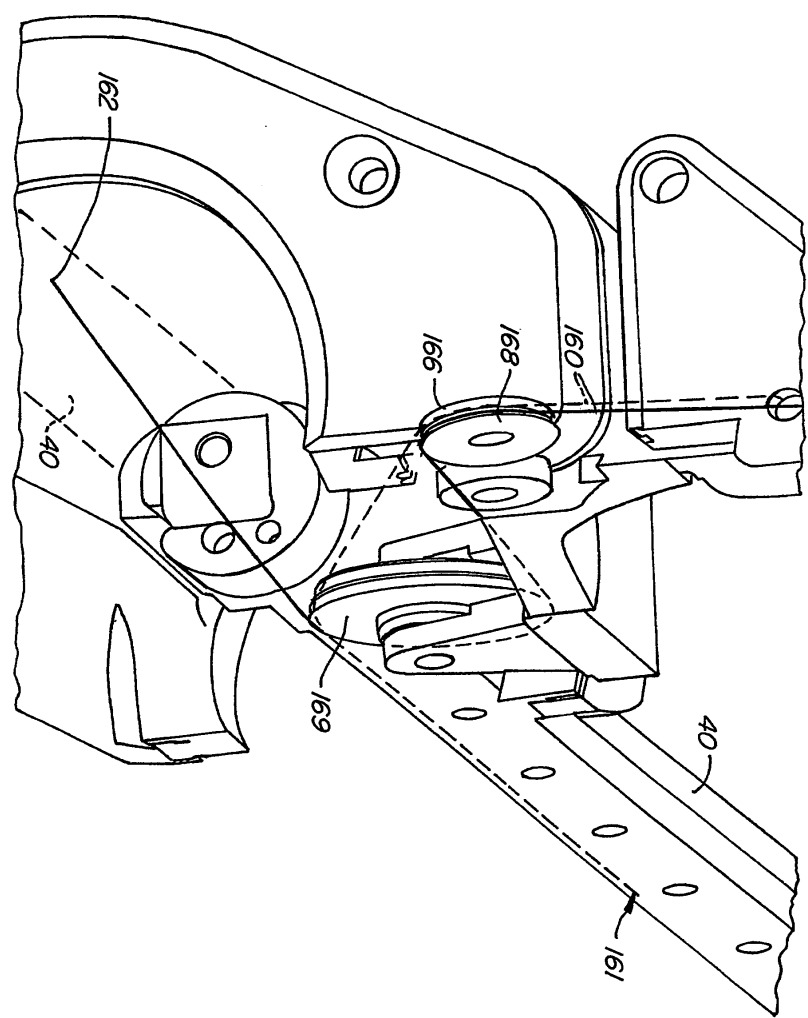
5D



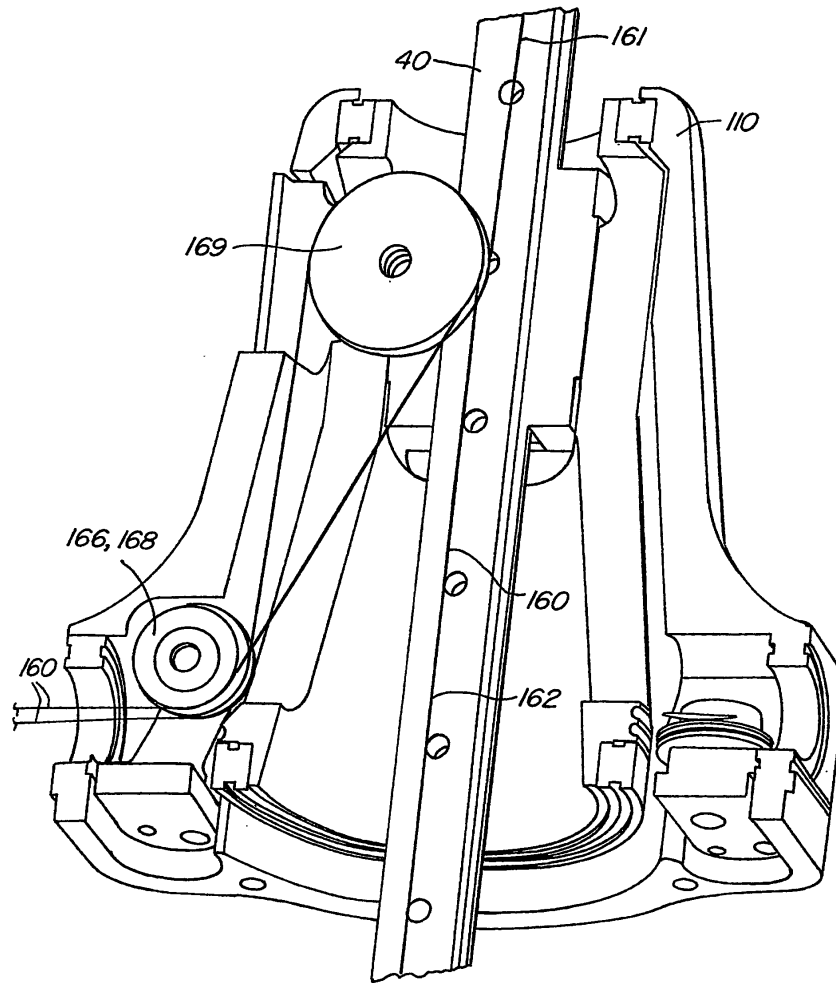




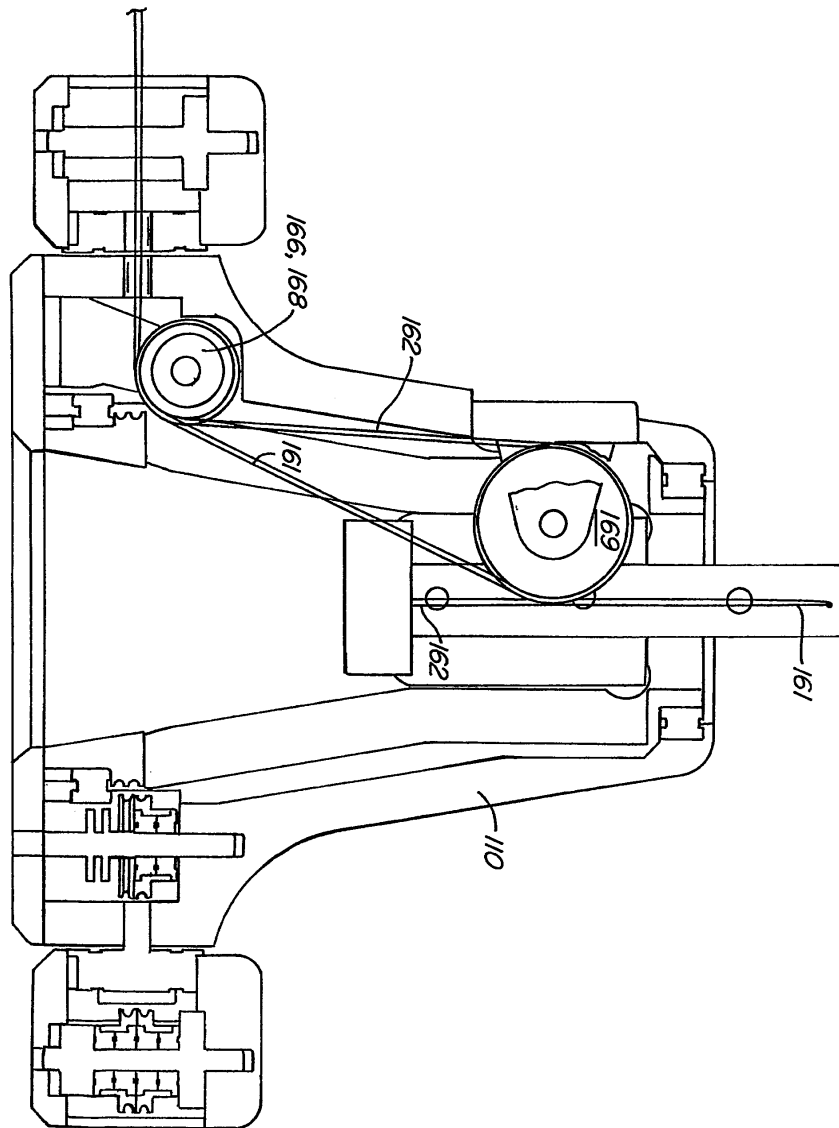
7A

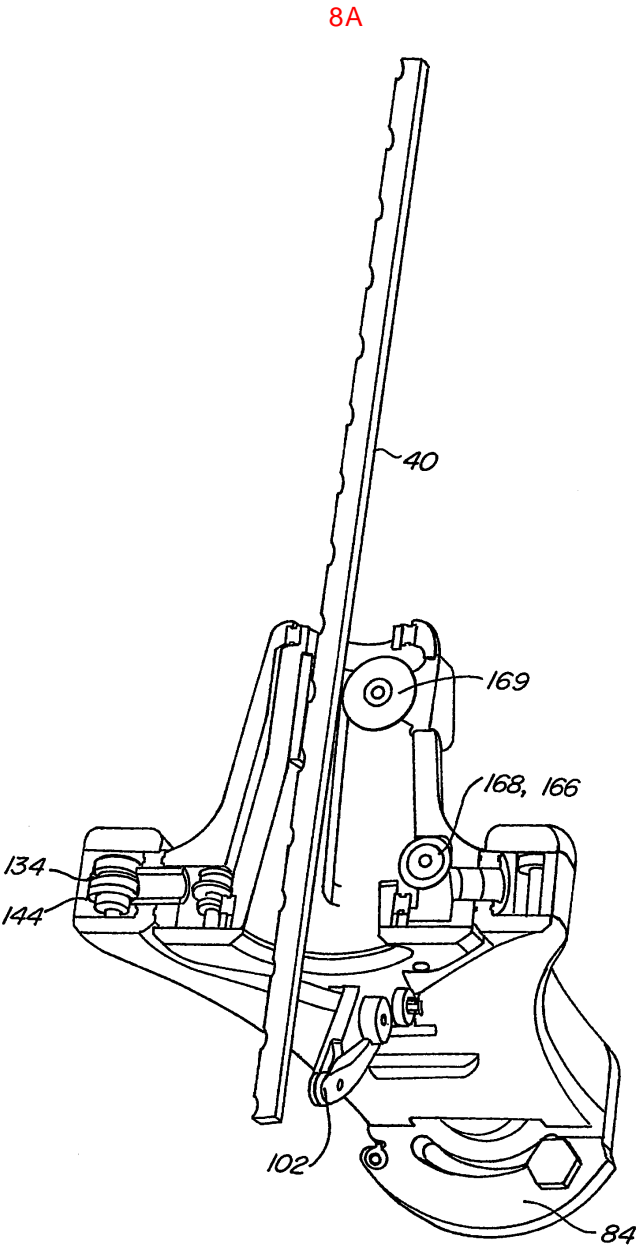


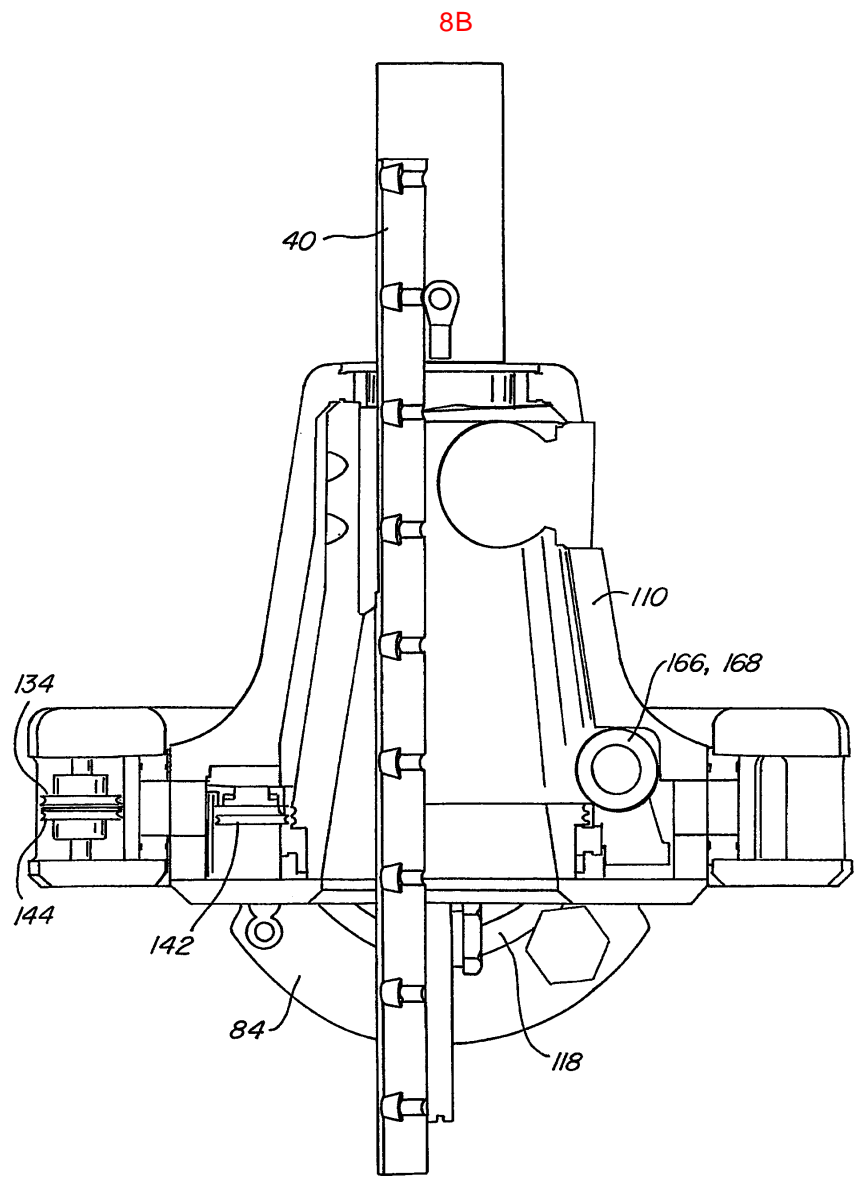
7B



7C







专利名称(译)	接口设备带有电缆驱动力反馈和四个接地执行器		
公开(公告)号	KR1020040018465A	公开(公告)日	2004-03-03
申请号	KR1020047000654	申请日	2002-07-16
[标]申请(专利权)人(译)	伊梅森公司		
申请(专利权)人(译)	임머슨코퍼레이션		
当前申请(专利权)人(译)	임머슨코퍼레이션		
[标]发明人	GREGORIO PEDRO 그레고리오페드로 OLIEN NEIL T 올리엔네일티 BAILEY DAVID W 베일리데이비드더블유 VASSALLO STEVEN P 바살로스티븐피		
发明人	그레고리오,페드로 올리엔,네일,티. 베일리,데이비드,더블유. 바살로,스티븐,피.		
IPC分类号	A61B17/00 G05B13/04 G05B11/00 G09B23/28 G06Q50/20 A61B19/00 G09B9/00 G05D3/12 G06Q10/00		
CPC分类号	A61B2017/00707 A61B2019/2292 A61B2019/2242 A61B19/22 A61B2019/2273 G05B2219/40122 G05B2219/45118 G09B23/285 A61B34/70 A61B34/71 A61B34/76 A61B2034/741		
代理人(译)	CHU , 晟敏 LEE , JUNG HEE		
优先权	60/305957 2001-07-16 US 10/196563 2002-07-15 US		
其他公开文献	KR101009865B1		
外部链接	Espacenet		

摘要(译)

公开了一种通过向用户提供触觉反馈来在仿真系统内提供逼真感觉的系统。该系统包括用户关联的可链接练习工具，以及耦合到练习工具的机械模拟设备。机械模拟装置至少四个耦合到接地构件46，可旋转地联接到机械关联（38），动手工具和耦合到该机械关联（38）所述的在地面构件的线性轴构件的接地部件（47）并且至少有四个致动器（62,64,66,70）用于检测致动器（65,67,69）的运动Lt; RTI = 0.08 & gt; 接口设备耦合到模拟设备，并且主计算机20耦合到接口设备14以实现应用程序。应用程序向致动器62,64,66,70提供信号以移动线缆130，从而移动机械关联38。 1 指数方面 触觉反馈，机械仿真设备，练习工具，机械关联，执行器，传感器，电缆

