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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor: Prows, et al.))
U.S. Patent No. 6,345,402 B1)) Attorney Docket No: 13850-9)
Issued: February 12, 2002)))
Based on U.S. App. No: 09/533,531)))
Filed: March 23, 2000)))
For: HINGED PANELS FOR A THERMAL SUPPORT APPARATUS)))

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Atom Medical International, Inc.

Petitioner

v.

Draeger Medical Systems, Inc.

Patent Owner

Patent No. 6,345,402

Issue Date: February 12, 2002

Title: HINGED PANELS FOR A THERMAL SUPPORT APPARATUS

PETITION FOR INTER PARTES REVIEW

OF U.S. PATENT NO. 6,345,402

PURSUANT TO 35 U.S.C. § 312 AND 37 C.F.R. § 42.104

Case No. IPR2014-00232

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I. INTRODUCTION

Pursuant to 35 U.S.C. §§ 311-319 and 37 C.F.R. Part 42, Atom Medical International, Inc. ("Atom") ("Petitioner") respectfully requests *Inter Partes* Review ("IPR") of claims 1, 2, 5, 7, 8, 15, 17, 22, 32, 34, 35, 38, 39, 40, 45, and 46 (collectively the "asserted claims") of U.S. Patent No. 6,345,402 ("the 402 patent"), filed March 23, 2000, and issued February 12, 2002, to D. Scott Prows et al., and currently assigned to Draeger Medical Systems, Inc. ("Draeger") ("Patent Owner") according to the U.S. Patent and Trademark Office ("the USPTO") assignment records. For the reasons set forth below, there is a reasonable likelihood that Petitioner will prevail with respect to each of the asserted claims.

II. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

A. REAL PARTY IN INTEREST (37 C.F.R. § 42.8(B)(1))

Petitioner Atom is the real party-in-interest.

B. RELATED MATTERS (37 C.F.R. § 42.8(B)(2))

The 402 patent is currently one of seven patents that are the subject of the following litigation brought by Draeger: *Draeger Med. Sys., Inc. v. Atom Med. Int'l, Inc. and Philips Elecs. N. Am. Corp., d/b/a Philips Healthcare*, Case No. 2:12-cv-00512-UA-DNF, filed in the U.S. District Court for the Middle District of Petition for *Inter Partes* Review of U.S. Pat. No. 6,345,402 (Docket No. 13850-9) Florida on September 17, 2013 (hereinafter "district court litigation").¹ Service of the complaint was effective on Atom no earlier than January 2, 2013, and on Phillips no earlier than January 8, 2013. Other than this district court litigation, the Petitioner is unaware of any other pending judicial or administrative matter that would affect, or be affected by, a decision in this proceeding.

In the district court litigation, Draeger asserts infringement of the asserted claims of the 402 patent. Accordingly, and in reliance upon Draeger's acquiescence that none of the other claims of the 402 patent are allegedly infringed, Atom seeks *inter partes* review of the asserted claims only.

C. NOTICE OF LEAD AND BACKUP COUNSEL

Pursuant to 37 C.F.R. §§ 42.8(b)(3) and 42.10(a), Petitioner provides the following designation of counsel:

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¹ The seven patents currently at issue in the district court litigation are U.S. patent nos. 6,296,606; 6,345,402; 6,483,080; 6,540,660; 6,746,394; 6,761,683; and 7,335,157. Petitioner filed a request for *inter partes* review of the 080 patent on October 25, 2013, Case IPR 2014-00095, and the 157 patent on November 27, 2013, Case IPR 2014-00194.

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Pursuant to 37 C.F.R. § 42.10(b), a Power of Attorney accompanies this Petition.

D. SERVICE INFORMATION (37 C.F.R. § 42.8(B)(4))

Service information for lead and back-up counsel is provided above in the designation of lead and back-up counsel. Service of any document via handdelivery or mail may be made at the postal mailing address of the respective lead or back-up counsel designated above. Electronic service may be made at the above-designated email addresses.

III. PAYMENT OF FEES (37 C.F.R. § 42.15(A))

The undersigned authorizes the Office to charge the filing fee for this Petition, as well as any other fees that may be required in connection with this Petition or these proceedings on behalf of Petitioner, to the deposit account of Brinks Gilson & Lione, Deposit Account No. 23-1925.

IV. GROUND FOR STANDING (37 C.F.R. § 42.104(A))

Pursuant to 37 C.F.R. § 42.104(a), Petitioner hereby certifies that the

402 patent (Ex. 1001) is available for IPR and that Petitioner is not barred or estopped from requesting an IPR challenging the claims of the 402 patent on any of the grounds identified in this Petition.

V. IDENTIFICATION OF CHALLENGE (37 C.F.R. § 42.104(B))

A. THE CLAIMS (37 C.F.R. § 42.104(B)(1))

Pursuant to 37 C.F.R. § 42.104(b), the precise relief sought by Petitioner is that the Patent Trial and Appeal Board ("PTAB") review and invalidate claims 1, 2, 5, 7, 8, 15, 17, 22, 32, 34, 35, 38, 39, 40, 45, and 46 of the 402 patent under 35 U.S.C. § 103.

B. THE SPECIFIC ART AND STATUTORY GROUND(S) ON WHICH CHALLENGE IS BASED (37 C.F.R. § 42.104(B)(2))

This IPR of the 402 patent is requested based upon the following prior art

references and the following grounds:

1. The Specific Art

Inter Partes Review of the 402 patent is requested in view of the following

prior art references:

Exhibit	Description	Publication or Effective Filing Date	Type of Prior Art
Ex. 1002	Int'l Pub. No. WO 97/11664 ("Goldberg")	April 3, 1997	§ 102(a)

Ex. 1003	U.S. Patent No. 4,625,731 ("Quedens")	Dec. 2, 1986	§ 102(b)
Ex. 1004	U.S. Patent No. 5,542,152 ("Crompton")	Aug. 6, 1996	§ 102(b)
Ex. 1005	U.S. Patent No. 5,079,799 ("Rude")	Jan. 14, 1992	§ 102(b)
Ex. 1006	U.S. Patent No. 5,491,874 ("Lowry")	Feb. 20, 1996	§ 102(b)
Ex. 1007	U.S. Patent No. 5,330,415 ("Storti")	July 19, 1994	§ 102(b)

2. Grounds On Which Challenge Is Based

This IPR of the 402 patent is requested based on the following two grounds:

a. Ground 1

Claims 1, 7, and 22 of the 402 patent are invalid under 35 U.S.C. § 103(a) as obvious over Goldberg in view of Quedens, and claims 2, 5, 8, 15, 17, 32, 34, 35, 38, 39, 40, 45, and 46 are invalid under 35 U.S.C. § 103(a) as obvious in further view of Crompton and either Rude or Lowry.

b. Ground 2

Claims 1, 7, and 22 of the 402 patent are invalid under 35 U.S.C. § 103(a) as obvious over Storti in view of Quedens, and claims 2, 5, 8, 15, 17, 32, 34, 35, 38, 39, 40, 45, and 46 are invalid under 35 U.S.C. § 103(a) as obvious in further view of Crompton and either Rude or Lowry.

C. HOW THE CHALLENGED CLAIMS ARE TO BE CONSTRUED (37 C.F.R. § 42.104(B)(3))

A claim subject to IPR receives the "broadest reasonable construction in light of the specification of the patent in which it appears." 37 C.F.R. § 42.100(b).

This interpretation should control regardless of how a court may eventually interpret the claims. Moreover, should the Patent Owner contend that the claim has a construction different from its broadest reasonable interpretation, the appropriate course is for the Patent Owner to seek to amend the claim to expressly correspond to its contentions in this proceeding. *See* 77 Fed. Reg. 48764 (Aug. 14, 2012). Any such amendment would only be permissible if the proposed amended claim complies with 35 U.S.C. § 112.

Further, any interpretation or construction presented below, either implicitly or explicitly, should not be viewed as constituting, in whole or part, Petitioner's own interpretation or construction of such claims. Petitioner expressly reserves the right to present its own interpretations or constructions, which may differ, in whole or part, from those reflected herein.

D. THE ADMITTED PRIOR ART OF THE 402 PATENT

In the "Background and Summary of the Invention," the 402 patent acknowledges that "[t]hermal support devices, such as infant warmers and incubators, having an isolation chamber" where known at the time of the alleged invention. (Ex. 1001, 1:17-21). It was well known at the time to provide "various systems [to] maintain the isolation chamber at a controlled temperature and humidity to facilitate the development of a premature infant" (*Id*. at 1:18-21). To control the temperature and humidity within the isolation chamber, such

"thermal support devices . . . typically include[d] a control panel that caregivers use[d] to enter environmental control parameters, such as desired temperature and humidity levels." (*Id.* at 1:61-65). Thus, the patentees acknowledge that control monitors were used to monitor environmental conditions within the isolation chamber and control systems were used to adjust the environmental conditions, such as temperature and humidity levels within the isolation chamber. These devices were well known at of the time of the alleged invention.

E. SUMMARY OF THE ALLEGED INVENTION OF THE 402 PATENT

The alleged invention of the 402 patent is generally directed to a user interface panel for a thermal support apparatus that can pivot about a generally vertical axis and is angled with respect to the patient support about a generally horizontal axis. (Ex. 1001, Abstract, 16:27-42). This permits the caregiver to adjust the user interface panel to the desired viewing position. (Ex. 1008, Declaration of Michael D. Leshner, P.E. (hereinafter "Leshner Decl."), ¶ 43).



With reference to Figures 24 and 25 above, the user interface panel 52 is connected to the thermal support apparatus via a pivot collar 380 that has a

Petition for *Inter Partes* Review of U.S. Pat. No. 6,345,402 (Docket No. 13850-9) cylindrical portion 382, which is rotatably coupled to an arm 36 of the thermal support apparatus and an arm 384 that extends from the cylindrical portion 382 and attaches to the panel 52. (Ex. 1001, 16:27-42; Ex. 1008, Leshner Decl., ¶ 44). The user interface panel 52 can pivot about a vertical axis 386 so as to be positioned on either side of the support apparatus 20. *Id*. The user interface panel 52 can also pivot about a horizontal axis 388. *Id*. The user interface panel 52 is coupled to arm 384 by a pair of resistive hinges 390. *Id*. This permits pivoting of the user interface panel 52 about a horizontal axis 388 to vary the angle at which the display is viewed by the user. (Ex. 1001, 16:27-42; Ex. 1008, Leshner Decl., ¶ 44). The "preferred" resistive hinges were available from CEMA Technologies, Inc. (Ex. 1001, 16:65-67).

F. THE EXHIBIT NUMBER OF THE SUPPORTING EVIDENCE RELIED UPON TO SUPPORT THE CHALLENGE AND THE RELEVANCE OF THE EVIDENCE TO THE CHALLENGE RAISED, INCLUDING IDENTIFYING SPECIFIC PORTIONS OF THE EVIDENCE THAT SUPPORT THE CHALLENGE

1. International Pub. No. WO 97/11664 ("Goldberg")

International Publication No. WO 97/11664 to Goldberg published on April 3, 1997 (Ex. 1002), and qualifies as prior art under 35 U.S.C. § 102(a). Goldberg was not of record during the prosecution of the 402 patent.

2. U.S. Patent No. 4,625,731 ("Quedens")

United States Patent No. 4,625,731 issued on December 2, 1986 (Ex. 1003), and qualifies as prior art under 35 U.S.C. § 102(b). Quedens was not of record during the prosecution of the 402 patent.

3. U.S. Patent No. 5,542,152 ("Crompton")

United States Patent No. 5,542,152 ("Crompton") issued on August 6, 1996 (Ex. 1004), and qualifies as prior art under 35 U.S.C. § 102(b). Crompton was not of record during the prosecution of the 402 patent.

4. U.S. Patent No. 5,079,799 ("Rude")

United States Patent No. 5,079,799 issued on January 14, 1992 (Ex. 1005), and qualifies as prior art under 35 U.S.C. § 102(b). Rude was not of record during the prosecution of the 402 patent.

5. U.S. Patent No. 5,491,874 ("Lowry")

United States Patent No. 5,491,874 ("Lowry") issued on February 20, 1996 (Ex. 1006), and qualifies as prior art under 35 U.S.C. § 102(b). Lowry was not of record during the prosecution of the 402 patent.

6. U.S. Patent No. 5,330,415 ("Storti")

United States Patent No. 5,330,415 issued on July 19, 1994 (Ex. 1007), and qualifies as prior art under 35 U.S.C. § 102(b). Storti was of record during the prosecution of the 402 patent, but did not form part of any of the rejections made during the prosecution of the 402 patent.

G. THE CHALLENGED CLAIMS ARE UNPATENTABLE UNDER THE STATUTORY GROUNDS IDENTIFIED IN PARAGRAPH (B)(2) OF 37 C.F.R. § 42.104

Unpatentability is proven by a preponderance of evidence. 35 U.S.C. § 316. The level of ordinary skill in the art applicable to this petition is set forth by Michael D. Leshner at ¶ 46 of his Declaration. (Ex. 1008, Leshner Decl., ¶ 46).

1. Ground 1

Claims 1, 7, and 22 of the 402 patent are invalid under 35 U.S.C. § 103(a) as obvious over Goldberg in view of Quedens, and claims 2, 5, 8, 15, 17, 32, 34, 35, 38, 39, 40, 45, and 46 are invalid under 35 U.S.C. § 103(a) as obvious in further view of Crompton and either Rude or Lowry.

Goldberg discloses a convertible infant thermal support device ("patient support apparatus") that includes, *inter alia*, a patient-support portion 12 ("patient support") for supporting an infant, a base portion 16 ("base") below the patient-support portion 12, a canopy 24 that along with the patient-support portion 12 form a substantial enclosure ("isolation chamber"), and a rotating display 160 ("user interface panel"). (Ex. 1002, 12:14-27, 17:32-18:5, 24:7-14, 25:21-28, 4:1-9, 6:2-6, 6:32-34; Ex. 1008, Leshner Decl., ¶ 62). As shown in Figure 17, the rotating display 160 is in communication with a controller 200 ("controller") of the thermal support device. (Ex. 1002, 33:14-19, Fig. 17). The rotating display 160 allows a user to input information into the controller 200 so as to regulate certain

Petition for *Inter Partes* Review of U.S. Pat. No. 6,345,402 (Docket No. 13850-9) environmental conditions, such as the air temperature set point. When the controller 200 is in the Baby Mode, the user can set the "baby setpoint," which is the control point temperature of the incubator. (*Id.* at 33:29-34:20). The rotating display 160 displays information received from the controller 200, such as air temperature and baby temperature within the incubator, to the caregiver. (*Id.*, 32:34-33:13, Fig. 17; Ex. 1008, Leshner Decl., ¶ 63).

Goldberg further discloses detail regarding the manner in which the user interface 160 is attached to the patient support apparatus. "[R]otating display 160 as shown in FIGS. 1 and 2 . . . is located generally at the waist level of an adult caregiver although the vertical position of display 160 is adjustable with changes in height of base portion 16." (Ex. 1002, 17:32-18:5). The display 160 is pivotably mounted to canopy-support arm 22 and can pivot from side to side of device 10 about "a generally vertical axis," and can be positioned in a variety of locations, such as outside of inner deck 158. (Ex. 1002, 17:32-18:5; Ex. 1008, Leshner Decl., ¶ 64). Figures 1 and 4 of Goldberg are provided below:





Quedens is directed to an articulated mounting structure for mounting a display, such as a monitor. (Ex. 1003, Abstract). The articulated mounting structure of Ouedens allows for the monitor to "assume virtually any desirable position with respect to the patient." (Id. at 7:55-56). With reference to Figures 1 (below) and 1a, Quedens discloses an articulated mounting structure having a first arm 10 and a second arm 12 that are pivotally connected to one another via a pivot assembly 13 and are movable about first and second vertical axes, 16 and 18, respectively. (Id. at Abstract, 4:45-66). The first and second arms 10, 12 and pivot assembly 13 form a "rotatable member" that allows a monitor to pivot about a generally vertical axis. Id. The first arm 10 is mounted to a base portion of a console C via pivot assembly 11, and a portion of the second arm 12 is coupled to a journaling structure 22 ("hinge") that is coupled to a monitor and permits the monitor to tilt (angle) about a substantially horizontal axis 21. (Ex. 1003, Abstract, 4:45-66; Ex. 1008, Leshner Decl., ¶ 65).



Based upon the teaching of Quedens, it would have been obvious to a person of ordinary skill in the art at the time of the invention of the 402 patent to modify Petition for *Inter Partes* Review of U.S. Pat. No. 6,345,402 (Docket No. 13850-9) Goldberg by attaching the user interface 160 to the canopy-support arm 22 of Goldberg using the hinge (journaling structure 22) and rotatable member (arms 10, 12 and pivot assembly 13) of Quedens for the art-recognized benefit of achieving an optimal viewing positioning of the user interface. (Ex. 1003, 2:27-62, 7:46-67; Ex. 1008, Leshner Decl., ¶ 66). There is nothing unexpected in the functionality or properties of the combination. (Ex. 1008, Leshner Decl., ¶ 66).

With respect to the hinge connecting the user interface to the rotatable member, Quedens discloses a journaling structure 22 for providing angling movement of the monitor about a generally horizontal axis. (Ex. 1003, 4:52-58, 7:9-12, Figs. 1-3). The journaling structure 22 allows for 30 degrees (i.e., +/-15 degrees from horizontal) of angular freedom for optimal viewing. (*Id.*).

One of ordinary skill in the art would have understood that the journaling structure 22 of Quedens necessarily includes some type of resistive hinge-like mechanism to allow the user to select the optimal viewing angle while simultaneously preventing unintended angular movement of the monitor under the gravitational force on the monitor itself. (Ex. 1008, Leshner Decl., \P 67-68).

Indeed, Quedens itself provides the motivation for incorporating a resistive hinge-like structure in the journaling structure 22 for the Quedens-recognized benefit of inhibiting unintended monitor movement. (Ex. 1008, Leshner Decl., ¶¶ 69, 70, 71, 74). Quedens discloses the use of frictional damping structures (i.e.,

Petition for *Inter Partes* Review of U.S. Pat. No. 6,345,402 (Docket No. 13850-9) a resistive hinges) at vertical axes 16 and 18, respectively, for the purpose of frictionally inhibiting unintended monitor movement about a vertical axis between deliberate operator adjustments. (Ex. 1003, Abstract, 3:12-19, 6:23-56, 7:56-61). It would have been obvious to use a dampening structure in the journaling structure 22 to also prevent unintended monitor movement about horizontal axis 21. (Ex. 1008, Leshner Decl., ¶¶ 69, 70, 71, 74). As discussed above, a person of ordinary skill in the art would have understood that the monitor is subject to various forces (such as, for example, gravity) during typical operation that could result in unintended movement of the monitor about a horizontal axis. (*Id.*).

The dampening structure of Quedens is further illustrated in Figure 9 of Quedens, which is annotated (right). (Ex. 1003, 6:23-

24; Ex. 1008, Leshner Decl., ¶ 72). The first



arm 10 ("second member") and second arm 12 ("first member") are coupled by a pivot shaft 66 ("hinge post"). The pivot shaft 66 extends through the center of the pivot assembly. A duplex ball bearing assembly 68, 70 facilitates rotation of the pivot shaft 66, and adjustable spring 72 loads the pivot shaft against friction surface 74. (Ex. 1003, 6:26-33). The dampening apparatus is "interposed between interconnected portions of arms [10, 12] to frictionally inhibit unintended monitor movement between deliberate operator adjustments," such that "[o]nce the

Petition for *Inter Partes* Review of U.S. Pat. No. 6,345,402 (Docket No. 13850-9) operator positions the monitor, the friction damping means causes it to remain stationary until moved again by operator intervention." (Ex. 1003, 3:12-19, 7:55-61; Ex. 1008, Leshner Decl., ¶¶ 71-73).

Further motivation for providing resistive hinges in the journaling structure of Quedens is provided by Crompton. Crompton discloses a tilt adjustment mechanism designed to have sufficient resistive force to withstand touch-actuating forces that are typically applied to a touch screen display. (Ex. 1004, 1:26-29, 4:15-21, 4:60-67). Crompton recognizes that the tilt adjustment mechanism for the display must have a resistive force that is sufficient to prevent the unintended movement of the tilt mechanism/display that could be caused by the "touch force" exerted on the touch screen display vet still allow deliberate operator adjustments for optimal viewing and reduced glare. (See, e.g., Ex. 1004, 1:26-29, 4:15-21, 4:60-67; Ex. 1008, Leshner Decl., ¶ 75). In one embodiment, Crompton contemplates that the tilt adjustment mechanism must be able to withstand 5 pounds of touch force on the touch screen display without moving it in the downward direction. (Ex. 1004, 4:15-21, 6:60-67; Ex. 1008, Leshner Decl., ¶ 75).

Based on the teachings of Quedens and Crompton, one of ordinary skill in the art would have been motivated to preset the friction dampening torque in the dampening structure of Quedens, as incorporated by Goldberg, to resist unintended angular movement of the monitor under typical button-actuating forces yet permit

Petition for *Inter Partes* Review of U.S. Pat. No. 6,345,402 (Docket No. 13850-9) angular movement when forces exceed these actuating forces, such as when the user deliberately seeks to change the angular position of the monitor. (Ex. 1008, Leshner Decl., ¶¶ 76, 77).

Similarly, it would have been obvious to a person of ordinary skill in the art to use other types resistive hinges for providing such resistive forces. (*Id.* at \P 78). By the time of the alleged invention of the 402 patent, resistive hinges were well known in the art for providing resistive force. Exemplary resistive hinges are disclosed in, for example, Rude and Lowry. (*Id.*).

With reference to Figure 1 of Rude (right), the resistive or friction hinge 5 includes a plate 17 ("first member") and plate member 11 ("second member") that are



fixedly attached to part 1 and part 3, respectively. (Ex. 1005, 3:19-30, 35-37). A spiral portion 7 is disposed around a pintle 9 ("hinge post"), which is a post that is inserted through the plate member 11 and plate 17. (*Id.* at 3:26-37). To keep the band 7 tightly wrapped around the pintle 9, a spring 13 is provided around the pintle 9 that provides a force between the plate member 11 and tail portion 15 of the band 7. (*Id.* at 3:30-32). In operation, the spring 13 provides resistance force when moving the hinge from the position illustrated in Figure 2 to the position illustrated in Figure 3 because the direction of rotation is opposite to the direction

Petition for *Inter Partes* Review of U.S. Pat. No. 6,345,402 (Docket No. 13850-9) of the moment applied by the spring 13. (*Id.* at 3:56-60). Less force is required to move the hinge 5 in the opposite direction because no restraining force is provided by the spring 13. (Ex. 1005, 3:64-68; Ex. 1008, Leshner Decl., ¶ 79).

Similarly, Lowry, which is assigned to CEMA Technologies, Inc., the supplier of the preferred resistive hinges identified in the 402 patent (Ex. 1001, 16:65-67), discloses a hinge assembly 30a for rotatably coupling a first member to a second member. (Ex. 1006, Abstract, 4:40-45).

With reference to Figure 4 (right), the hinge assembly 30a includes a "friction element [32a] which controls the angular position of the first member with



respect to the second member." (*Id.* at 1:8-10, 4:56-61). The "friction element 32a [is] secured to a first member" (*Id.* at 4:57-59) and a "pintle 44a [is] secured to the second member" (*Id.* at 5:55-57), where the pintle 44a is positioned within a cavity 36a formed by the friction element 32a with an interference fit (*Id.* at 5:65-6:6). As illustrated in Figure 4 below, the portion of the hinge that connects to the pintle 44a is the "first member," friction element 32a is the "second member," and the pintle 44a is the "hinge post," coupled to the first member and extending therefrom into the second member. The interference fit between the pintle 44a and friction element 32a generates frictional forces when the friction element 32a is moved relative to the pintle 44a that provides a resistive force in the angular direction

Petition for *Inter Partes* Review of U.S. Pat. No. 6,345,402 (Docket No. 13850-9) when the first member is rotated relative to the second member. (Ex. 1006,1:41-49, 5:65-6:6, 9:35-45; Ex. 1008, Leshner Decl., ¶¶ 80-82).

Lowry acknowledges that such resistive hinges are often used when it is necessary to control the angular position of the first member relative to the second member, and are used in laptops, notebooks, and palmtop computers "to allow a user to position the liquid crystal display screen" relative to the base such that it can remain in an angular position. (Ex. 1006, 1:16-23; Ex. 1008, Leshner Decl., ¶ 82). It would have also been obvious to include in the hinge or journaling structure 22 of Quedens, as incorporated in Goldberg, the resistive hinges as taught by Quedens, Crompton, Rude or Lowry. (Ex. 1008, Leshner Decl., ¶¶ 70-83).

Moreover, the selection of the hinge, including the amount of resistance to include, for allowing deliberate angular movement of the user interface while simultaneously preventing unintended angular movement under typical operating forces (such as those present when a button is actuated on the face of the monitor) would have been a matter of routine design choice. (*Id.* at ¶¶ 83, 84). As disclosed in Quedens, Crompton, Rude, and Lowry, hinges with varying resistance were known in the art at the time of the alleged invention of the 402 patent. (*Id.*). Each of Quedens, Crompton, Rude, and Lowry recognize the benefits of resistive hinges in maintaining the selected, relative positions of two items under the forces these items may typically encounter during use. (Ex. 1003, Abstract, 3:12-19, 6:23-56,

Petition for *Inter Partes* Review of U.S. Pat. No. 6,345,402 (Docket No. 13850-9) 7:56-61; Ex. 1004, 4:8-20; Ex. 1005, 1:8-17; Ex. 1006, 1:13-23; Ex. 1008, Leshner Decl., ¶ 84).

The teachings of Quedens and/or Crompton would have suggested resistive hinges, such as those described in Rude and Lowry, for the journaling structure 22 of Quedens in order to achieve the art-recognized benefit of permitting angling of the user interface into the desired viewing position while also resisting inadvertent angular movement under other typical operating forces, such as from the gravitational force on the user interface or the force applied when the user actuates a button on the user interface. (Ex. 1008, Leshner Decl., at \P 85). There is nothing unexpected in the functionality or properties of placing a resistive hinge in the journaling structure 22 of Quedens for preventing unintended angular movement of the display. (*Id.*).

Finally, although Crompton expresses a preference for a tilt adjustment mechanism that provides a touchscreen actuating counter-force in one direction, a person of ordinary skill in the art would have been motivated to provide resistive hinges in the journaling structure 22 of Quedens, as applied to Goldberg, for providing a button actuating counter-force in two directions. (*Id.* at \P 86). The touch screen actuating force described in Compton is a downward force applied above the horizontal axis of rotation of the tilt screen tending to cause unintended downward rotation of the tilt screen. (Ex. 1004, Abstract, Figures 9B and 9C; Ex.

1008, Leshner Decl., ¶ 86). Thus, a one direction resistive counter-force (i.e., a resistive counter-force directed in the upward direction) is sufficient to prevent unintended downward movement of the tilt screen when a touch screen-actuating force is applied. In contrast, the display of Quedens has buttons positioned on the display both above and below its horizontal axis of rotation. (Ex. 1003, Figures 1A and 1B). As such, a person of ordinary skill in the art would have readily appreciated that a button-actuating force could cause the display of Quedens to rotate in either direction about the horizontal axis, depending on whether the button actuated is positioned above or below the horizontal axis. (Ex. 1008, Leshner Decl., ¶ 86). Accordingly, it would have been obvious to include resistive hinges in the journaling structure 22 of Ouedens to provide resistive counterforce in both directions of rotation, which would prevent unintended rotation of the display about the horizontal axis regardless of which button is actuated. (Id. at \P 86).

As shown in the claim chart below, claims 1, 7, and 22 of the 402 patent are invalid under 35 U.S.C. § 103(a) as obvious over Goldberg in view of Quedens, and claims 2, 5, 8, 15, 17, 32, 34, 35, 38, 39, 40, 45, and 46 are invalid under 35 U.S.C. § 103(a) in further view of Crompton and either Rude or Lowry. (*Id.* at \P 87).

U.S. Patent No. 6,345,402	Goldberg (Ex. 1002) and Quedens (Ex. 1003) and, to the extent necessary, in further view of Crompton (Ex. 1004) and either Rude (Ex. 1005) or Lowry (Ex. 1006)
1. A patient-	The 402 patent discloses "[t]hermal support devices, such as

support	infant warmers and incubators, having an isolation chamber
apparatus	and various systems that maintain the isolation chamber at a
comprising	controlled temperature and humidity to facilitate the
1 6	development of a premature infant are known." (Ex. 1001,
	1:17-21).
	Goldberg discloses "[a] patient support and environmental
	control apparatus (10) is provided." (Ex. 1002, Abstract).
a base,	Goldberg discloses "[d]evice 10 includes a patient-support
,	portion 12 for supporting a patient 14. For purposes of this
	specification, patient 14 is broadly defined to include anyone
	under the medical supervision of a physician. A base portion
	16 having castors 18, brake/steer pedals 20 coupled to castors
	18, and a canopy-support arm 22 supporting a canopy 24 is
	mounted to patient-support portion 12." (Ex. 1002, 12:14-23).
a patient	Goldberg discloses "[d]evice 10 includes a patient-support
support carried	portion 12 for supporting a patient 14." (Ex. 1002, 12:14-17).
above the base,	
an isolation	The 402 Patent discloses that "[i]nfant thermal support devices
chamber on the	conventionally include a patient-support surface for supporting
patient support,	the infant in the isolation chamber" (Ex. 1001, 1:21-23).
	Goldberg discloses that "[n]atient thermal support device 10 in
	accordance with the present invention can also be provided
	with side wall 146 including side wall portions 148, 150, 152
	154, 156 as shown in FIGS, 1-6 to provide additional
	protection for patient 14. Side wall portions 148, 150, 152.
	154. 156 are pivotable between an upward enclosed position as
	shown diagrammatically in FIG. 4 for side walls 150, 154, and
	a down-out-of-the-way position shown diagrammatically in
	FIG. 3 maximizing the access of the caregiver to patient 14."
	(Ex. 1002, 24:32-25:5).
a system for	The 402 Patent discloses that "[i]nfant thermal support devices
monitoring at	having various systems that maintain the isolation chamber at
least one	a controlled temperature and humidity typically include a
environmental	control panel that caregivers use to enter environmental
condition in the	control parameters, such as desired temperature and humidity
isolation	levels." (Ex. 1001, 1:61-65).
chamber,	
	Goldberg discloses a "[c]ontroller 200 [that] is a

	microprocessor based controller having an internal memory. The controller 200 receives various inputs. A baby temperature probe or sensor 202 is attached to the baby 14 to provide a measured baby temperature output signal to the controller 200 on line 204. In addition, an air temperature probe or sensor 206 is positioned near the baby 14 to provide a measured air temperature output signal. The air temperature sensor 206 is connected to the controller 200 by line 208." (Ex. 1002, 29:24-32).
a user interface panel having at least one button for entering system inputs and displays for observing system outputs, the user interface panel being rotatively mounted to the patient support through a rotatable member for pivoting movement about a generally vertical axis, and	Goldberg discloses "[a] user interface 160 permits the caregiver to input information into controller 200. The user interface 160 may be separate input devices such as devices 210, 214, and 218. The user interface 160 permits the caregiver to input information to controller 200 related to the operation mode, the air temperature set point, the baby temperature set point, a real time clock, and an alarm silencer. Illustratively, a rotatable control wheel 257 is used to scroll through various menu control options. It is understood that any type of control input device may be used. Controller 200 outputs information related to an alarm code, air temperature, and baby temperature to the user interface 160. User interface 160 includes a display 255 so that control information can be displayed to the caregiver." (Ex. 1002, 32:34-33:13). The user interface 160 as illustrated in Figure 1 has at least one button. (<i>Id.</i> at Fig 1). Goldberg further discloses that the "rotating display 160 as shown in FIGS. 1 and 2. Display 160 is located generally at the waist level of an adult caregiver although the vertical position of display 160 is adjustable with changes in height of base portion 16. In preferred embodiments, rotating display 160 is pivotably mounted to canopy-support arm 22 to pivot from side to side of device 10, and is positioned to lie outside of inner deck 158." (<i>Id.</i> at 17:32-18:5).
	Quedens discloses that "[t]he monitor M is movably and supportively coupled to a base or frame portion of the console C by means of an articulated support structure A. See FIGS. 1, 1A, 2, 2A and 3." (Ex. 1003, 4:34-37). As shown in Figure 2A, "[t]he articulated arm structure A includes a first arm 10, and a second arm 12. The first arm 10 is pivotally coupled to

11 12 piv wh see up str see M ro co Th fo piv	1 for rotation about a first vertical axis 16. The second arm 2 is pivotally coupled to the outer end of the first arm 10 by a ivot assembly 13 for rotation about a second vertical axis 18, which is movable and displaced from the first axis 16. The econd arm 12 is generally L-shaped in configuration. Its pstanding leg portion 20 is coupled by means of journaling ructure 22 to one side of the television monitor M. The econd arm 12 and journaling structure 22 support the monitor 4 for tilting motion about a substantially horizontal axis of obtation 21." (<i>Id.</i> at 4:45-58). The first arm 10 is pivotally oupled to the second arm 12 by way of the pivot assembly 13. he first and second arms 10, 12 and the pivot assembly 13 orm a "rotatable member" that allows the user interface to ivot about a generally vertical axis.
	2705 /2 10 10 10 10 10 10 10 10 10 10
a hingeQuea hingeQueconnecting theseruser interfaceuppanel to thestrrotatable4::member to12permit anglingwhof the user22interface panelhowith respect toupthe patientthesupport.str	2x. 1003, Fig. 2A). Duedens discloses that as shown in Figure 3, that "[t]he econd arm 12 is generally L-shaped in configuration. Its pstanding leg portion 20 is coupled by means of journaling ructure 22 to one side of the television monitor M." (<i>Id.</i> at :52-58). "The pivotal motion of the first and second arms 10, 2 about vertical axes 16, 18 defines a horizontal plane in which the monitor M can be moved. The journaling structure 2 adds a degree of rotative freedom of the monitor about a orizontal axis such that the monitor screen may be tilted pwardly or downwardly as desired. An operator can effect the described monitor motion by simply positioning the nonitor M manually." (<i>Id.</i> at 4:52-66). The journaling tructure 22 and its associated shaft are the "hinge."

	(Id. at Figs. 2A, 3).
2. The patient-	Quedens discloses that "[t]he journaling structure 22 adds a
support	degree of rotative freedom of the monitor about a horizontal
apparatus of	axis such that the monitor screen may be tilted upwardly or
claim 1,	downwardly as desired. An operator can effect the described
wherein the	monitor motion by simply positioning the monitor M
hinge is a	manually." (Ex. 1003, 4:61-66). Quedens further discloses
resistive hinge	that "[d]amping apparatus frictionally inhibits unattended
configured to	movement of the monitor." (Id. at Abstract). "In accordance
resist pivoting	with another specific feature, damping apparatus is interposed
of the user	between interconnected portions of arms to frictionally inhibit
interface panel	unintended monitor movement between deliberate operator
in response to	adjustments. Once the operator positions the monitor, the
normal	friction damping means causes it to remain stationary until
actuating	moved again by operator intervention. No positive locks are
forces applied	needed. The damping torque is adjustable." (<i>Id.</i> at 3:12-19).
to the at least	Quedens teaches that "[t]he monitor can easily be manually
one button of	adjusted by the operator, and, once the operator has desirably
the user	positioned the monitor, the friction damping structure will
interface panel	maintain it in that position until the operator chooses to
and configured	intervene and readjust the monitor position. There is no need
to allow	for the operator to adjust or set any locks to secure the monitor
pivoting of the	in position." (<i>Id.</i> at 7:56-61, <i>see id.</i> at 6:37-56).
user interface	
panel in	Crompton discloses that "[i]n order to provide for varying
response to	operator requirements and suitable glare resistance, touch
forces applied	displays must be rotated up and down within a certain range.
to the user	This tilt adjustment helps compensate for operator height
interface panel	variations and ambient glare on the glass of the display
that exceed the	surface. The touch display requires the use of touch for
normal	operator input so the tablet must withstand a touch force
actuating	without moving." (Ex. 1004, 1:22-28). "[I]n the preferred

forces.	 embodiment the tilt adjustment mechanism must withstand a 5 lb touch force without moving in the downward direction." (<i>Id.</i> at 4:18-21). "A relatively high force is desired to move the upper housing in a downward direction. This prevents the operator's touches on the touch screen display or display tablet, mounted to the upper assembly as shown in FIG. 9, for data input purposes to cause the tilt adjustment mechanism and thus the touch display to move in the downward direction. A force of approximately 5 lbs should be necessary to cause the display to move in the downward direction." (<i>Id.</i> at 4:60-67). Rude teaches that in "some applications it is desirable that a hinge have a certain amount of resistance to movement," such as a "[s]creens on portable computers" (Ex. 1005, 1:8-17). Rude is directed to an "improved friction hinge" as "a means for mounting and rotatably positioning computer screens or other objects" with a certain amount of resistance. (<i>Id.</i> at 1:41-51). The friction hinge will provide sufficient "friction needed to maintain the angular opening of a hinge"
	yet have "controllable friction in a hinge without lost motion when changing directions." (<i>Id.</i>).
	Lowry teaches that "[t]he present invention relates generally to a hinge assembly [30a] for rotatably coupling a first member to a second member and, more particularly, to a hinge assembly having a friction element [32a] which controls the angular position of the first member with respect to the second member." (Ex. 1006, 1:5-10). Lowry acknowledges that "[a] common application of such a hinge would be in [a] laptop, notebook, and palmtop computers to allow a user to position the liquid crystal display screen. In a notebook computer, for example, the hinge housing [30a] is normally structurally fastened to the base of the computer and the shaft [(pintle 44a)] is connected to the screen of the computer. When the screen is rotated, it is held in any angular position by the torque generated between the friction elements [(fiction element 32a)] in the hinge [32a] and the shaft [(pintle 44a)]." (<i>Id.</i> at 1:15-23, 4:57-5:19).
5. The patient- support	assemblies 11, 13 at the axes 16, 18 is illustrated in FIG. 9. A

apparatus of	pivot shaft 66 extends through the center of the pivot
claim 2,	assembly. The pivot shaft 66 is fixed to one of the arms [10,
wherein the	12] which are interconnected at the pivot and rotates with that
resistive hinge	arm. A duplex ball bearing assembly 68, 70 facilitates rotation
includes a first	of the pivot shaft 66 relative to the arm to which it is not
member	positively connected. An adjustable spring 72 is situated
coupled to the	between the ball bearings and loads the pivot shaft against a
user interface	friction surface 74 between the two arms which are
nanel and a	interconnected at the pivot "
second member	$(Fx \ 1003 \ 6.23-33)$ The second arm 12 is the "first member"
coupled to the	the first arm 10 is the "second member" and the pivot shaft 66
arm a hinge	is the "hinge post" that is coupled to the first member and
ann, a ninge	avtends therefrom into the second member (Id at 4:45.66
post being	extends therefrom into the second member. ($1a$. at 4.45-00,
coupled to the	0.25-55, Fig. 9).
first member	
and extending	Rude teaches that the friction hinge assembly includes
therefrom into	"[h]inge element 5, which is attached to part 3 with screws or
the second	rivets, or other appropriate means, has a spiral portion or band
member.	7, comprised of several turns disposed about pintle 9, and a
	flat portion for attachment, plate member 11. Spring 13 keeps
	band 7 tightly wrapped about pintle 9 by applying a force
	between plate member 11 and tail 15 of band 7. On the other
	side of the hinge assembly, plate 17 is irrotatably attached to
	pintle 9 by pins or other appropriate means. Plate 17 is
	attached to part 1." (Ex. 1005, 3:26-35). "Assembly is
	accomplished by inserting pintle 9 through plate 17 and band 7
	before the installation of spring 13 Pins 19 hold pintle 9 in
	plate 17 and prevent relative movement " (Id at 3:38-41)
	The plate 17 is the "first member" the plate member 11 is the
	"second member" and the nintle 0 is the "hinge post" that is
	second member, and the pintle 9 is the infige post that is
	coupled to the first member and extends therefrom into the $(L_1 + \Sigma_1^2 + 1)$
	second member. (<i>Id.</i> at Fig. 1).
	Lowry teaches that "hinge assembly 30a includes a friction
	element 32a for being secured to the first member. The
	friction element 32a includes an internal surface 34a. As best
	shown in FIG. 4, the internal surface 34a of the friction
	element 32a defines a generally cylindrical cavity 36a having a
	first diameter." (Ex. 1006, 4:57-62). "Referring now to FIG.
	4, the first hinge assembly 30a further includes a generally

cylindrical pintle 44a for being secured to the second member. The pintle 44a includes an external surface 46a and is positioned within the cavity 36a with the external surface 42a of the pintle 44a in facing frictional engagement with the internal surface 34a of the friction element 32a such that substantially uniform forces are created between the external surface 46a of the pintle and the internal surface 34a of the friction element 32a to provide torque transfer and angular positional control of the pintle 44a with respect to the friction element 32a." (Id. at 5:55-65). "As shown in FIG. 4, the external surface 46a of the pintle 44a defines a second diameter. The second diameter is greater than or equal to the first diameter of the cavity 36a such that the pintle 44a is positioned within the cavity 36a with an interference fit." (Id. at 5:66-6:3). "In use, with respect to the first hinge assembly 30a, the friction element 32a is rotated with respect to the pintle 44a. The internal surface 34a of the friction element 32a is in substantial facing frictional engagement with the external surface 42a of the pintle 44a. Thus, the contact area between the friction element 32a and pintle 44a is maximized and the pressure between the internal surface 34a of the friction element 32a and the external surface 46a of the pintle 44a is relatively low, which in turn promotes reduced wear and higher torques for the same axial length of similar nonuniform strength frictional elements." (Id. at 9:35-45). The portion of the hinge that connects to the pintle 44a is the "first member," friction element 32a is the "second member," and the pintle 44a is the "hinge post" that is coupled to the first member and extends therefrom into the second member. (Id. at Fig. 4).

7. A patient-support apparatus comprising	See claim 1.
a base,	See claim 1.
a patient support carried above the base,	See claim 1.
an isolation chamber on the patient support,	See claim 1.
a system for monitoring at least one environmental condition in	See claim 1.
the isolation chamber,	
a user interface panel having at least one button for entering	See claim 1.
system inputs and displays for observing system outputs, the user	
interface panel being rotatively mounted to the patient support	

through a rotatable member for pivoting movement about a generally vertical axis and				
a hinge connecting	the user	See claim 1	<u>.</u>	
interface panel to t	he			
rotatable member	to permit	Ouedens teaches that "[t]he journalin	g structure 22	
angling of the user		adds a degree of rotative freedom of	the monitor	
interface panel wit	h respect	about a horizontal axis such that the	monitor	
to the patient supp	ort, the	screen may be tilted upwardly or dow	vnwardly as	
angling constitutin	g	desired. An operator can effect the d	escribed	
pivoting about a g	enerally	monitor motion by simply positioning the monitor		
horizontal axis.	5	M manually." (Ex. 1003, 4:61-66).	C	
8. The patient-sup	port appara	atus of claim 7, wherein the hinge is	See claim 2.	
a resistive hinge co	onfigured 1	to resist pivoting of the user		
interface panel in 1	esponse to	o normal actuating forces applied to		
the at least one but	tton of the	user interface panel and configured		
to allow pivoting o	of the user	interface panel in response to forces		
applied to the user	interface j	panel that exceed the normal		
actuating forces.				
15. The patient-su	pport appa	ratus of claim 8, wherein the	See claim 5.	
resistive hinge inc	ludes a firs	st member coupled to the user		
interface panel and a second member coupled to the arm, a hinge				
post being coupled to the first member and extending therefrom				
into the second member.				
17. A patient-supp	17. A patient-support apparatus comprisingSee claim 1.			
a base,			See claim 1.	
a patient support carried above the base,			See claim 1.	
an isolation chamb	per on the p	patient support,	See claim 1.	
a controller	The 402 I	Patent discloses that "[i]nfant thermal	support	
configured to	devices h	aving various systems that maintain th	e isolation	
control at least	chamber	at a controlled temperature and humid	ity typically	
one function in	include a	control panel that caregivers use to en	iter	
the isolation	tion environmental control parameters, such as desired			
chamber, and	and temperature and humidity levels." (Ex. 1001, 1:61-65).			
Goldberg discloses a "[c]ontroller 200 [that] is a			a mal man area	
microprocessor based controller having an internal memo			haum in	
Figure 17 (Ex. 1002, 20:24, 21:17) Eig. 17) "A holy			nown m A beby	
Figure 17. (EX. 1002, $2924-31217$, Fig. 17). A baby			A Daby	
temperature probe of sensor 202 is attached to the baby 14 to				

provide a measured baby temperature output signal				
	controller 200 on line 204. In addition, an air temperatur			
	probe or sensor 206 is positioned near the baby 14 to provide			
	a measured air temperature output signal. The air			
	temperature sensor 206 is connected to the controller 200 by			
	line 208. An air temperature set point input device 210 is			
	coupled to controller 200 by line 212. The air temperature			
	input device allows a caregiver to set a desired air			
	temperature setpoint." (Id. at 29:26-30:1). "A baby			
	temperature set point input device 218 is coupled to			
	controller 200 by line 220. The baby temperature input			
	device 218 permits a caregiver to select the desired			
	temperature for the baby 14." (Id. at 30:5-9). "Controller			
	200 therefore controls heater 76 and fan 78 to supply a			
	correct amount of convective heat to the infant thermal			
	support device 10 to warm the baby 14 as illustrated			
	diagrammatically by arrows 226." (Id. at 30:13-16).			
a user interface	Goldberg discloses "[a] user interface 160 permits the			
panel including a	caregiver to input information into controller 200. The user			
display and at	interface 160 may be separate input devices such as devices			
least one button	210, 214, and 218. The user interface 160 permits the			
configured to	caregiver to input information to controller 200 related to the			
provide an input	operation mode, the air temperature set point, the baby			
signal to the	emperature set point, a real time clock, and an alarm			
controller,	silencer. Illustratively, a rotatable control wheel 257 is used			
	to scroll through various menu control options. It is			
	understood that any type of control input device may be			
	used. Controller 200 outputs information related to an alarm			
	code, air temperature, and baby temperature to the user			
	interface 160. User interface 160 includes a display 255 so			
	that control information can be displayed to the caregiver."			
	(Ex. 1002, 32:34-33:13). The user interface 160 as			
	illustrated in Figure 1 has at least one button. (<i>Id.</i> at Fig 1).			
the user interface	Goldberg further discloses that the "rotating display 160			
panel being couple	as shown in FIGS. 1 and 2. Display 160 is located			
to the patient supp	ort generally at the waist level of an adult caregiver although			
by a resistive hing	e the vertical position of display 160 is adjustable with			
configured to resis	changes in height of base portion 16. In preferred			
pivoting of the use	embodiments, rotating display 160 is pivotably mounted			
interface panel in	to canopy-support arm 22 to pivot from side to side of			

response to norma	l device 10, and is positioned to lie outside of	device 10, and is positioned to lie outside of inner deck		
actuating forces	158." (Ex. 1002, 17:32-18:5).			
applied to the at le	ast			
one button of the	Quedens discloses that "[t]he journaling st	Quedens discloses that "[t]he journaling structure 22		
user interface pane	adds a degree of rotative freedom of the m	onitor about a		
and configured to	horizontal axis such that the monitor screen	n may be tilted		
allow pivoting of t	he upwardly or downwardly as desired. An o	upwardly or downwardly as desired. An operator can		
user interface pane	el effect the described monitor motion by sim	ıply		
in response to forc	es positioning the monitor M manually." (Ex	positioning the monitor M manually." (Ex. 1003, 4:61-		
applied to the user	66).			
interface panel that	t			
exceed the normal	The Petitioner incorporates by reference th	e teachings of		
actuating forces.	a "hinge" as set forth in claim 1 and a "rest	istive hinge"		
_	as set forth in claim 2. (See claims 1, 2).	_		
22. A patient-supp	ort apparatus comprising	See claim 1.		
a base,		See claim 1.		
a patient support c	arried above the base,	See claim 1.		
an isolation chamb	per on the patient support,	See claim 1.		
a controller config	ured to control at least one function in the	See claim 17.		
isolation chamber, and				
a user interface panel including a display and at least one button See claim		See claim 17.		
configured to provide an input signal to the controller,				
the user interface	Goldberg further discloses that the "rotating di	splay 160 as		
panel being	shown in FIGS. 1 and 2. Display 160 is locate	d generally at		
pivotally	the waist level of an adult caregiver although the	he vertical		
mounted to the	position of display 160 is adjustable with change	ges in height		
patient support	of base portion 16. In preferred embodiments,	rotating		
to provide	display 160 is pivotably mounted to canopy-su	pport arm 22		
pivotal	to pivot from side to side of device 10, and is p	ositioned to		
movement of the	lie outside of inner deck 158." (Ex. 1002, 17:3	2-18:5).		
interface panel				
about more than	Quedens discloses that "[t]he monitor M is mo	vably and		
one axis.	supportively coupled to a base or frame portion	1 of the		
console C by means of an articulated support structure A		tructure A.		
See FIGS. 1, 1A, 2, 2A and 3." (Ex. 1003, 4:34-37).		4-37). As		
shown in Figure 2A, "[t]he articulated arm structure A				
	includes a first arm 10, and a second arm 12.	The first arm		
10 is pivotally coupled to a base or frame portion of the				
	console C by a pivot assembly 11 for rotation a	about a first		

	vertical axis 16." (<i>Id.</i> at 4:45-49). As shown in Figures 2A and 3, "[t]he pivotal motion of the first and second arms 10, 12 about vertical axes 16, 18 defines a horizontal plane in which the monitor M can be moved. The journaling		
	structure 22 adds a degree of rotative freedom of the monitor		
	about a horizontal axis [21] such that the monitor screen may		
	be tilted upwardly or downwardly as desired. A	An operator	
	can effect the described monitor motion by sim	ply	
	positioning the monitor M manually." (<i>Id.</i> at 4:52-66.		
	Figs. 2A, 3). The user interface can pivot both about the		
	vertical and horizontal axes. (Id.).		
32. A patient-supp	ort apparatus comprising	See claim 1.	
a base,	· · · · ·	See claim 1.	
a patient support c	arried above the base,	See claim 1.	
a controller	The 402 Patent discloses that "[i]nfant thermal	support	
configured to	devices having various systems that maintain the	ne isolation	
control at least	chamber at a controlled temperature and humid	ity typically	
one function on	include a control panel that caregivers use to en	nter	
the patient	environmental control parameters, such as desired	red	
support, and	temperature and humidity levels." (Ex. 1001, 1	:61-65).	
	Goldberg discloses a "[c]ontroller 200 [that] is a microprocessor based controller having an internal memory. The controller 200 receives various inputs" as shown in Figure 17. (Ex. 1002, 29:24-31:17, Fig. 17). "A baby temperature probe or sensor 202 is attached to the baby 14 to provide a measured baby temperature output signal to the controller 200 on line 204. In addition, an air temperature probe or sensor 206 is positioned near the baby 14 to provide a measured air temperature output signal. The air temperature sensor 206 is connected to the controller 200 by line 208. An air temperature set point input device 210 is coupled to controller 200 by line 212. The air temperature input device allows a caregiver to set a desired air temperature set point." (<i>Id.</i> at 29:26-30:1). "A baby temperature set point input device 218 is coupled to controller 200 by line 220. The baby temperature input device 210 solution and the provide and the set of the controller 200 by line 208. An air temperature set point input device 218 is coupled to controller 200 by line 220. The baby temperature input device 218 parmits a saregiver to set a desired to		
	temperature for the baby 14." (<i>Id.</i> at 30:5-9).	'Controller	

		200 therefore controls heater 76 and fan 78 to supply a		
		correct amount of convective heat to the infant thermal		
		support device 10 to warm the baby 14 as illustrated		
		diagrammatically by arrows 226." (<i>Id.</i> at 30:13-16).		
a user interface par		nel including a display and at least one	See claim 17.	
button configu	ıred	to provide an input signal to the controller,		
the user interfa	ace	Goldberg further discloses that the "rotating d	ner discloses that the "rotating display 160 as	
panel pivotally	у	shown in FIGS. 1 and 2. Display 160 is locat	ed generally at	
mounted to the	e	the waist level of an adult caregiver although	the vertical	
patient suppor	t	position of display 160 is adjustable with char	nges in height	
from at least o	one	of base portion 16. In preferred embodiments	s, rotating	
hinge to provi	de	display 160 is pivotably mounted to canopy-s	upport arm 22	
pivotal		to pivot from side to side of device 10, and is	positioned to	
movement of	the	lie outside of inner deck 158." (Ex. 1002, 17:	32-18:5).	
user interface				
panel about m	ore	Quedens discloses that "[t]he monitor M is m	ovably and	
than one axis,	than one axis, supportively coupled to a base or frame portion of the			
	console C by means of an articulated support structure A.			
	See FIGS. 1, 1A, 2, 2A and 3." (Ex. 1003, 4:34-37). As			
	shown in Figure 2A, "[t]he articulated arm structure A			
	includes a first arm 10, and a second arm 12. The first arm			
10 is pivotally coupled to a base or frame portion of the			tion of the	
console C by a pivot assembly 11 for rotation about a first		about a first		
vertical axis 16." (Id. at 4:45-49). As shown in Figures 2A			in Figures 2A	
and 3, "[t]he pivotal motion of the first and second arms 10		cond arms 10,		
12 about vertical axes 16, 18 defines a horizontal plane		ntal plane in		
		which the monitor M can be moved. The jour	rnaling	
		structure 22 adds a degree of rotative freedom	of the monitor	
		about a horizontal axis such that the monitor s	screen may be	
		tilted upwardly or downwardly as desired. An operator can		
		effect the described monitor motion by simply positioning		
		the monitor M manually." (Id. at 4:52-66, Figs. 2A, 3; see		
claim 22).				
the hinge	Qu	edens discloses that "[d]amping apparatus frict	tionally inhibits	
resisting	una	attended movement of the monitor." (Ex. 1003	, Abstract). "In	
movement in	acc	cordance with another specific feature, damping apparatus is		
response to	int	erposed between interconnected portions of arr	ns to	
force	fric	rictionally inhibit unintended monitor movement between		
required to	del	leliberate operator adjustments. Once the operator positions the		

actuate the at least one button but permitting movement in response to force greater than the force required to actuate the at	monitor, the friction damping means causes it to remain stationary until moved again by operator intervention. No positive locks are needed. The damping torque is adjustable." (<i>Id.</i> at 3:12-19). Quedens teaches that "[t]he monitor can easily be manually adjusted by the operator, and, once the operator has desirably positioned the monitor, the friction damping structure will maintain it in that position until the operator chooses to intervene and readjust the monitor position. There is no need for the operator to adjust or set any locks to secure the monitor in position." (<i>Id.</i> at 7:56-61, <i>see id.</i> at 6:37-56).
least one button.	Crompton discloses that "[i]n order to provide for varying operator requirements and suitable glare resistance, touch displays must be rotated up and down within a certain range. This tilt adjustment helps compensate for operator height variations and ambient glare on the glass of the display surface. The touch display requires the use of touch for operator input so the tablet must withstand a touch force without moving." (Ex. 1004, 1:22-28). "[I]n the preferred embodiment the tilt adjustment mechanism must withstand a 5 lb touch force without moving in the downward direction." (<i>Id.</i> at 4:18-21). "A relatively high force is desired to move the upper housing in a downward direction. This prevents the operator's touches on the touch screen display or display tablet, mounted to the upper assembly as shown in FIG. 9, for data input purposes to cause the tilt adjustment mechanism and thus the touch display to move in the downward direction. A force of approximately 5 lbs should be necessary to cause the display to move in the downward direction." (<i>Id.</i> at 4:60-67).
	Rude teaches that in "some applications it is desirable that a hinge have a certain amount of resistance to movement," such as a "[s]creens on portable computers" (Ex. 1005, 1:8-17). Rude is directed to an "improved friction hinge" as "a means for mounting and rotatably positioning computer screens or other objects" with a certain amount of resistance. (<i>Id.</i> at 1:41-51). The friction hinge will provide sufficient "friction needed to maintain the angular opening of a hinge" yet have "controllable friction in a hinge without lost motion when changing directions." (<i>Id.</i>).

	Lowry teaches that "[t]he present invention relates hinge assembly [30a] for rotatably coupling a first second member and, more particularly, to a hinge a having a friction element [32a] which controls the a position of the first member with respect to the seco (Ex. 1006, 1:5-10). Lowry acknowledges that "[a] application of such a hinge would be in [a] laptop, palmtop computers to allow a user to position the la display screen. In a notebook computer, for examp housing [30a] is normally structurally fastened to the computer and the shaft [(pintle 44a)] is connected to of the computer. When the screen is rotated, it is h angular position by the torque generated between the elements [(fiction element 32a)] in the hinge [32a] [(pintle 44a)]." (<i>Id.</i> at 1:15-23, 4:57-5:19).	generally to a member to a assembly angular ond member." common notebook, and aquid crystal le, the hinge he base of the o the screen eld in any he friction and the shaft		
34. The patient	- Goldberg further discloses that the "rotating dis	splay 160 as		
support	shown in FIGS. 1 and 2. Display 160 is located	shown in FIGS. 1 and 2. Display 160 is located generally at		
apparatus of	the waist level of an adult caregiver although the	the waist level of an adult caregiver although the vertical		
claim 32,	position of display 160 is adjustable with changes in height			
wherein the us	of base portion 16. In preferred embodiments, rotating			
interface panel	display 160 is pivotably mounted to canopy-support arm 22			
pivots about	to pivot from side to side of device 10, and is positioned to			
perpendicular	lie outside of inner deck 158." (Ex. 1002, 17:32-18:5).			
axes.				
	Quedens discloses that "[t]he pivotal motion of	the first and		
	second arms 10, 12 about vertical axes 16, 18 c	lefines a		
	horizontal plane in which the monitor M can be	e moved. The		
	journaling structure 22 adds a degree of rotativ	e freedom of		
	the monitor about a horizontal axis [element 2]	J such that the		
	monitor screen may be tilted upwardly or down	monitor screen may be tilted upwardly or downwardly as		
	desired. An operator can effect the described monitor			
motion by simply positioning the monitor M manually.		anually.		
	(Ex. 1003, at 4:52-66). Figure 1A illustrates that the user			
interface can pivot about the vertical axes 16, 18, and the		δ , and the		
norizontal axis 21 , where the vertical and horizontal axes at normal disular to one coefficient (LL) at Fig. 1.4.				
25 A motions	25 A patient support apparetus comprising			
55. A patient-s	support apparatus comprising	See claim 1.		
a base,		see claim 1.		

a patient support c	arried above the base,	See claim 1.	
a support arm	Goldberg further discloses that the "rotating display 160 as		
mounted for	shown in FIGS. 1 and 2. Display 160 is located	l generally at	
movement on	the waist level of an adult caregiver although th	e vertical	
the patient	position of display 160 is adjustable with chang	es in height	
support,	of base portion 16. In preferred embodiments,	rotating	
	display 160 is pivotably mounted to canopy-sup	pport arm 22	
	to pivot from side to side of device 10, and is p	ositioned to	
	lie outside of inner deck $158.^{\prime\prime}$ (Ex. 1002, $17:32$	2-18:5).	
	Quedens discloses that "[t]he monitor M is mov	ably and	
	supportively coupled to a base or frame portion	of the	
	console C by means of an articulated support st	ructure A.	
	See FIGS. 1, 1A, 2, 2A and 3." (Ex. 1003, 4:34	I-37). As	
	shown in Figure 2A, "[t]he articulated arm strue	cture A	
	includes a first arm 10, and a second arm 12. I	he first arm	
	10 is pivotally coupled to a base of frame portion	on of the	
	console C by a pivot assembly 11 for rotation a	bout a first	
	the outer end of the first arm 10 by a nivot asset	mbly 13 for	
	rotation about a second vertical axis 18 which	is movable	
	and displaced from the first axis 16. The second	d arm 12 is	
	generally L-shaped in configuration. Its upstan	ding leg	
	portion 20 is coupled by means of journaling st	ructure 22 to	
	one side of the television monitor M. The second	nd arm 12	
	and journaling structure 22 support the monitor	M for tilting	
	motion about a substantially horizontal axis of	rotation 21."	
	(<i>Id.</i> at 4:45-58). As shown in Figure 3, " $[t]$ he p	vivotal motion	
	of the first and second arms 10, 12 about vertication	al axes 16, 18	
	defines a horizontal plane in which the monitor	M can be	
	moved. The journaling structure 22 adds a deg	ree of rotative	
	freedom of the monitor about a horizontal axis	such that the	
	monitor screen may be tilted upwardly or down	wardly as	
	desired. An operator can effect the described m	ionitor	
	motion by simply positioning the monitor M m	anually." (<i>Id</i> .	
	at 4:52-66, Figs. 1, 2A, 3).		

	FIG. 1 FIG. 1 FIG. 1 FIG. 2 FIG. 2 (Ex. 1003, Figs. 1, 2A).	
a controller config	Pured to control at least one function on the	See claim 32
patient support, a	nd	500 01u111 52.
a user interface pa	anel including a display and at least one	See claim 17.
button configured	to provide an input signal to the controller,	
the user	Quedens discloses that as shown in Figure 3, "	[t]he pivotal
interface panel	motion of the first and second arms 10, 12 abo	ut vertical axes
coupled to the	16, 18 defines a horizontal plane in which the	monitor M can
support arm, the	be moved. The journaling structure 22 adds a	degree of
support arm	rotative freedom of the monitor about a horizo	ntal axis such
including a	that the monitor screen may be tilted upwardly	' or
resistive hinge	downwardly as desired. An operator can effect	t the described
coupled to the	monitor motion by simply positioning the mon	nitor M
user interface	manually." (Ex. 1003, at 4:52-66). Quedens f	further discloses
panel, the hinge	that "[d]amping apparatus frictionally inhibits	unattended
configured to	movement of the monitor." (Id. at Abstract).	"In accordance
resists	with another specific feature, damping apparat	us is interposed
movement in	between interconnected portions of arms to frid	ctionally inhibit
response to	unintended monitor movement between delibe	rate operator
force required	adjustments. Once the operator positions the r	nonitor, the
to actuate the at	friction damping means causes it to remain sta	tionary until
least one button	moved again by operator intervention. No pos	sitive locks are
but permit	needed. The damping torque is adjustable." (A	<i>Id.</i> at $3:12-19$).
movement in	Quedens teaches that "[t]he monitor can easily	be manually
response to	adjusted by the operator, and, once the operator	or has desirably
then the force	positioned the monitor, the iriction damping st	
than the force	interview and reading the manifer resition.	hore is no most
actuate the et	for the operator to adjust or set any looks to as	ouro the
least one button	monitor in position " (Id at 7:56.61 see id at	6.37 56)
	monitor in position. (<i>iu.</i> at <i>i</i> .50-01, see <i>iu</i> . at	. 0.37-30).

Crompton discloses that "[i]n order to provide for varying operator requirements and suitable glare resistance, touch displays must be rotated up and down within a certain range. This tilt adjustment helps compensate for operator height variations and ambient glare on the glass of the display surface. The touch display requires the use of touch for operator input so the tablet must withstand a touch force without moving." (Ex. 1004, 1:22-28). "[I]n the preferred embodiment the tilt adjustment mechanism must withstand a 5 lb touch force without moving in the downward direction." (Id. at 4:18-21). "A relatively high force is desired to move the upper housing in a downward direction. This prevents the operator's touches on the touch screen display or display tablet, mounted to the upper assembly as shown in FIG. 9, for data input purposes to cause the tilt adjustment mechanism and thus the touch display to move in the downward direction. A force of approximately 5 lbs should be necessary to cause the display to move in the downward direction." (Id. at 4:60-67).

Rude teaches that in "some applications . . . it is desirable that the hinge have a certain amount of resistance to movement," such as a "[s]creens on portable computers" (Ex. 1005, 1:8-17). Rude is directed to an "improved friction hinge" as "a means for mounting and rotatably positioning computer screens or other objects" with a certain amount of resistance. (*Id.* at 1:41-51). The friction hinge will provide sufficient "friction needed to maintain the angular opening of a hinge" yet have "controllable friction in a hinge without lost motion when changing directions." (*Id.*).

Lowry teaches that "[t]he present invention relates generally to a hinge assembly [30a] for rotatably coupling a first member to a second member and, more particularly, to a hinge assembly having a friction element [32a] which controls the angular position of the first member with respect to the second member." (Ex. 1006, 1:5-10). Lowry acknowledges that "[a] common application of such a hinge would be in [a] laptop, notebook, and palmtop computers to allow a user to position the liquid crystal display screen. In a

	notebook comp	uter, for example, the hinge ho	using [30a] is	
	normally struct	normally structurally fastened to the base of the computer and		
	the shaft [(pintle	the shaft [(pintle 44a)] is connected to the screen of the		
	computer. Whe	en the screen is rotated, it is hel	d in any	
	angular position	h by the torque generated between	een the friction	
	elements [(fiction	on element 32a)] in the hinge [3	32a] and the	
	shaft [(pintle 44	a)]." (Id. at 1:15-23, 4:57-5:19	<i>θ</i>).	
38. The patien	nt- Quedens disclos	ses that, as shown in Figures 2.	A and 3, "[t]he	
support	pivotal motion	of the first and second arms 10	, 12 about	
apparatus of	vertical axes 16	, 18 defines a horizontal plane	in which the	
claim 35	monitor M can	be moved. The journaling stru	cture 22 adds a	
wherein the u	ser degree of rotativ	ve freedom of the monitor abou	ut a horizontal	
interface pane	axis such that the	ne monitor screen may be tilted	upwardly or	
is support for	downwardly as	desired. An operator can effect	t the described	
movement	monitor motion	by simply positioning the mor	nitor M	
about more th	an manually." (Ex	. 1003, 4:52-66, Figs. 2A, 3; se	ee claim 22).	
one axis.				
39. The patient-supportAs shown in Figure 1A of Quedens, the user			edens, the user	
apparatus of claim 38 wherein interface c		interface can pivot about the	terface can pivot about the vertical axes 16,	
the user interface panel is 1		18, and the horizontal axis 21, where the		
supported for	supported for movement about vertical and horizontal axes are			
perpendicular axes. per		perpendicular to one another.	(Ex. 1003,	
		Fig. 1A; <i>see</i> claim 34).		
40. A patient-	40. A patient-support apparatus comprisingSee claim 1.			
a base,	a base, See claim 1		See claim 1.	
a patient support carried above the base, See clai		See claim 1.		
an isolation chamber on the patient support See clair		See claim 1.		
a support arm	mounted for movem	nent on the patient support,	See claim 35.	
a controller co	a controller configured to control at least one function in the See claim 17.			
isolation chan	nber, and			
a user interfac	a user interface panel including a display and at least one See claim 17.			
button configured to provide an input signal to the controller,				
the user	Quedens discloses that as shown in Figure 3, "[t]he pivotal			
interface	motion of the first a	motion of the first and second arms 10, 12 about vertical axes 16,		
panel	18 defines a horizontal plane in which the monitor M can be			
coupled to	moved. The journaling structure 22 adds a degree of rotative			
the support	freedom of the monitor about a horizontal axis such that the			
arm, the	monitor screen may be tilted upwardly or downwardly as desired.			
support arm	An operator can effect the described monitor motion by simply			

configured	positioning the monitor M manually." (Ex. 1003, 4:52-66).
to hold the	Quedens further discloses that "[d]amping apparatus frictionally
user	inhibits unattended movement of the monitor." (<i>Id.</i> at Abstract).
interface	"In accordance with another specific feature, damping apparatus
panel	is interposed between interconnected portions of arms to
stationary in	frictionally inhibit unintended monitor movement between
response to	deliberate operator adjustments. Once the operator positions the
in response	monitor, the friction damping means causes it to remain stationary
to force	until moved again by operator intervention. No positive locks are
required to	needed. The damping torque is adjustable." (Id. at 3:12-19).
actuate the	Quedens teaches that "[t]he monitor can easily be manually
at least one	adjusted by the operator, and, once the operator has desirably
button but	positioned the monitor, the friction damping structure will
permit	maintain it in that position until the operator chooses to intervene
movement	and readjust the monitor position. There is no need for the
in response	operator to adjust or set any locks to secure the monitor in
to force	position." (Id. at 7:56-61, see id. at 6:37-56).
greater than	
the force	Crompton discloses that "[i]n order to provide for varying
required to	operator requirements and suitable glare resistance, touch displays
actuate the	must be rotated up and down within a certain range. This tilt
at least one	adjustment helps compensate for operator height variations and
button.	ambient glare on the glass of the display surface. The touch
	display requires the use of touch for operator input so the tablet
	must withstand a touch force without moving." (Ex. 1004, 1:22-
	28). "[I]n the preferred embodiment the tilt adjustment
	mechanism must withstand a 5 lb touch force without moving in
	the downward direction." (Id. at 4:18-21). "A relatively high
	force is desired to move the upper housing in a downward
	direction. This prevents the operator's touches on the touch
	screen display or display tablet, mounted to the upper assembly as
	shown in FIG. 9, for data input purposes to cause the tilt
	adjustment mechanism and thus the touch display to move in the
	downward direction. A force of approximately 5 lbs should be
	necessary to cause the display to move in the downward
	direction." (<i>Id.</i> at 4:60-67).
	Rude teaches that in "some applications it is desirable that a
	hinge have a certain amount of resistance to movement," such as
	a "[s]creens on portable computers" (Ex. 1005, 1:8-17).

	Rud mou obje The mai frict (<i>Id</i> .)	Rude is directed to an "improved friction hinge" as "a means for mounting and rotatably positioning computer screens or other objects" with a certain amount of resistance. (<i>Id.</i> at 1:41-51). The friction hinge will provide sufficient "friction needed to maintain the angular opening of a hinge" yet have "controllable friction in a hinge without lost motion when changing directions." (<i>Id.</i>).		
	Low hing secc havi posi (Ex. app) palm disp hou com the posi [(fic 44a)	wry teaches that "[t]he present invention relates g ge assembly [30a] for rotatably coupling a first n ond member and, more particularly, to a hinge a sing a friction element [32a] which controls the a tion of the first member with respect to the second 1006, 1:5-10). Lowry acknowledges that "[a] lication of such a hinge would be in [a] laptop, n ntop computers to allow a user to position the li- blay screen. In a notebook computer, for examp sing [30a] is normally structurally fastened to the puter and the shaft [(pintle 44a)] is connected to computer. When the screen is rotated, it is held ition by the torque generated between the friction etion element 32a)] in the hinge [32a] and the shaft []." (<i>Id.</i> at 1:15-23, 4:57-5:19).	generally to a member to a ssembly ingular ond member." common notebook, and quid crystal le, the hinge he base of the o the screen of in any angular on elements haft [(pintle	
45. The patien	nt-suj	pport apparatus of claim 40 wherein the user	See claim 38.	
axis.	el 18 s	supported for movement about more than one		
46. The patient	nt-	Quedens discloses that "[t]he pivotal motion o	f the first and	
support		second arms 10, 12 about vertical axes 16, 18	defines a	
apparatus of horizontal plane in which the monitor M can be moved.		e moved. The		
claim 45 wherein		journaling structure 22 adds a degree of rotative freedom of		
the user interface		the monitor about a horizontal axis [element 21] such that the		
panel is pivotally		monitor screen may be tilted upwardly or downwardly as		
supported for		desired. An operator can effect the described monitor		
movement about		motion by simply positioning the monitor M manually."		
perpendicular		(Ex. 1003, at 4:52-66). Figure 1A illustrates that the user		
axes. Interface can pivot about the vertical ax		interface can pivot about the vertical axes 16,	10, 18, and the 1×1^{-1}	
		norizontal axis 21, where the vertical and horiz	zontal axes are	
		perpendicular to one another. (Id. at Fig. 1A; s	see claim 34).	

2. Ground 2

Claims 1, 7, and 22 of the 402 patent are invalid under 35 U.S.C. § 103(a) as obvious over Storti in view of Quedens, and claims 2, 5, 8, 15, 17, 32, 34, 35, 38, 39, 40, 45, and 46 are invalid under 35 U.S.C. § 103(a) as obvious in further view of Crompton and either Rude or Lowry.

With reference to Figure 1 (right), Storti discloses an infant incubator that includes, *inter alia*, an infant support 12 ("patient support apparatus") for supporting an infant, a base 10 ("base") below the infant support 12, a hood 14 that along with the base 10 form an enclosure ("isolation



chamber"), and a control and display module 16 (collectively a "system" and a "user interface panel") that has a plurality of controls 18 for controlling the temperature, humidity, oxygen content, and circulation rate of the conditioned air that enters into the hood 14. (Ex. 1007, 2:19-29, 2:49-61; Ex. 1008, Leshner Decl., ¶ 89). The control and display module 16 is mounted by a means of a vertically disposed post 22 that permits the module 16 to be pivoted about a vertical axis to allow a user to position the module 16 in a manner that suits the needs of those attending the infant in the incubator. (Ex. 1007, 3:3-13; Ex. 1008, Leshner Decl.,

¶ 89).

The teachings of Quedens, Crompton, Rude, and Lowry are discussed above in Section V.G.1. It would have been obvious to a person of ordinary skill in the art at the time of the alleged invention to combine the teachings of Quedens, Crompton, Rude and/or Lowry with Storti for at least the same reasons discussed above with respect to Goldberg. (Ex. 1008, Leshner Decl., ¶¶ 65-86, 90).

As shown in the claim chart below, claims 1, 7, and 22 of the 402 patent are invalid under 35 U.S.C. § 103(a) as obvious over Storti in view of Quedens, and claims 2, 5, 8, 15, 17, 32, 34, 35, 38, 39, 40, 45, and 46 are invalid under 35 U.S.C. § 103(a) as obvious in further view of Crompton and either Rude or Lowry.

U.S. Patent No. 6,345,402	Storti (Ex. 1007) and Quedens (Ex. 1003) and, to the extent necessary, in further view of Crompton (Ex. 1004) and either Rude (Ex. 1005) or Lowry (Ex. 1006)
1. A patient- support apparatus comprising	The 402 patent discloses "[t]hermal support devices, such as infant warmers and incubators, having an isolation chamber and various systems that maintain the isolation chamber at a controlled temperature and humidity to facilitate the development of a premature infant are known." (Ex. 1001, 1:17-21).
	Storti discloses "[a]n infant incubator" (Ex. 1007, Abstract).
a base,	Storti discloses that the "incubator includes a base 10" (Ex. 1007, 2:19-23).
a patient support carried above the base,	Storti discloses that the "incubator includes a base 10 having an infant support 12" (Ex. 1007, 2:19-23).
an isolation	The 402 Patent discloses that a "patient-support surface for

(Ex. 1008, Leshner Decl., ¶ 91).

chamber on the	supporting the infant in the isolation chamber"
patient support,	(Ex. 1001, 1:22-23).
	Storti discloses that the "incubator includes a base 10
	having an infant support 12 and a hood 14 mounted on the
	base 10 and adapted to enclose [the] infant support 12." (Ex.
	1007, 2:19-23).
a system for	The 402 Patent discloses that "[i]nfant thermal support
monitoring at	devices having various systems that maintain the isolation
least one	chamber at a controlled temperature and humidity typically
environmental	include a control panel that caregivers use to enter
condition in the	environmental control parameters, such as desired
isolation	temperature and humidity levels." (Ex. 1001, 1:61-65).
chamber,	
	Storti discloses "a control and display module 16 for
	controlling the environment with hood 14 and displaying the
	conditions of the environment within the hood and the
	condition of an infant within the hood. Control and display
	module 16 has a plurality of controls 18 which can control,
	for example, the temperature, humidity, oxygen content and
	circulation rate of the conditioned air which is introduced into
	hood 14. Control and display module 16 also has a plurality
	of displays 20 which can display the various parameters of the
	hood environment and the physical condition of the infant.
	The circuitry for effecting the desired controls and developing
	the desired displays can be of conventional construction and
	operation." (Ex. 1007, 2:50-63).
a user interface	Storti discloses that the "[c]ontrol and display module 16 has
panel having at	a plurality of controls 18 which can control, for example, the
least one button	temperature, humidity, oxygen content and circulation rate of
for entering	the conditioned air which is introduced into hood 14. Control
system inputs	and display module 16 also has a plurality of displays 20
and displays for	which can display the various parameters of the hood
observing	environment and the physical condition of the infant." (Id. at
system outputs,	2:54-61). The module 16 has at least one button for entering
the user	system inputs. (Id. at Fig. 1).
interface panel	
being rotatively	Storti further discloses that the "control and display module
mounted to the	16 is mounted by means of a vertically disposed post 22
patient support	which is attached at its lower end to base 10 and has the

through a	control and display module attached to its upper end. In the			
rotatable	preferred embodiment of the invention, control and display			
member for	module 16 is mounted for pivotal movement about a vertical			
pivoting	axis." (<i>Id.</i> at 3:3-9).			
movement				
about a	Quedens discloses that "[t]he monitor M is movably and			
generally	supportively coupled to a base or frame portion of the console			
vertical axis,	C by means of an articulated support structure A. See			
and	FIGS. 1, 1A, 2, 2A and $3.^{"}$ (Ex. 1003, 4:34-37). As shown in			
	Figure 2A, "[t]he articulated arm structure A includes a first			
	arm 10, and a second arm 12. The first arm 10 is pivotally			
	coupled to a base or frame portion of the console C by a pivot			
	assembly 11 for rotation about a first vertical axis 16. The			
	second arm 12 is pivotally coupled to the outer end of the first			
	arm 10 by a pivot assembly 13 for rotation about a second			
	vertical axis 18, which is movable and displaced from the first			
	axis 16. The second arm 12 is generally L-shaped in			
	configuration. Its upstanding leg portion 20 is coupled by			
	monitor M. The second arm 12 and journaling structure 22			
	support the monitor M for tilting motion about a substantially			
	horizontal axis of rotation 21 " (Id at $4.45-58$) The first arm			
	10 is nivotally coupled to the second arm 12 by way of the			
	nivot assembly 13 The first and second arms 10 12 and			
	nivot assembly 13 form the "rotatable member" that allows			
	the user interface to pivot about a generally vertical axis			
	1 22 15*+			
	54 FIG. 3			
	FIG. 2A			
	(Ex. 1003, Figs. 2A, 3).			
a hinge	Quedens discloses that as shown in Figure 3, that "[t]he			
connecting the	second arm 12 is generally L-shaped in configuration. Its			
user interface	upstanding leg portion 20 is coupled by means of journaling			
panel to the	structure 22 to one side of the television monitor M." (<i>Id.</i> at $4.52,50$) "The side of the television monitor M."			
rotatable	(4.52-58). The pivotal motion of the first and second arms			
member to	10, 12 about vertical axes 16, 18 defines a horizontal plane in			
permit angling	which the monitor M can be moved. The journaling structure			

of the user	22 adds a degree of rotative freedom of the monitor about a
interface panel	horizontal axis such that the monitor screen may be tilted
with respect to	upwardly or downwardly as desired. An operator can effect
the patient	the described monitor motion by simply positioning the
support.	monitor M manually." (Id. at 4:52-66). The journaling
	structure 22 and its associated shaft are the "hinge."
2. The patient-	Quedens discloses that "[t]he journaling structure 22 adds a
support	degree of rotative freedom of the monitor about a horizontal
apparatus of	axis such that the monitor screen may be tilted upwardly or
claim 1,	downwardly as desired. An operator can effect the described
wherein the	monitor motion by simply positioning the monitor M
hinge is a	manually." (Ex. 1003, 4:61-66). Quedens further discloses
resistive hinge	that "[d]amping apparatus frictionally inhibits unattended
configured to	movement of the monitor." (<i>Id.</i> at Abstract). "In accordance
resist pivoting	with another specific feature, damping apparatus is interposed
of the user	between interconnected portions of arms to frictionally inhibit
interface panel	unintended monitor movement between deliberate operator
in response to	adjustments. Once the operator positions the monitor, the
normal	friction damping means causes it to remain stationary until
actuating forces	moved again by operator intervention. No positive locks are
applied to the at	needed. The damping torque is adjustable." (<i>Id.</i> at 3:12-19).
least one button	Quedens teaches that "[t]he monitor can easily be manually
of the user	adjusted by the operator, and, once the operator has desirably
interface panel	positioned the monitor, the friction damping structure will
and configured	maintain it in that position until the operator chooses to
to allow	intervene and readjust the monitor position. There is no need
pivoting of the	for the operator to adjust or set any locks to secure the
user interface	monitor in position." (<i>Id.</i> at 7:56-61, <i>see id.</i> at 6:37-56).
panel in	
response to	Crompton discloses that "[i]n order to provide for varying
forces applied	operator requirements and suitable glare resistance, touch
to the user	displays must be rotated up and down within a certain range.
interface panel	This tilt adjustment helps compensate for operator height
that exceed the	variations and ambient glare on the glass of the display
normal	surface. The touch display requires the use of touch for
actuating forces.	operator input so the tablet must withstand a touch force
	without moving." (Ex. 1004, 1:22-28). "[I]n the preferred
	embodiment the tilt adjustment mechanism must withstand a
	5 lb touch force without moving in the downward direction."
	(Id. at 4:18-21). "A relatively high force is desired to move

	the upper housing in a downward direction. This prevents the operator's touches on the touch screen display or display tablet, mounted to the upper assembly as shown in FIG. 9, for data input purposes to cause the tilt adjustment mechanism and thus the touch display to move in the downward direction. A force of approximately 5 lbs should be necessary to cause the display to move in the downward direction." (<i>Id.</i> at 4:60-67).
	Rude teaches that in "some applications it is desirable that a hinge have a certain amount of resistance to movement," such as a "[s]creens on portable computers" (Ex. 1005, 1:8-17). Rude is directed to an "improved friction hinge" as "a means for mounting and rotatably positioning computer screens or other objects" with a certain amount of resistance. (<i>Id.</i> at 1:41-51). The friction hinge will provide sufficient "friction needed to maintain the angular opening of a hinge" yet have "controllable friction in a hinge without lost motion when changing directions." (<i>Id.</i>).
	Lowry teaches that "[t]he present invention relates generally to a hinge assembly [30a] for rotatably coupling a first member to a second member and, more particularly, to a hinge assembly having a friction element [32a] which controls the angular position of the first member with respect to the second member." (Ex. 1006, 1:5-10). Lowry acknowledges that "[a] common application of such a hinge would be in [a] laptop, notebook, and palmtop computers to allow a user to position the liquid crystal display screen. In a notebook computer, for example, the hinge housing [30a] is normally structurally fastened to the base of the computer and the shaft [(pintle 44a)] is connected to the screen of the computer. When the screen is rotated, it is held in any angular position by the torque generated between the friction elements [(fiction element 32a)] in the hinge [32a] and the shaft [(pintle 44a)]." (<i>Id</i> , at 1:15-23, 4:57-5:19).
5. The patient-	Quedens teaches that "[t]he detailed structure of the pivot
support	assemblies 11, 13 at the axes 16, 18 is illustrated in FIG. 9. A
apparatus of	pivot shaft 66 extends through the center of the pivot
claim 2,	assembly. The pivot shaft 66 is fixed to one of the arms [10,

wherein the resistive hinge includes a first member coupled to the user interface panel and a second member coupled to the arm, a hinge post being coupled to the	12] which are interconnected at the pivot and rotates with that arm. A duplex ball bearing assembly 68, 70 facilitates rotation of the pivot shaft 66 relative to the arm to which it is not positively connected. An adjustable spring 72 is situated between the ball bearings and loads the pivot shaft against a friction surface 74 between the two arms which are interconnected at the pivot." (Ex. 1003, 6:23-33). The second arm 12 is the "first member," the first arm 10 is the "second member," and the pivot shaft 66 is the "hinge post" that is coupled to the first member and extends therefrom into the second member. (<i>Id.</i> at 4:45-66, 6:23-33, Fig. 9).
post beingthe sectorcoupled to thefirst memberfirst memberRude teand extending"[h]ingetherefrom intorivets, orthe second7, compmember.flat portband 7 tobetweenside of topintle 9attachedaccomp7 beforeplate 17The pla"secondcoupledsecond	Rude teaches that the friction hinge assembly includes "[h]inge element 5, which is attached to part 3 with screws or rivets, or other appropriate means, has a spiral portion or band 7, comprised of several turns disposed about pintle 9, and a flat portion for attachment, plate member 11. Spring 13 keeps band 7 tightly wrapped about pintle 9 by applying a force between plate member 11 and tail 15 of band 7. On the other side of the hinge assembly, plate 17 is irrotatably attached to pintle 9 by pins or other appropriate means. Plate 17 is attached to part 1." (Ex. 1005, 3:26-35). "Assembly is accomplished by inserting pintle 9 through plate 17 and band 7 before the installation of spring 13. Pins 19 hold pintle 9 in plate 17 and prevent relative movement." (<i>Id.</i> at 3:38-41). The plate 17 is the "first member," the plate member 11 is the "second member," and the pintle 9 is the "hinge post" that is coupled to the first member and extends therefrom into the second member. (<i>Id.</i> at Fig. 1).
	Lowry teaches that "hinge assembly 30a includes a friction element 32a for being secured to the first member. The friction element 32a includes an internal surface 34a. As best shown in FIG. 4, the internal surface 34a of the friction element 32a defines a generally cylindrical cavity 36a having a first diameter." (Ex. 1006, 4:57-62). "Referring now to FIG. 4, the first hinge assembly 30a further includes a generally cylindrical pintle 44a for being secured to the second member. The pintle 44a includes an external surface 46a and is positioned within the cavity 36a with the external

	surface 42a of the pintle 44a in facing frictional of with the internal surface 34a of the friction element that substantially uniform forces are created betwe external surface 46a of the pintle and the internal of the friction element 32a to provide torque trans angular positional control of the pintle 44a with a friction element 32a." (<i>Id.</i> at 5:55-65). "As show the external surface 46a of the pintle 44a defines diameter. The second diameter is greater than or first diameter of the cavity 36a such that the pint positioned within the cavity 36a with an interfere at 5:66-6:3). "In use, with respect to the first him 30a, the friction element 32a is rotated with respo- pintle 44a. The internal surface 34a of the friction 32a is in substantial facing frictional engagement external surface 42a of the pintle 44a. Thus, the between the friction element 32a and pintle 44a i and the pressure between the internal surface 34a friction element 32a and the external surface 46a 44a is relatively low, which in turn promotes red and higher torques for the same axial length of si uniform strength frictional elements." (<i>Id.</i> at 9:3 portion of the hinge that connects to the pintle 44a member," friction element 32a is the "second me the pintle 44a is the "hinge post" that is coupled member and extends therefrom into the second me	engagement ent 32a such veen the surface 34a sfer and respect to the wn in FIG. 4, a second equal to the le 44a is ence fit." (<i>Id.</i> ge assembly ect to the on element t with the contact area s maximized of the pintle uced wear milar non- 5-45). The a is the "first onber," and to the first nember. (<i>Id.</i>
7 A notiont supp	at 1 1g. 4).	See alaim 1
<i>i</i> . A patient-support	ort apparatus comprising	See claim 1
a patient support carried above the base		See claim 1
a patient support carried above the base, an isolation chamber on the patient support		See claim 1.
a system for monitoring at least one environmental condition in		See claim 1.
the isolation chan		
a user interface pa	See claim 1.	
system inputs and		
interface panel be		
through a rotatabl		
generally vertical		

a hinge connecting the user See claim 1.

interface par	nel to the				
rotatable member to permit		Quedens teaches that "[t]he journaling structure 22			
angling of the user		adds a degree of rotative freedom of the monitor			
interface panel with respect about a horizontal axis such that the me			nonitor		
to the patier	nt support, the	screen may be tilted upwardly or dow	nwardly as		
angling con	stituting	desired. An operator can effect the de	escribed		
pivoting abo	out a generally	monitor motion by simply positioning	g the monitor		
horizontal a	xis.	M manually." (Ex. 1003, 4:61-66).			
8. The patie	nt-support appara	atus of claim 7, wherein the hinge is a	See claim 2.		
resistive hin	ge configured to	resist pivoting of the user interface			
panel in resp	ponse to normal a	actuating forces applied to the at least			
one button o	of the user interfa	ace panel and configured to allow			
pivoting of	the user interface	e panel in response to forces applied			
to the user i	nterface panel the	at exceed the normal actuating forces.			
15. The pati	15. The patient-support apparatus of claim 8, wherein the resistive See claim 5.				
hinge includ	hinge includes a first member coupled to the user interface panel				
and a second	d member couple	ed to the arm, a hinge post being			
coupled to t	coupled to the first member and extending therefrom into the				
second member.					
17. A patient-support apparatus comprisingSee claim 1.					
a base, See claim 1.					
a patient support carried above the base, See claim 1.					
an isolation chamber on the patient support, See claim 1.			See claim 1.		
а	The 402 Patent discloses that "[i]nfant thermal support devices				
controller	having various systems that maintain the isolation chamber at a				
configured	controlled temperature and humidity typically include a control				
to control	panel that careg	givers use to enter environmental control	ol parameters,		
at least	such as desired temperature and humidity levels." (Ex. 1001, 1:61-				
one	65).				
function in					
the	Storti discloses "a control and display module 16 for controlling the				
isolation	environment with hood 14 and displaying the conditions of the				
chamber,	environment within the hood and the condition of an infant within				
and	the hood. Control and display module 16 has a plurality of controls				
	18 which can co	ontrol, for example, the temperature, hu	imidity,		
	oxygen content	and circulation rate of the conditioned	air which is		
introduced into hood 14." (Ex. 1007, 2:50-57).					
a user interface panel Storti discloses that the "[c]ontrol and display					
including a display and module 16 also has a plurality of displays 20 which					

at least one button configured to provide an input signal to the controller,		can display the various parameters of the hood environment and the physical condition of the infant." (<i>Id.</i> at 2:54-61). The module 16 includes at least one button to provide an input as shown in Figure 1. (<i>Id.</i> at Fig. 1).		
the user interfa	ace nanel	Storti further discloses that the "control	and display	
being coupled	to the	module 16 is mounted by means of a ver	rtically	
patient support	t by a	disposed post 22 which is attached at its lower end to		
resistive hinge	e o y u	hase 10 and has the control and display module		
configured to r	resist	attached to its upper end. In the preferred embodiment		
pivoting of the	user	of the invention control and display mo	dule 16 is	
interface panel	in	mounted for pivotal movement about a	vertical axis."	
response to no	rmal	(<i>Id.</i> at 3:3-9)		
actuating force	es			
applied to the	at least	Ouedens discloses that "[t]he journaling	structure 22	
one button of t	the user	adds a degree of rotative freedom of the	monitor about	
interface panel	and	a horizontal axis such that the monitor s	creen may be	
configured to a	allow	tilted upwardly or downwardly as desired. An		
pivoting of the	user	operator can effect the described monitor motion by		
interface panel	lin	simply positioning the monitor M manually."		
response to forces		(Ex. 1003, 4:61-66).	5	
applied to the user				
interface panel that		The Petitioner incorporates by reference	the teachings	
exceed the normal		of a "hinge" as set forth in claim 1 and a "resistive		
actuating forces. hinge" as set forth in claim 2. (See claims 1, 2).		ns 1, 2).		
22. A patient-support app		paratus comprising	See claim 1.	
a base,			See claim 1.	
a patient support carried		above the base,	See claim 1.	
an isolation chamber on		the patient support,	See claim 1.	
a controller co	nfigured to	o control at least one function in the	See claim 17.	
isolation chamber, and				
a user interface panel inc		luding a display and at least one button	See claim 17.	
configured to provide an input signal to the controller,				
the user	Storti discloses that the "control and display module 16 is			
interface	mounted by means of a vertically disposed post 22 which is			
panel being	attached at its lower end to base 10 and has the control and			
pivotally	y display module attached to its upper end. In the preferred			
mounted to embodiment of the invention, control and display module 16		module 16 is		
the patient mounted for pivotal movement about a vertical axis." (Ex. 1007.				

support to	3:3-9).		
provide			
pivotal	Quedens discloses that "[t]he monitor M is movably	Quedens discloses that "[t]he monitor M is movably and	
movement o	f supportively coupled to a base or frame portion of the	he console C	
the interface	by means of an articulated support structure A. See	FIGS. 1, 1A,	
panel about	2, 2A and 3." (Ex. 1003, 4:34-37). As shown in Fig	gure 2A,	
more than	"[t]he articulated arm structure A includes a first arm	n 10, and a	
one axis.	second arm 12. The first arm 10 is pivotally coupled	d to a base or	
	frame portion of the console C by a pivot assembly	11 for	
	rotation about a first vertical axis 16." (Id. at 4:45-4	al axis 16." (<i>Id.</i> at 4:45-49). As	
	shown in Figures 2A and 3, "[t]he pivotal motion of	the first and	
	second arms 10, 12 about vertical axes 16, 18 define	es a	
	horizontal plane in which the monitor M can be mov	ved. The	
	journaling structure 22 adds a degree of rotative free	edom of the	
	monitor about a horizontal axis [21] such that the me	onitor screen	
	may be tilted upwardly or downwardly as desired. A	An operator	
	can effect the described monitor motion by simply p	ositioning	
	the monitor M manually." (Id. at 4:52-66, Figs. 2A,	, 3).	
32. A patient-support apparatus comprising See claim 1			
a base,		See claim 1.	
a patient support carried above the base, See clair			
a	he 402 Patent discloses that "[i]nfant thermal support devices		
controller	aving various systems that maintain the isolation chamber at a		
configured	ontrolled temperature and humidity typically include a control		
to control	anel that caregivers use to enter environmental control parameters,		
at least	uch as desired temperature and humidity levels." (Ex. 1001, 1:61-		
one	65).	5).	
function			
on the	torti discloses that "[c]ontrol and display module 16 has a		
patient	lurality of controls 18 which can control, for example, the		
support,	emperature, humidity, oxygen content and circulation rate of the		
and	and conditioned air which is introduced into hood 14." (Ex. 1007,		
2:54-57).			
a user interf	ace panel including a display and at least one button	See claim 17.	
configured t	o provide an input signal to the controller,		
the user	Storti discloses that the "control and display modul	e 16 is	
interface	mounted by means of a vertically disposed post 22	which is	
panel	attached at its lower end to base 10 and has the con-	trol and	
pivotally	display module attached to its upper end. In the pre-	eferred	

mounted to	embodiment of the invention, control and display module 16 is		
the patient mounted for pivotal movement about a vertical axis."			
support from	(Ex. 1007, 3:3-9).		
at least one			
hinge to	Quedens discloses that "[t]he monitor M is movably and		
provide	supportively coupled to a base or frame portion of the console C		
pivotal	by means of an articulated support structure A. See FIGS. 1,		
movement of	f 1A, 2, 2A and 3." (Ex. 1003, 4:34-37). As shown in Figure 2A,		
the user	"[t]he articulated arm structure A includes a first arm 10, and a		
interface	second arm 12. The first arm 10 is pivotally coupled to a base		
panel about	or frame portion of the console C by a pivot assembly 11 for		
more than	rotation about a first vertical axis 16." (Id. at 4:45-49). As		
one axis,	shown in Figures 2A and 3, "[t]he pivotal motion of the first and		
	second arms 10, 12 about vertical axes 16, 18 defines a		
	horizontal plane in which the monitor M can be moved. The		
	journaling structure 22 adds a degree of rotative freedom of the		
	monitor about a horizontal axis such that the monitor screen		
	may be tilted upwardly or downwardly as desired. An operator		
	can effect the described monitor motion by simply positioning		
	the monitor M manually." (Id. at 4:52-66, Figs. 2A, 3; see		
	claim 22).		
the hinge	Quedens discloses that "[d]amping apparatus frictionally inhibits		
resisting	unattended movement of the monitor." (Ex. 1003, Abstract). "In		
movement	accordance with another specific feature, damping apparatus is		
in response	interposed between interconnected portions of arms to frictionally		
to force	inhibit unintended monitor movement between deliberate operator		
required to	adjustments. Once the operator positions the monitor, the friction		
actuate the	damping means causes it to remain stationary until moved again		
at least one by operator intervention. No positive locks are needed. The			
button but	damping torque is adjustable." (<i>Id.</i> at 3:12-19). Quedens teaches		
permitting	that "[t]he monitor can easily be manually adjusted by the		
movement	operator, and, once the operator has desirably positioned the		
in response	monitor, the friction damping structure will maintain it in that		
to force	position until the operator chooses to intervene and readjust the		
greater monitor position. There is no need for the operator to adjust or se			
than the any locks to secure the monitor in position." (<i>Id.</i> at 7:56-61, <i>see</i>			
torce	<i>id</i> . at 6:37-56).		
required to			
actuate the	Crompton discloses that "[1]n order to provide for varying operator		
at least one	requirements and suitable glare resistance, touch displays must be		

rotated up and down within a certain range. This tilt adjustment button. helps compensate for operator height variations and ambient glare on the glass of the display surface. The touch display requires the use of touch for operator input so the tablet must withstand a touch force without moving." (Ex. 1004, 1:22-28). "[I]n the preferred embodiment the tilt adjustment mechanism must withstand a 5 lb touch force without moving in the downward direction." (Id. at 4:18-21). "A relatively high force is desired to move the upper housing in a downward direction. This prevents the operator's touches on the touch screen display or display tablet, mounted to the upper assembly as shown in FIG. 9, for data input purposes to cause the tilt adjustment mechanism and thus the touch display to move in the downward direction. A force of approximately 5 lbs should be necessary to cause the display to move in the downward direction." (Id. at 4:60-67). Rude teaches that in "some applications . . . it is desirable that a hinge have a certain amount of resistance to movement," such as a "[s]creens on portable computers" (Ex. 1005, 1:8-17). Rude is directed to an "improved friction hinge" as "a means for mounting and rotatably positioning computer screens or other objects" with a certain amount of resistance. (Id. at 1:41-51). The friction hinge will provide sufficient "friction needed to maintain the angular opening of a hinge" yet have "controllable friction in a hinge without lost motion when changing directions." (Id.). Lowry teaches that "[t]he present invention relates generally to a hinge assembly [30a] for rotatably coupling a first member to a second member and, more particularly, to a hinge assembly having a friction element [32a] which controls the angular position of the first member with respect to the second member." (Ex. 1006, 1:5-10). Lowry acknowledges that "[a] common application of such a hinge would be in [a] laptop, notebook, and palmtop computers to allow a user to position the liquid crystal display screen. In a notebook computer, for example, the hinge housing [30a] is normally structurally fastened to the base of the computer and the shaft [(pintle 44a)] is connected to the screen of the computer. When the screen is rotated, it is held in any angular position by the torque generated between the friction elements [(fiction element

32a)] in the hinge [32a] and the shaft [(pintle 44a)]." (Id. at 1: 15-

23, 4:57-5:19).				
34. The patient-	Quedens discloses that "[t]he pivotal motion of	the first and		
support	second arms 10, 12 about vertical axes 16, 18 defines a			
apparatus of	horizontal plane in which the monitor M can be moved. The			
claim 32,	journaling structure 22 adds a degree of rotative	freedom of		
wherein the user	the monitor about a horizontal axis [element 21]	such that the		
interface panel	monitor screen may be tilted upwardly or down	wardly as		
pivots about	desired. An operator can effect the described mo	onitor motion		
perpendicular	by simply positioning the monitor M manually.	' (Ex. 1003,		
axes.	at 4:52-66). Figure 1A illustrates that the user in	nterface can		
	pivot about the vertical axes 16, 18, and the hori	zontal axis		
	21, where the vertical and horizontal axes are pe	rpendicular		
	to one another. (Id. at Fig. 1A; see claim 22).	1		
35. A patient-supp	port apparatus comprising	See claim 1.		
a base,		See claim 1.		
a patient support c	arried above the base,	See claim 1.		
a support arm	Storti discloses that the "control and display mo	dule 16 is		
mounted for	mounted by means of a vertically disposed post	22 which is		
movement on	attached at its lower end to base 10 and has the o	control and		
the patient	display module attached to its upper end. In the	preferred		
support,	embodiment of the invention, control and displa	y module 16		
	is mounted for pivotal movement about a vertical axis."			
	(Ex. 1007, 3:3-9).			
	Quedens discloses that "[t]he monitor M is mov	ably and		
	supportively coupled to a base or frame portion	of the		
	console C by means of an articulated support str	ucture A.		
	See FIGS. 1, 1A, 2, 2A and 3." (Ex. 1003, 4:34	-37). As		
	shown in Figure 2A, "[t]he articulated arm struc	ture A		
	includes a first arm 10, and a second arm 12. The	ne first arm		
	10 is pivotally coupled to a base or frame portio	n of the		
	console C by a pivot assembly 11 for rotation at	out a first		
	vertical axis 16. The second arm 12 is pivotally	coupled to		
	the outer end of the first arm 10 by a pivot asser	nbly 13 for		
	rotation about a second vertical axis 18, which is	s movable		
	and displaced from the first axis 16. The second	l arm 12 is		
	generally L-shaped in configuration. Its upstand	ling leg		
	portion 20 is coupled by means of journaling str	ucture 22 to		
	one side of the television monitor M. The secon	d arm 12		

and journaling structure 22 support the monitor M for tilting motion about a substantially horizontal axis of rotation 21." (Id. at 4:45-58). As shown in Figure 3, "[t]he pivotal motion of the first and second arms 10, 12 about vertical axes 16, 18 defines a horizontal plane in which the monitor M can be moved. The journaling structure 22 adds a degree of rotative freedom of the monitor about a horizontal axis such that the monitor screen may be tilted upwardly or downwardly as desired. An operator can effect the described monitor motion by simply positioning the monitor M manually." (Id. at 4:52-66, Figs. 1, 2A, 3). FIG. 24 (Ex. 1003, Figs. 1, 2A) a controller configured to control at least one function on the See claim 32. patient support, and a user interface panel including a display and at least one button See claim 17. configured to provide an input signal to the controller, Quedens discloses that as shown in Figure 3, "[t]he pivotal the user motion of the first and second arms 10, 12 about vertical axes 16, interface 18 defines a horizontal plane in which the monitor M can be moved. The journaling structure 22 adds a degree of rotative coupled to freedom of the monitor about a horizontal axis such that the the support arm, the monitor screen may be tilted upwardly or downwardly as support arm desired. An operator can effect the described monitor motion by including a simply positioning the monitor M manually." (Ex. 1003, 4:52-66). Quedens further discloses that "[d]amping apparatus resistive

hinge	frictionally inhibits unattended movement of the monitor." (Id.
coupled to	at Abstract). "In accordance with another specific feature,
the user	damping apparatus is interposed between interconnected portions
interface	of arms to frictionally inhibit unintended monitor movement
panel, the	between deliberate operator adjustments. Once the operator
hinge	positions the monitor, the friction damping means causes it to
configured	remain stationary until moved again by operator intervention.
to resists	No positive locks are needed. The damping torque is
movement in	adjustable." (Id. at 3:12-19). Quedens teaches that "[t]he

panel

response to	monitor can easily be manually adjusted by the operator, and
force	once the operator has desirably positioned the monitor the
required to	friction damping structure will maintain it in that position until
actuate the at	the operator chooses to intervene and readjust the monitor
least one	nosition. There is no need for the operator to adjust or set any
button but	locks to secure the monitor in position " (Id at 7:56-61 see id
nermit	(10. at 7.50 or, see u.c)
movement in	at 0.57-50).
response to	Crompton discloses that "film order to provide for varying
force greater	crompton discloses that [1] order to provide for varying
then the	displays must be retated up and down within a cortain range
force	This fill adjustment helps compensate for operator height
ioice	unistic adjustment nerps compensate for operator nergin
required to	The taugh display requires the use of taugh for exercise input so
actuate the at	the toket must withstand a tokeh fares with out maxing "
least one	the tablet must withstand a touch force without moving. (Ex. $1004, 122, 28$) "[[] the surface of an here the tilt
button.	1004, 1.22-28). [1]If the preferred embodiment the th
	adjustment mechanism must withstand a 5 lb touch force without
	moving in the downward direction. (<i>Ia</i> . at 4.18-21). A
	relatively high force is desired to move the upper housing in a
	downward direction. This prevents the operator's touches on the
	touch screen display or display tablet, mounted to the upper
	assembly as shown in FIG. 9, for data input purposes to cause the
	tilt adjustment mechanism and thus the touch display to move in
	the downward direction. A force of approximately 5 lbs should
	be necessary to cause the display to move in the downward
	direction." (<i>Id.</i> at 4:60-67).
	Deads to show that in "some emplications it is desirable that a
	Rude teaches that in some applications It is desirable that a
	ninge nave a certain amount of resistance to movement, such as
	a [s]creens on portable computers (Ex. 1005, 1:8-17).
	Rude is directed to an "improved friction hinge" as "a means for
	mounting and rotatably positioning computer screens or other
	objects" with a certain amount of resistance. (<i>Id.</i> at 1:41-51).
	The friction hinge will provide sufficient "friction needed to
	maintain the angular opening of a hinge" yet have "controllable
	friction in a hinge without lost motion when changing
	directions." (Id.).
	Lowry teaches that "[t]he present invention relates generally to a
	hinge assembly [30a] for rotatably coupling a first member to a

	second member and, more particularly, to a hinge assembly				
	having a friction element [32a] which controls the angular				
	position of the first member with respect to the second member."				
	(Ex. 1006, 1:5-10). Lowry acknowledges that "[a] common				
	application of such a hinge would be in [a] laptop, notebook, and				
	palmtop computers to allow a user to position the liquid crystal				
	display screen. In a notebook computer, for example, the hinge				
	housing [30a] is normally structurally fastened to the base of the				
	computer and the shaft [(pintle 44a)] is connected to the screen				
	of	the computer. W	Then the screen is rotated, it is h	neld in any	
	ang	gular position by	the torque generated between t	the friction	
	ele	ments [(fiction el	lement 32a)] in the hinge [32a]	and the shaft	
	[(p	intle 44a)]." (Id.	at 1:15-23, 4:57-5:19).		
38. The patien	nt-	Quedens disclos	ses that, as shown in Figures 24	A and 3, "[t]he	
support		pivotal motion of	of the first and second arms 10	, 12 about	
apparatus of		vertical axes 16	, 18 defines a horizontal plane	in which the	
claim 35 when	rein	monitor M can be moved. The journaling structure 22 adds a			
the user interf	ace	e degree of rotative freedom of the monitor about a horizontal			
panel is suppo	ort	axis such that the monitor screen may be tilted upwardly or			
for movement	-	downwardly as desired. An operator can effect the described			
about more the	an	monitor motion by simply positioning the monitor M			
one axis. manually." (Ex		manually." (Ex	1003, 4:52-66, Figs. 2A, 3; se	ee claim 22).	
39. The patient-support apparatus		pport apparatus	Figure 1A of Quedens illustra	ates that the	
of claim 38 w	here	in the user	user interface can pivot about	the vertical	
interface panel is supported for		supported for	axes 16, 18, and the horizontal axis 21,		
movement about perpendicular		erpendicular	where the vertical and horizontal axes are		
axes.			perpendicular to one another. (Ex. 1003,		
Fig. 1A; see claim 34).			1		
40. A patient-support apparatus cor		ort apparatus cor	mprising	See claim 1.	
a base,				See claim 1.	
a patient supp	ort c	arried above the	base,	See claim 1.	
an isolation chamber on the patient			support	See claim 1.	
a support arm mounted for movemen			ent on the patient support,	See claim 35.	
a controller configured to control at least one function in the See claim 17.				See claim 17.	
isolation chamber, and					
a user interface panel including a display and at least one button See claim 17.					
configured to provide an input signal to the controller,					
the user	Quedens discloses that as shown in Figure 3, "[t]he pivotal motion				
interface	of the first and second arms 10, 12 about vertical axes 16, 18				

panel	defines a horizontal plane in which the monitor M can be moved.
coupled to	The journaling structure 22 adds a degree of rotative freedom of
the support	the monitor about a horizontal axis such that the monitor screen
arm, the	may be tilted upwardly or downwardly as desired. An operator
support	can effect the described monitor motion by simply positioning the
arm	monitor M manually." (Ex. 1003, 4:52-66). Quedens further
configured	discloses that "[d]amping apparatus frictionally inhibits
to hold the	unattended movement of the monitor." (Id. at Abstract). "In
user	accordance with another specific feature, damping apparatus is
interface	interposed between interconnected portions of arms to frictionally
panel	inhibit unintended monitor movement between deliberate operator
stationary	adjustments. Once the operator positions the monitor, the friction
in response	damping means causes it to remain stationary until moved again
to in	by operator intervention. No positive locks are needed. The
response to	damping torque is adjustable." (<i>Id.</i> at 3:12-19). Quedens teaches
force	that "[t]he monitor can easily be manually adjusted by the
required to	operator, and, once the operator has desirably positioned the
actuate the	monitor, the friction damping structure will maintain it in that
at least one	position until the operator chooses to intervene and readjust the
button but	monitor position. There is no need for the operator to adjust or set
permit	any locks to secure the monitor in position." (Id. at 7:56-61, see
movement	<i>id.</i> at 6:37-56).
in response	
to force	Crompton discloses that "[i]n order to provide for varying operator
greater	requirements and suitable glare resistance, touch displays must be
than the	rotated up and down within a certain range. This tilt adjustment
force	helps compensate for operator height variations and ambient glare
required to	on the glass of the display surface. The touch display requires the
actuate the	use of touch for operator input so the tablet must withstand a touch
at least one	force without moving." (Ex. 1004, 1:22-28). "[I]n the preferred
button.	embodiment the tilt adjustment mechanism must withstand a 5 lb
	touch force without moving in the downward direction." (Id. at
	4:18-21). "A relatively high force is desired to move the upper
	housing in a downward direction. This prevents the operator's
	touches on the touch screen display or display tablet, mounted to
	the upper assembly as shown in FIG. 9, for data input purposes to
	cause the tilt adjustment mechanism and thus the touch display to
	move in the downward direction. A force of approximately 5 lbs
	should be necessary to cause the display to move in the downward
	direction." (<i>Id.</i> at 4:60-67).

	Rude hing "[s]c is din moun objec fricti the a hing	e teaches that in "some applications it is des e have a certain amount of resistance to movem reens on portable computers" (Ex. 1005, 1) rected to an "improved friction hinge" as "a mean nting and rotatably positioning computer screen ets" with a certain amount of resistance. (<i>Id.</i> at on hinge will provide sufficient "friction neede ngular opening of a hinge" yet have "controllable e without lost motion when changing directions	irable that a ent," such as a 1:8-17). Rude ans for as or other 1:41-51). The d to maintain ble friction in a ." (<i>Id</i> .).	
	Lowry teaches that "[t]he present invention relates generally to a hinge assembly [30a] for rotatably coupling a first member to a second member and, more particularly, to a hinge assembly having a friction element [32a] which controls the angular position of the first member with respect to the second member." (Ex. 1006, 1:5- 10). Lowry acknowledges that "[a] common application of such a hinge would be in [a] laptop, notebook, and palmtop computers to allow a user to position the liquid crystal display screen. In a notebook computer, for example, the hinge housing [30a] is normally structurally fastened to the base of the computer and the shaft [(pintle 44a)] is connected to the screen of the computer. When the screen is rotated, it is held in any angular position by the torque generated between the friction elements [(fiction element 32a)] in the hinge [32a] and the shaft [(pintle 44a)]." (Id at 1:15			
45. The patie	ent-su	pport apparatus of claim 40 wherein the user	See claim 38.	
interface pan	el is s	supported for movement about more than one		
axis.				
46. The patie	ent-	Quedens discloses that "[t]he pivotal motion o	f the first and	
support		second arms 10, 12 about vertical axes 16, 18	defines a	
apparatus of		norizontal plane in which the monitor M can b	e moved. The	
claim 45 wherein		journaling structure 22 adds a degree of rotative freedom of		
the user interface		the monitor about a horizontal axis [element 21] such that the		
panel is pivotally		y monitor screen may be tilted upwardly or downwardly as		
supported for		desired. An operator can effect the described monitor		
movement about		motion by simply positioning the monitor M manually."		
perpendicular		(Ex. 1003, at 4:52-66). Figure IA illustrates that the user		
axes.		interface can pivot about the vertical axes 16, 18, and the		

horizontal axis 21, where the vertical and horizontal axes are
perpendicular to one another. (Id. at Fig. 1A; see claim 34).

H. SECONDARY CONSIDERATIONS

Petitioner reserves the right to address any secondary considerations that Patent Owner may assert. Petitioner is currently unaware of any secondary considerations having a nexus to the claims of the 402 patent that may overcome the showing of obviousness. Petitioner is also unaware of any long-felt, but unsatisfied need for the alleged invention of the 402 patent.

VI. CONCLUSION

Based on the above, there is a reasonable likelihood that Petitioner will prevail in its challenge of patentability for at least one of claims 1, 2, 5, 7, 8, 15, 17, 22, 32, 34, 35, 38, 39, 40, 45, and 46 of the 402 patent. For the reasons set forth in this Petition, it is respectfully requested that the Petition for *Inter Partes* Review of the 402 patent be granted.

Dated: December 23, 2013

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing PETITION FOR *INTER*

PARTES REVIEW OF U.S. PATENT NO. 6,345,402 and supporting materials

(Exhibit List, Exhibits 1001-1008, and Power of Attorney) have been served in its

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