

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LUMI LEGEND CORPORATION,
PETITIONER,
V.

MANEHU PRODUCT ALLIANCE, LLC,
PATENT OWNER.

Case No. PGR2024-00014

U.S. Patent No. 11,781,703

**DECLARATION OF KIRSTEN CARR, PH.D.
IN SUPPORT OF PATENT OWNER'S
PRELIMINARY RESPONSE**

TABLE OF CONTENTS

I.	BACKGROUND AND QUALIFICATIONS	1
II.	RELEVANT LEGAL STANDARDS.....	4
	A. Level of Ordinary Skill in the Art and Petitioner’s Proposal.....	4
	B. Claim Construction and Petitioner’s Proposed Constructions	5
	C. Written Description	8
	D. Indefiniteness	8
III.	THE ’703 PATENT	9
	A. Overview.....	9
	B. Challenged Claims.....	10
IV.	DEPENDENT CLAIM 36 SATISFIES THE WRITTEN DESCRIPTION REQUIREMENT	11
V.	CLAIM 36 IS NOT INDEFINITE	22
VI.	ADDITIONAL OPINIONS	23
	A. U.S. Patent Pub. No. US 2008/0237424 to Clary (“Clary”)	23
	B. Clary and Japanese Patent Publication No. 2009-14047A to Tsuji	26
	C. U.S. Patent Pub. No. US 2012/0033371 to Pankros (“Pankros”)	30

I, Kirsten Carr, hereby declare:

I. BACKGROUND AND QUALIFICATIONS

1. I have been retained by counsel for Patent Owner Manehu Product Alliance, LLC, d/b/a MantelMount as a technical expert to provide my opinions and views on certain issues in relation to the Petition for Post Grant Review of claims 33-36 of U.S. Patent No. 11,781,703 (“the ’703 Patent”; Ex. 1001) submitted by Lumi Legend Corporation (“Petitioner”).

2. A copy of my current curriculum vitae is submitted herewith as Ex. 2005, which provides details about my academic and professional background and qualifications.

3. I am being compensated for my services at my standard consulting rate and am being reimbursed for reasonable expenses that I may incur while working on this matter. I have no financial interest in the outcome of this matter or any other matter that may exist between Petitioner and Patent Owner. My compensation does not depend in any way on the conclusions I reach or the outcome of this matter.

4. I received my B.S. degree in Mechanical Engineering from the University of Michigan, Ann Arbor, in 1987 and my M.S. and Ph.D. in Mechanical Engineering from the University of Illinois, Urbana, in 1990 and 1995, respectively.

5. I worked as a mechanical engineer at Ford Motor Company for over 14 years from 1992 to 2006. I held a variety of engineering and managerial positions

spanning many areas of automotive development, including manufacturing research, powertrain quality, occupant safety research, and advance safety sensors. During my time at Ford, I integrated programmable dampers into the driver seat and into the seat belt retractor to dissipate energy based on impact event characteristics, such as severity and occupant weight. I also integrated occupant classification sensors into the seat system to control the front passenger airbag deployment.

6. I joined Packer Engineering in 2006 as an expert in mechanical and manufacturing engineering with expertise in forensic analysis of mechanical components, vehicular accidents, industrial equipment, vehicle safety restraint and seat systems, and electromechanical systems. I was responsible for managing and performing mechanical and manufacturing engineering investigations and analyses for legal, insurance, and industrial firms.

7. I created Carr Analysis, LLC in 2011, where I am the President and Principal Consultant and continue my consulting work.

8. I have been awarded ten automotive patents, including Programmable Seat Back Damper Assembly for Seats (U.S. Patent Nos. 6,601,915 and 6,312,049), Programmable Seat Belt Damper Assembly (U.S. Patent No. 6,705,559), Seat Belt Restraint System (U.S. Patent No. 6,375,270), and Four Point Seat Belt System (U.S. Patent No. 7,625,048).

9. All of the opinions contained in this declaration are based on the documents I reviewed, and my knowledge and professional judgment gained from 30 years as a mechanical engineer. In forming my opinions expressed in this declaration, I reviewed the materials cited herein, including the '703 Patent (Ex. 1001) and its accompanying prosecution history, the Petition and the declaration of Petitioner's expert John D. Pratt (Ex. 1003), U.S. Patent Pub. No. 2008/0237424 to Clary ("Clary," Ex. 1004), U.S. Patent Pub. No. 2012/0033371 to Pankros et al. ("Pankros," Ex. 1006), and Japanese Patent Publication No. 2009-14047A to Tsuji (Ex. 1016) and its translation (Ex. 1015).

10. I have been engaged in this matter to provide my independent analysis on certain of the issues raised in the Petition, including with respect to whether the '703 Patent discloses certain challenged claim limitations with respect to written description and indefiniteness issues raised by the Petition and regarding the disclosure of certain prior art discussed herein. At this time, I have not been asked to evaluate or render any opinions with respect to whether any of the challenged claims are valid over the prior art.

11. I understand that this Declaration is being provided as part of a preliminary response to the Petition and as such it does not necessarily reflect all the opinions that I may later develop regarding this matter if the Petition is instituted, including whether the challenged claims are valid over the cited prior art. I reserve

the right to further develop my opinions in the event that additional relevant information becomes known by me.

II. RELEVANT LEGAL STANDARDS

12. I am not an attorney and offer no legal opinions, but in the course of my work, I have had experience studying and analyzing patents and patent claims from the perspective of a person skilled in the art.

13. In expressing my opinions and considering the subject matter of the claims of the '703 Patent, I am relying upon certain basic legal principles that have been explained to me as set forth below.

A. Level of Ordinary Skill in the Art and Petitioner's Proposal

14. I understand that patents and prior art references are analyzed from the point of view of a person of ordinary skill in the art ("POSITA") at the time of the invention of, in this case, the '703 Patent.

15. I understand that "the time the claimed invention was made" is often referred to as the priority or critical date.

16. Petitioner argues that the priority date of the '703 Patent is April 17, 2017 (Petition at 14), which I have been instructed to adopt as the relevant priority date for the purposes of the POSITA in this declaration. I have not been asked to and have not performed an independent analysis of the priority date of the '703 Patent and reserve the right to do so in the event the Petition is instituted.

17. I have also been instructed to assume the definition of the POSITA proposed by the Petitioner in the Petition. To this end, the Petitioner has proposed the level of a person of ordinary skill in the art to be one who has at least a bachelor's degree in mechanical engineering, electrical engineering, or similar technical degree and at least 2 years of experience in the field of mechanical design or relevant product design experience. Petition at 27. I have not been asked to opine on the level of skill in the art and have not done so, but I reserve the right to do so should the Petition be instituted.

18. My experience far exceeds that of the proposed POSITA, but I am able to understand how that POSITA would view the '703 Patent, its prosecution history and the asserted prior art in this case and have applied that definition when rendering my opinions in this declaration.

B. Claim Construction and Petitioner's Proposed Constructions

19. I understand that the claims of the '703 patent are to be read from the perspective of the POSITA discussed above. I understand that the words of a claim are generally given their ordinary and customary meaning as understood by the POSITA in light of the '703 Patent specification, as well as its prosecution history.

20. Petitioner has proposed a construction for the term "wherein at least a portion of the motorized actuator assembly moves toward and past a portion of the

lower arm when the arm assembly moves toward the raised configuration,” which appears on claim 33. Specifically, Petitioner proposes:

Thus, the “moves toward and past” language of this limitation must include relative movement of the lower arm and actuator assembly in which the lower arm moves toward and past at least a portion of the motorized actuator assembly, even if the actuator assembly is moving in a direction away from the lower arm, as illustrated in Figures 41–48. *Id.* A POSITA would have understood that the claimed movement is not limited to movement of the portion of the actuator assembly in a forward/downward direction toward the first arm, but rather it includes movement of the lower arm toward the actuator assembly which causes these parts to get closer and pass one another. *Id.* Thus, this limitation should be construed as including systems wherein at least a portion of the motorized actuator assembly gets closer to and past a portion of the lower arm when the arm assembly moves toward the raised configuration.

Petition at 29-30.

21. Petitioner has also proposed a construction for the term “wherein the portion of the motorized actuator assembly moves away from and is vertically spaced apart from the lower arm when the arm assembly is in the lowered configuration,” recited in dependent claim 34. Specifically, Petitioner proposes:

Thus, the “moves away from” language of this limitation must include relative movement of the lower arm and actuator assembly in which the lower arm gets further away from at least a portion of the motorized actuator assembly, as illustrated in Figures 41–48. *Id.* The claimed movement is not limited to movement of the portion of the actuator assembly in an upward direction away from

the lower arm, but rather it includes movement of the lower arm away from the actuator assembly which causes relative movement between these parts, causing the portion of the actuator assembly to get further away from the lower arm, as illustrated in the figures.

Thus, this limitation should be construed to include systems wherein the portion of the motorized actuator assembly gets further away from (or is further away from) and is vertically spaced apart from the lower arm when the arm assembly is in the lowered configuration.

Id. at 29-30.

22. Petitioner also indicates that its analysis does not turn on its proposed constructions because it contends that the claims are invalid “under any reasonable construction” of these terms (*id.* at 31 and 34).

23. I understand that Petitioner has not provided any other proposed constructions and therefore relies on the plain and ordinary meaning of all other terms in its Petition.

24. As such, I have been instructed to adopt Petitioner’s construction of these terms for the purposes of my analysis in this Declaration and to assume the remaining relevant claim terms have their plain and ordinary meaning as understood by a POSITA in light of the ’703 patent specification and its prosecution history.

25. I have not been asked to consider whether Petitioner’s constructions are correct or whether those terms or any other terms should be construed or have any

other meaning than their plain and ordinary meaning. I reserve the right to do so should the Petition be instituted.

C. Written Description

26. I have been informed that to satisfy the written description requirement for a patent, the patent specification must indicate to a person of ordinary skill in the art that the inventor possessed the subject matter of the invention at the time of the claimed priority date.

27. I am further informed that the test for “possession” requires an objective inquiry into what is actually described within the four corners of the patent specification from the perspective of a person of ordinary skill in the art. Written description can be supported based on the words, structures, figures, diagrams, formulas, etc., in the specification that fully set forth the claimed invention. I further understand that the figures alone can satisfy the written description requirement.

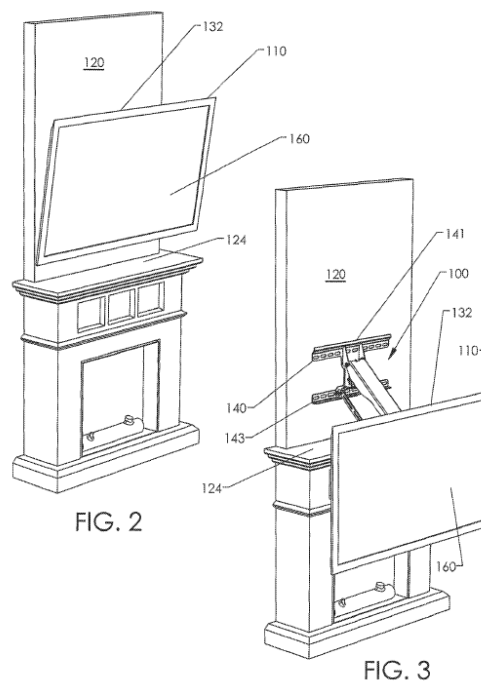
D. Indefiniteness

28. I have been informed that claims should inform those skilled in the art about the scope of the invention with reasonable certainty, when viewed in light of the specification and prosecution history. If a claim fails to do so, I understand that it is invalid for indefiniteness.

III. THE '703 PATENT

A. Overview

29. The '703 Patent is entitled “Adjustable Mounting Systems for Televisions.” Ex. 1001. The '703 Patent generally discloses television mounting systems that can move televisions between a raised position and a lowered position. For example, Figure 2 of the '703 Patent “shows the television 110 in a raised, stowed position and very close to the wall 120,” and Figure 3 shows “television 110 can swing downwardly and, if desired, can be positioned in front of the fireplace [such that a] viewer's eyes can be generally level with the center of the screen 160”:



Id. Figs. 2, 3; *see also, e.g., id.* at 6:51-719.

30. I discuss other aspects of the '703 Patent's disclosure in my analysis below.

B. Challenged Claims

31. The '703 Patent has 36 claims. I understand that the Petitioner has challenged the validity of dependent claim 36 on the basis of written description and indefiniteness. Dependent claim 36 depends from dependent claim 35, which depends from independent claim 33. I have reproduced these claims below:

33. A television mounting system comprising:

a support bracket configured to couple to a wall;

a display bracket configured to hold a television;

an arm assembly pivotally coupled to the support bracket and movable between a raised configuration to position the display bracket at a raised position and a lowered configuration to position the display bracket at a lowered position, wherein the arm assembly includes an upper arm and a lower arm; and

a motorized actuator assembly having a support bracket end rotatably coupled to the support bracket and a display bracket end rotatably coupled to the arm assembly, wherein at least a portion of the motorized actuator assembly moves toward and past a portion of the lower arm when the arm assembly moves toward the raised configuration.

35. The television mounting system of claim 33, wherein the lower arm extends between a first axis of rotation and a second axis of rotation, wherein the portion of the motorized actuator assembly is positioned forward of the first axis of rotation and the second axis of rotation when the arm assembly is at the raised configuration.

36. The television mounting system of claim 35, wherein the first axis of rotation and the second axis of rotation are spaced apart from and located below an extendable actuator of the motorized actuator assembly when the arm assembly is in the lowered configuration.

IV. DEPENDENT CLAIM 36 SATISFIES THE WRITTEN DESCRIPTION REQUIREMENT

32. I understand that Petitioner contends that the limitation “wherein the first axis of rotation and the second axis of rotation are spaced apart from and located **below an extendable actuator** of the motorized actuator assembly when the arm assembly is in the lowered configuration,” of dependent claim 36 lacks written description. Petition at 50 (emphasis in Petition). In particular, Petitioner argues:

The post-CIP applications and the '703 patent specification itself also fail to provide written description for the “below an extendable actuator” feature. EX1003 ¶ 96. The specification for these applications does not mention or describe an “extendable actuator,” much less an extendable actuator that is part of a motorized actuator assembly. *Id.* Not only do the post-CIP specifications fail to explain what the extendable actuator is, but they fail to describe any mounting system embodiment in which the first and second axes could be spaced apart from and located **below an extendable actuator** in the lowered configuration. *Id.*

Petition at 52 (emphasis in Petition).

33. I have been asked to evaluate whether a POSITA would have recognized that the inventor had possession of this limitation based only on the four

corners of the '703 Patent specification. My understanding of the written description requirement is set forth above in my overview of the relevant legal standards.

34. Based on my analysis of the '703 Patent specification, I conclude that the inventor did indeed have possession of the limitation, “wherein the first axis of rotation and the second axis of rotation are spaced apart from and located **below an extendable actuator** of the motorized actuator assembly when the arm assembly is in the lowered configuration,” for the reasons discussed below.

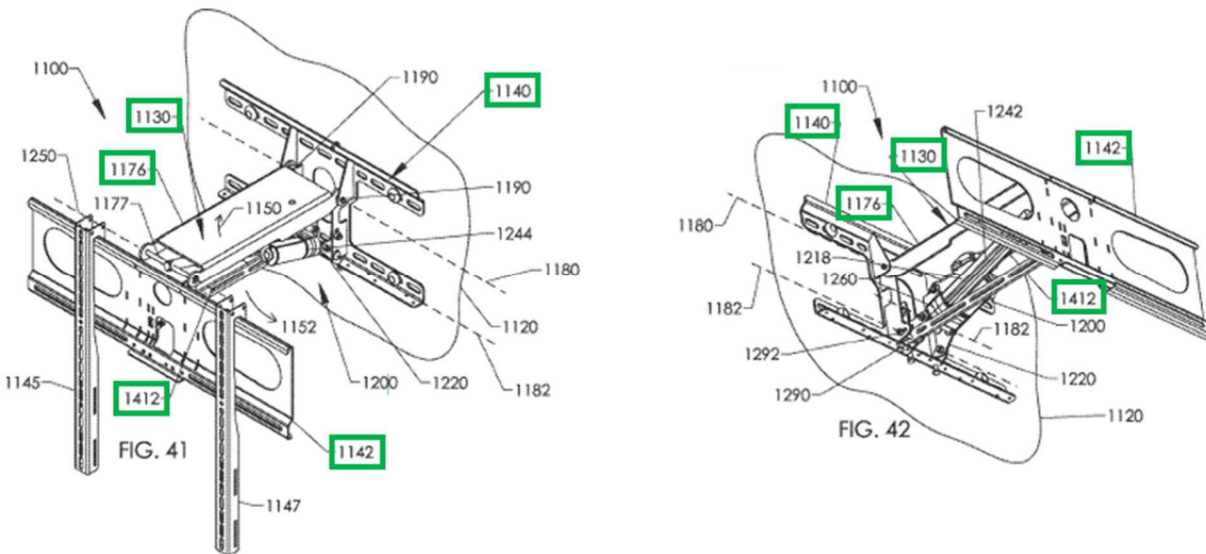
35. Dependent claim 36 depends from dependent claim 35, which depends from independent claim 33. The '703 patent discloses a television mounting system with an “arm assembly” having an “upper arm and lower arm,” a “support bracket” and a “display bracket.” For example, with respect to Figures 41 and 42, the '703 patent discloses a mounting system with an arm assembly, referred to in the patent as linkage assembly 1130, support bracket 1140 (for mounting on a wall), and display bracket 1142:

FIGS. 41 and 42 show a mounting system in the form of a wall mount 1100 (“wall mount 1100”) that includes a linkage assembly 1130, a support bracket 1140, and a display bracket 1142 with electronic display holders or brackets 1145, 1147 (shown removed in FIG. 42). The linkage assembly 1130 is rotatably coupled to the support and display brackets 1140, 1142 and can swing upwardly (indicated by arrow 1150 of FIG. 41) or downwardly (indicated by arrow 1152 of FIG. 41).

Ex. 1001 at 17:23-31. This arm assembly is described as including an upper arm, referred to as upper link 1176, and a lower arm, referred to as lower link 1412:

The linkage assembly 1130 can include a main member or upper link 1176 (“upper link 1176”) and a lower link 1412. The upper link 1176 is rotatable about an upper axis of rotation 1180 defined by support pivots 1190. The lower link 1412 is rotatable about a lower axis of rotation 1182 defined by support pivot 1292 (FIG. 42).

Id. at 17:42-47. These are shown in the patent’s figures, as I’ve illustrated in the annotated figures below:



Id. Figs. 41 and 42 (both annotated).

36. The patent further discloses a motorized actuator, which is actuator assembly 1200 with linear actuator 1218 and motor 1244, for example:

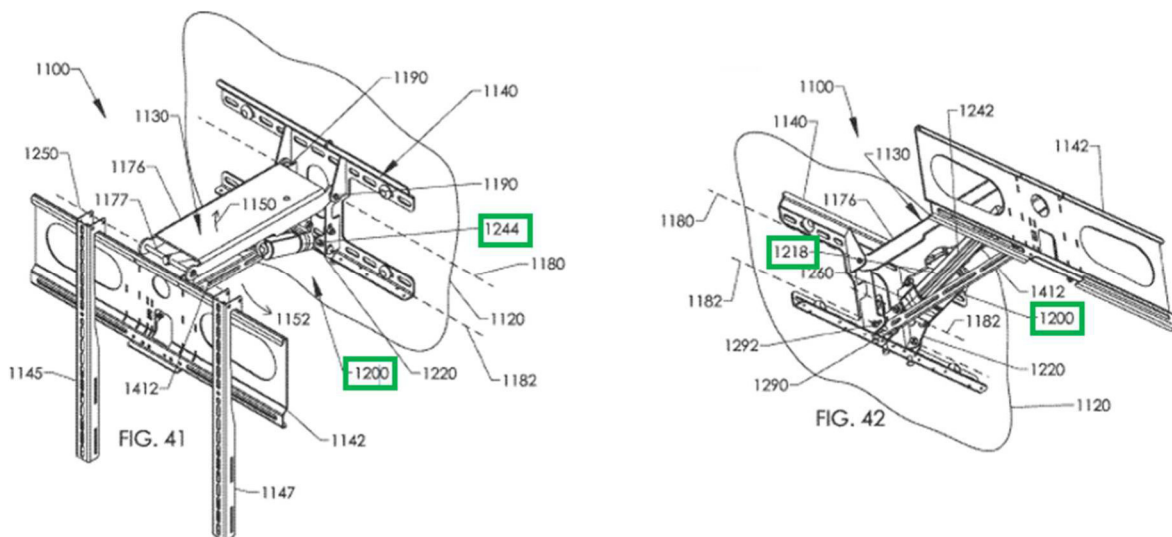
The wall mount 1100 can include an actuator assembly 1200 operable to drive the display bracket 1142 to different positions.

Id. at 17:33-35.

Referring now to FIG. 42, an actuator assembly 1200 can include a linear actuator 1218, motor 1244 (FIG. 41), controller, processing units, combinations thereof, or the like. . . . The motor 1244 (FIG. 41) can include one or more drive motors, stepper motors, or the like that are mounted on the linear actuator 1218, the mounting bracket 1142, or another suitable component.

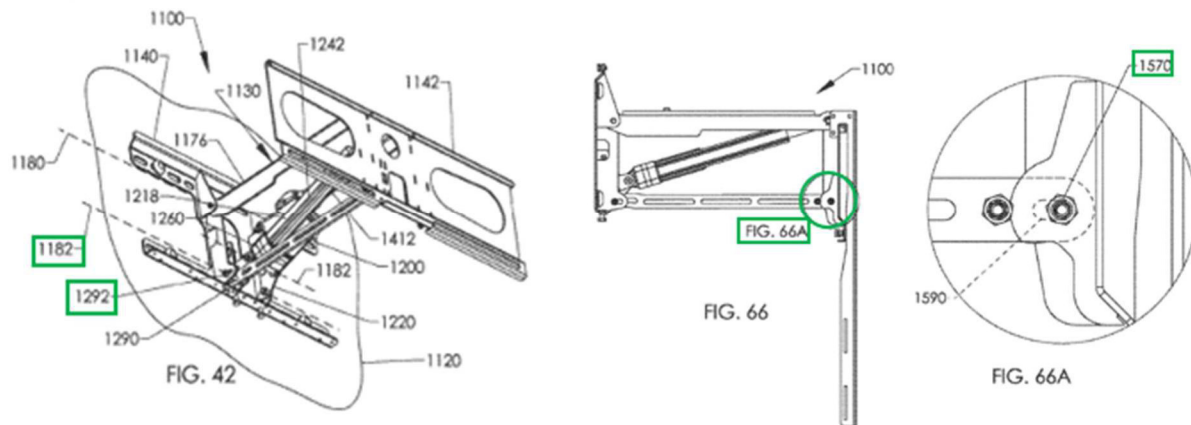
Id. at 17:55-65.

37. I've illustrated in the annotated figures below the assembly 1200 with linear actuator 1218 and motor 1244, which is a motorized actuator:

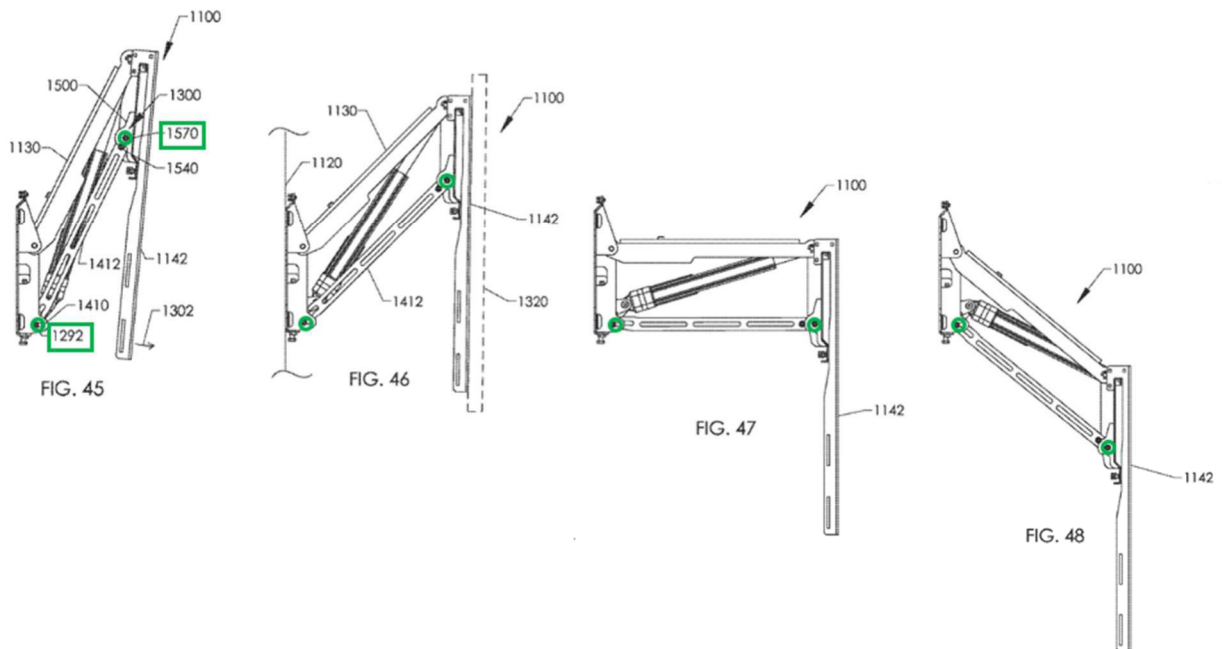


38. According to dependent claim 35 “the lower arm” of the arm assembly “extends between a first axis of rotation and a second axis of rotation.” The ’703 patent discloses that the lower arm may be rotatably coupled to the support bracket

via pivot point 1292, and to the display bracket via pivot point 1570, which I've illustrated in the annotated figures below:

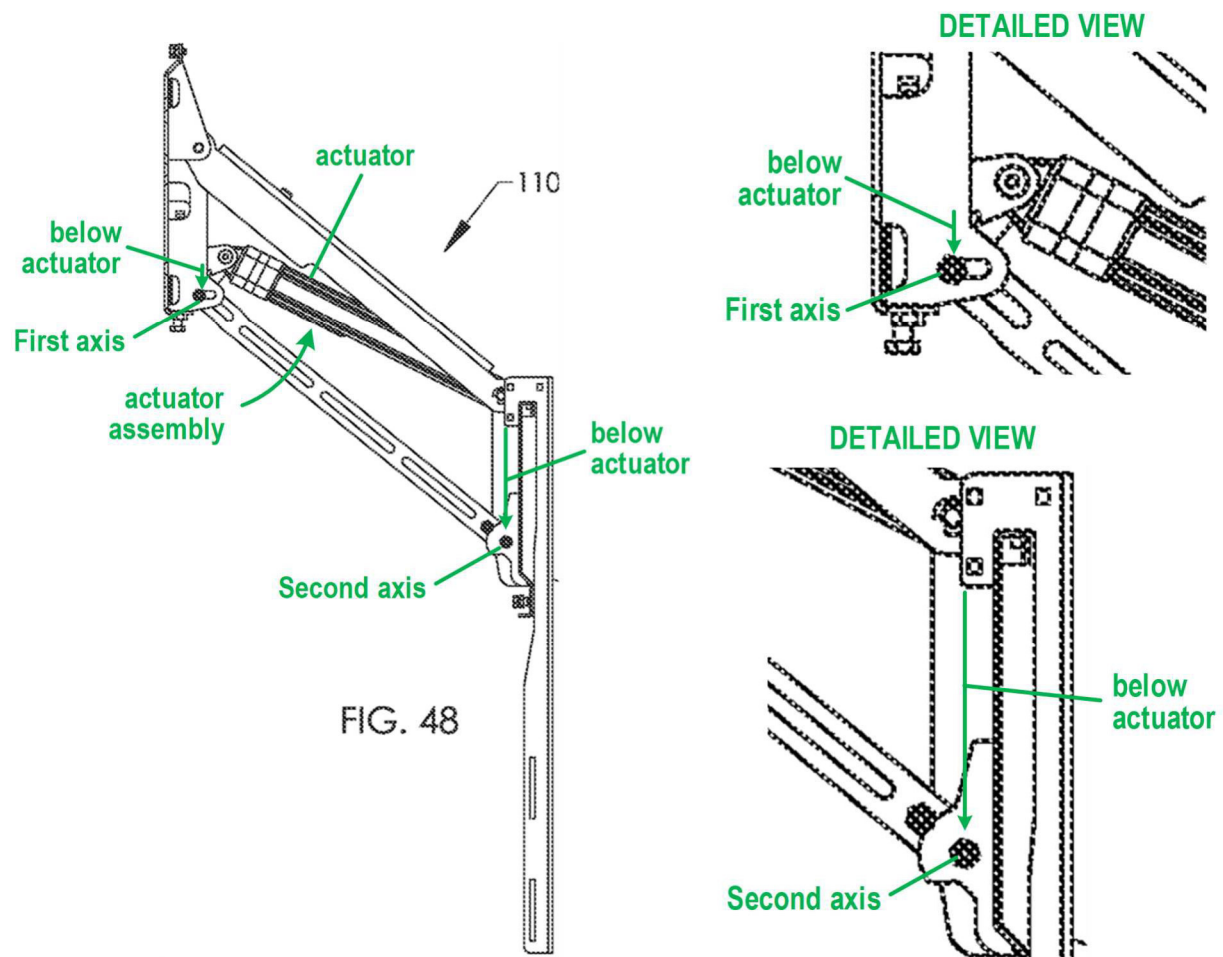


Id. Figs. 42, 66, 66A (all annotated); *see also id.* at 17:45-47 (“The lower link 1412 is rotatable about a lower axis of rotation 1182 defined by support pivot 1292 (FIG. 42).”); *id.* at (“pivot 1570”); *see also id.* Fig. 45 (annotated below). These pivots are also apparent, for example, in Figures 43-48, some of which I have annotated below, which show the mount in different positions from a more raised position to a lowered position:

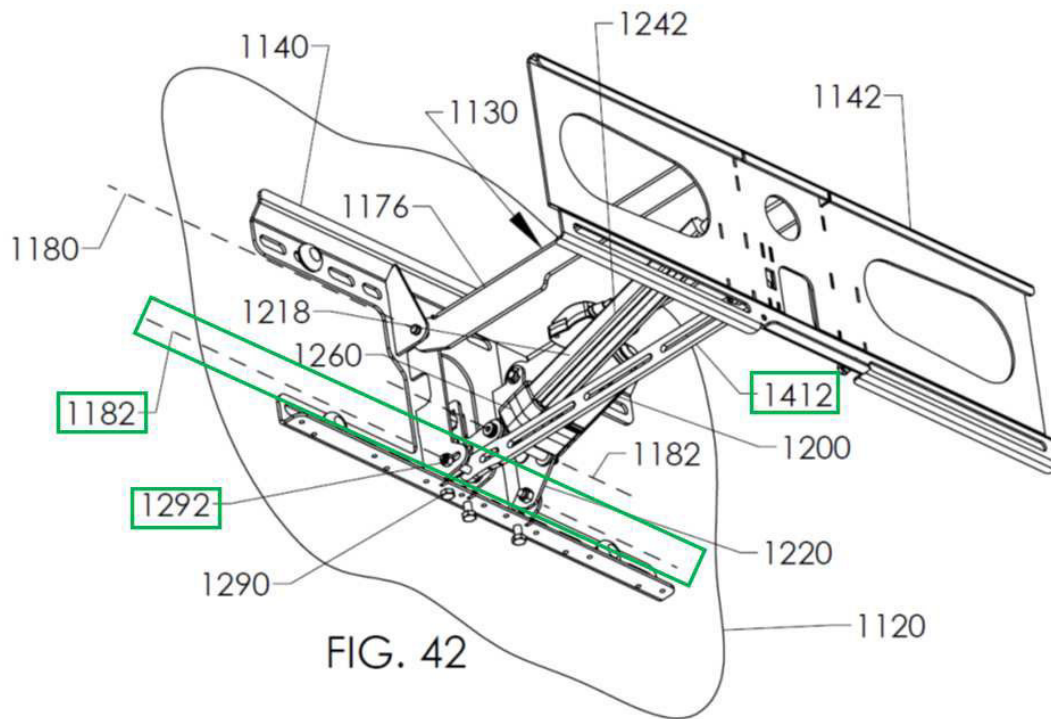


Id. at 45-48 (annotated); *see also id.* Figs. 44-48.

39. Dependent claim 36 recites that the “first axis of rotation and the second axis of rotation are spaced apart from and located below an extendable actuator of the motorized actuator assembly when the arm assembly is in the lowered configuration.” As is apparent from the figures above, the pivot 1292 defining the first axis of rotation of the lower arm (linkage 1412) and the pivot 1570 defining a second axis of rotation of the lower arm (linkage 1412) are spaced apart from and located below the actuator assembly 1200, when the television mount is in the lowered position. This is illustrated below in the annotated figures:

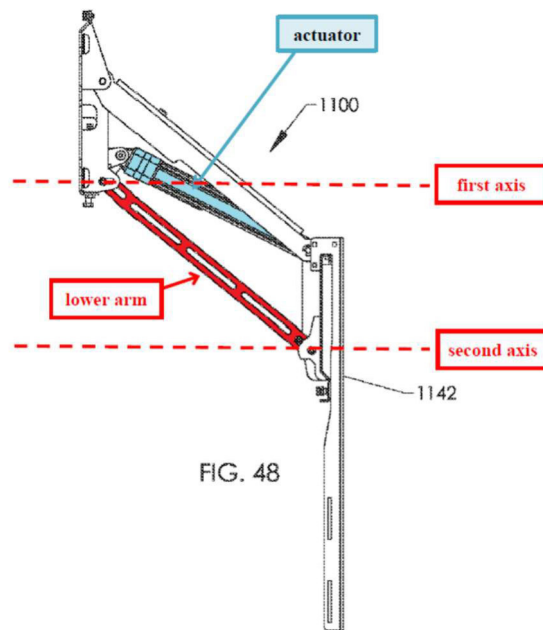


Id. Figs. 48 (annotated and with enlarged detailed views). Figure 42 annotated below is another illustration of the pivot 1292 defining the first axis of rotation, axis of rotation 1182.



Id. Fig. 42 (annotated). As can be seen, it would be apparent to a POSITA that pivots and corresponding axes of rotation are spaced apart from and below the actuator, because gaps exist between the axes of rotation and the actuator and the axes of rotation are below the actuator.

40. In an attempt to support its argument that the axes are not below the actuator (or as the petitioner conversely states it “it is unclear how an extendable actuator (undisclosed) could be spaced apart from and located above the first and second axes of the lower arm”), the Petitioner misleadingly labels Figure 48 as follows:



Petition at 53 (Fig. 48 annotated by Petitioner). This labelling is completely misleading and incorrect because the indicated dotted axes as drawn by the Petitioner are not oriented orthogonal to the plane of the page, which would be the understood orientation of the axes rotation as shown in Figure 42 (shown above). A POSITA would recognize that, when considered correctly as I have set forth above, the axes are set apart from and below the actuator.

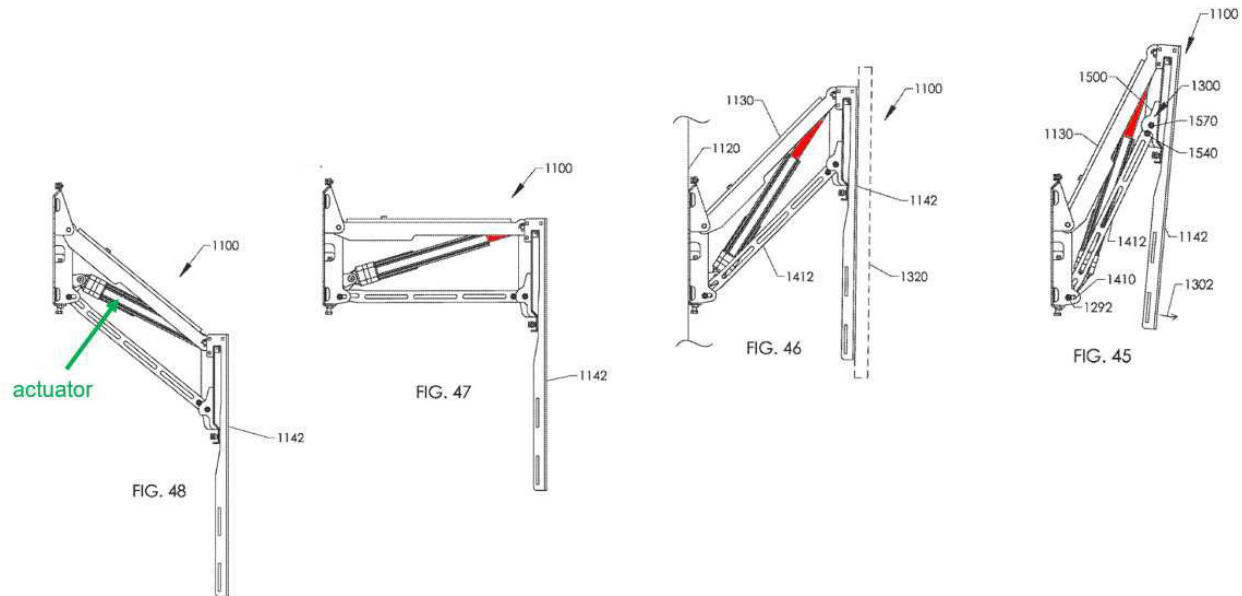
41. Finally, Petitioner contends that the specification for the '703 Patent does not disclose an “an extendable actuator that is part of a motorized actuator assembly.” Petition at 52. As discussed above, the '703 Patent discloses a motorized actuator assembly. For example, the patent describes actuator assembly 1200 as having a linear actuator 1218 and motor 1244:

Referring now to FIG. 42, an actuator assembly 1200 can include a linear actuator 1218, motor 1244 (FIG. 41), controller, processing units, combinations thereof, or the like. The linear actuator 128 can be rotatably coupled to the support bracket 1140 and the display bracket 1142. The motor 1244 (FIG. 41) can include one or more drive motors, stepper motors, or the like that are mounted on the linear actuator 1218, the mounting bracket 1142, or another suitable component. In some embodiments, a controller comprising one or more processing units is carried by the motor 1244. The configuration of components of the actuator assembly 1200 can be selected based on the desired functionality and modes of operation.

Id. at 17:55-65.

42. A POSITA would further recognize that the '703 Patent discloses the actuator assembly 1200 can include a linear actuator 1218 that is extendable. For example, the patent explains that the actuator drives the display bracket into different positions, such as the positions depicted in Figs. 41-48. *Id.* at 17:33-35 (“The wall mount 1100 can include an actuator assembly 1200 operable to drive the display bracket 1142 to different positions.”). A POSITA would understand that the distance from where the actuator is attached to the support bracket to where it is attached to the upper link changes (gets longer, shorter) as the linkage assembly moves. Hence, in the illustrated embodiment, a POSITA would understand that in order for the actuator to drive the position of the display bracket, given its position and attachment

points within the system, it would extend and contract. This also would have been plainly apparent to the POSITA from the '703 Patent's Figures 43-48:



Id. Figs. 45-48 (annotated). As can be seen above, when starting in the lower position (Fig. 48) and moving to a more raised position (Fig. 45), linear actuator 1218 extends as it drives the display bracket from a lower position to a more raised position—I’ve highlighted the portion of the actuator that can be seen extending in these figures in red.

43. Thus for these reasons, the '703 Patent specification plainly indicates to a POSITA that the inventor had position of the claim 36 invention, that the “first axis of rotation and the second axis of rotation are spaced apart from and located below an extendable actuator of the motorized actuator assembly when the arm assembly is in the lowered configuration.”

V. CLAIM 36 IS NOT INDEFINITE

44. I have been asked to evaluate whether a POSITA would have understood the scope of the challenged claim 36 with reasonable certainty such that it is definite. My understanding of the definiteness requirement is set forth above in my overview of the relevant legal standards.

45. I understand that Petitioner contends that the limitation “wherein the first axis of rotation and the second axis of rotation are spaced apart from and located below an extendable actuator of the motorized actuator assembly when the arm assembly is in the lowered configuration,” of dependent claim 36 is indefinite.

Petition at 54-56. In particular, Petitioner argues:

The '703 patent specification fails to provide clarity for the “extendable actuator” and the “spaced apart and below” feature. EX1003 ¶ 102. The specification does not even mention or describe an “extendable actuator,” much less an extendable actuator that is part of a motorized actuator assembly. *Id.* Moreover, the specification fails to describe any example of mounting system embodiment in which the first and second axes could be spaced apart from and located **below the actuator** in the lowered configuration. *Id.* Nor does any portion of the specification provide any details that would inform a POSITA with reasonable certainty as to the scope of the “extendable actuator” of the actuator assembly or its position relative to the lower arm. *Id.* As shown in the previous section, the figures of the '703 patent do not provide any clarity regarding the scope of the “extendable actuator” or the claimed spaced position relative to the lower arm. *Id.* Although the specification describes an actuator assembly 1200 that can have

multiple parts, it does not say anything about an extendable actuator, nor does it explain or show how any of the actuator assembly parts could be positioned above the first and second axes in the lowered configuration.

Petition at 55-56 (emphasis in Petition).

46. I disagree with the Petitioner. Based on my analysis of the '703 Patent specification, the claims and file history, I conclude that the scope of claim 36 would have been readily apparent to a POSITA. As discussed above with respect to my written description analysis, the '702 Patent clearly discloses “an extendable actuator of the motorized actuator assembly” to a POSITA (e.g., actuator assembly 1200 with linear actuator 1218 and motor 1244), and a POSITA would further recognize that the '703 Patent discloses “the first axis of rotation and the second axis of rotation are spaced apart from and located below” the extendable actuator “when the arm assembly is in the lowered configuration,” such as illustrated in the '703 Patent’s figures and described in the specification.

47. Thus, for these reasons, I conclude that a POSITA would have understood the scope of dependent claim 36.

VI. ADDITIONAL OPINIONS

A. U.S. Patent Pub. No. US 2008/0237424 to Clary (“Clary”)

48. I have been asked to consider whether a POSITA would consider Clary’s tube 3c to be part of the actuator 11 such that tube 3c and actuator 11 would be considered the claimed “motorized actuator.”

49. Based on my analysis of Clary from the perspective of a POSITA, I conclude that a POSITA would not consider actuator 11 together with tube 3c to be a motorized actuator. Figure 4 of Clary shows actuator 11 and tube 3c, as annotated below:

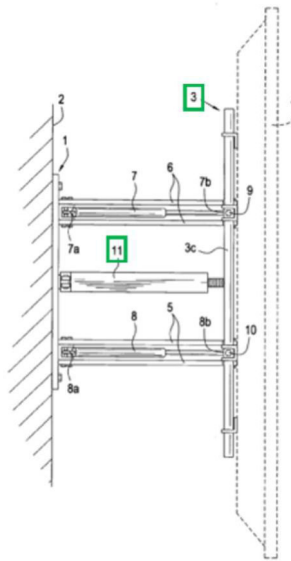


FIG. 4

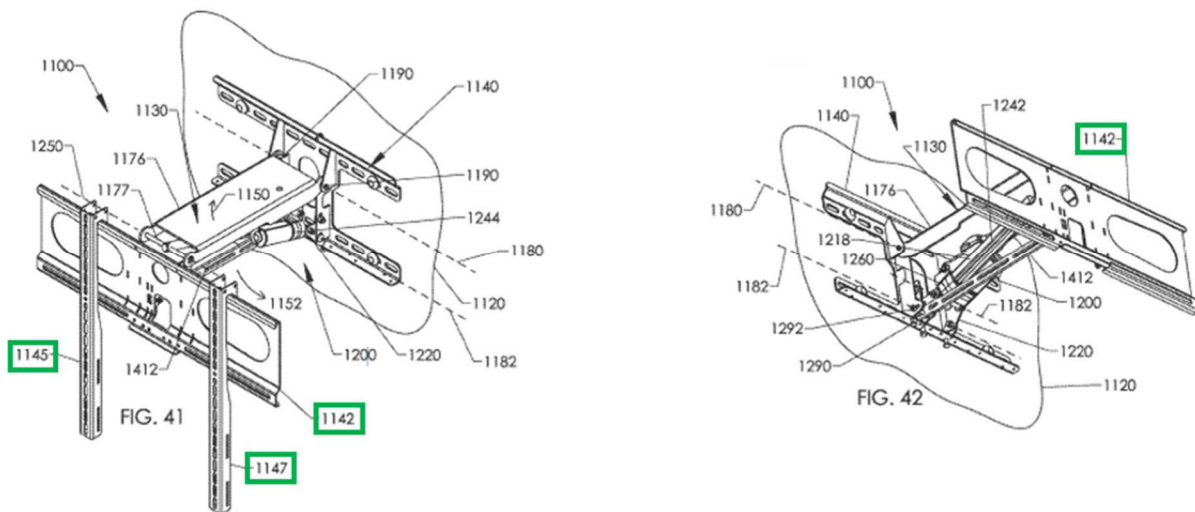
Ex. 1004 Fig. 4 (annotated). As is apparent from Figure 4 and the description in Clary, tube 3c is indicated as being part of the second frame assembly 3:

The second frame assembly 3 comprises a pair of vertically extending, horizontally spaced channels 3a, 3b having horizontally extending, vertically spaced tubes 3c, 3d extending therethrough.

Id. at [0014]. The second frame assembly 3 relies on tube 3c, along with tube 3d and channels 3a and 3b to create a frame. *Id.* This is further evidenced by the numbering scheme “3c,” which shows it is sub-part of the second frame assembly 3.

50. I have also been asked to consider whether a POSITA would consider Clary's second frame assembly 3, with the tube 3c removed, to be "a display bracket configured to hold a television."

51. The '703 Patent discloses a display bracket configured to hold a television. For example, the '703 Patent discloses a display bracket 1142 that includes a rail or main body 1510 and holders 1145, 1147 that hang on the rail or main body 1510. Ex. 1001 at 17:23-27; see, e.g., *id.* at 9:8-13. These are illustrated below in annotated versions of Figures 41 and 42, which show different views of the same mounting system:



Id. Figs. 41 (annotated), 42 (annotated). Figure 63 annotated below shows the rail or main body 1510 of the display bracket 1142.

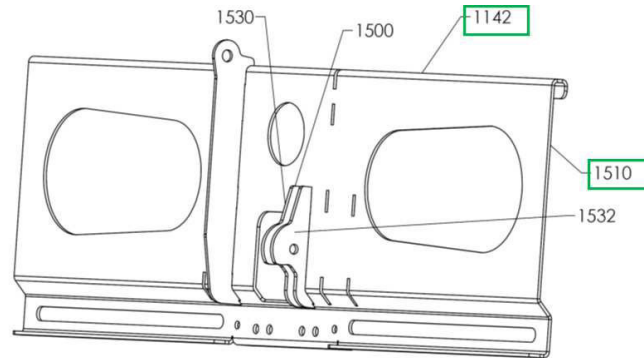


FIG. 63

Id. Figs. 63 (annotated). Based on my analysis of Clary from the perspective of a POSITA, I conclude that a POSITA would not consider Clary’s second frame assembly 3, with the tube 3c removed, to be “a display bracket configured to hold a television” because as shown by Clary the second frame assembly 3 requires tube 3c to hold the display via angle irons 4a, 4b. The tube 3c is required to connect those angle irons to the channels 3a, 3b, which in turn are connected to the links 5, 6. See, e.g., *id.* at [0014], Fig. 4.

B. Clary and Japanese Patent Publication No. 2009-14047A to Tsuji

52. I have been asked to consider whether a POSITA would understand the Clary mount, if modified to include an actuator mounted in a similar manner to Tsuji’s hydraulic cylinder 4, to have “at least a portion of the motorized actuator assembly [that] moves toward and past a portion of the lower arm when the arm assembly moves toward the raised configuration.”

53. Actuator 11 of Clary is shown below in the annotated version of Clary’s Figure 4:

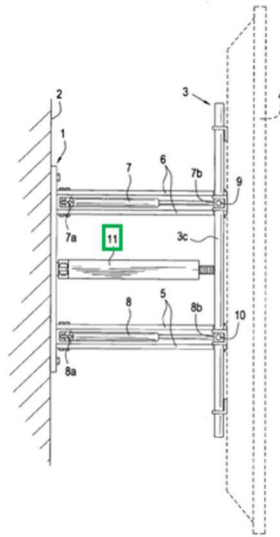
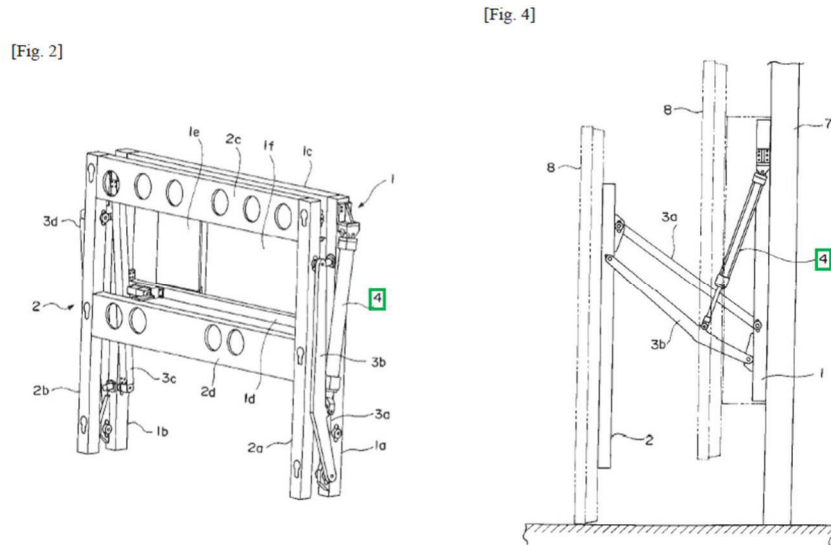


FIG. 4

Ex. 1004, Fig. 4 (annotated). Tsuji's hydraulic cylinder 4 is indicated below in the annotated versions of Figures 2 and 4 of Tsuji:



Ex. 1015, Figs. 2 (annotated closed state), 4 (annotated side view).

54. Coupling Clary's actuator 11 to link 5 or 6 of Clary in a manner similar to Tsuji's hydraulic cylinder 4 (i.e., extending upward from a lower arm to an upper

end of a frame 1) would place the actuator 11 in the same plane of motion as the lower arm link, resulting in the link blocking the actuator from passing, and vice versa, when moving the arm assembly toward a raised position. I conclude that a POSITA would recognize that coupling Clary's actuator 11 to link 5 or 6 of Clary in a manner similar to Tsuji's hydraulic cylinder 4 (i.e., extending upwardly from a lower arm to an upper end of a frame 1) would not have at least a portion of a motorized actuator assembly that moves toward and past a portion of a lower arm when the arm assembly moves toward a raised configuration.

C. Clary and General Knowledge of a POSITA

55. I have been asked to consider whether a POSITA would recognize problems with modifying the Clary mount based on general knowledge of a POSITA to couple the actuator 11 to the links 5 or 6.

56. Clary teaches that the pneumatic springs 7, 8 shown below connect between a first frame 1 and a second frame 3 and “provide an offsetting force to the gravitational downward pull by the weight of the flat panel display 4 ...” Ex. 1004, [0016].



Ex. 1004, Fig. 2 (annotated). These springs 7, 8 connect to the upper tube 3c of the second frame 3. Clary also teaches that the links 5, 6 provide mobility, describing the travel of the display from a raised position flat against the wall to an extended position the full length of the linkage arms to a lowered position flat against the wall frame. Ex. 1004, [0018].

57. A POSITA would recognize that the pneumatic springs 7, 8 and the upper tube 3c are primary load bearing components and that the purpose of the links 5, 6 with pivot connections is to control the motion of the display 4 and not to be primary load bearing components. I conclude that a POSITA would recognize that coupling Clary's actuator 11 to the link 5 or 6 in a manner similar to Tsuji's hydraulic cylinder 4 would change that link to be a primary load bearing component, thus

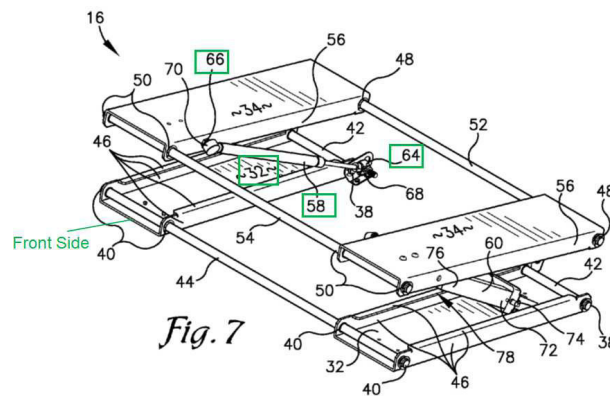
fundamentally changing how the Clary mount is designed to bear loads and creating significant design challenges.

58. The pivoting links 5 or 6 of Clary are designed for tensile loading to control the motion of the display 4. I conclude that a POSITA would recognize that coupling Clary's actuator 11 to the link 5 or 6 would cause that link to experience moments resulting in significantly different loading than the intended tensile loading and significant design challenges.

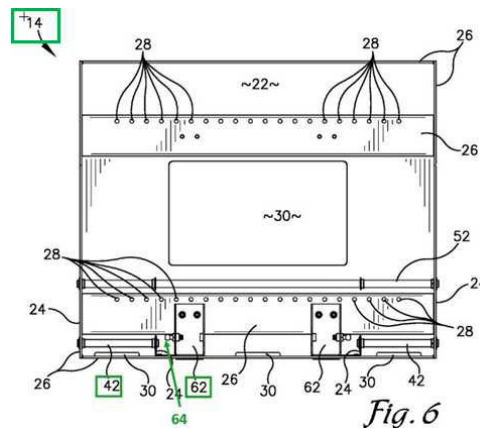
D. U.S. Patent Pub. No. US 2012/0033371 to Pankros ("Pankros")

59. I have been asked to consider how a POSITA would understand the movement of the Pankros weight balancing device 58 and actuator 60 relative to arm 32 based on the disclosures in Pankros.

60. Pankros shows a display mount with a balancing device 58 rotatably coupled to the wall mount at attachment point 64 and rotatably coupled to upper support arm 34 at attachment point 66, as shown below in the annotated version of Figure 7:



Ex. 1006, Fig. 7 (annotated). Figure 6 shows the position of attachment point 64 (annotated) of the balancing device 58 where it couples to a lift attachment feature 62 of the wall mount 14 relative to the position of the lower support arm 32 attachment point to the wall mount defined by attachment point fastener 42.



A POSITA would recognize that attachment points to the wall mount are static and that attachment point 64 of balancing device 58 is positioned behind attachment point fastener 42 of the lower support arm at all times regardless of the position of the display mount, including a fully retracted position.

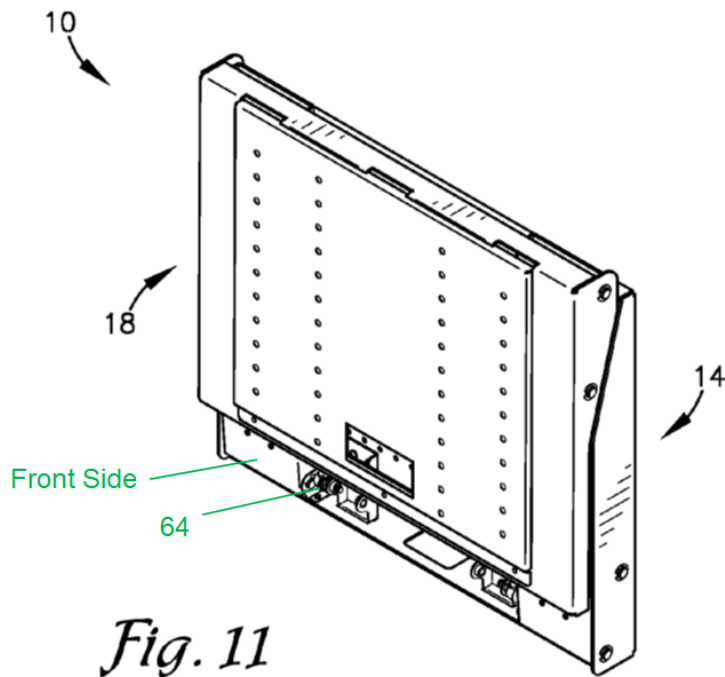


Fig. 11

Id. Fig. 11 (annotated). Figure 7 shows the actuator 60 connected to the lower and upper support arms 32, 34 and the actuator 60 extending upwardly from a channel defined by the lower arm 32.

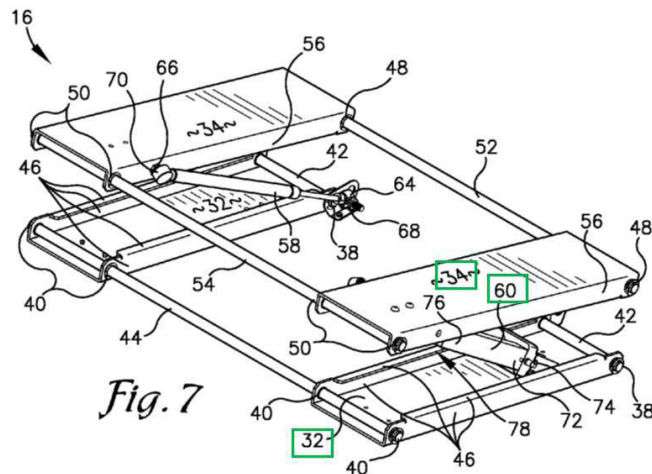
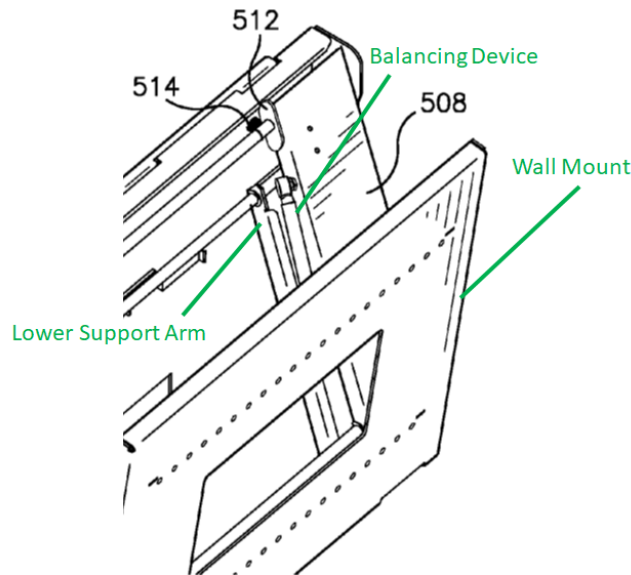


Fig. 7

Ex. 1006, Fig. 7 (annotated). A POSITA would understand that Figure 19 of Pankros shows how the balancing device 58 and actuator 60 remain behind the front side of the lower support arms 32 when the display mount is in an almost fully retracted view:



Id. Fig. 19 (annotated detailed view).

61. I conclude that a POSITA would recognize that (1) the weight balancing device 58 extends upwardly and rearwardly from the attachment point 64 on the wall mount to the attachment point 66 of the upper support arm 34 and (2) the actuator 60 is positioned in the channels of the upper and lower arms 32, 34 when the display mounting apparatus 10 is in the fully retracted position such that at least a portion of a motorized actuator assembly would not move toward and past a portion of a lower arm when the arm assembly moves toward a raised configuration.

62. I have been asked to consider whether a POSITA would recognize problems with modifying or replacing a weight balancing device 58 with an actuator 60.

63. Pankros teaches that the “weight balancing device 58 exerts a force on the support mechanism that substantially offsets a force of gravity exerted on the display support 18 by a flat panel display 12.” Ex. 1006, [section 0058]. Pankros further teaches that “because the weight balancing device 58 supports the weight of the display 12, the actuator is operable to change the position of the display mounting apparatus 10 **using only a minimal amount of force.**” *Id.* [0067]. Pankros also teaches that a display mount motion to include “accelerate to a faster speed” or “decelerate to a slow speed” as a motion-controlled subsystem 112 is directed to extend or retract, respectively, the actuator 60. *Id.* [0067]. Pankros discloses the importance of moving slowly when at a substantially vertical position near the wall. *Id.*

64. A POSITA would recognize that modifying or replacing a weight balancing device 58 with an actuator 60 would increase the amount of force required from the actuator to move the display mount. This increased force requirement is contrary to Pankros disclosing using a minimal amount of force from the actuator and would impair the ability of the actuator to respond in a timely manner to the motion-control subsystem to control accelerations and decelerations of the display

mount motion. I conclude that a POSITA would not be motivated to modify or replace the weight balancing device 58 of Pankros with the actuator 60.

65. I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001.

* * *

Date: May 8, 2024 Kirsten Carr
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