

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LUMI LEGEND CORPORATION,
Petitioner,

v.

MANEHU PRODUCT ALLIANCE, LLC,
Patent Owner.

PGR2024-00014
Patent 11,781,703

**DECLARATION OF JOHN D. PRATT IN SUPPORT OF PETITION FOR
POST GRANT REVIEW OF U.S. PATENT 11,781,703**

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I. INTRODUCTION

1. I, John D. Pratt, submit this declaration on behalf of Lumi Legend Corporation (“Petitioner”). I understand that this declaration will be submitted as Exhibit 1003 in support of a Petition for Post Grant Review (“PGR”) of U.S. Patent No. 11,781,703 (“the ’703 patent”) along with the exhibits listed in the table below.

Exhibit No.	Description
1001	U.S. Patent No. 11,781,703 to Massey
1002	Excerpts of Prosecution History of Application No. 17/959,202
1004	U.S. Patent Pub. No. US 2008/0237424 to Clary (“Clary”)
1005	U.S. Patent Pub. No. US 2012/0061543 to Juan (“Juan”)
1006	U.S. Patent Pub. No. US 2012/0033371 to Pankros et al. (“Pankros”)
1007	U.S. Provisional App. No. 61/381,298 to Juan (“Juan Provisional”)
1008	U.S. Provisional App. No. 61/370,945 to Pankros (“Pankros Provisional”)
1009	U.S. Provisional App. No. 61/396,850 to Massey
1010	U.S. Patent Application No. 13/118,297 to Massey
1011	U.S. Patent Application No. 15/489,596 to Massey
1012	U.S. Provisional App. No. 61/913,195 to Massey
1013	U.S. Patent Application No. 14/563,842 to Massey
1014	Curriculum Vitae of Dr. John D Pratt
1015	Certified English Translation of Japanese Patent Publication No. 2009-14047A to Tsuji (“Tsuji”)

Exhibit No.	Description
1016	Japanese Patent Publication No. 2009-14047A to Tsuji
1017	Certified English Translation of Chinese Patent Publication No. 100411567C to Xu (“Xu”)
1018	Chinese Patent Publication No. 100411567C to Xu

2. This declaration is provided after my review and analysis of the ’703 patent, related patent applications, the prior art, relevant background technology, and is also based on my education and experience, as well as additional materials identified herein.

II. BACKGROUND AND QUALIFICATIONS

3. I hold a B.S. and a M.S. in mechanical engineering from California State University, Fullerton. I also hold a Ph.D. in civil engineering from the University of California, Irvine with a focus on structural mechanics and airframe joint behavior.

4. I am presently Principal of Argos Engineering, which provides litigation consulting in areas related to mechanical design. I provide litigation consulting including detailed design analysis and failure analysis. I have provided expert witness services in many areas, including mechanism kinematics and failure analysis, fasteners and mechanically-fastened joint failures, latching mechanisms and latched joint failures, wind-induced building damage, and metal forming and processing.

5. Prior to Argos, I have worked on the development of permanent and temporary fasteners, as well as related tooling and equipment, for the aerospace, commercial, industrial and sporting goods markets from August 1969 through the present. I am the named inventor on 48 United States patents and more than 100 corresponding foreign patents. As the senior engineering executive for three medium-sized aerospace hardware companies from early 1979 through mid-2005, I was responsible for reviewing the work of in-house and outside patent counsel, and selecting outside counsel to handle intellectual property matters.

6. During my career I gained hands-on experience in the design and development of complex electro-mechanical mechanisms and components. For example, I have designed and helped to commercialize electrical and fluid powered installation tools and machines with hundreds of components utilizing metals, plastics and composite materials. I have also overseen the design and qualification of numerous electrical and mechanical aircraft systems including intrusion resistant flight deck door latches, pressure sensing mechanisms for aircraft rapid decompression events, the Comanche helicopter pilot and co-pilot door mechanisms, numerous aircraft engine nacelle latching and hold-open rod mechanisms, aircraft engine pressure relief door mechanisms and remote latching mechanisms for thrust reversers and fan doors on aircraft engines. I have also designed electronic circuits for secure flight deck door time-delay applications.

7. During the period between 2000 and the present I have worked on the development of mechanical and electro-mechanical latching and locking devices for aircraft, as well as development of fluid-driven tools for installation of aircraft assembly clamps. In the wake of the events of 9/11, I co-invented and led the development of a family of pressure-sensing and intrusion-resistant latches for aircraft cockpit doors and decompression panels. These are presently installed on approximately half the world's fleet of commercial transport aircraft. More recently I have been intimately involved in the design and development of permanent and temporary fasteners for robotic assembly of new aircraft. I have also been involved in recent patent litigation including cases involving hurricane abatement systems, pressure-sensing panel latches, reversible electric strike mechanisms, reversible mortise door locks, keyboard support mechanisms, automated box spring stapling machines, combat helmets, shipping container loading machines, electronic vending machine door locking mechanisms, instant ticket vending machines, folding chairs, hook and loop fasteners and motor-driven gun safe locks. Finally I have served as an expert on several contract related cases involving the B-1 bomber (Conventional Weapons Upgrade Program), and electro-mechanical pressure switches.

8. A copy of my curriculum vitae, provided as Exhibit 1014, contains further details concerning my education, experience, publications, patents, and other qualifications to render an expert opinion in this matter.

9. I have used my education and my years of experience working in mechanical design, and my understanding of the knowledge, creativity, and experience of a person of skill in the art in forming the opinions expressed in this declaration.

10. I am being compensated for my work in this matter at my standard hourly rate for consulting services of \$480 per hour. My compensation in no way depends on the outcome of this proceeding. I have no personal or financial stake or interest in the outcome of this proceeding.

11. I understand that Petitioner will cite and rely on significant portions of my testimony and analysis set forth in this declaration in support of its Petition challenging the patentability of the '703 patent. I have not been provided or reviewed the Petition or any drafts of the Petition, and, thus, the Petition or drafts of the Petition have not influenced my testimony or analysis set forth in this declaration.

12. Between now and such time that I may be asked to testify, I expect to continue my review, evaluation, and analysis of evidence presented before and/or at the hearing. I expect to review the declarations and other evidence submitted by Patent Owner's experts. I reserve the right to amend or supplement this declaration, as appropriate, after considering any opinions set forth by Patent Owner's experts. In the event that additional relevant information becomes available to me, I also

reserve the right to review and consider that information in further developing or refining my opinions.

III. LEGAL PRINCIPLES

13. I am not an attorney or patent agent. Therefore, in formulating my opinions and conclusions in this proceeding, I have been provided with an understanding of the relevant aspects of U.S. patent law that govern the issues of patent validity by counsel for the Petitioner.

A. Claim Construction

14. I understand that, in determining whether a patent claim is unpatentable in view of the prior art, the Patent Office construes the claim by giving the claim its ordinary and customary (i.e., plain and ordinary) meaning ascribed to it by a person of ordinary skill in the art at the time of the '703 patent's priority date or effective filing date ("POSITA").

B. Prior Art

15. I understand that, in this PGR proceeding, the prior art to the '703 patent includes patents and printed publications in the relevant field(s) that predate the '703 patent's effective filing date.

C. Anticipation

16. I understand that a person cannot obtain a patent if someone else already made an identical invention, which is referred to as "anticipation." I

understand that to anticipate a claim, each and every element in the claim must be, as properly construed, present in a prior art reference either expressly and/or inherently.

D. Obviousness

17. I understand that a claim of a patent may be obvious to a person of ordinary skill in the art if the differences between the subject matter set forth in the patent claim and the prior art are such that the claimed subject matter as a whole would have been obvious at the time of the '703 patent's priority date.

18. I understand that obviousness is a determination of law based on various underlying determinations of fact. In particular, these underlying factual determinations include (1) the scope and content of the prior art; (2) the level of ordinary skill in the art at the time the '703 patent's priority date; (3) the differences between the claimed invention and the prior art; and (4) the extent of any proffered objective "indicia" of non-obviousness. I understand that the objective indicia, also known as secondary considerations, which may be considered in such an analysis include, among other factors: the commercial success of the patented invention (including evidence of industry recognition or awards), the existence of a long-felt but unmet need in the field satisfied by the invention, the failure of others to arrive at the invention, industry acquiescence and recognition of the invention, initial skepticism of the invention by others in the field, the extent to which the inventors

proceeded in a direction contrary to the accepted wisdom of those of ordinary skill in the art, and licensing of the patent.

19. In determining the scope and content of the prior art, I understand a reference is considered prior art for the obviousness analysis if it falls within the inventors' field of endeavor. Additionally, a reference is prior art for the obviousness analysis, even if from a different field of endeavor, if it is reasonably pertinent to the particular problem for which the invention was made. A reference is reasonably pertinent if it is something a person of ordinary skill in the art would have looked to when attempting to solve the problem addressed by the patent at issue.

20. While multiple prior art references or elements may be combined to render a patent claim obvious, I understand that a patent claim composed of several elements is not proven obvious merely by demonstrating that each of its elements was independently known in the prior art. I understand that I should consider whether there is an "apparent reason" or motivation to combine the prior art references or elements in the way the patent claims. It is my further understanding that the law recognizes several rationales for combining references or modifying a reference to show obviousness of claimed subject matter. Some of these rationales include: combining prior art elements according to known methods to yield predictable results; simple substitution of one known element for another to obtain

predictable results; a predictable use of prior art elements according to their established functions; applying a known technique to a known method or product ready for improvement; and choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success.

21. I understand the obviousness analysis must be performed from the perspective of a person of ordinary skill in the art at the time of the '703 patent's priority date. This is to avoid using impermissible hindsight in the analysis. The claims of the patent must not be used to provide a road map for obviousness; instead, the claims would have been obvious if a person of ordinary skill in the art would have been motivated to combine the teachings of the prior art to arrive at the claimed invention and had a reasonable expectation of success in doing so.

E. Written Description

22. I understand that a patent claim may lack written description if the specification and earlier-filed priority applications fail to describe the invention sufficiently to convey to a person of skill in the art that the patentee had possession of the claimed invention at the time of the application and that the patentee invented what is claimed.

F. Indefiniteness

23. I understand that a patent claim may be indefinite if the claim, when viewed in light of the specification and prosecution history, fails to inform those

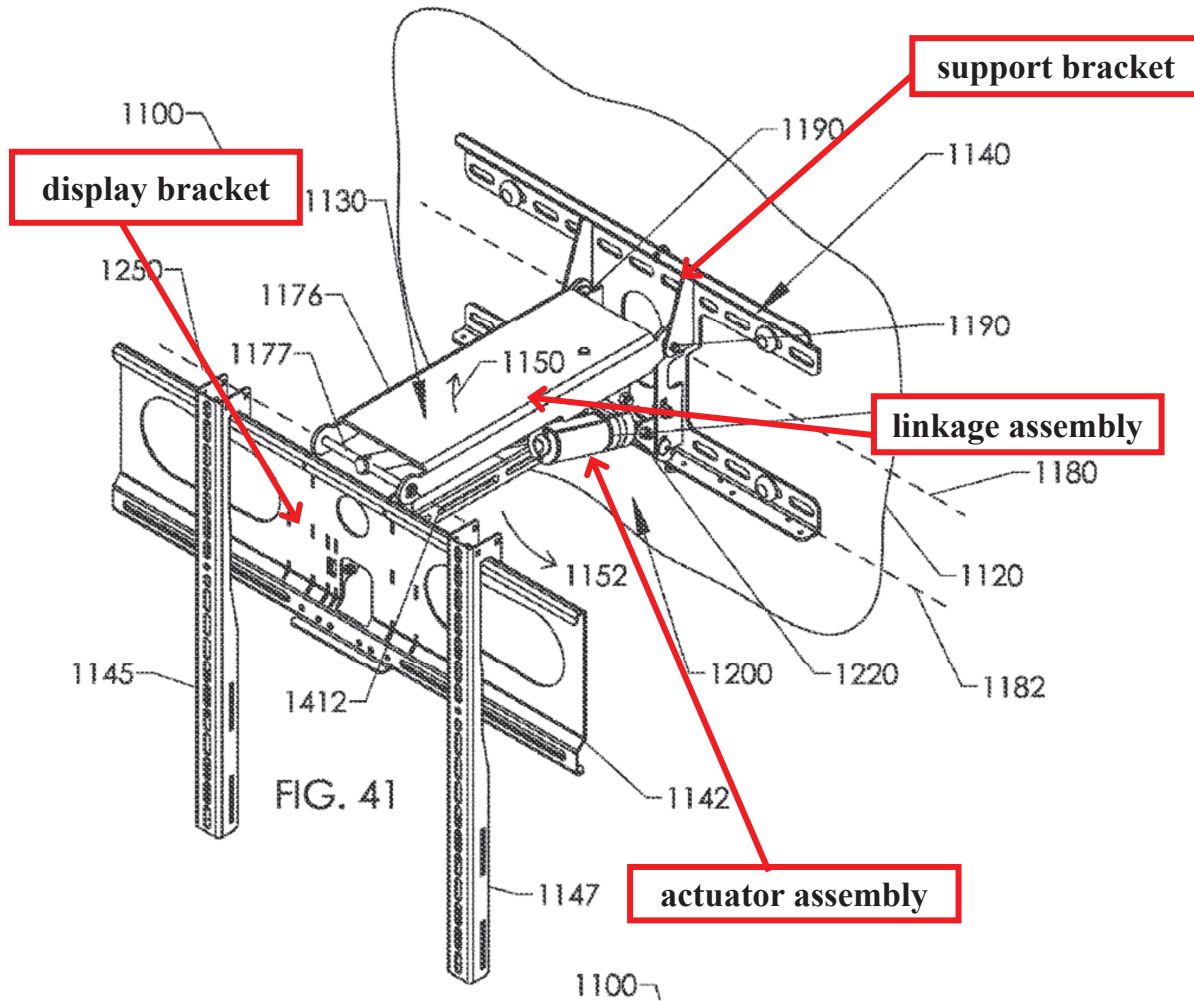
skilled in the art about the scope of the invention with reasonable certainty.

IV. THE '703 PATENT

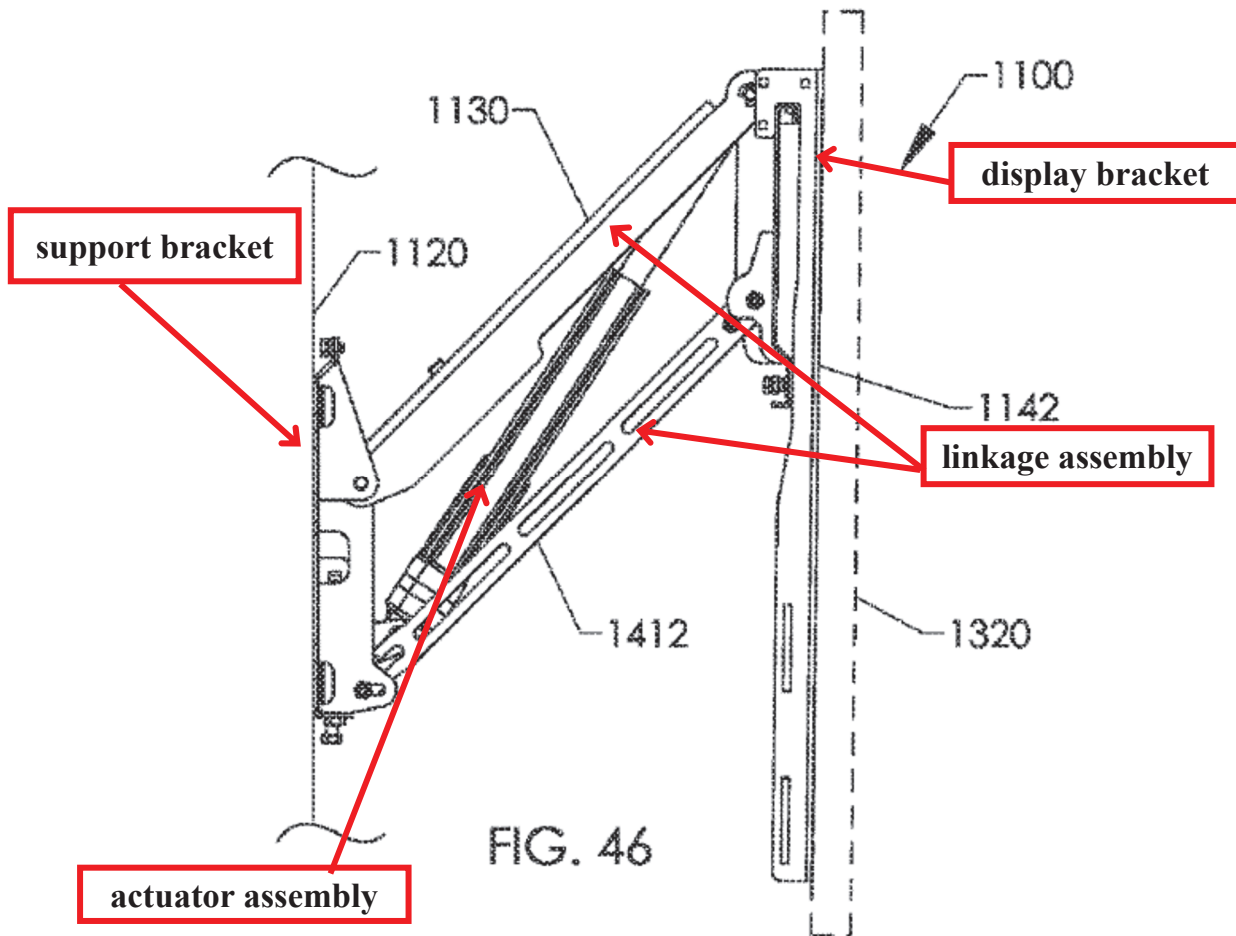
A. Specification of the '703 Patent

24. The '703 patent relates generally to mounting systems for mounting things such as televisions to walls or structures. EX1001 at 1:30-37. In the examples that correspond to the challenged claims, the '703 patent describes television mounting systems with a support bracket that mounts to the wall, a display bracket that connects to a television, and a linkage assembly between the brackets. EX1001 at 17:23–41, Figs. 41-55. The linkage assembly 1130 includes multiple arms and can be “rotatably coupled to the support and display brackets 1140, 1142 and can swing upwardly . . . or downwardly” to move the television display up and down. *Id.* As shown in the figures, the linkage assembly 1130 can include a “main member or upper link 1176 . . . and a lower link 1412.” *Id.* at 17:42–51. The system can also have a mounting system with an actuator assembly 1200 which can include a linear actuator 1218 and a motor 1244. *Id.* at 17:55–67. The linear actuator can be rotatably coupled to the support bracket 1140, the display bracket 1142 and/or the linkage assembly. *Id.*

25. I have provided Figure 41 of the '703 patent below with annotations and labels from the specification.



EX1001, Fig. 41 (annotated). I have also provided Figure 46 below which shows a side view of the disclosed mounting system with the various elements annotated.



Id. at Fig. 46 (annotated).

B. Claims of the '703 Patent

26. I have included independent claim 33 below with bracketed labels added for convenient referencing to the claim limitations.

Claim 33	
33[pre]	A television mounting system comprising:
33[a]	a support bracket configured to couple to a wall;
33[b]	a display bracket configured to hold a television;
33[c]	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
33[c][i]	wherein the arm assembly includes an upper arm and a lower arm; and
33[d]	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
33[d][i]	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.

C. Prosecution History of the '703 Patent

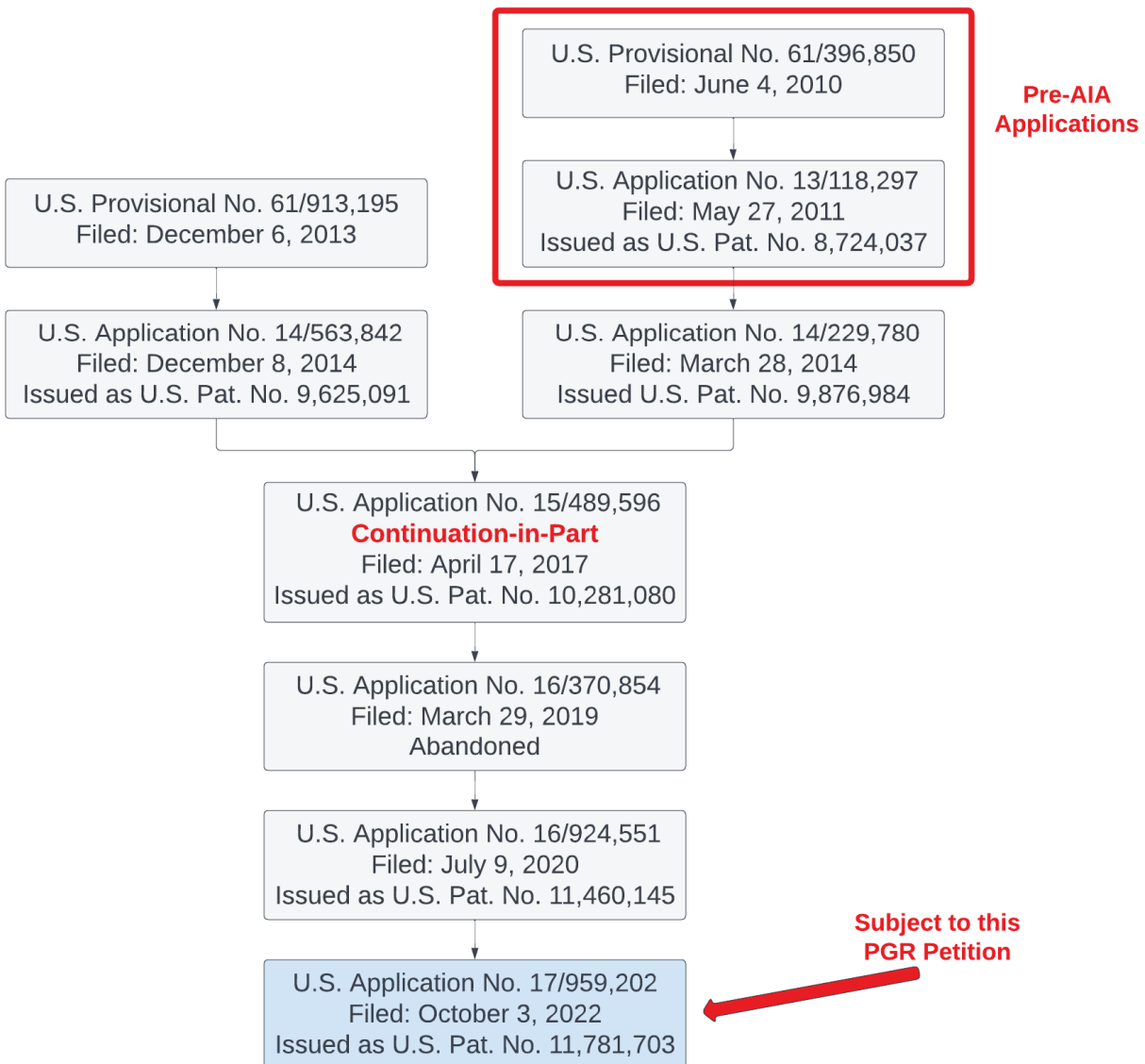
27. I have reviewed the prosecution history of the application that led to the '703 patent. During prosecution the Examiner issued two office actions. In the first office action dated February 17, 2023, the Examiner issued a species election/restriction requirement, requiring the applicant to elect a single disclosed

species for prosecution on the merits. EX1002 at 15. In an April 24, 2023 response, the applicant elected Species 6 (Figures 41-55) without traverse. *Id.* at 29. The patent applicant stated that the pending claims, including the challenged claims, are readable on Species 6 (Figures 41-55) and should be examined together. *Id.*

28. In the second office action dated June 8, 2023, the Examiner rejected some non-challenged claims for informalities but indicated that the challenged claims were allowable without amendment. *Id.* at 34-35. The Examiner issued a Notice of Allowance on August 31, 2023. EX1002 at 54.

V. PRIORITY OF THE '703 PATENT

29. I understand that the '703 patent is related to patent applications and issued patents as shown in the illustration below.



30. The earliest provisional application No. 61/396,850 does not include any actuator, and does not disclose other limitations of the challenged claims. *See* EX1009. The actuator assembly claim limitations and the other related claim limitations are completely missing from this provisional application. A POSITA would have understood that this provisional application does not disclose the

features of the challenged claims and cannot provide sufficient support for the challenged claims.

31. The first related application to include an actuator was Application No. 13/118,297 which was filed on May 27, 2011. EX1010. This '297 application includes a single figure showing a system with an actuator, Figure 28, and provides just a single mention of an actuator in the specification. *Id.* at 18 (Fig. 28) and 37-38. A POSITA would understand that the '297 application does not disclose the claimed configuration and movement of an actuator assembly relative to other parts of the claimed mounting system. For example, claim 33 states “a motorized actuator assembly” coupled to the system in a certain arrangement. The '297 application does not describe an “actuator assembly,” nor does it describe how the actuator 730 is coupled to the mounting system or arm assembly. *Id.* Claim 33 also states “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.” The '297 application does not disclose or describe any movement of the actuator assembly, let alone movement that is relative to other parts of the mounting system. The only figure with an actuator (Figure 28) is not described as any specific position and there is no description of the actuator 730 in a raised configuration or a lowered configuration. EX1010. The '297 application does not provide any information regarding the raised and lowered configurations of the

system shown in Figure 28, so a POSITA would not be able to evaluate the relative position of the parts in those configurations or moving toward them. Therefore, a POSITA would have understood that the challenged claims are not supported by and are not entitled to the filing date of the '297 application.

32. I understand that provisional Application 61/913,195, Application No. 14/563,842, and Application No. 14/229,780 have the same nominal disclosure of an actuator as the '297 application, without any additional details relating to the challenged claims. *See* EX1012 and EX1013. A POSITA would have understood that the actuator and movement/positioning features of the challenged claims are not disclosed or suggested in these applications for the same reasons provided above.

33. A POSITA would agree with the '703 patent applicant's statement during prosecution that the disclosure corresponding to the challenged claims was not added to the related applications until the '596 CIP Application was filed on April 17, 2017. The previous related applications did not include Figures 41-55 which the applicant confirmed correspond to the challenged claims. EX1002 at 29. Thus, a POSITA would have understood that the earliest application that could possibly include disclosure and support for the challenged claims of the '703 patent is the '596 CIP application filed on April 17, 2017, which has the corresponding figures and additional description relating to the challenged claims. Therefore, the earliest effective filing date for the challenged claims is April 17, 2017.

VI. ELIGIBILITY FOR PGR

34. I understand that a patent is eligible for PGR if it has an effective filing date on or after March 16, 2013. I understand that a claim in a U.S. patent application is entitled to the benefit of the filing date of an earlier filed U.S. or PCT application if the subject matter of the claim is disclosed in the earlier filed application in accordance with the written description requirement. I also understand that to comply with the written description requirement, the specification or earlier-filed application must describe the invention sufficiently to convey to a person of skill in the art that the patentee had possession of the claimed invention at the time of the application.

35. As I explained in the previous section, the '703 patent relates to several patents and/or patent applications. Of these related application, only two were filed before March 16, 2013. These are U.S. Provisional Application 61/396,850 ("the '850 Provisional," EX1009) and U.S. Patent Application No. 13/118,297 ("the '297 Application," EX1010).

36. The '703 patent is eligible for PGR because at least claims 8, 14, 25, and 26 of the '703 patent include subject matter that is not disclosed in the pre-March 2013 applications, as I explain in detail below. These claims are not entitled to the filing date of either of the pre-March 2013 applications and are not entitled to a pre-March 2013 filing date. This makes the '703 patent eligible for PGR.

37. Every claim of the '703 patent includes an “actuator assembly” that moves in specific ways relative to the linkage arm assembly. EX1001 at 22:51—26:53. The pre-AIA applications do not provide support for the claimed configurations and specific movements of the actuator assembly. As I explained above, the '850 Provisional does not even include an actuator or actuator assembly, let alone any description of how it would be used in the mounting system. EX1009. Instead, the '850 Provisional describes a mounting system with linkages (2, 4) and a counterbalance system (8), without any actuator or actuator assembly. EX1009 at 4-5, 7-9. The disclosure of the '850 Provisional describes manually operated mounting systems, not motorized or automated systems. *Id.*

38. There is only one other pre-AIA application, the '297 Application, and it also fails to support the claimed actuator assembly features. In its description, the '297 Application does not refer to an “actuator assembly” and includes only a single reference to a “motorized actuator 730.” EX1010 at 37. There is only one figure (Figure 28) that shows a motorized actuator 730 in a mounting system. EX1010 at 18. But the '297 Application does not describe the specific claimed actuator assembly coupling arrangements or movement relative to the other portions of the mounting system, as I explain below. Nor does it describe a raised position or a lowered position of the actuator system.

39. I understand that the '703 patent claims priority to the '596 continuation-in-part application. EX1001 at 1:7-27. This '596 CIP Application was filed on April 17, 2017 and included at least 15 new figures relating to a mounting system with an actuator assembly and the relative movement of the actuator assembly in different positions. EX1011 at 69-83. These new figures introduced in the '596 CIP Application include Figures 41-55. The '596 CIP Application also added several new pages of detailed description to the specification, which also correspond to the new actuator design in the new figures. EX1011 at [0136]-[0150]. A POSITA would have understood that the '703 patent is not entitled to a pre-March 2013 effective filing date because the '703 patent claims because the claims correspond to figures and description that was not added until the CIP application (April 17, 2017). In fact, the applicant of the '703 patent admitted during prosecution that the claims correspond to the newly added CIP Figures 41-55. EX1002 at 29. Thus, the applicant told the patent office that the claims of the '703 patent correspond to the new disclosure added in the '596 CIP Application filed in 2017.

40. In the following sections, I provide examples of specific features in the '703 patent claims that are not supported by the pre-AIA applications are provided in the following sections.

A. The Pre-AIA Applications Do Not Support Limitations in Claims 8 and 26

41. As a first example, claim 8 of the '703 patent states “wherein at least a portion of the motorized actuator assembly moves forwardly past a portion of the lower arm in a direction toward the display bracket when the linkage assembly moves toward a raised configuration, wherein the portion of the motorized actuator assembly is positioned vertically between the upper arm and the lower arm when the linkage assembly is in a lowered configuration”

42. Claim 26 of the '703 patent states “a motorized actuator assembly having a portion that moves outwardly past a side of a lower arm of the arm assembly in a direction away from the support bracket while the display bracket moves to a raised position”

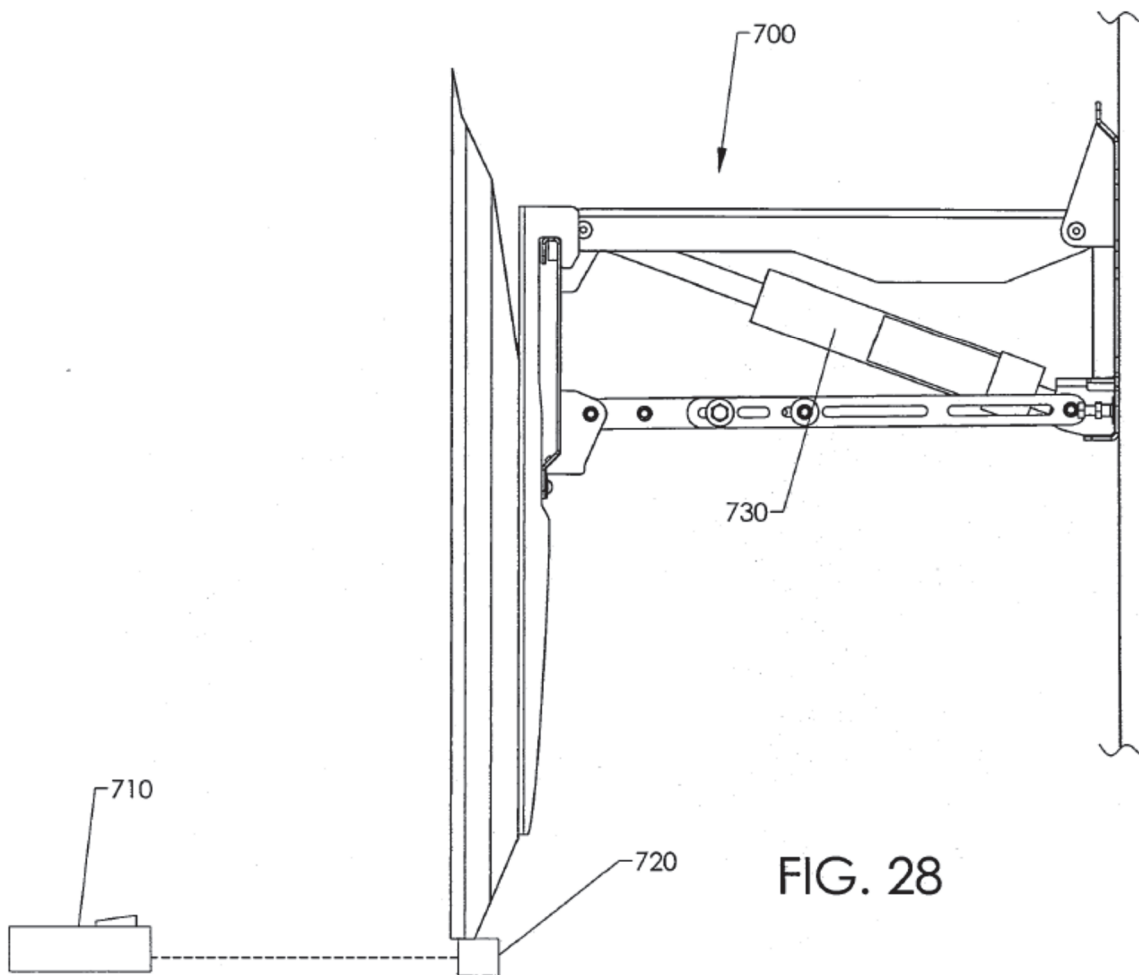
43. These limitations are not described or disclosed in the pre-AIA applications. As I explained in the previous section, the '850 provisional does not mention or describe an actuator or a mounting system with an actuator. Thus, it cannot provide any support for these claim features.

44. The other pre-AIA application is the '297 Application which also fails to provide support for these claim features. The '297 Application does not refer to an “actuator assembly” and includes only one mention an actuator, specifically a “motorized actuator 730.” EX1010 at 37. The specification does not describe any specific movement of actuator 730, much less movement of specific portions of the

actuator assembly relative to the linkage arms or brackets. *Id.* The specification does not say anything about position of the actuator 730 within the system or how it is connected to the other parts of the system. *Id.* Instead, the '297 Application simply states that there is a motorized actuator 730 and then continues on to describe the electronic controlling and programming of the mounting system. EX1010 at 37-38. The '297 Application does not describe an actuator assembly moving toward or in a raised position or a lowered position. It has no description of any portion of the actuator assembly, let alone a portion that moves forwardly or outwardly past a lower arm. A POSITA would have understood that the '297 Application's one mention of a motorized actuator 730 is insufficient to support the specific actuator assembly movement and positioning features included in claims 8 and 26.

45. There is only one figure in the '297 Application that shows an actuator (Figure 28) and it does not describe any movement, nor does it correspond to a raised configuration or a lowered configuration, as shown below. EX1010 at 18. The position and configuration of the system in Figure 28 is not described, and it is very different from Figures 19 and 23 which apparently correspond to the raised (stowed) and lowered configurations of different mounting system embodiments. EX1010 at 12 and 14. A POSITA would have understood that Figure 28 shows neither the lowered position nor the raised position. Figure 28 does not show or describe an actuator assembly moving toward a raised position or a lowered position. Nor does

it show the relative position of the actuator 730 in either of those positions. Nothing identifies any portion of the actuator assembly that might have the claimed movement forwardly or outwardly past a lower arm when moving toward the raised or lowered configuration. A POSITA would have understood that this single Figure 28 in the '297 Application is very different from the numerous figures added in the '596 CIP Application which were added in 2017 to show the movement and relative position of an actuator assembly in more than seven different positions. EX1011 at 69-76.



46. Overall, a POSITA would have understood that the '297 Application's one figure identifying an actuator 730 and its single mention of an actuator in the specification do not provide support for the specific actuator assembly movement and positioning features included in claims 8 and 26.

B. The Pre-AIA Applications Do Not Support Features in Claims 14 and 25

47. Claim 14 states “wherein the lower arm is rotatable about a first axis of rotation and a second axis of rotation, wherein the motorized actuator assembly is rotatable about an actuator axis of rotation relative to the support bracket, wherein **the actuator axis of rotation is spaced vertically apart from the first axis of rotation.**” EX1001 at 24: 11-17 (emphasis added).

48. Claim 25 states “further comprising a pivot rotatably coupling an end of the motorized actuator assembly to the support bracket, wherein the **pivot is positioned vertically between upper and lower support bracket pivots** about which components of the linkage assembly rotate relative to the support bracket when the support bracket is coupled to a vertical wall.” *Id.* at 25:19-25 (emphasis added).

49. A POSITA would understand that the pre-AIA applications do not provide any disclosure for these claim limitations. As I explained in the previous

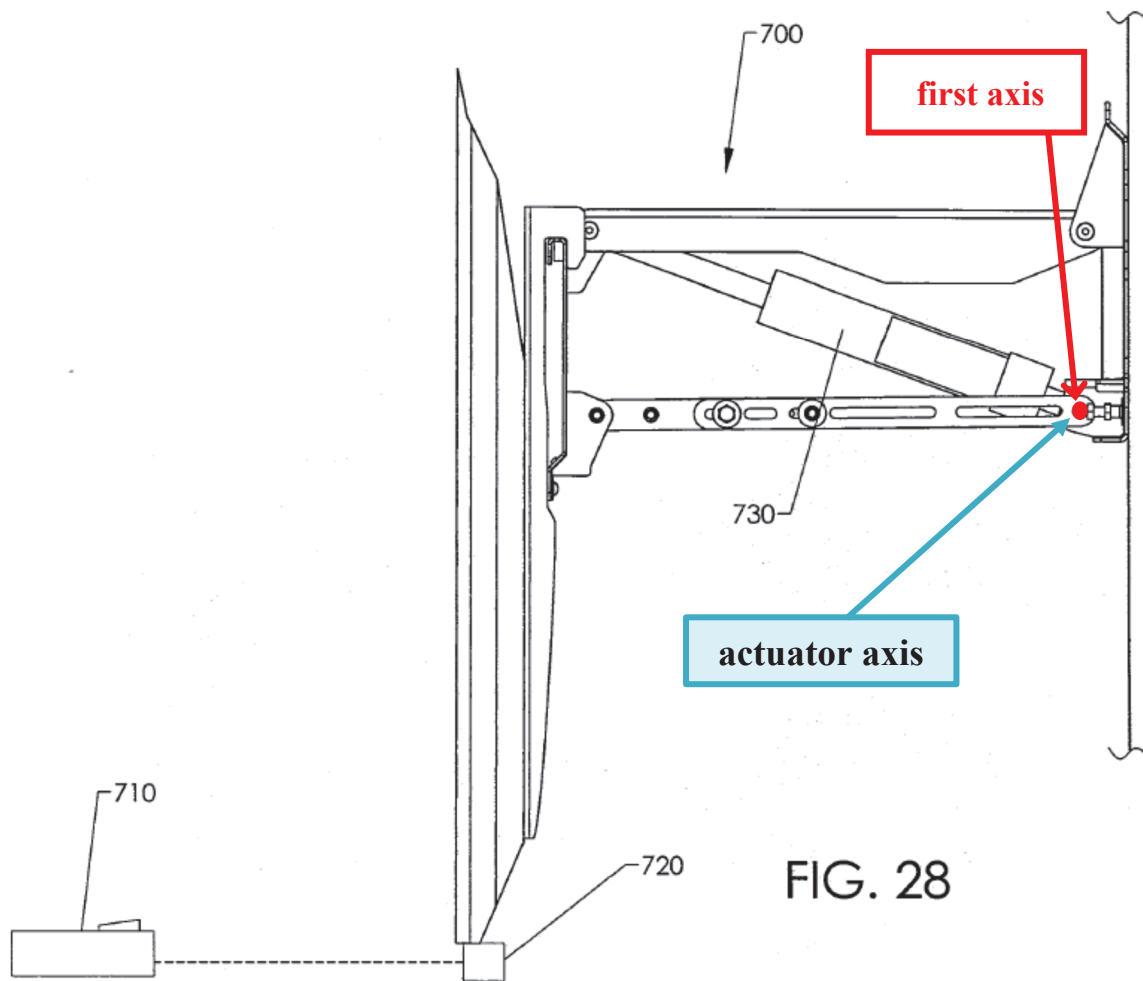
section, the '850 provisional does not mention or describe an actuator or any mounting system with an actuator. It provides no support for these claim features.

50. A POSITA would also understand that the '297 Application fails to support these claim features of claims 14 and 25. As I explained in the previous section, the '297 Application includes only one reference to an actuator 730 and does not say anything about position of the actuator 730 within the system or how it is coupled to the other parts of the system. EX1010 at 37. The '297 Application does not describe any actuator axis or pivot. There is no description of any portion of the actuator assembly, let alone a portion that is rotatably coupled to the mounting system. A POSITA would recognize that the '297 Application specification's one mention of a motorized actuator 730 is clearly insufficient support the specific actuator axis/pivot positioning features included in claims 14 and 25.

51. A POSITA would have also understood that Figure 28 of the '297 Application similarly fails to support these actuator axis/pivot positioning features of claims 14 and 25. EX1010 at 18. Claims 14 and 25 require the actuator axis/pivot to be "spaced vertically apart from the first axis" and "positioned vertically between upper and lower support bracket pivots." But Figure 28 shows an actuator 730 that is coupled to the support bracket at a location that is aligned with the lower arm's first axis of rotation, not spaced apart. The actuator in Figure 28 has a pivot that is aligned with the lower support bracket pivot, not positioned vertically between the

upper and lower support bracket pivots. A POSITA would recognize that the '297 Application actually teaches the opposite of the actuator axis/pivot features in claims 14 and 25. The '297 Application has no other disclosure relating to the axis or rotation of an actuator assembly. Therefore, the disclosure of the '297 Application does not meet the written description requirements for claims 14 and 25.

52. As I provide below in annotated Figure 28 of the '297 Application, any axis of rotation of the actuator that is relative to the support bracket is actually aligned with the lower arm's first axis of rotation.



EX1010 at 18 (Figure 28).

53. However, the later filed '596 CIP Application of 2017 includes several figures in which the actuator axis/pivot appears to be spaced apart vertically from the lower arm's first axis of rotation and positioned vertically between the upper and lower support bracket pivots. For example, this is illustrated in annotated Figure 47 below.

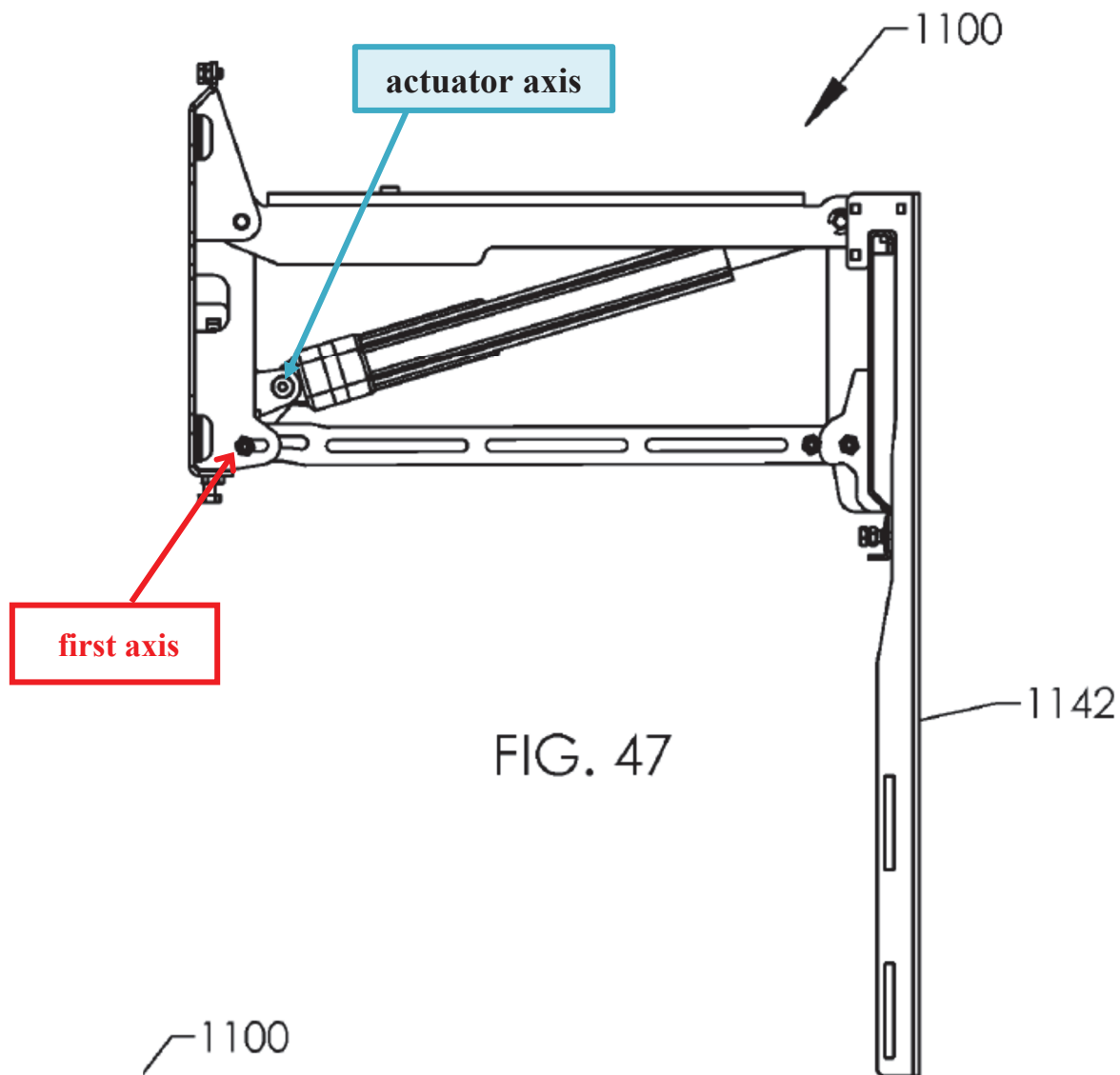


FIG. 47

EX1011 at 71 (Figure 47).

54. The only disclosure of an actuator 730 in the '297 Application has an axis of rotation position different from the claimed positions of claims 14 and 25 of the '703 patent. The '297 Application does not describe or suggest the claimed positions. A POSITA would have understood that support for a vertically spaced

actuator axis was not added until the '596 CIP Application in 2017, which included more than 30 new figures and many pages of new matter. EX1011 at 28-42.

55. Therefore, based on my analysis, neither of the two pre-AIA applications convey to a POSITA that the named inventor had possession of the actuator assembly features included in claims 8, 14, 25 and 26 at the relevant time. As I explained above, neither pre-AIA application describes an actuator assembly with the claimed positioning, movement, and axis in any respect, let alone the specific details of these features as included in the claims. Therefore, at least claims 8, 14, 25 and 26 of the '703 patent are not entitled to the filing date of either of the pre-AIA applications and are not entitled to a pre-March 16, 2013 filing date.

VII. LEVEL OF A PERSON OF ORDINARY SKILL IN THE ART

56. I have been informed by counsel for Petitioner that for purposes of assessing the obviousness of the '703 Patent, the level of skill possessed by the hypothetical person of ordinary skill in the art (POSITA) is informed by several factors. These factors include the type of problems encountered in the relevant art, the prior art solutions to those problems, the rapidity with which innovations are made in the relevant art, the sophistication of the relevant technology, and the educational level of active workers in the field.

57. The relevant field of the '703 patent relates to mounting systems, including adjustable mounting systems for mounting objects to structures. EX1001

at 1:30–33. In my opinion, a POSITA at the relevant time period, which I understand to be around the time of the '703 patent's effective filing date, would have had 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. For individuals with different educational backgrounds, a person could still be of ordinary skill in the art provided that person's additional experience compensates for any differences in that person's education as stated above. This education and background provide the necessary training and understanding of mounting systems described in the '703 patent. Thus, based on my experience in the field of mechanical systems, the person of skill would have the education and experience described above. All of my opinions set forth herein are provided from the perspective of a POSITA.

58. Although I have applied this definition of a POSITA, the challenged claims of the '703 patent are anticipated and would have been obvious from the perspective of any reasonable definition of a POSITA.

VIII. CLAIM CONSTRUCTION

59. I understand the Patent Trial and Appeal Board ("PTAB") construes the claims using the same claim construction standard that would be used in a district court case. Under this standard, I understand that claims are generally given their ordinary and customary meaning, as understood by a POSA. But if the specification

reveals a special definition given to a claim term the differs from the meaning to would otherwise have, then the inventor's lexicography governs.

A. “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”

60. Claim 33 is an independent claim and states “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.” EX1001 at 26:34–37.

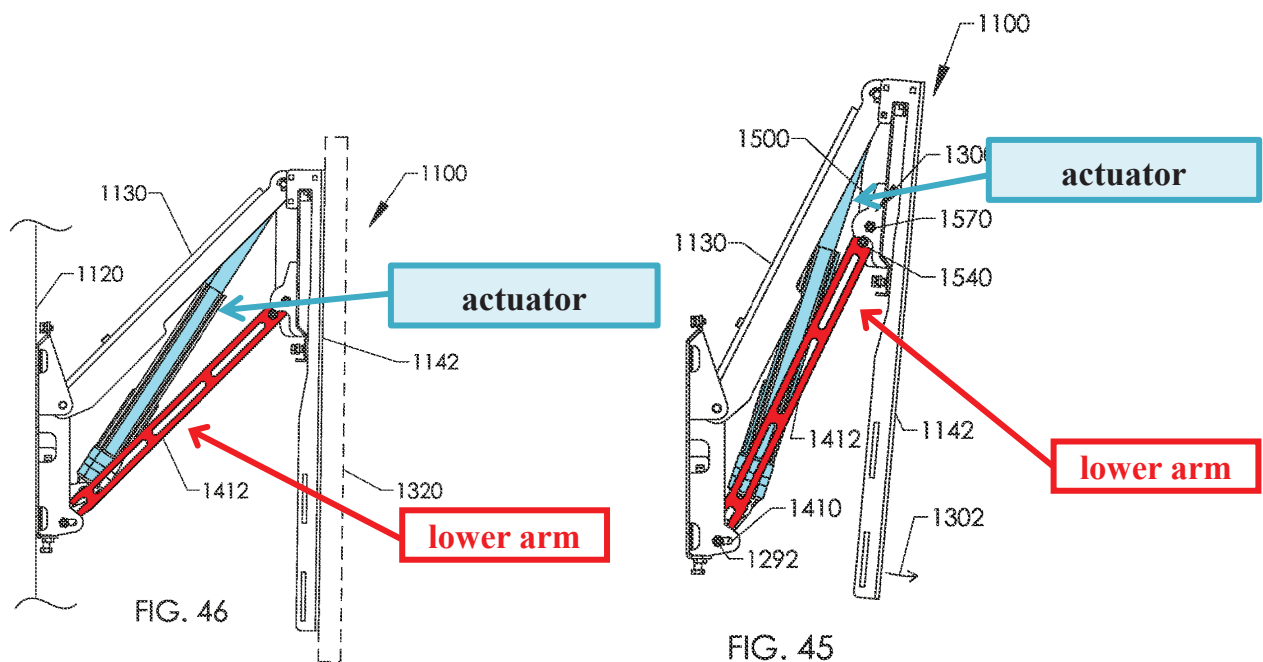
61. The specification of the '703 patent does not provide any description of this movement of the actuator during raising. *See* EX1001. It also lacks description of how the actuator assembly can move toward and past a portion of the lower arm. This specific movement of different parts of the system is only mentioned in the claims. *Id.* But Figures 41–48 provide illustrations of the mounting system in various positions which would give a POSITA some understanding of the movement of the mounting system, including the actuator assembly 1200 from the lowered position to the raised position. EX1001 at Figs. 41-48.

62. As I noted above in Section IV.C, during prosecution of the '703 patent Patent Owner stated that challenged claim 33 (pending claim 59) and all the challenged claims are “readable on Species 6” which corresponds to Figures 41–55. EX1002 at 29. According to Patent Owner, the mounting system embodiment

shown in Figures 41–55 is covered by the challenged claims and includes the “moves toward and past a portion” limitation of claim 33.

63. As I show in Figures 45 and 46 below, the actuator assembly and the lower arm move relative to one another as the arm assembly moves toward the raised configuration. These figures and the other Figures 41–48 suggest to a POSITA that the actuator assembly rotates upward in a direction away from the lower arm, but the lower arm also rotates upward in a direction toward the actuator assembly. A POSITA would understand that the actuator assembly would actually be moving in a direction away from the lower arm (not toward) when the arm assembly is being raised. But there would be relative movement between the lower arm and actuator assembly that causes the lower arm and a portion of the actuator assembly to get closer to one another and move past one another. In this way, the actuator assembly moves relative to and gets closer to the lower arm as the lower arm moves toward the actuator and the arm assembly moves toward the raised configuration. In view of this corresponding disclosure in the '703 patent, 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. 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. Therefore, based on the disclosure of the '703 patent, a POSITA would understand that 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.



64. As I explain in detail below, the challenged claims are unpatentable as anticipated and/or obvious in view of the prior art under any reasonable construction of this term.

B. “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”

65. Claim 34 is a dependent claim and states “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.” EX1001 at 26:38–41.

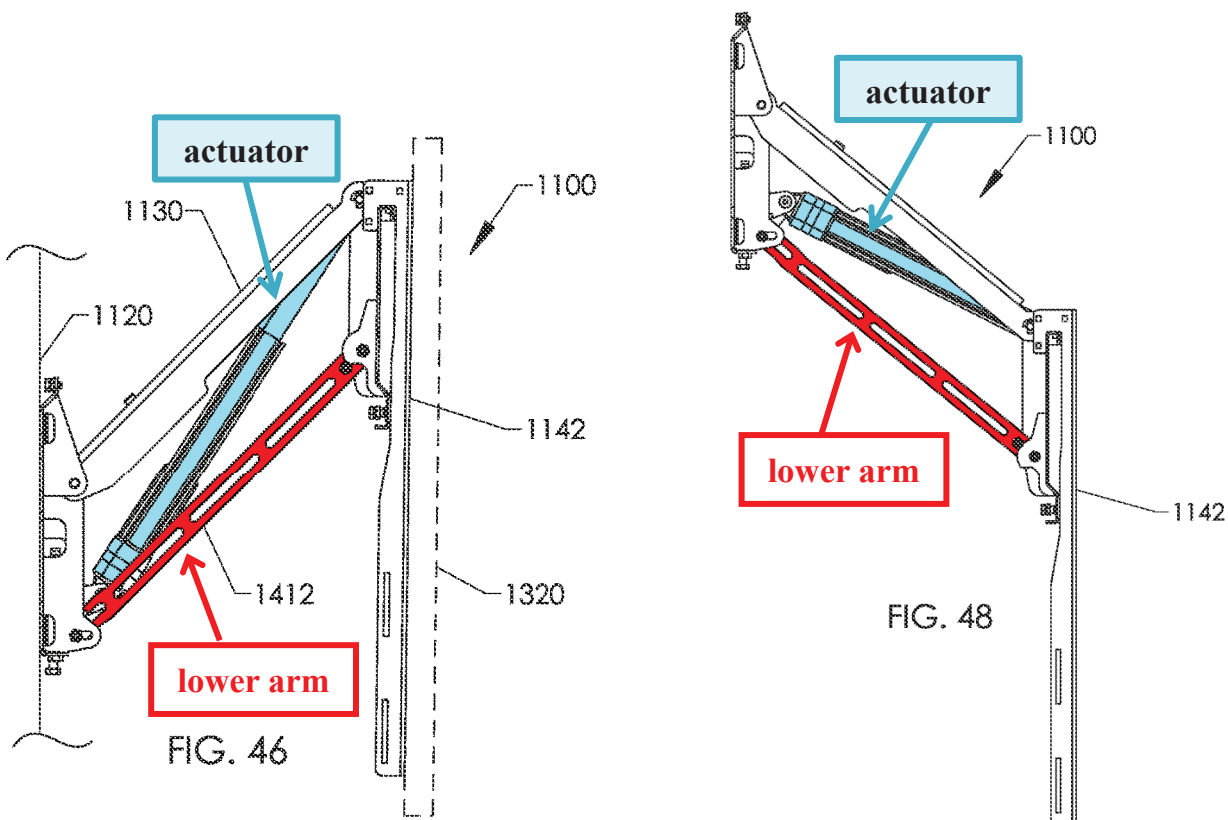
66. As with the previous term, the ’703 patent does not describe this claimed movement of the actuator assembly when the arm assembly is in the lowered configuration. A POSITA would have understood that there can be no movement of the actuator assembly or the lower arm “when the arm assembly is in the lowered configuration.” One would know that the components of the system would not be moving when in the lowered configuration. Also, the specification does not describe how a portion of the actuator assembly can move away from the lower arm when the arm assembly is in the lowered configuration. EX1001. The language and movement of claim 34 are only mentioned in the claims themselves. But Figures 41–48 of the ’703 patent provide some illustration of the movement of a mounting system, including the actuator assembly 1200 from the raised position to the lowered position.

67. As I explained above, during prosecution of the ’703 patent, Patent Owner stated that claim 33 (was pending claim 59) and all the challenged claims are

“readable on Species 6” which corresponds to Figures 41–55. EX1002 at 29. And Figures 46 and 48 below show that the actuator assembly and the lower arm would move relative to one another as the arm assembly moves toward the lowered configuration. A POSITA would have understood that Figures 41–48 show that the actuator assembly would rotate downward in a direction toward the lower arm, but the lower arm also rotates downward in a direction away from the actuator assembly. Although the actuator assembly might be moving in a direction that is toward the lower arm (not away from it) when the arm assembly is being lowered, there is relative movement between the lower arm and actuator assembly that causes the lower arm and a portion of the actuator assembly to get further from one another. In this way, the actuator assembly gets further away from the lower arm as the arm assembly moves toward the lowered configuration. 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.* A POSITA would understand that 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. *Id.*; EX1001 at Figs. 41-48.

68. Therefore, a POSITA would have understood that 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.



69. As I explain in detail below, the challenged claims are unpatentable as anticipated and obvious in view of the prior art under any reasonable construction of this term.

IX. OVERVIEW OF GROUNDS

70. Below is a table listing the grounds of unpatentability for the '703 patent:

Ground	Reference(s)	Basis	Challenged Claims
1	N/A	Written Description	36
2	N/A	Indefinite	36
3	Clary	Anticipation	33-36
4	Clary in view of Tsuji and the general knowledge of a POSITA	Obviousness	33-36
5	Pankros	Anticipation	33-36
6	Pankros in view of Clary and the general knowledge of a POSITA	Obviousness	33-36

X. PRIOR ART STATUS

71. The references I rely upon in the grounds herein are prior art for at least the reasons I provide below. In my opinion, these reference constitute analogous art because they are from the same field of endeavor as the '703 patent, e.g. television mounting systems. They are also reasonably pertinent to a particular problem with which the inventor was involved, for example automatically raising and lowering a television. I understand that a POSITA is presumed to have been aware of such

analogous references. The same basic design and many overlapping features between the references listed above and the '703 patent further confirm that these references are analogous art that would have been known by a POSITA.

A. Clary (EX1004) Analysis

72. I understand Clary (EX1004) was published October 2, 2008 and is prior art under post-AIA 35 U.S.C. § 102(a)(1) because it was published before the earliest effective filing date of the '703 patent. EX1004 at 1.

73. I understand that, as I explained above, the earliest effective filing date for the '703 patent is April 17, 2017. But even if the '703 patent were somehow entitled to an earlier priority date, such as the filing date of the '297 application (May 27, 2011), Clary would still qualify as prior art because it published long before May 27, 2011 or any related application of the '703 patent. EX1001 at 1; EX1004 at 1.

B. Pankros (EX1006) Analysis

74. I understand Pankros (EX1006) was published February 9, 2012 and is prior art under post-AIA 35 U.S.C. § 102(a)(1) because it was published before the earliest effective filing date of the '703 patent. EX1006 at 1.

75. As I explained above, the earliest effective filing date for the '703 patent is April 17, 2017. But even if the '703 patent were entitled to an earlier priority date, such as the filing date of the '297 application (May 27, 2011), Pankros would still qualify as prior art under post-AIA 35 U.S.C. § 102(a)(2) because it

published on February 9, 2012 and claims priority to the Pankros Provisional (EX1008) application which was filed August 5, 2010 which is before the earliest effective filing date of the '703 patent and the'297 application. EX1001 at 1; EX1006 at 1.

76. The Pankros Provisional provides the same relevant disclosure as Pankros, as shown in the examples below with parallel citations to EX1006 and EX1008. Many figures are analogous between these applications. For example, one can compare Pankros Figure 2 and the Pankros Provisional's Figure 2 which are very similar. As I illustrate below, these figures include the features of the challenged claims and Pankros' published claims.

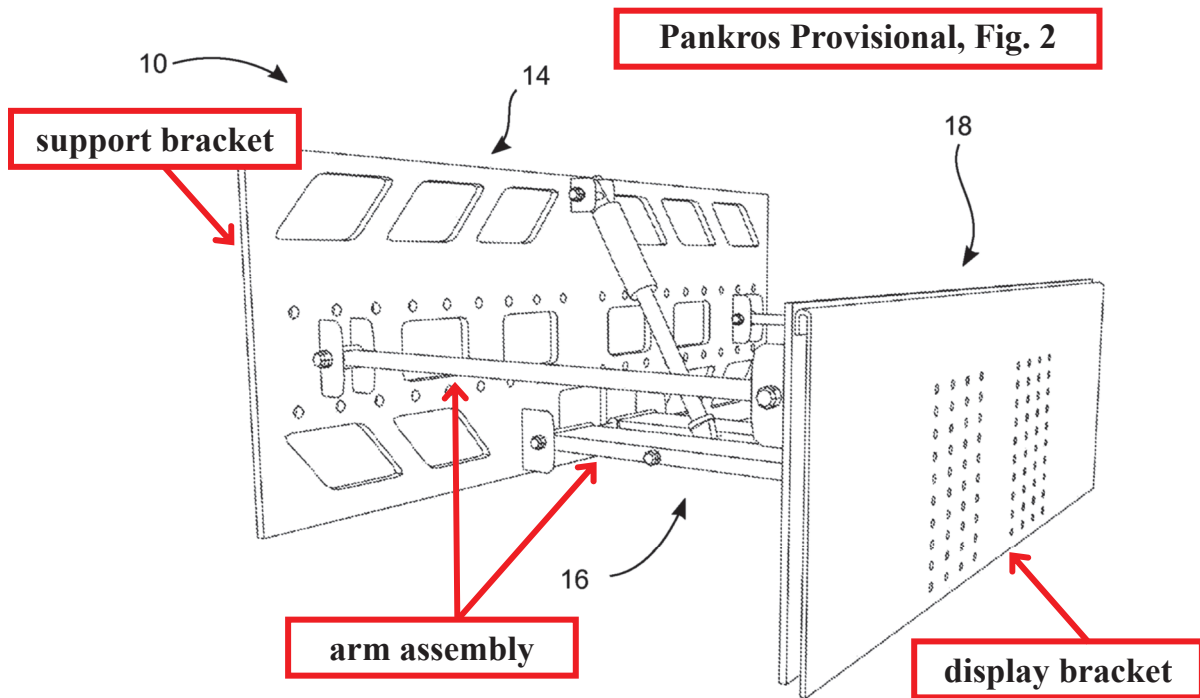
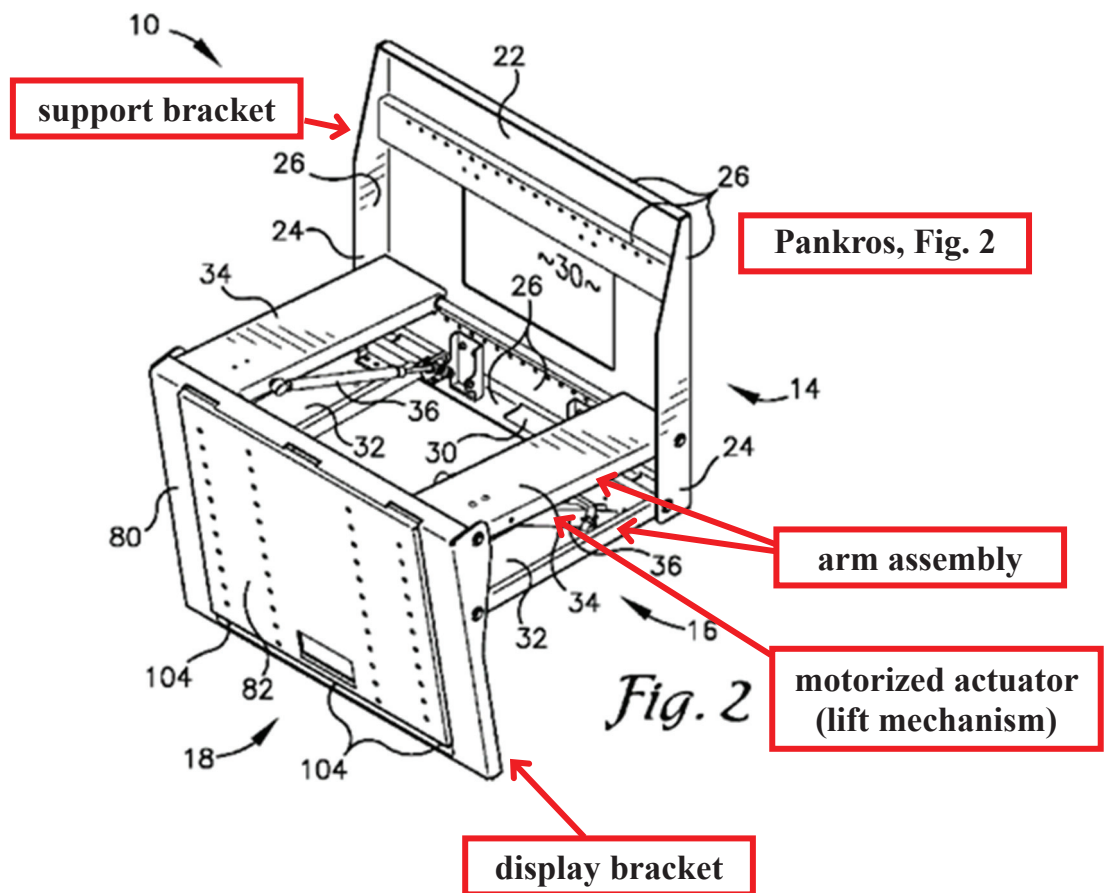
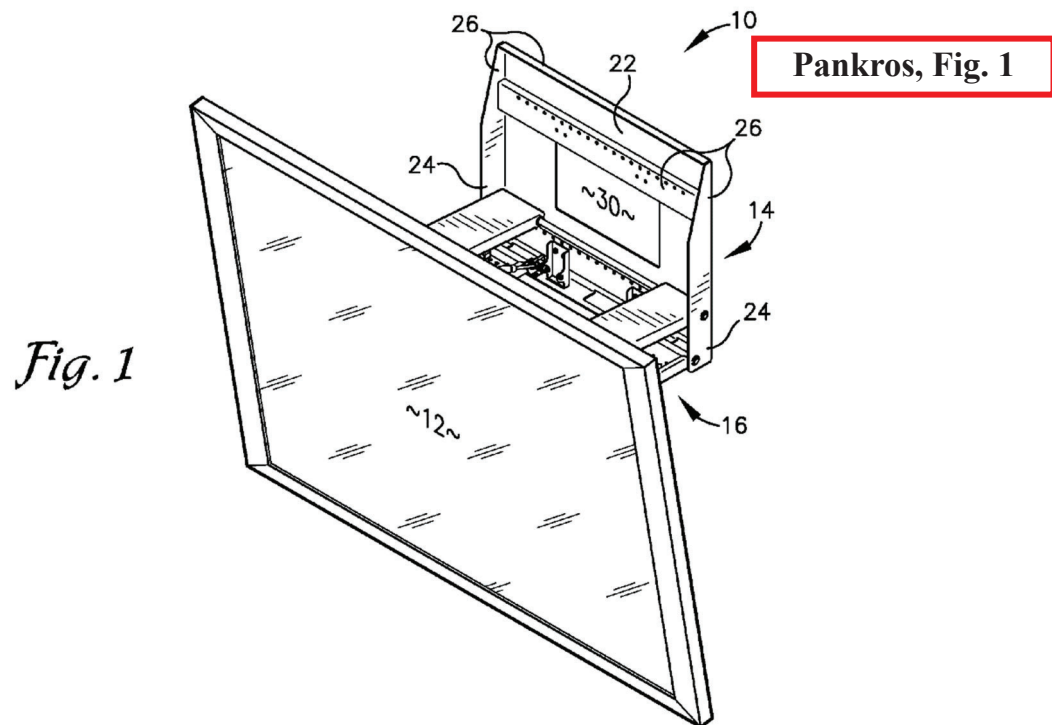
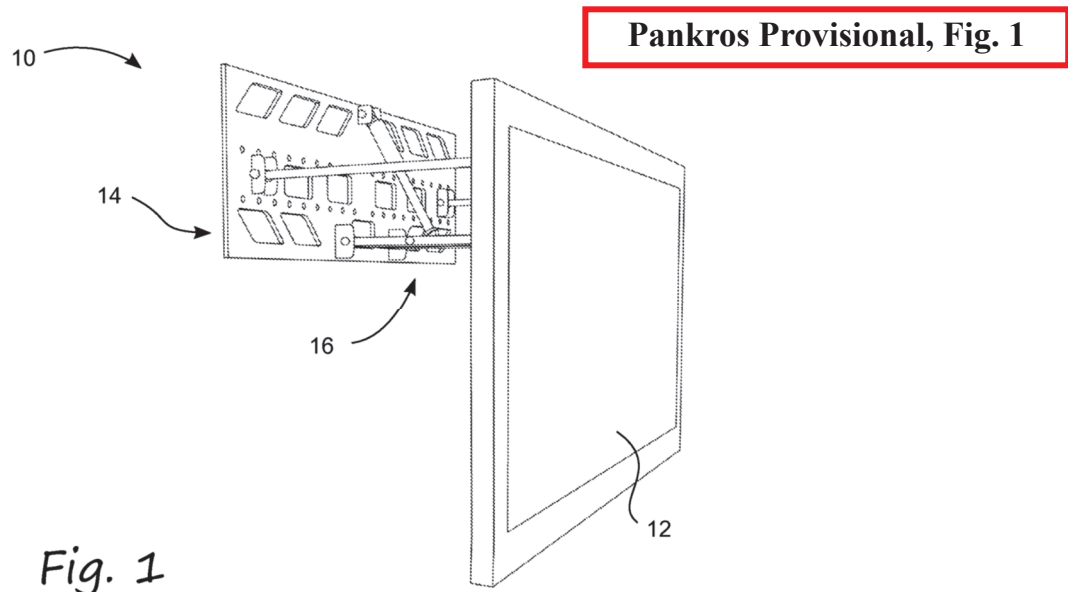


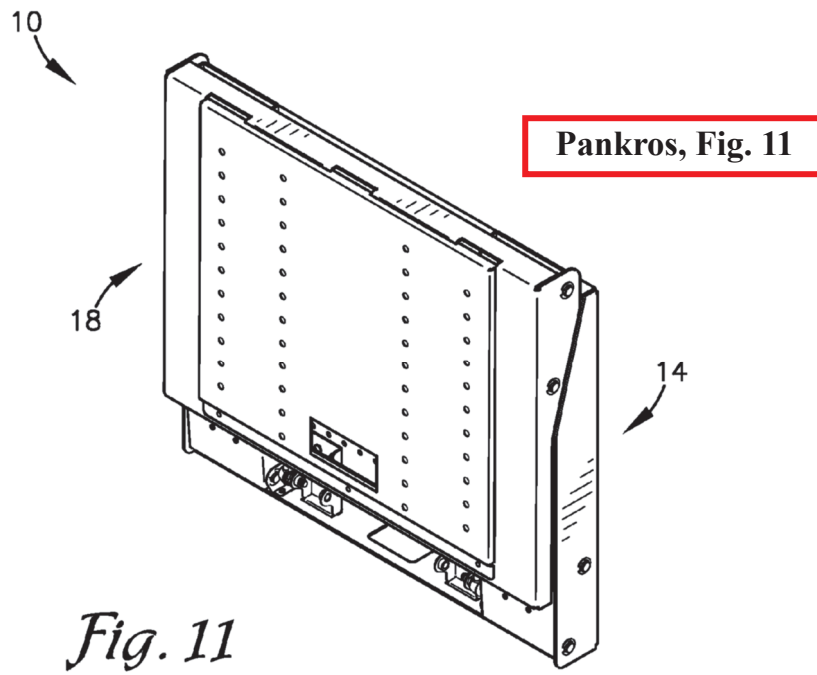
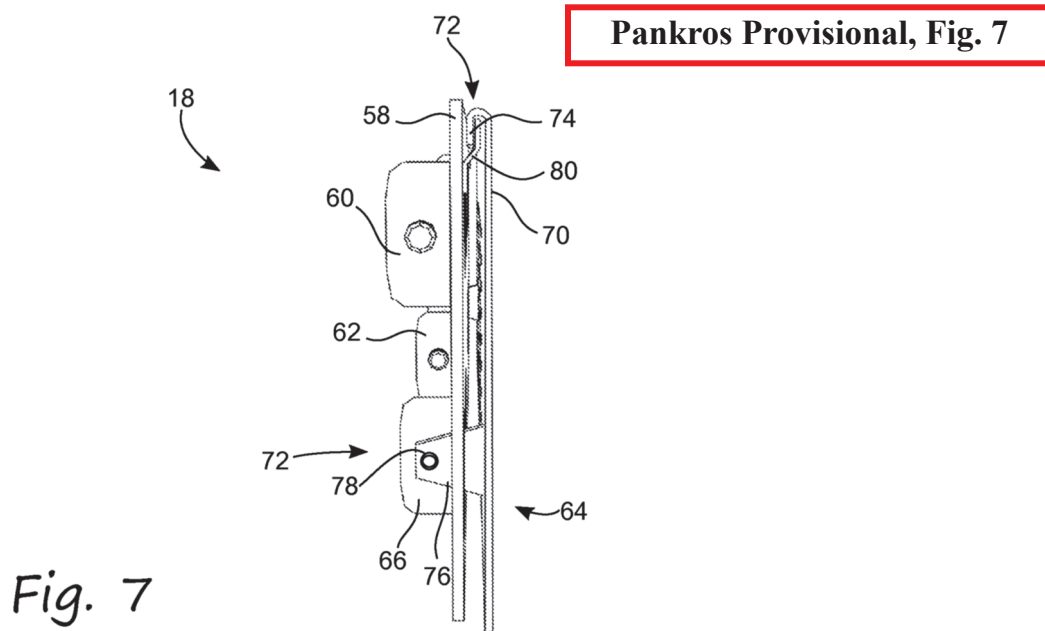
Fig. 2



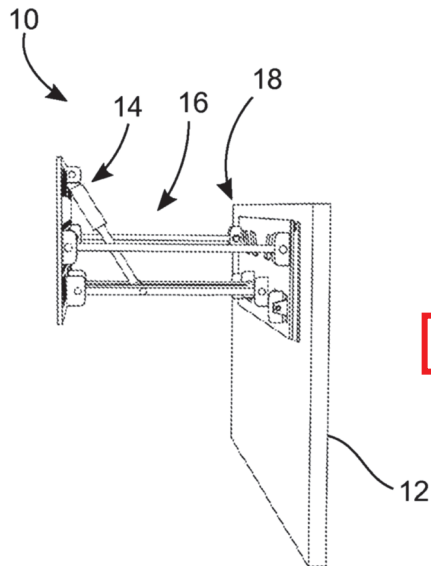
77. As another example, Pankros' Figure 1 corresponds to the provisional's Figure 1, as shown below. EX1006 at 2 (Fig. 1); EX1008 at 12 (Fig. 1).



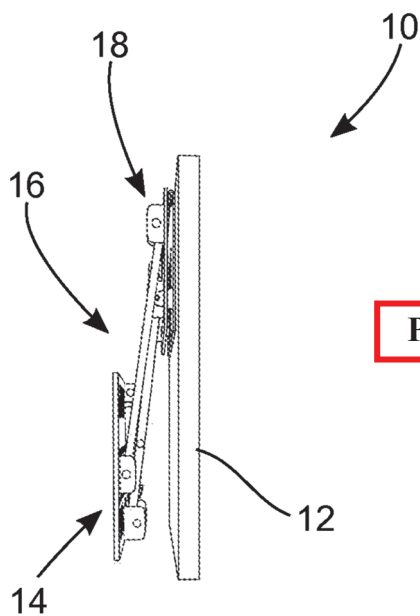
78. As another example, Pankros's Figure 11 corresponds to the provisional's Figure 7, as shown below. EX1006 at 6 (Fig. 11); EX1008 at 15 (Fig. 7).



79. As yet another example, Pankros's Figures 12 and 13 correspond to the provisional's Figures 9 and 11, as shown below. EX1006 at 7 (Figs. 12 and 13); EX1008 at 16 (Figs. 9 and 11).



Pankros Provisional, Fig. 9



Pankros Provisional, Figs. 11

Pankros, Figs. 12 and 13

Fig. 12

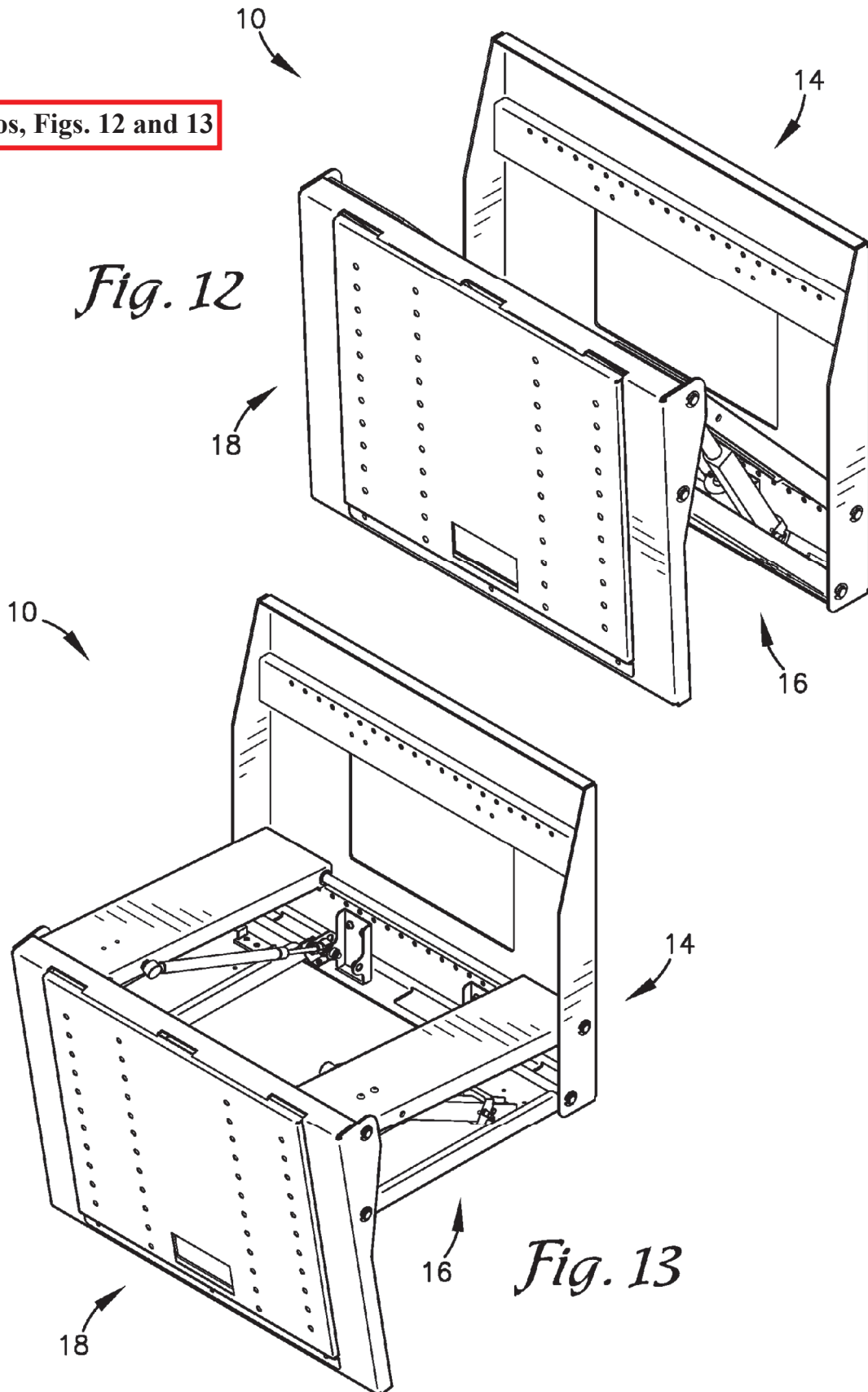


Fig. 13

80. The Pankros Provisional provides support¹ for at least Pankros' published Claim 1, as I show in the table below. *See* EX1006 at 7, Claim 1; EX1008 at [0004]-[0009], [0013]-[0018], and [0025]. Therefore, Pankros is entitled to the provisional's priority date of August 5, 2010. EX1006 at 1.

Published Claim 1 (EX1006)	Provisional Support (EX1008 at p.1-7)
A display mount apparatus comprising:	“the present invention provides a flat-panel display mount” [0004]
a wall mount;	“the wall mount 14” [0010]
a support mechanism including—	“the support mechanism 16 ... includes a lower support arm 28, an upper support arm 30 and, in some embodiments, the support mechanism 16 may further include a lift mechanism 32.” [0014]
an upper support arm rotatably connected to the wall mount about a substantially horizontal axis at a proximal end of the upper support arm,	“The upper support arm 30 includes a proximal attachment point 42 at a proximal end of the upper support arm 30 ... Each upper support arm 30 is pivotally connected at the proximal

¹ It has been explained to me that a showing that the Pankros Provisional supports one of Pankros' claims is not necessary under USPTO guidance. Nevertheless, I understand that Petitioner makes such a showing out of an abundance of caution in view of Board cases applying such a standard to certain post-AIA cases.

	attachment point 42 to a corresponding attachment feature 22” [0016]
a lower support arm rotatably connected to the wall mount about a substantially horizontal axis at a proximal end of the lower support arm,	“The lower support arm 28 includes a proximal attachment point 34 at a proximal end of the lower support arm 28... Each lower support arm 28 is pivotally connected at the proximal attachment point 34 to a corresponding attachment feature 22 of the main body 20” [0015]
a lift mechanism connected at the first end to the upper support arm and connected at a second end to the wall mount; and	“the lift mechanism 32 connects the support mechanism 16 to an attachment feature 22 of the wall mount 14 and includes a first attachment point 50 and a second attachment point 52 at its distal ends. The first attachment point 50 connects the lift mechanism 32 to an attachment feature 22 of the wall mount 14 ... and the second attachment point 52 connects the lift mechanism 32 to the support mechanism 16” [0017]
a display support rotatably connected to a distal end of the upper support arm about a substantially horizontal axis and rotatably connected to a distal end	“the display mount 18 provides a secure attachment point for the display 12 and broadly includes a main body 58, an upper support arm attachment point 60, a lower support arm attachment point 62”

of the lower support arm about a substantially horizontal axis,	[0018]; “each upper support arm 30 is pivotally connected at the distal attachment point 44 to the display mount 18” [0016]; “the lower support arm 28 is pivotally connected at the distal attachment point 36 to the display mount 18” [0015]
wherein the display support is operable to move from a retracted position to an extended position	“The display mounting apparatus 10 may be extended to lower the display 12 to use the display at a comfortable viewing height and may be retracted when the display 12 is not in use.” [0025]
and wherein the display support is operable to support a display weighing 11.3 kg or more.	“Display mounts for computer monitors have allowed some degree of height adjustment, but none are suitable for displays that weigh more than approximately 25 – 30 pounds.” [0003]; “The present invention solves the above-described problems” [0004]

C. Juan (EX1005) Analysis

81. I understand Juan (EX1005) was published March 15, 2012 and is prior art under post-AIA 35 U.S.C. § 102(a)(1) because it was published before the earliest effective filing date of the ’703 patent. EX1005 at 1.

82. As I explained above, the earliest effective filing date for the '703 patent is April 17, 2017. However, even if the '703 patent were entitled to an earlier priority date, such as the filing date of the '297 application (May 27, 2011), Juan would still qualify as prior art under post-AIA 35 U.S.C. § 102(a)(2) because it published on March 15, 2012 and claims priority to the Juan Provisional (EX1007) application which was filed September 9, 2010 which is before the earliest effective filing date of the '703 patent and the '297 application. EX1001 at 1; EX1005 at 1.

83. The Juan Provisional provides the same general disclosure as Juan relating to the challenged claims, as shown in the examples below with parallel citations to EX1005 and EX1007. Many figures are analogous between these applications. For example, compare Juan Figure 8 and the Juan Provisional's "First Embodiment" figure. EX1005 at 9 (Fig. 8); EX1007 at 12 (First Embodiment Figure). As shown below, these figures include the features of the challenged claims and Juan's published claims.

Juan, Fig. 8

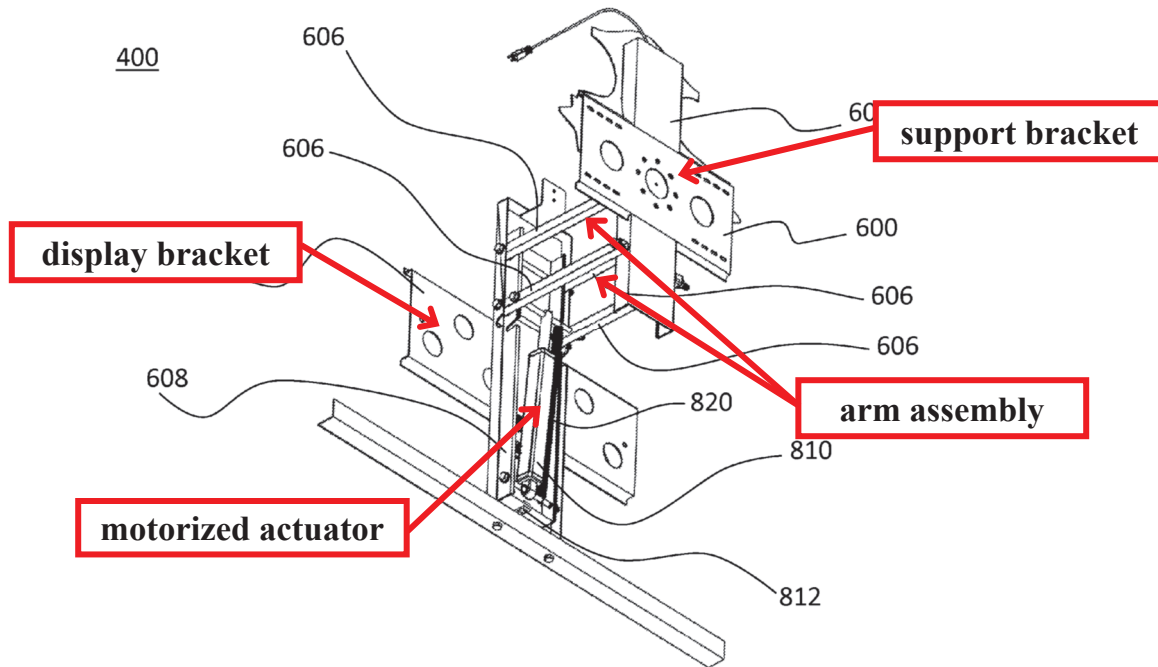
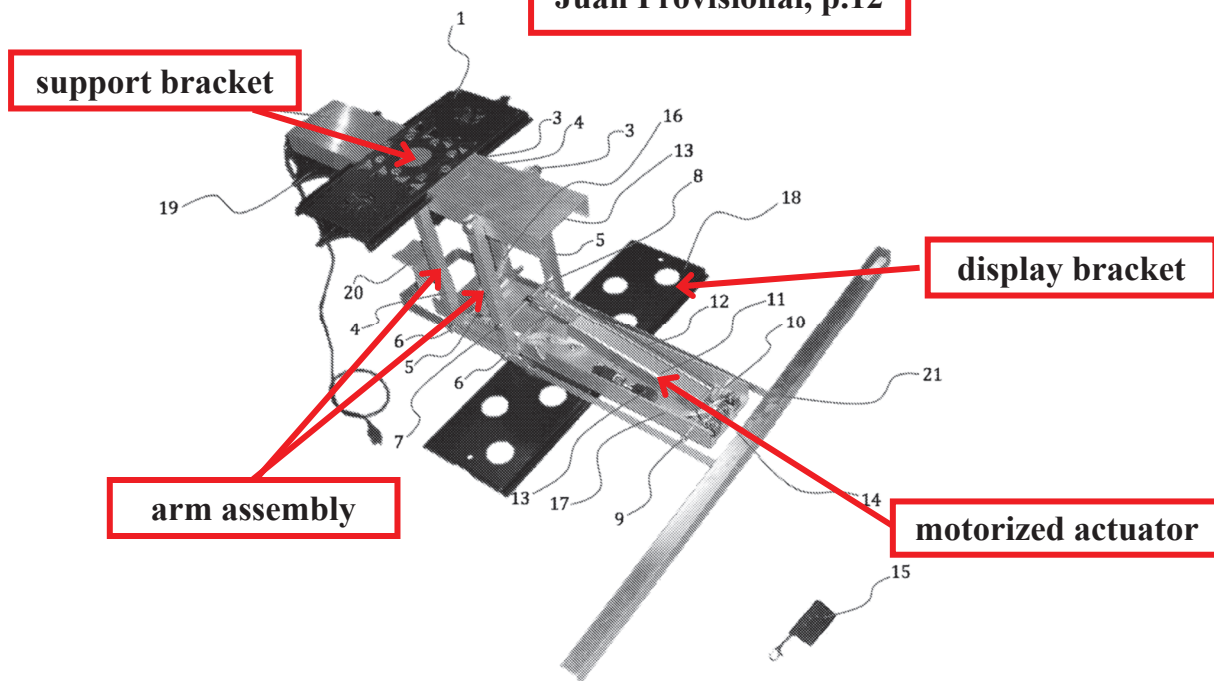


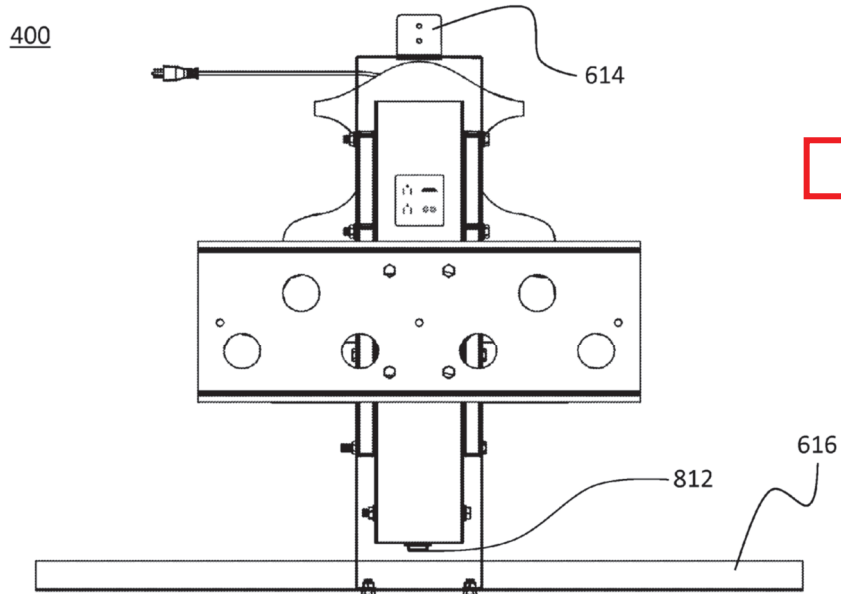
FIG. 8

Detailed Description – First Embodiment – Figs.

Juan Provisional, p.12

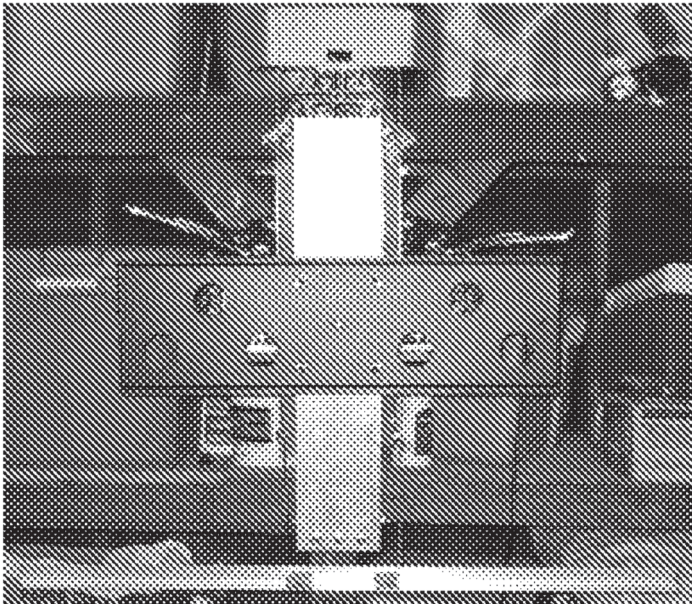


84. As another example, Juan's Figure 9 corresponds to the provisional's Figure 1, as shown below. EX1005 at 10 (Fig. 9); EX1007 at 8 (Fig. 1).



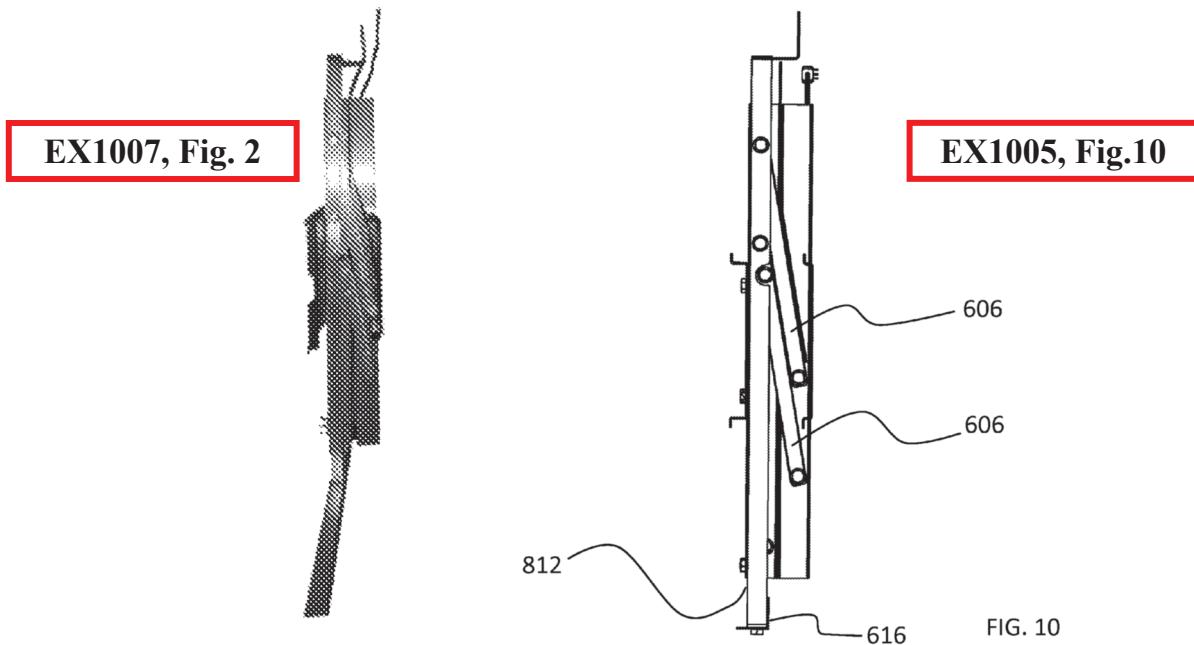
EX1005, Fig. 9

FIG. 9

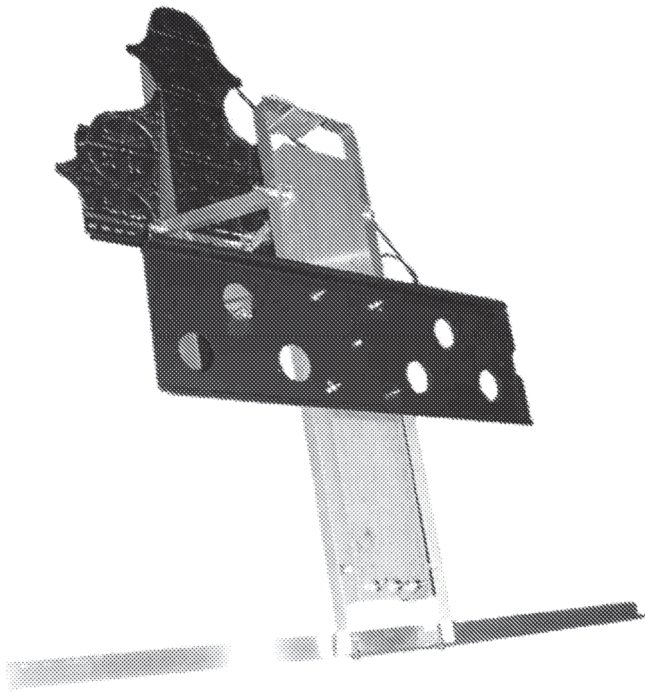


EX1007, Fig. 1

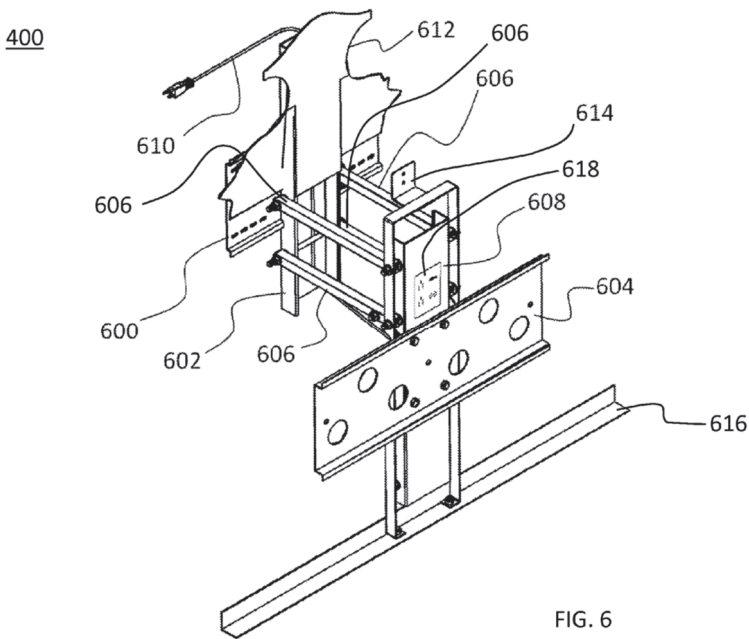
85. As another example, Juan's Figure 10 corresponds to the provisional's Figure 2. EX1005 at 11 (Fig. 10); EX1007 at 8 (Fig. 2)



86. As another example, Juan's Figure 6 corresponds to the provisional's Figure 3, as shown below. EX1005 at 7 (Fig. 6); EX1007 at 9 (Fig. 3).



EX1007, Fig. 3



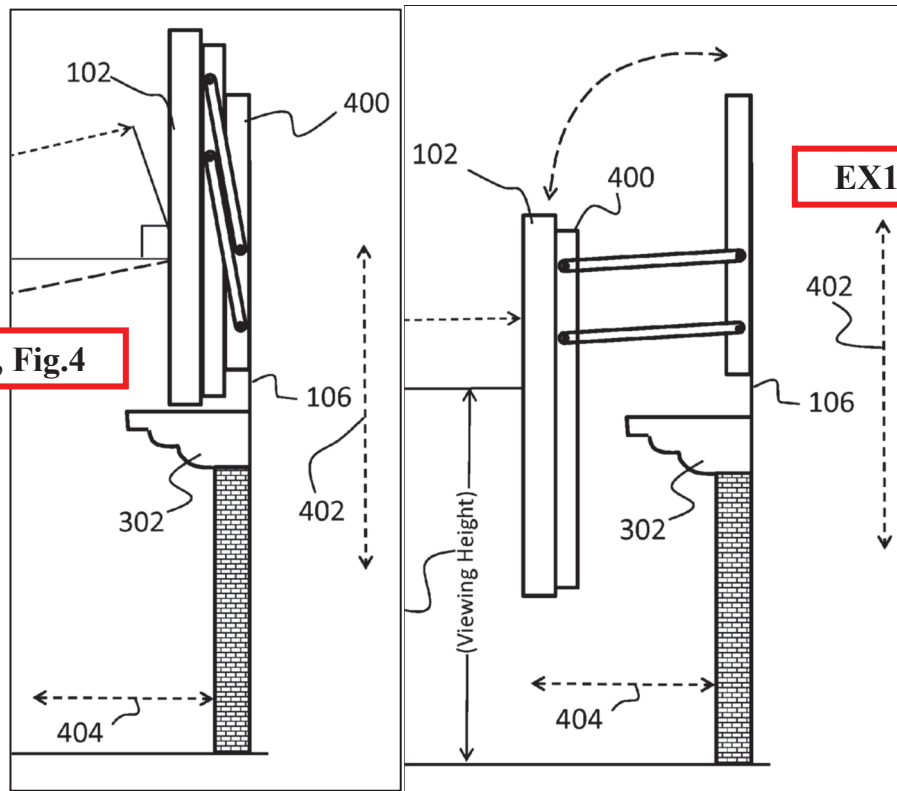
EX1005, Fig.6

87. Figures 4 and 5 of Juan also correspond to Figures 4a and 4c of the provisional, showing the movement of the linkage arms in the mounting system, as shown below. EX1005 at 5-6 (Figs. 4 and 5); EX1007 at 9 (Figs 4a and 4c).



EX1007, Fig. 4a

EX1007, Fig. 4c



EX1005, Fig. 4

EX1005, Fig. 5

88. The Juan Provisional provides support for at least Juan’s published Claim 1, as shown in the table below. *See* EX1005 at 21 (Claim 1); EX1007 at 6-7. Thus, Juan is entitled to the provisional’s priority date of September 9, 2010.

Published Claim 1 (EX1005 at 21)	Provisional Support (EX1007 at 6-7)
A display mount comprising:	“an adjustable display mount comprises” p.6, ¶4.
A mounting plate for mounting with a surface;	“a wall-mounting plate” p.6, ¶4, p.7, ¶1.
A front mount formed to attach with a flat-panel display; and	“a display mounting plate” p.6, ¶4, p.7 , ¶1.
A swing out apparatus pivotally connected between the mounting plate and the front mount,	“a parallelogrammic structure” p.6, ¶4; First Embodiment Figure (4) and (5), p.12-13; “Bolts used to fasten parallelogrammic structure which serve as axis of rotation for parallelogrammic components” p.12-13, First Embodiment Figure (3), (6).
The swing out apparatus formed to swing the front mount between a retracted position and an extended position, such that [movement] from the retracted to extended position moves the front mount out and down.”	“A display mount enables a mounted display to move downwards while simultaneously moving the display away from the mounting point. . .” p.7, ¶3.

D. Tsuji (EX1015) Analysis

89. I understand Tsuji (EX1015) was published January 22, 2009 and is prior art under post-AIA 35 U.S.C. § 102(a)(1) because it was published before the earliest effective filing date of the '703 patent. EX1015 at 1.

90. I understand that, as I explained above, the earliest effective filing date for the '703 patent is April 17, 2017. But even if the '703 patent were somehow entitled to an earlier priority date, such as the filing date of the '297 application (May 27, 2011), Tsuji would still qualify as prior art because it published long before May 27, 2011 or any related application of the '703 patent. EX1001 at 1; EX1015 at 1.

E. Xu (EX1017) Analysis

91. I understand Xu (EX1017) was published August 20, 2008 and is prior art under post-AIA 35 U.S.C. § 102(a)(1) because it was published before the earliest effective filing date of the '703 patent. EX1017 at 1.

92. I understand that, as I explained above, the earliest effective filing date for the '703 patent is April 17, 2017. But even if the '703 patent were somehow entitled to an earlier priority date, such as the filing date of the '297 application (May 27, 2011), Xu would still qualify as prior art because it published long before May 27, 2011 or any related application of the '703 patent. EX1001 at 1; EX1017 at 1.

XI. GROUND 1: CLAIM 36 LACKS WRITTEN DESCRIPTION

93. I understand that to comply with the written description requirement of § 112, the claimed invention must be sufficiently described in the specification to convey to a POSITA that the inventor had possession of the claimed invention at the time the application was filed.

94. Dependent claim 36 includes limitations that are not disclosed in the specification and a POSITA would not have understood that the named inventor had possession of the claimed invention at the time the '703 patent was filed (October 3, 2022), or at the time of the earliest effective filing date for claim 36. For example, Claim 36 of the '703 patent states “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.”

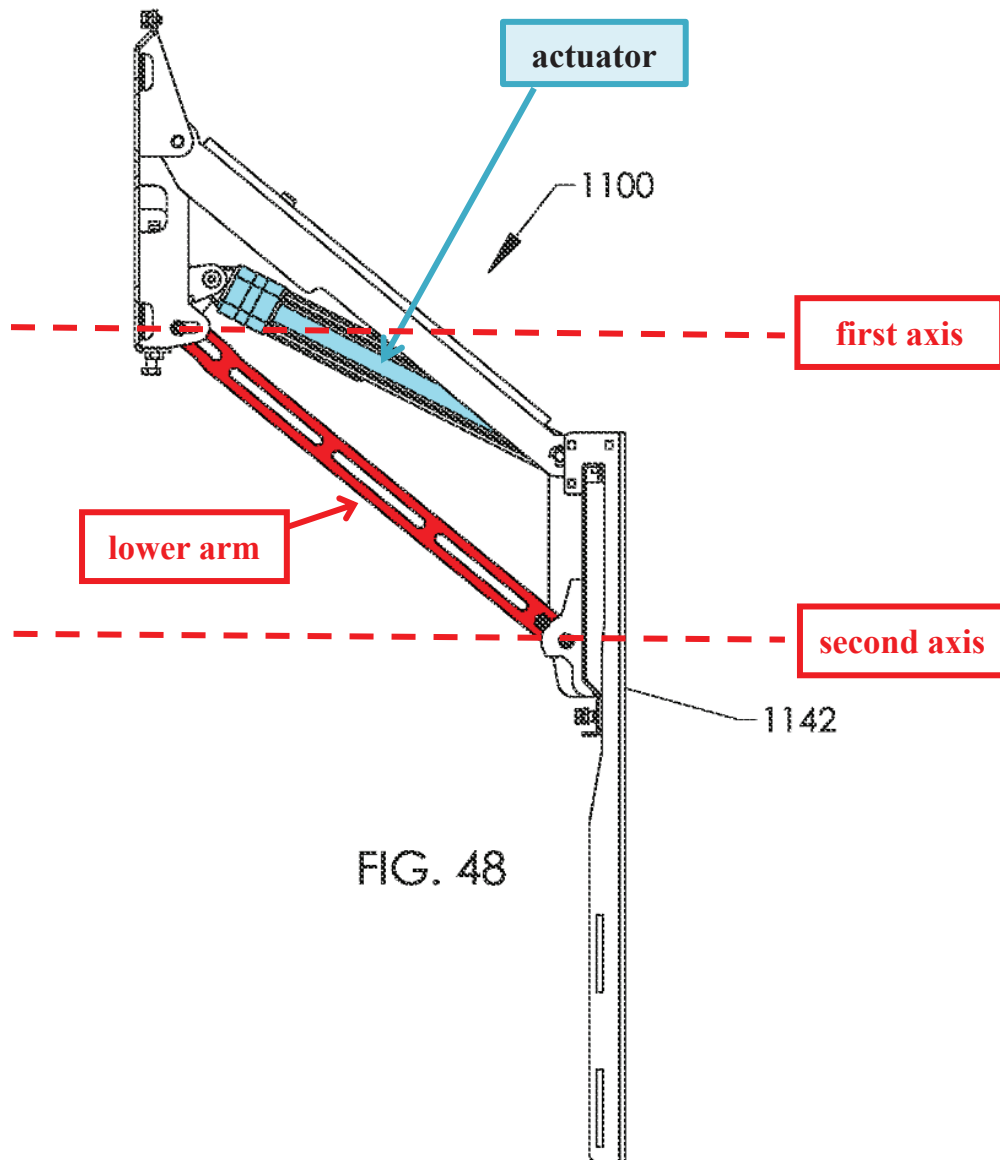
95. In my opinion, a POSITA would not have thought the named inventor had possession of the claimed invention including the “below an extendable actuator” features because the specification of the '703 patent and all of its priority applications do not disclose or describe these features. As I explained above in Sections V and VI, the related pre-CIP applications of the '703 patent do not describe or support an actuator assembly or its specific positioning in a lowered configuration. The pre-CIP applications do not even mention or describe any

extendable actuator as part of a motorized actuator assembly. These applications also do not show how an extendable actuator (undisclosed) could possibly be positioned in a lowered configuration so that the first and second axes of rotation of the lower arm are spaced apart from and located below the extendable actuator of the motorized actuator assembly. None of these pre-CIP applications convey to a POSITA that the named inventor had possession of the “below an extendable actuator” feature in the context of claim 36 at the relevant time.

96. The '703 patent specification and the other post-CIP applications also do not provide written description for the “below an extendable actuator” feature. 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. The post-CIP specifications fail to explain what the extendable actuator is, and they also 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.

97. The figures of the post-CIP applications also show that the inventor of the '703 patent was not in possession of the claim limitations of claim 36. Figure 48 illustrates the lowest/lowered configuration of the mounting system that corresponds to the challenged claims. As I show in the annotated Figure 48 below, it is unclear how an extendable actuator, which is not described, could be spaced apart from and

located above the first and second axes of the lower arm. A POSITA would understand that, in the figure, the actuator is not spaced apart from nor above the first and second axes of the lower arm.



98. The Figures 62 and 67 also show mounting systems in a lowered configuration, but they do not provide written description support for the “below an

extendable actuator” features for the same reasons as Figure 48. There is nothing in the specification of the ’703 patent or its priority applications that suggests the inventor was in possession of the “below an extendable actuator” limitation along with the other claim limitations in claim 36. Therefore, a POSITA would have understood that there was insufficient written description to show that the inventor had possession of the subject matter set forth in claim 36.

XII. GROUND 2: CLAIM 36 IS INDEFINITE

99. I understand that a patent’s claims, viewed in light of the specification and prosecution history, must inform those skilled in the art about the scope of the invention with reasonable certainty. Claim 36 fails to do this.

100. Claim 36 of the ’703 patent does not meet this requirement because it does not inform a POSITA about the scope of the extendable actuator limitation in the claim. The claim language, specification, and file history do not provide a POSITA with any guidance as to the meaning or bounds of the claimed positioning of the first and second axes “spaced apart from and located below an extendable actuator of the motorized actuator assembly when the arm assembly is in the lowered configuration.” A POSITA would also understand that claim 36 includes a required position of an “extendable actuator” without providing any explanation for the bounds of the extendable actuator or how it can have the claimed position.

101. Regarding the term “extendable actuator,” claim 36 and the claims it depends from do not provide any additional information regarding the meaning of the “extendable actuator” of the actuator assembly or how it can be positioned above the first and second axes in the lowered configuration. The specification also fails to provide any clarity.

102. A POSITA would understand that the ’703 patent specification does not provide any description for the “extendable actuator” and the “spaced apart and below” feature. The specification does not even mention an “extendable actuator,” and says nothing about an extendable actuator that is part of a motorized actuator assembly. Also, the specification does not 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. No portion of the specification provides 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. 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. The specification does describe an actuator assembly 1200 that can have multiple parts, but it does not describe any extendable actuator, nor does it explain or show how any particular part of the actuator assembly

could be positioned above the first and second axes in the lowered configuration. EX1001 at 17:55-67.

103. The file history of the '703 patent (and the other related applications) also does not provide any clarity as to what is meant by the claimed “extendable actuator” features, leaving the scope and meaning of claim 36 unclear. *See* EX1002. Therefore, claim 36 is indefinite because when viewed in light of the specification and prosecution history, it does not inform a POSITA about the scope of the claimed “extendable actuator” or its spaced apart position with any reasonable certainty.

XIII. GROUND 3: CLARY ANTICIPATES CLAIMS 33-36

A. Summary of Clary (EX1004)

104. I understand that Clary is listed on the '703 patent but was not applied by the Examiner during prosecution of the '703 patent. EX1001. Clary describes a wall-mounted articulating flat panel display mount. EX1004 at [0012]. The display mount includes a first frame assembly 1, a second frame assembly 3, and pairs of horizontally spaced parallel links 5 which connect the first and second frame assemblies. *Id.* at [0015]. The first frame assembly 1 is configured to be secured to a wall 2 and the second frame assembly 3 is attached to a flat panel display 4. *Id.* The horizontally spaced parallel links 5 are pivotally connected to the first and second frame assemblies so the display can be moved away from the wall to a lowered position. *Id.*

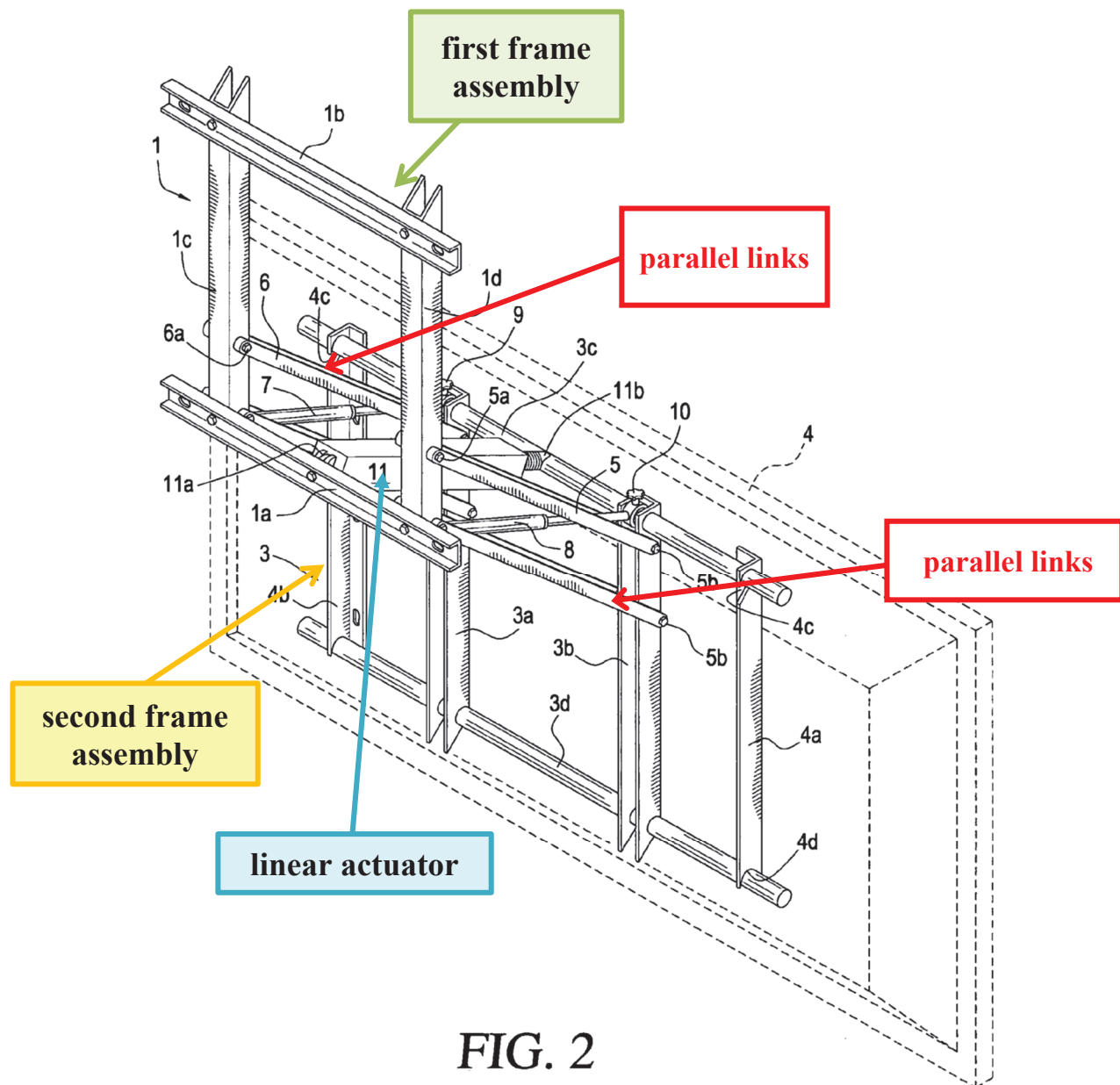


FIG. 2

EX1004 at Figure 2 (annotated).

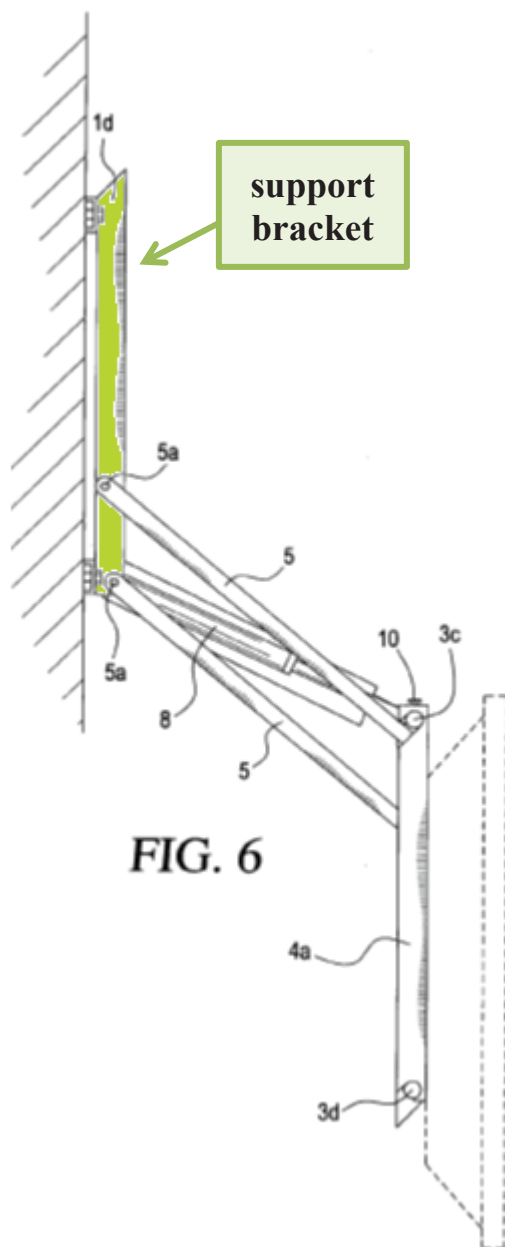
105. Clary also describes a linear actuator 11 that allows for automatic lowering and lifting of the display between raised and lowered positions, as shown below. *Id.* at, [0005], Figures 5 and 6.

1. Preamble of Claim 33

107. The preamble of claim 33 states “A television mounting system comprising.” Clary discloses such a mounting system for a television. For example, Clary describes a “wall affixed vertically articulated flat panel display mount.” EX1004 at Abstract, [0002] and Claim 1.

2. Limitation 33[a]: “a support bracket configured to couple to a wall;”

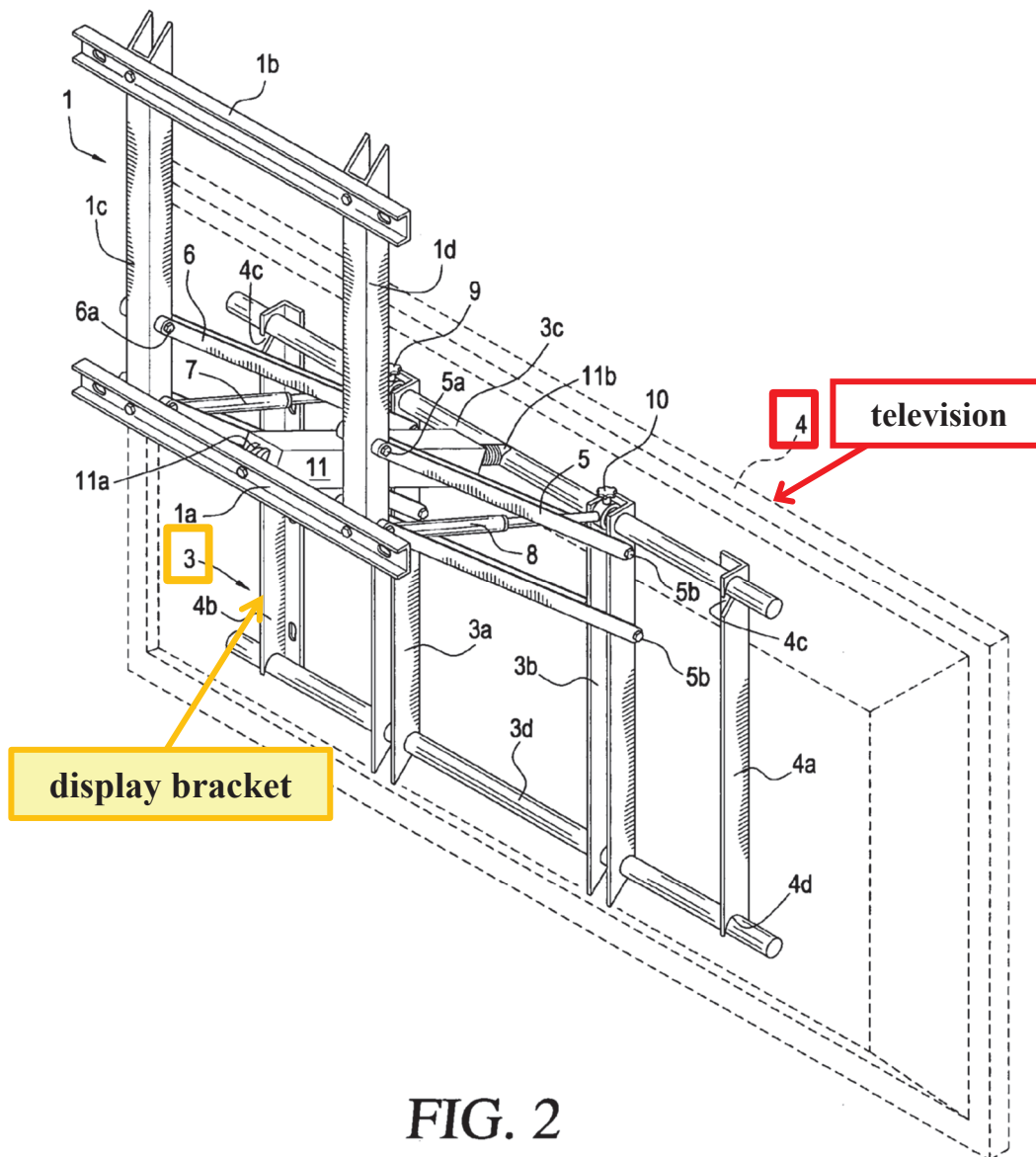
108. Clary discloses this limitation. For example, Clary describes a wall frame or first frame assembly 1 that is secured to the wall, as shown in Figure 6 below. *See* EX1004 at [0012], [0018], Figure 6 (annotated).



Id., Fig. 6 (annotated).

3. Limitation 33[b]: “a display bracket configured to hold a television”

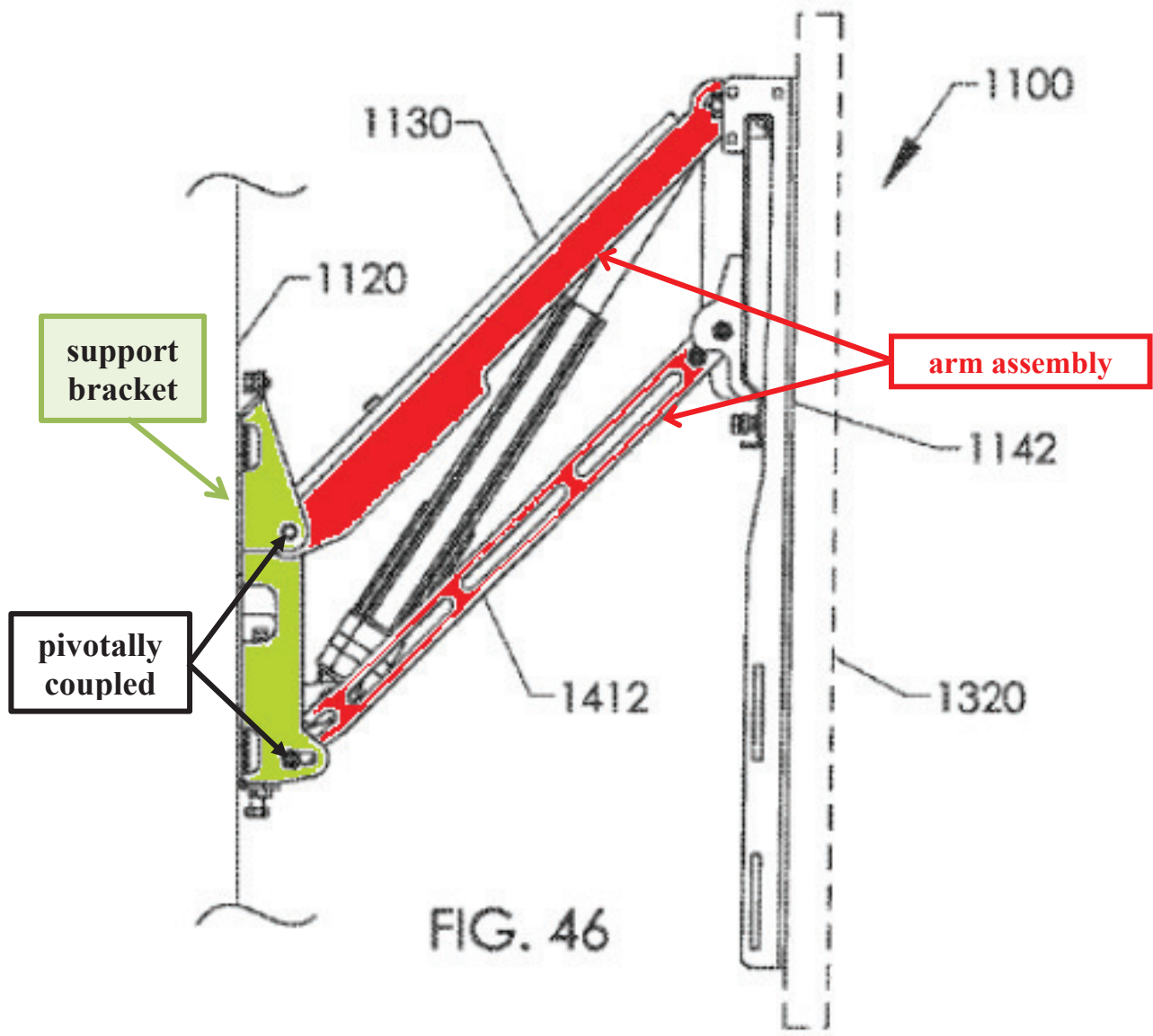
109. Clary discloses this limitation. The display bracket 3 is configured to hold a television (flat panel display), as shown in the annotated Figure 2 below. EX1004 at [0012], [0014], Fig. 2 (annotated).



Id., Fig. 2 (annotated).

4. **Limitation 33[c]: “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”**

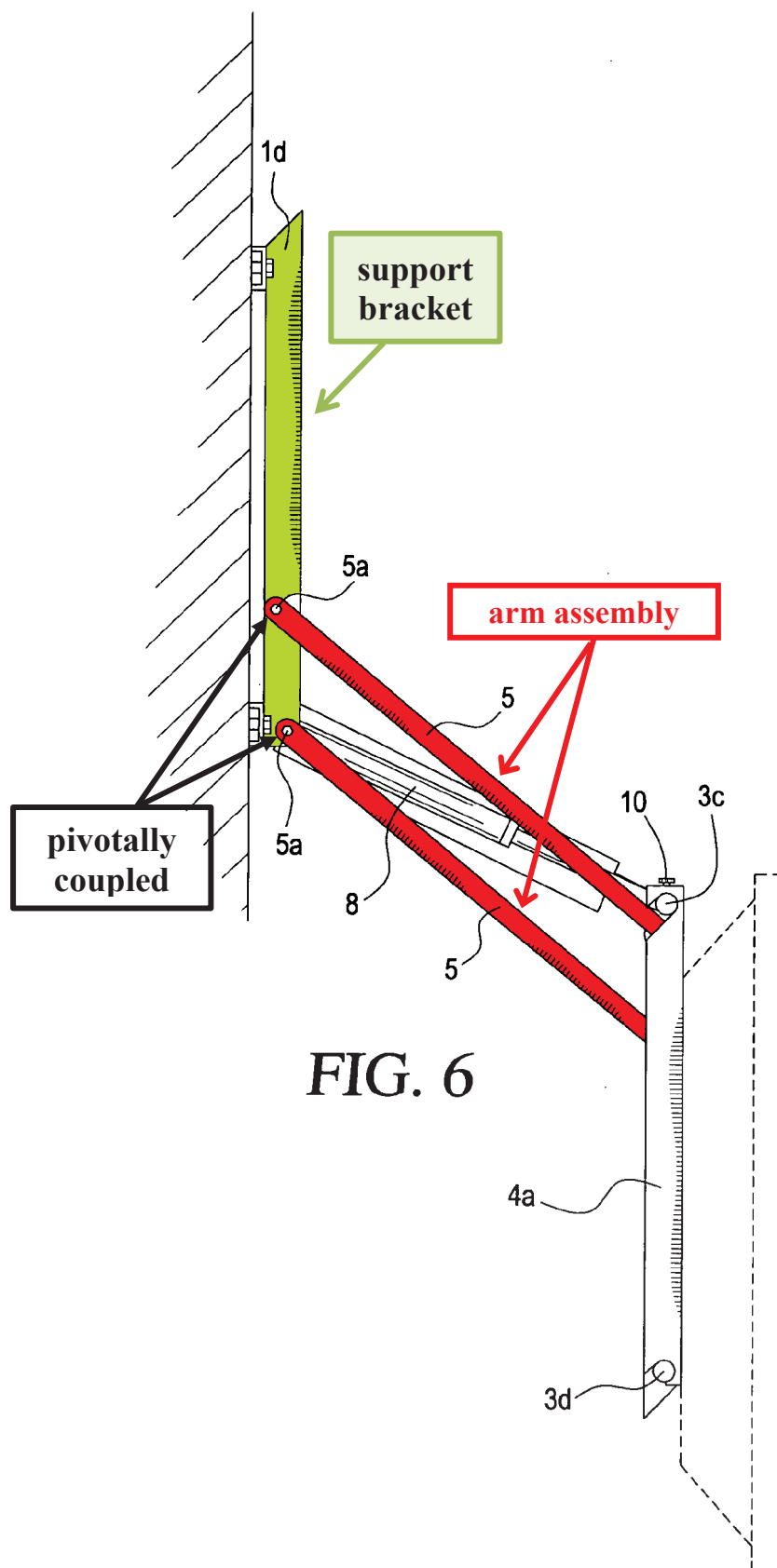
110. The specification of the '703 patent describes a linkage assembly 1130 that is pivotally coupled to the support bracket at support pivots on the support bracket 1140. EX1001 at 17:42-54. As shown below, the arm/linkage assembly is movable to position the display bracket at different configurations. EX1001 at 1:64-2:1 (“The mounting apparatus can automatically move the television to a desired viewing position and can include, without limitation, one or more components for allowing a user to smoothly raise or lower the television”), 17:23-31 (“The linkage assembly 1130 is rotatably coupled to the support and display brackets 1140, 1142 and can swing upwardly . . . or downwardly . . .”), Figs. 43-46. Clary discloses this limitation.



Id., Fig. 46 (annotated).

111. Clary discloses an arm assembly that is pivotally coupled to the support bracket, similar to the assembly of the '703 patent, as shown in annotated Figure 6 below. EX1004 at [0015] (“The frame assemblies 1 and 3 are vertically articulated

relative to each other by means of two pairs of horizontally spaced, parallel links 5 and 6 having respective ends pivotally connected ...”), Fig. 6 (annotated).



Id. at Fig. 6 (annotated).

112. Clary also discloses that its linkage assembly is 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. EX1004 at [0014] and [0018]. Clary's "flat panel display frame is provided with a vertical mobility whereby it can travel from a raised position flat against the wall frame 1, to an extended position the full length of the linkage arms away from the wall, to a lowered position back flat against the wall 2 below the wall frame 1," as shown in annotated Figs. 5 and 6 below. EX1004 at [0018], Figs. 5 and 6.

**raised
configuration**

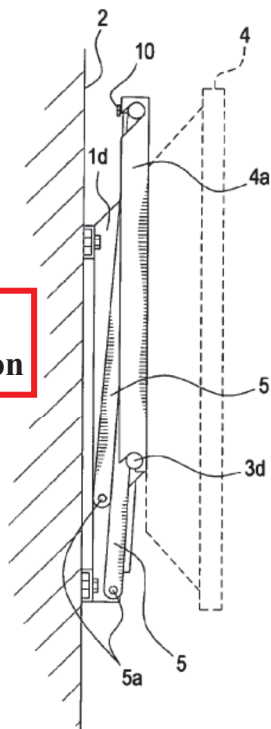


FIG. 5

**lowered
configuration**

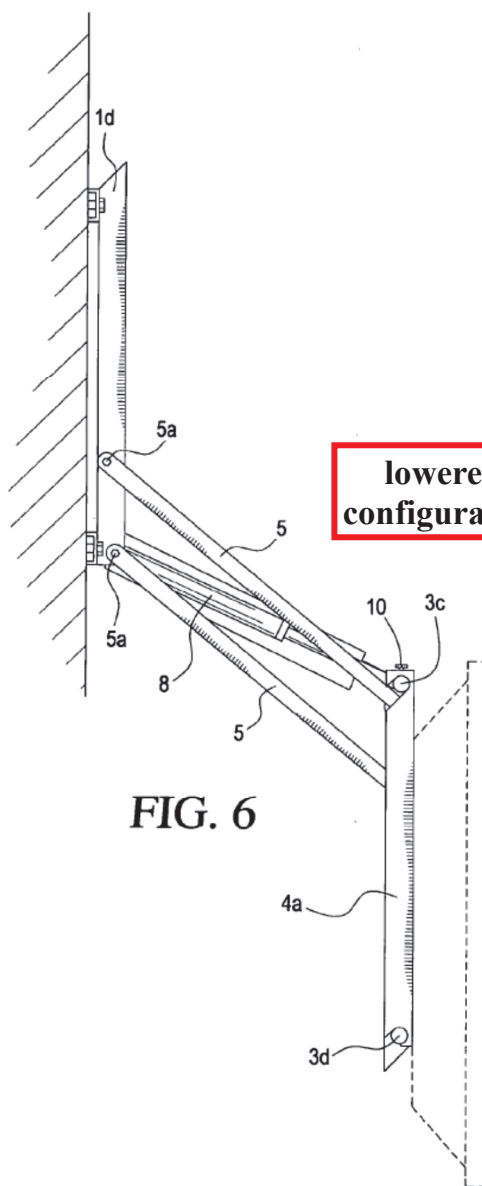
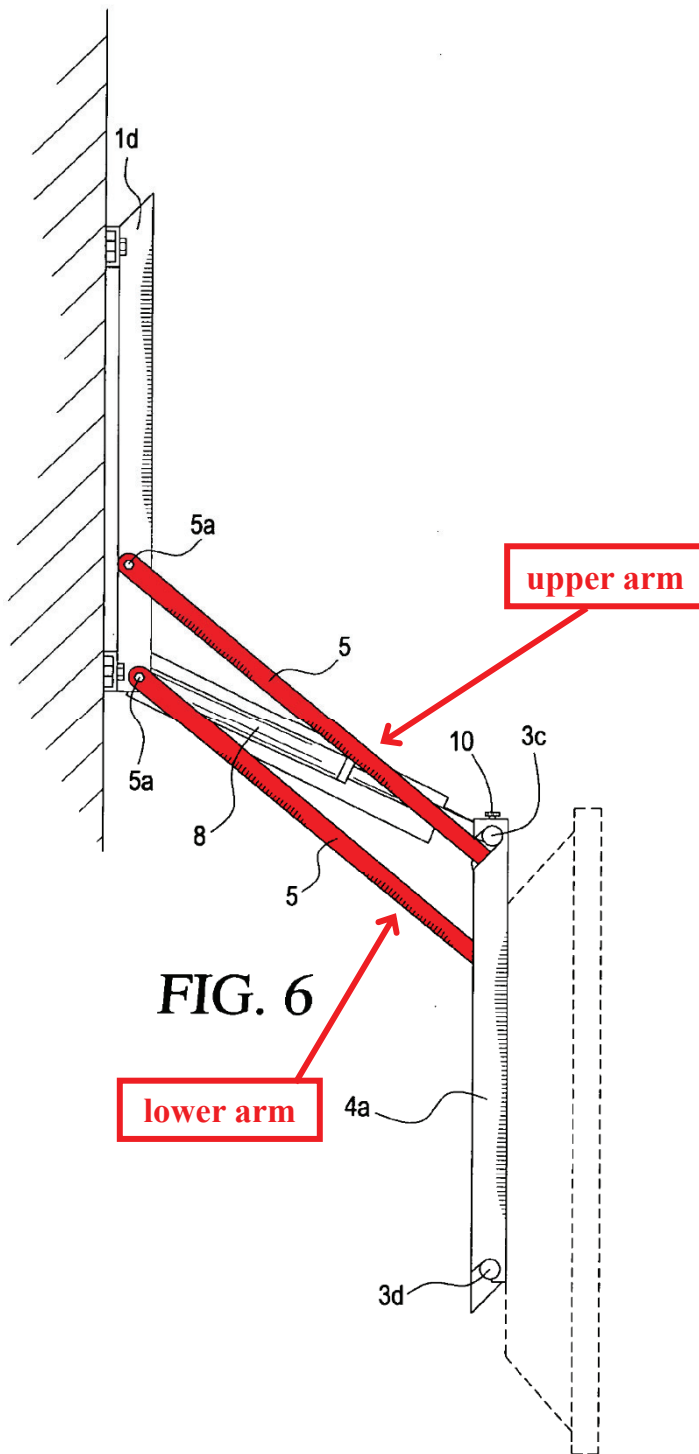


FIG. 6

113. Therefore, based on the disclosure of Clary, a POSITA would understand that Clary discloses this limitation.

5. Limitation 33[c][i]: “wherein the arm assembly includes an upper arm and a lower arm”

114. Clary discloses this limitation. For example, as shown in Figure 6 below, the parallel links 5, 6 of the arm assembly include an upper arm and a lower arm. EX1004 at [0015], Fig. 6 (annotated).



Id., Fig. 6 (annotated).

6. Limitation 33[d]: “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”

115. A POSITA would understand that Clary discloses this limitation. For example, Clary discloses a motorized actuator assembly, including linear actuator 11, with a support bracket end that is pivotally/rotatably coupled to the support bracket (wall channel 1a), as shown in annotated Figure 4. EX1004 at [0017] (“linear actuator 11 has one end pivotally connected to the wall channel 1a as at 11a . . .”). The actuator assembly has a display bracket end that is threaded to engage with the linear actuator 11 to provide linear actuation and relative movement of the actuator 11 and the tube 3c. *Id.* As illustrated in Figure 4 below, the display bracket end of the actuator assembly is rotatably coupled to the arm assembly 5 and 6. EX1004 at [0016]. A POSITA would understand that Clary’s actuator assembly is rotatably coupled to the arm assembly 5 and 6 so that the actuator can articulate the arm assembly and the display mount. *Id.*

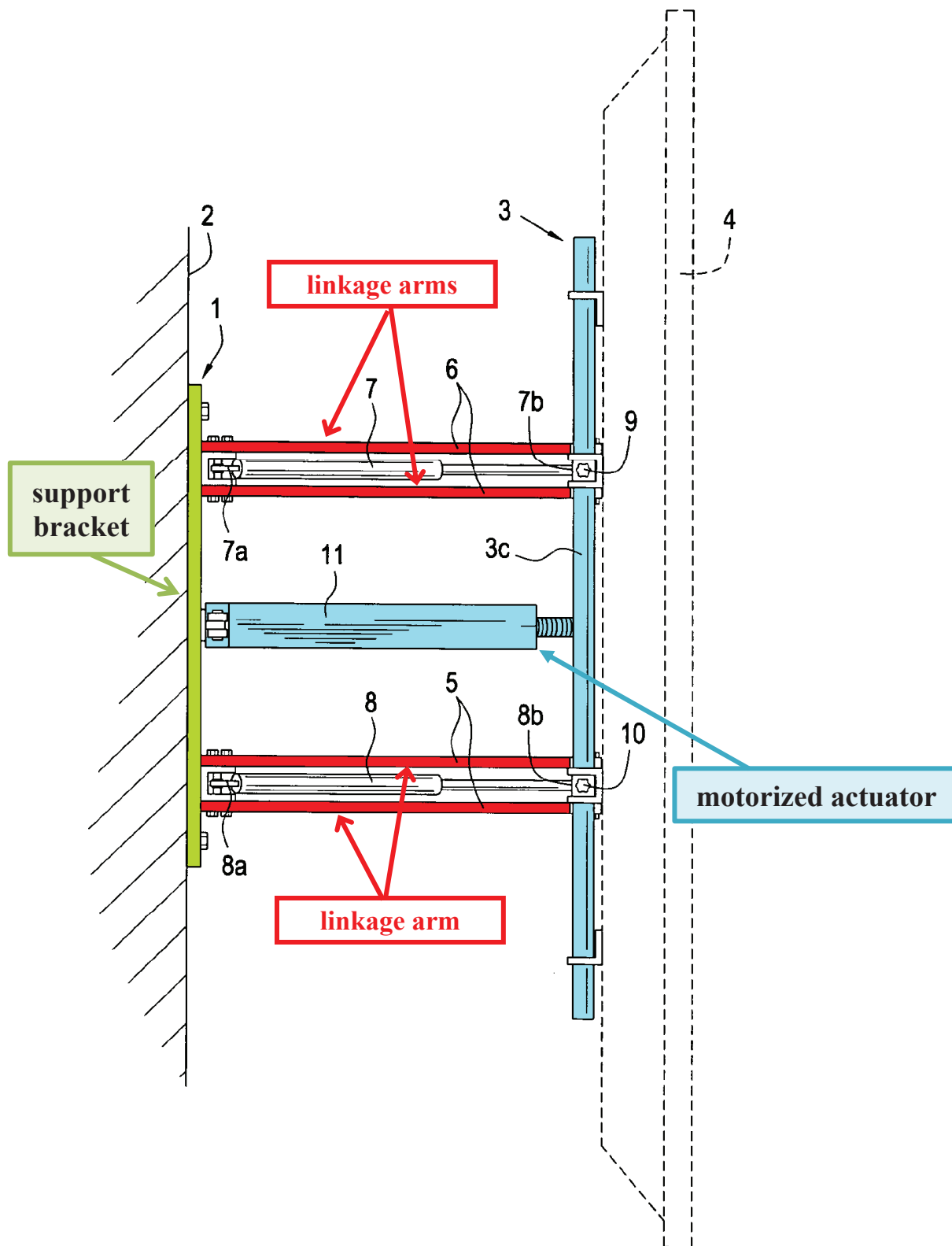


FIG. 4

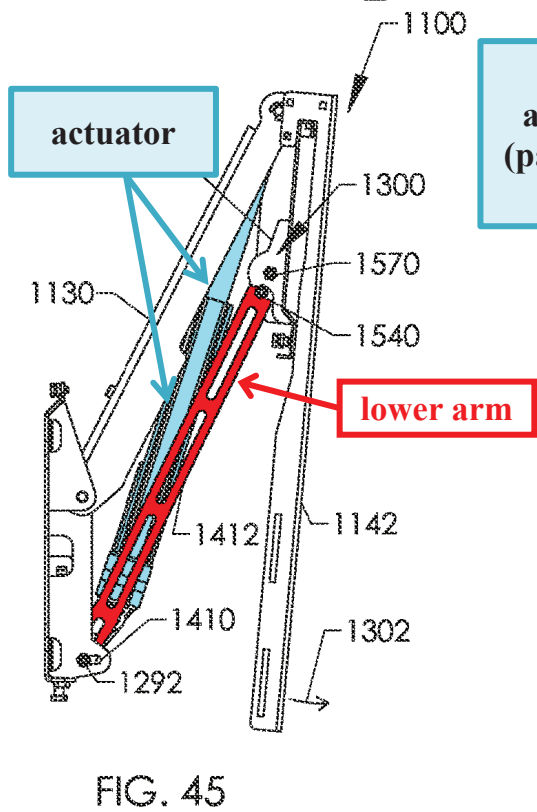
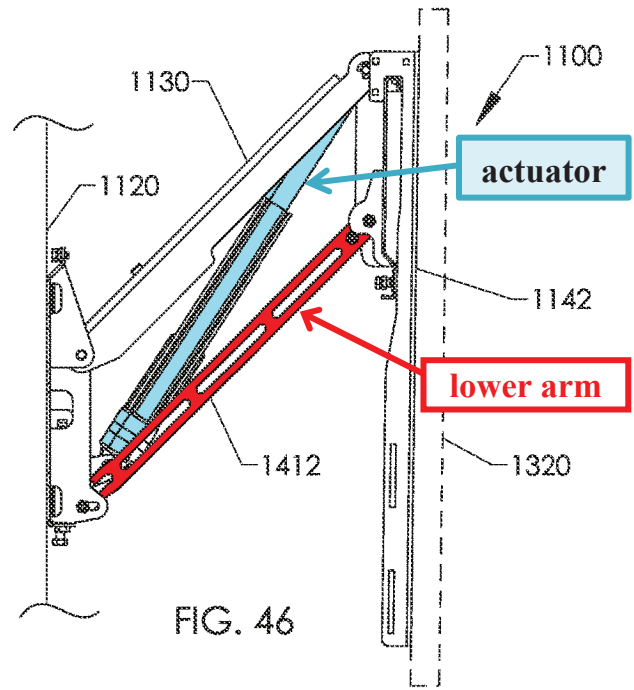
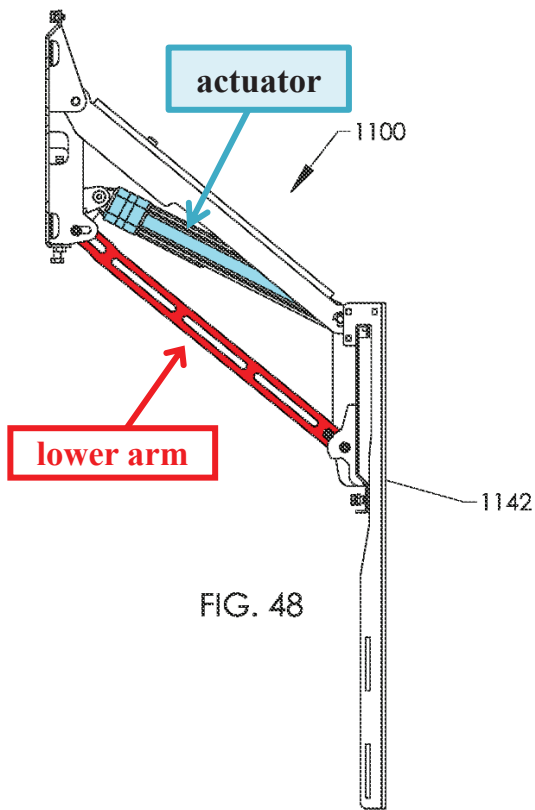
116. A POSITA would have understood that Clary's actuator assembly includes the tube 3c because it includes a threaded interface with the linear actuator to provide linear movement as the threaded portion of the tube 3c moves into and out of the actuator 11. Tube 3c includes a necessary part of the linear actuator 11 that is threaded into the actuator to provide linear movement. As part of the actuator assembly, tube 3c is directly coupled to the arm assembly in a similar way as the '703 patent configuration shown in Figure 41 which has a pivot 1177 that rotatably couples the actuator assembly with the display bracket and arm assembly. But even if Clary's actuator assembly is somehow not directly coupled to the arm assembly, the actuator assembly 11 is at least indirectly coupled to the arm assembly through connections with the tube 3c and channels 3a and 3b. This limitation of claim 33 states that the actuator assembly has "a display bracket end rotatably coupled to the arm assembly." A POSITA would have understood that this claim limitation does not require that the actuator assembly directly contact or directly couple to the arm assembly, and thus direct contact between the actuator assembly and the arm assembly is not required. Based on Clary's description and figures, a POSITA would have understood that Clary's coupling between the actuator assembly and the arm assembly satisfies this limitation.

117. Clary also does not use the word “motorized” to describe its actuator, but a POSITA would have understood that Clary’s actuator is motorized. For example, Clary discloses that the actuator may be controlled by a remote and a remote-controlled actuator would have to be motorized. EX1004 at [0017]. As Clary explains, the “linear drive can also be provided between the first and second frame assemblies to allow for automatic lowering and lifting of the flat panel display.” EX1004 at [0005]. A POSITA would have known that such a remote-controlled automatic actuator would include a motor which is in communication with the remote. Therefore, Clary discloses this limitation.

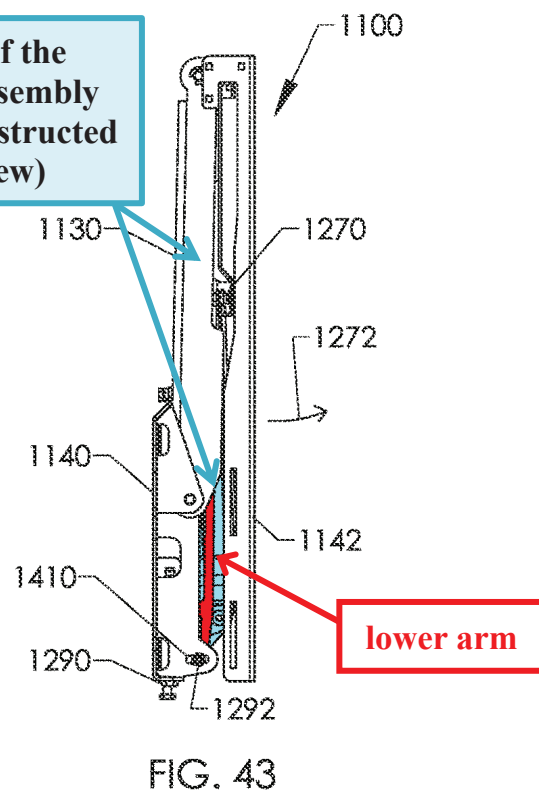
7. Limitation 33[d][i]: “wherein at least a portion of the motorized actuator assembly moves toward and past a portion of the lower arm when the arm assembly moves toward the raised configuration.”

118. A POSITA would understand that Clary discloses this limitation. For example, Clary discloses a linear actuator 11 and threaded tube 3c that moves relative to the arm assembly when the arm assembly moves toward the raised position, as shown in Figures 5 and 6. Similar to the relevant embodiment of the ’703 patent (Figures 41–48), at least a portion of Clary’s actuator assembly moves relative to the lower arm in a manner that causes the portion of the actuator assembly to get closer to and past a portion of the lower arm when the arm assembly moves toward the raised configuration. EX1001 at Figs 45-46; EX1004 at Figs. 5-6.

119. During prosecution of the '703 patent, Patent Owner confirmed that Figures 41-48 show an embodiment that is covered by the challenged claims and includes an actuator assembly configuration that discloses this limitation. EX1002 at 29. This embodiment of the '703 patent includes an actuator assembly 1200 and arm assembly that provide relative movement of the lower arm 1412 toward and past a portion of the motorized actuator assembly 1200 when the arm assembly moves toward the raised configuration, as shown below in annotated Figures 43, 45, 46 and 48. In this way, a portion of the actuator assembly gets closer to and past a portion of the lower arm when the arm assembly moves toward the raised position. A POSITA would understand that these figures illustrate positions of the arm assembly and actuator assembly as the arm assembly moves from the lowered configuration to the raised configuration.



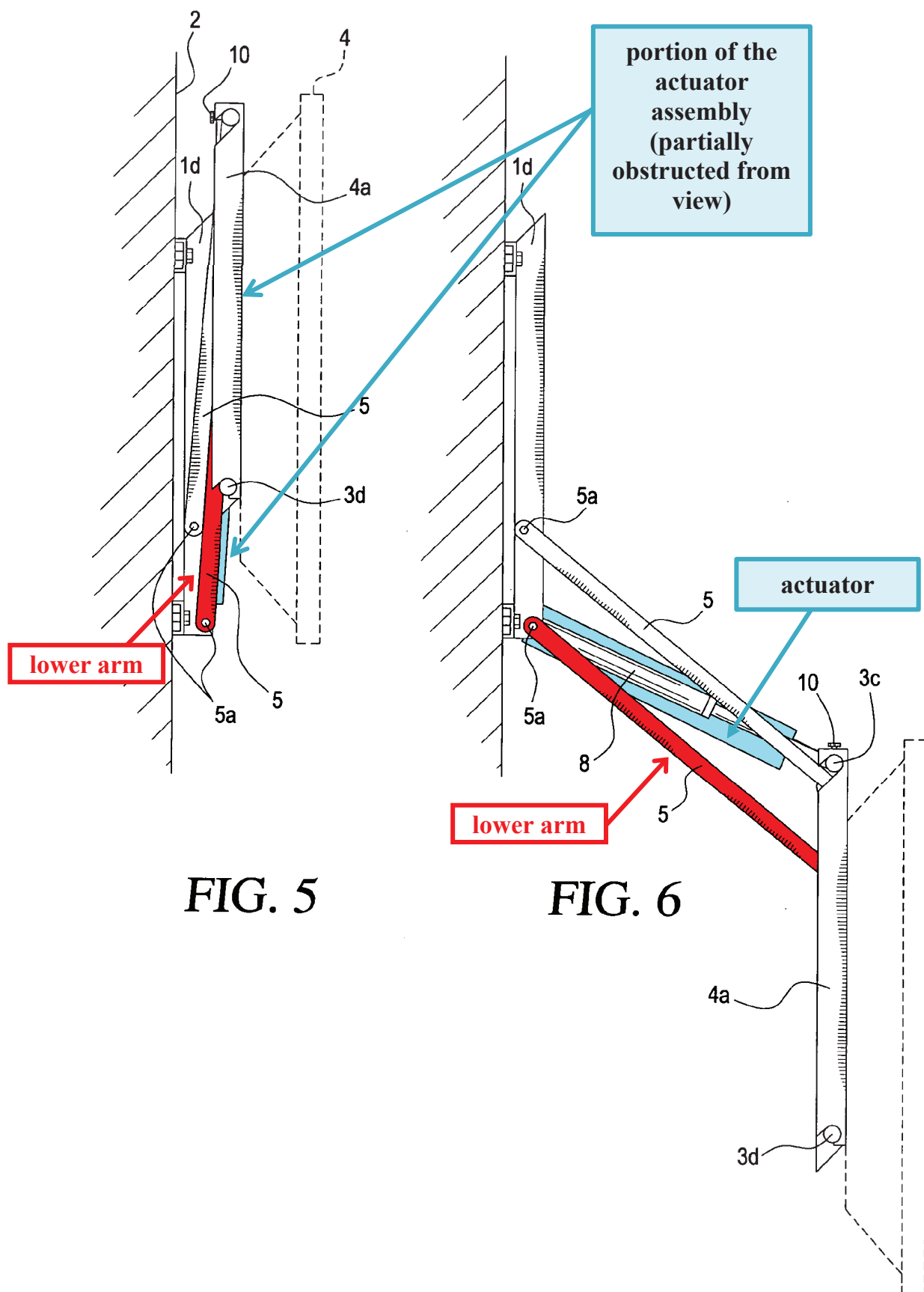
portion of the
actuator assembly
(partially obstructed
from view)



EX1001 at Figs. 43, 45, 46 and 48 (annotated).

120. A POSITA would understand that the '703 patent actuator assembly 1200 continuously rotates upward (counter-clockwise) in a direction that is away from the lower arm 1412 when the arm assembly moves toward the raised configuration, but there is relative movement of these parts which causes a portion of the actuator assembly to get closer to and past a portion of the lower arm when viewed from the side. EX1001 at Figures 41-48. Therefore, in this arrangement there is relative movement of a portion of each of these parts (actuator assembly and lower arm) toward and past one another when the arm assembly moves toward the raised configuration, as shown in the figures above.

121. Clary's design functions in the same way and has the same arrangement as the arm assembly and actuator assembly of the '703 patent. There is relative movement of Clary's lower arm toward and past a portion of the actuator assembly when the assembly moves from the lowered configuration to the raised configuration. EX1004 at Figures 1, 2, 5 and 6. Clary's system has the same relative movement of the arm assembly and actuator assembly as this embodiment of the '703 patent, as shown in annotated Figures 5 and 6 below. *Id.*



Id. At Figs. 5 and 6 (annotated).

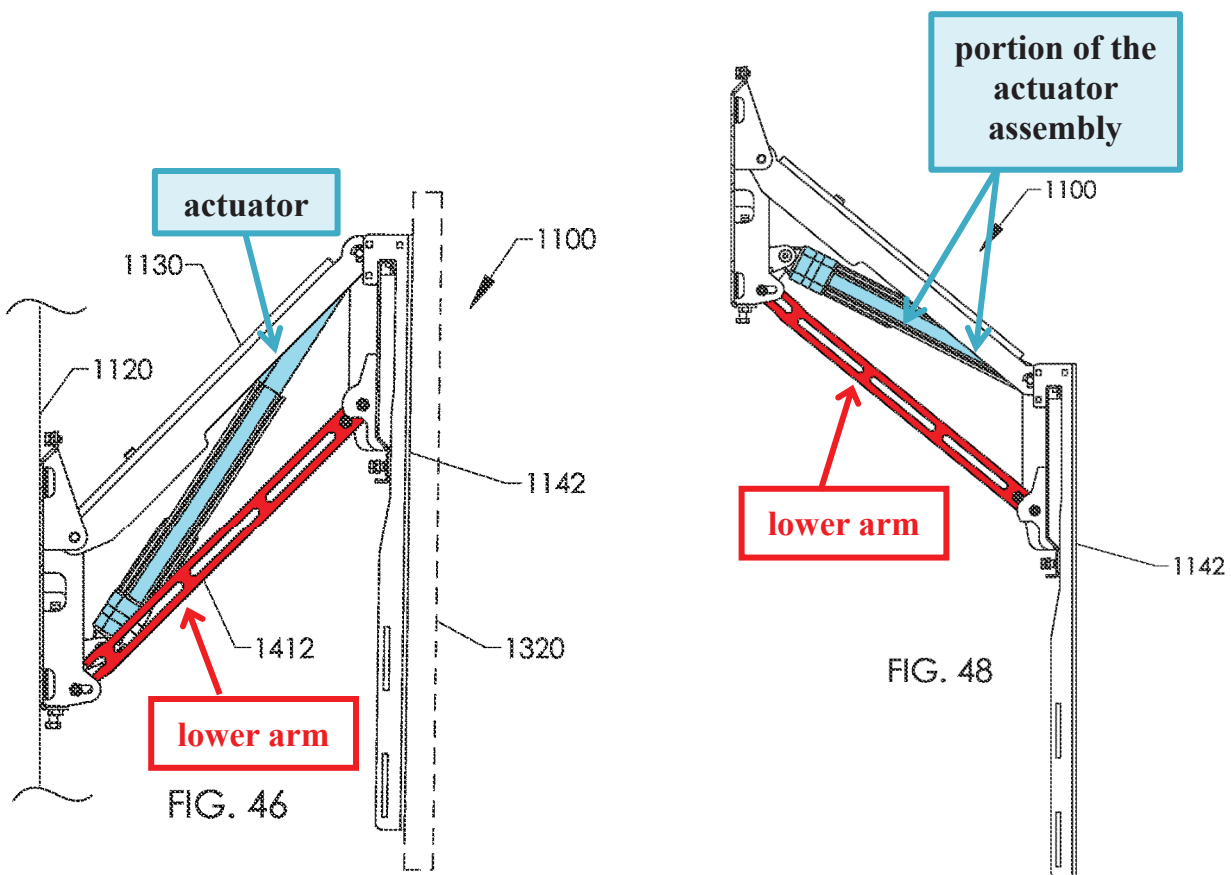
122. As illustrated in Clary's Figures 5 and 6, the mounting system includes an actuator assembly and arm assembly that provide relative movement of the lower arm 5 toward and past a portion of the motorized actuator 11 when the arm assembly moves toward the raised configuration. EX1004 at Figs. 5 and 6. Figure 6 represents the arm assembly in the lowered configuration and Figure 5 represents the arm assembly in the raised configuration. *Id.* at [0018]. A POSITA would have understood that these figures illustrate the movement of the arm assembly and actuator assembly from the lowered configuration in Figure 6 to the raised configuration in Figure 5. *Id.* As the arm assembly moves upward toward the raised configuration, the actuator 11 and lower arm 5 both rotate counter-clockwise, but they move relative to one another such that get closer to and pass one another when viewed from the side. During this movement, at least a portion of Clary's actuator 11 gets closer to and past at least a portion of the lower arm 5 such that the view of the actuator 11 is largely obstructed by the lower arm 5 in the raised position, as shown in Figures 5 and 6 above. *Id.* at Fig. 5. This movement of the parts is the same as the relevant embodiment (Figures 41-48) of the '703 patent, wherein the relative movement of the actuator and lower arm cause at least a portion of the actuator assembly to get closer to and past a portion of the lower arm when the arm assembly moves toward the raised configuration.

123. Therefore, a POSITA would have understood that Clary discloses this limitation.

C. Clary Anticipates Claim 34

124. Claim 34 depends from claim 33 and states “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.” A POSITA would have understood that Clary discloses this limitation.

125. As I explained above in the claim construction section VIII above, this limitation must include relative movement of the lower arm and the portion of the actuator assembly in which the lower arm moves away from the portion of the actuator assembly, as the arm assembly approaches the lowered configuration. The claimed movement is not limited to movement of the portion of the actuator assembly in an upward direction away from the first 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 annotated Figures 46 and 48 of the ’703 patent below. A POSITA would understand that these figures show the portion of the actuator assembly gets further away from and vertically spaced apart from the lower arm 1412 when the arm assembly is in the lowered configuration shown in Figure 48.



EX1001 at Figs. 46 and 48 (annotated).

126. Clary's system has the same arrangement and movement as the '703 patent embodiment. The portion of Clary's motorized actuator gets further away from and vertically spaced apart from the lower arm when the arm assembly is moved to the lowered configuration, as illustrated in annotated Figures 5 and 6 below. EX1004 at Figs. 5-6. In fact, Figure 6 shows that most of the actuator assembly gets further away from and is vertically spaced apart from the lower arm 5 in the lowered configuration.

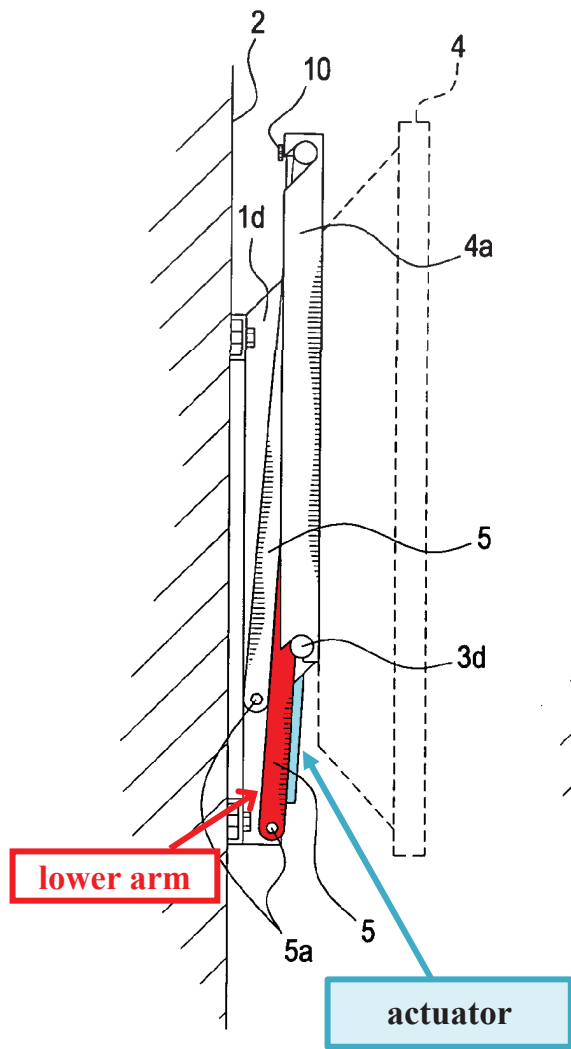


FIG. 5

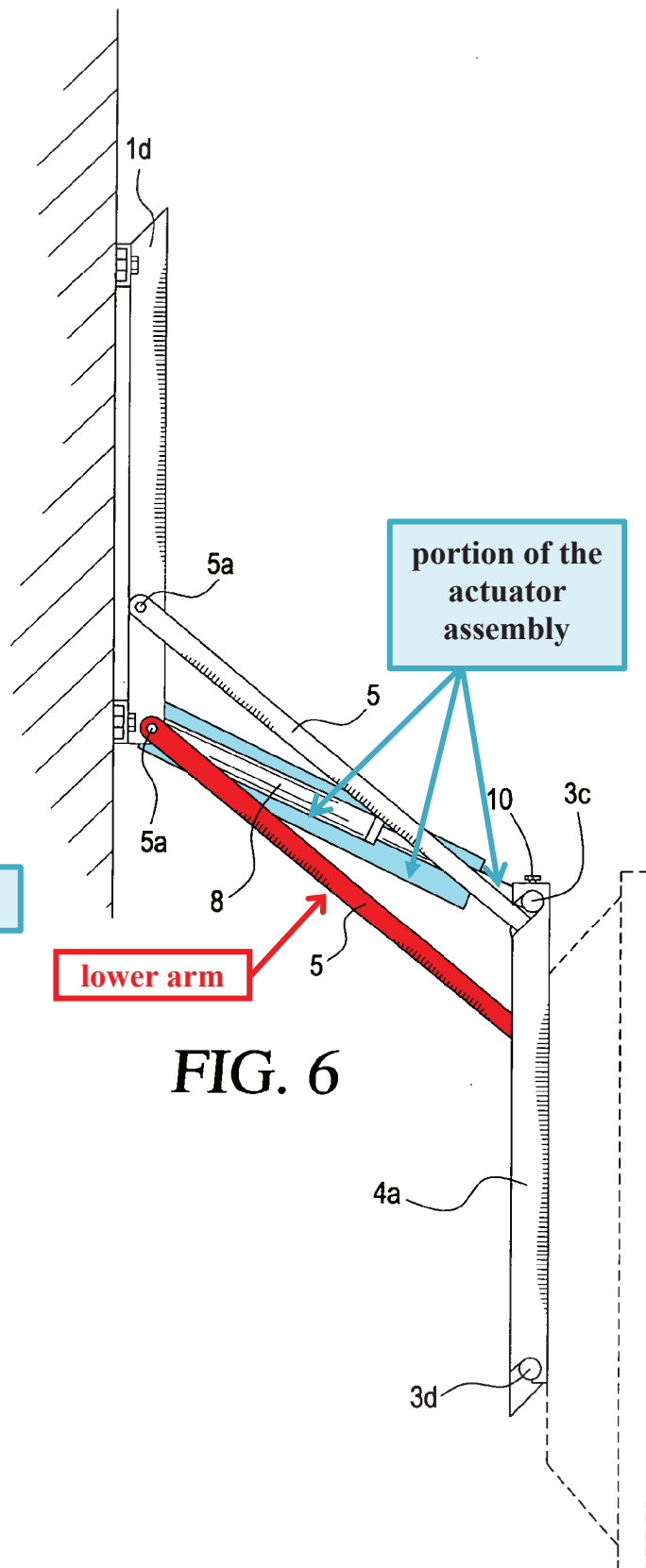


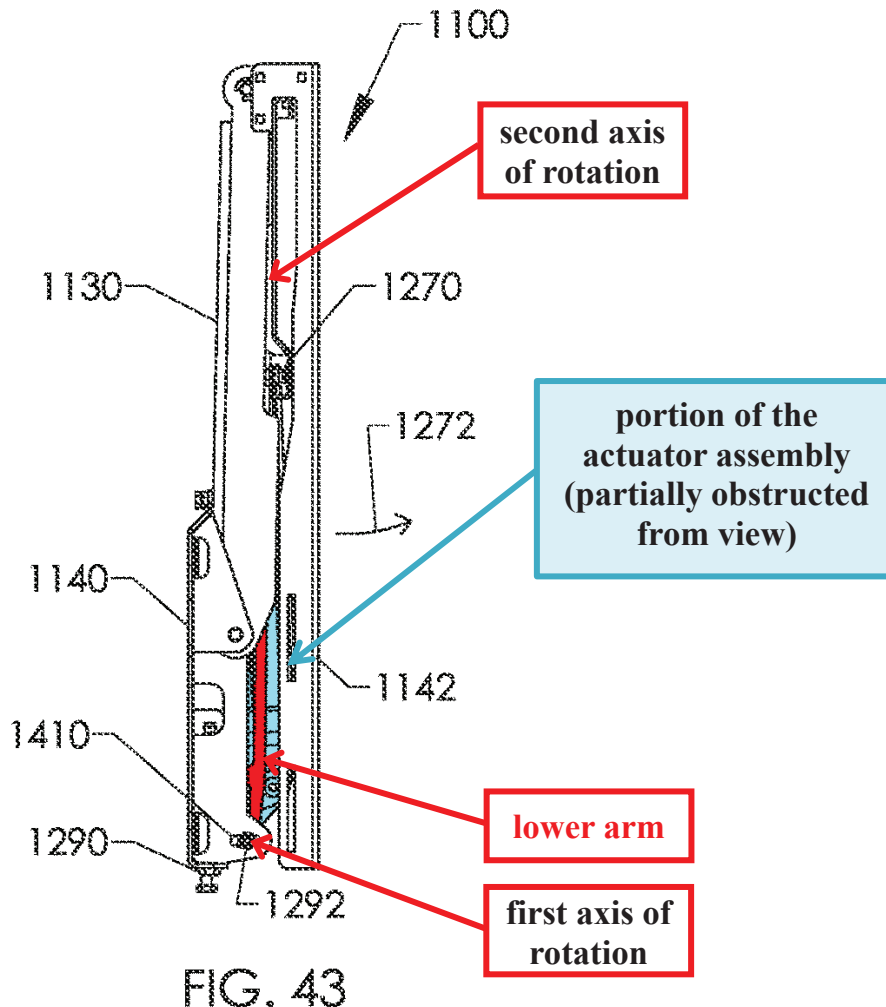
FIG. 6

Id., Figs. 5 and 6 (annotated).

127. Therefore, a POSITA would have understood that Clary discloses this limitation and has the same configuration and movement as the corresponding '703 patent embodiment.

D. Clary Anticipates Claim 35

128. Claim 35 depends from claim 33 and states “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.” As I explained above, Patent Owner confirmed during prosecution that the embodiment of Figure 43 of the '703 patent provides an example of this limitation in the raised configuration. EX1002 at 29. I provide an annotated version of Figure 43 below for reference.



129. Like the embodiment in the '703 patent, Clary's Figure 5 discloses this limitation. EX1004 at Fig. 5. A POSITA would have understood that the language "first axis of rotation and a second axis of rotation" refers to the axes where the lower arm is rotatably connected to the system at each of its ends. Clary's Figure 5 below shows that the portion of the actuator assembly has moved past part of the lower arm so that the side view of the actuator is mostly obstructed by the lower arm and display bracket in the raised position. *Id.* at Fig. 5. The lower arm 5 has first and second

axes of rotation at its first and second ends, and the portion of the actuator is positioned forward of these axes in the raised configuration shown below, when viewed from the side. Therefore, to the extent Figure 43 of the '703 patent shows an embodiment that satisfies this limitation, then Clary's similar configuration also illustrates and includes this limitation, as shown below in annotated Figure 5 of Clary.

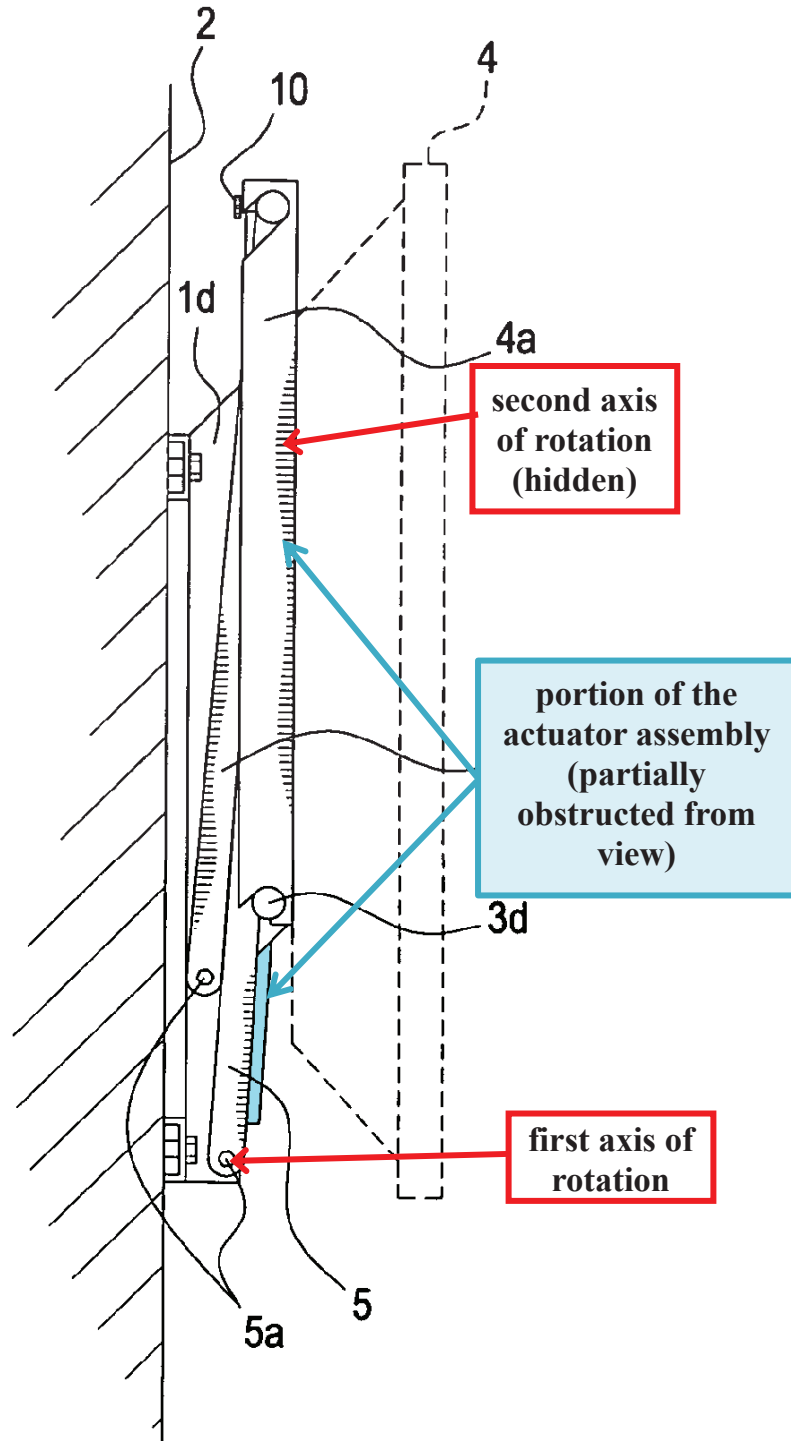
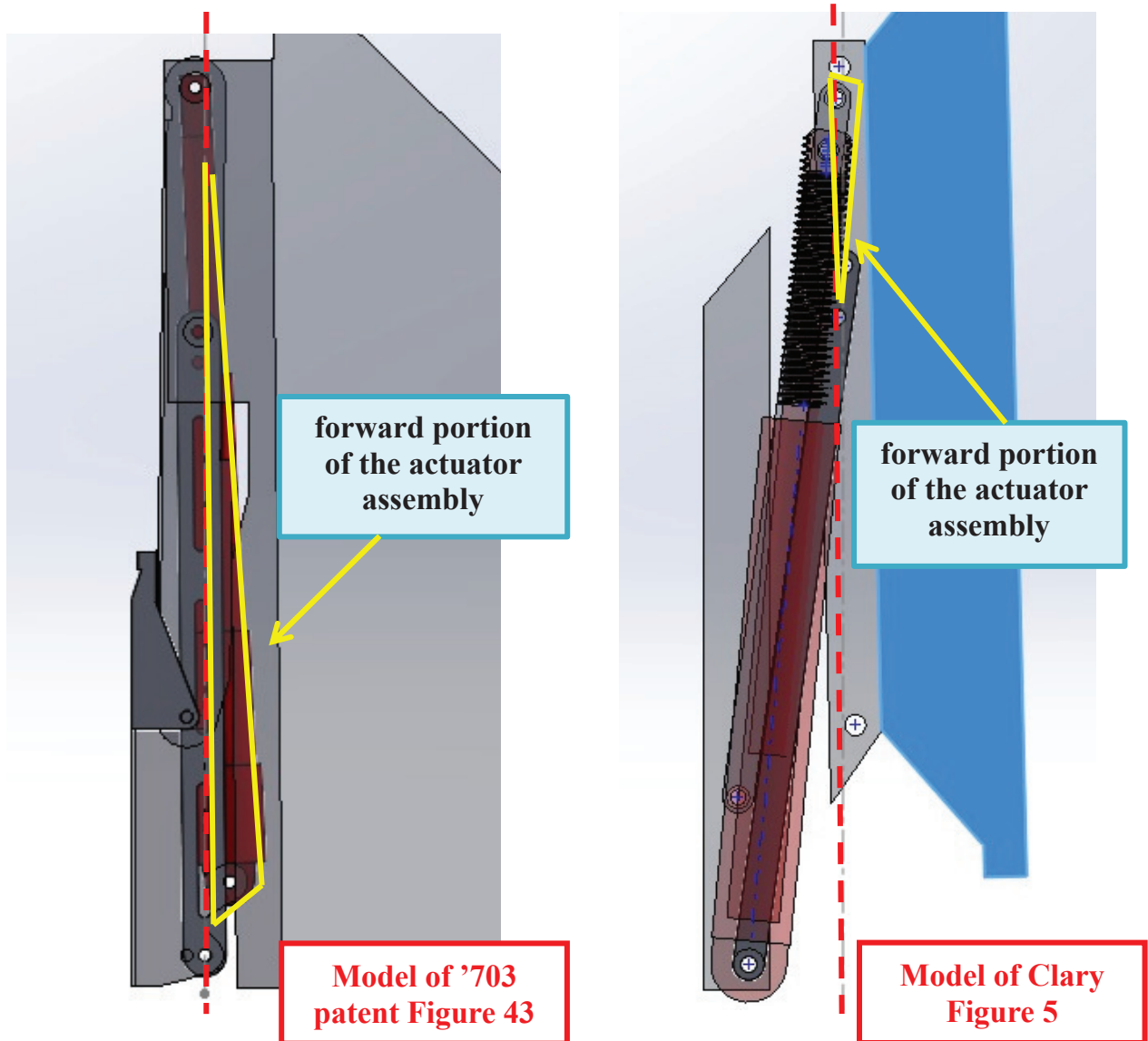


FIG. 5

Id., Fig. 5 (annotated). I have also confirmed this limitation by creating a model to analyze of the system shown in Clary Figure 5. I created models of Clary Figure 5 and Figure 43 of the '703 patent with visibility through the brackets and linkage arms such that the position of the actuator is visible relative to the lower arm's first and second axes of rotation, as shown below in the modified versions of Clary Figure 5 and Figure 43 of the '703 patent. These modeled figures have the same configuration and relative dimensions as the original figures and systems, but the visibility of the parts has been changed. As shown below, these figures confirm that, to the extent the relevant embodiment of the '703 patent discloses this limitation, it is also disclosed by Clary. For example, at least the portion of Clary's actuator assembly is positioned forward, or to the right, of the first axis and the second axis when the arm assembly is at the raised configuration.



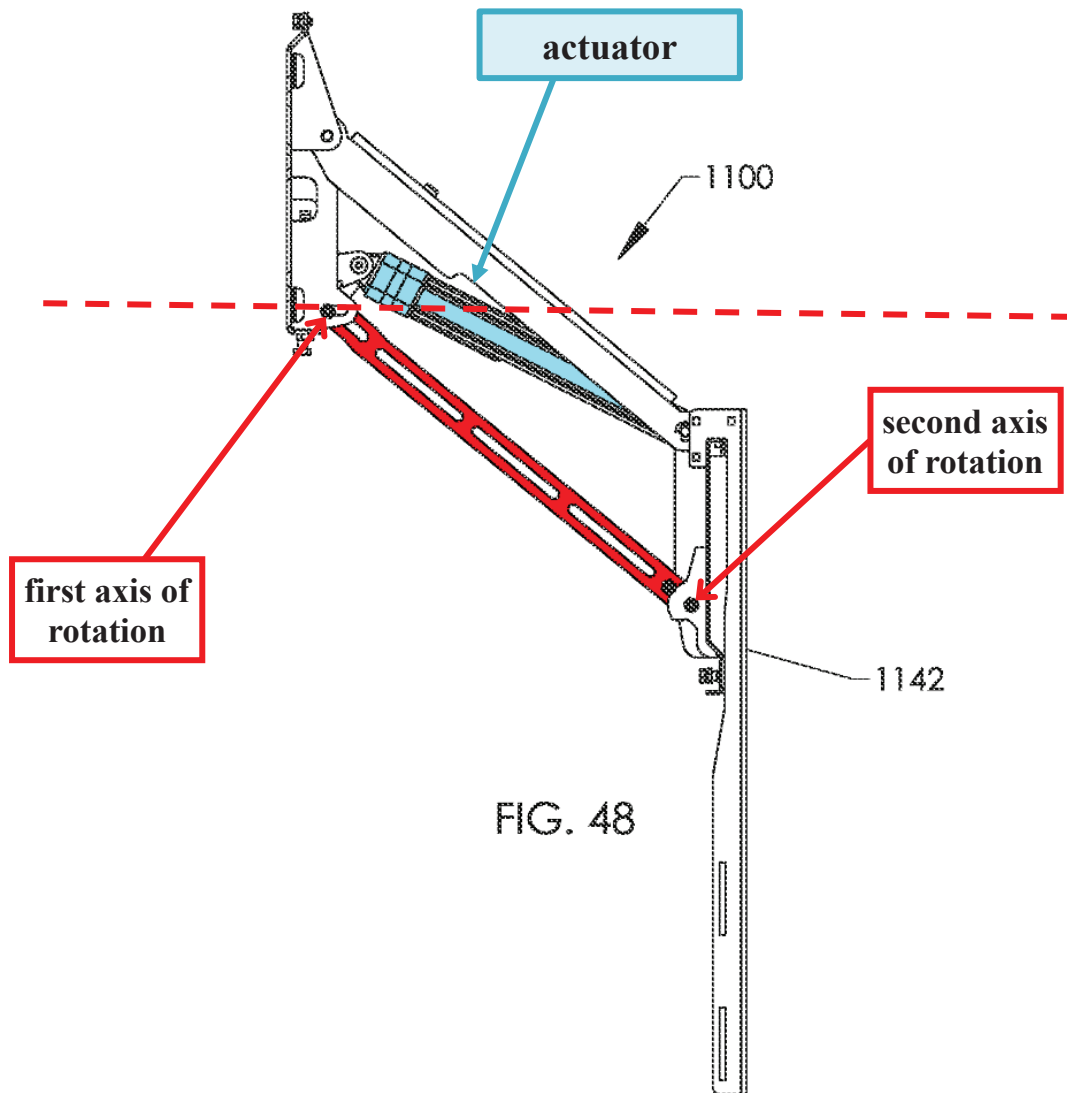
130. Therefore, a POSITA would have understood that Clary discloses this limitation.

E. Clary Anticipates Claim 36

131. Claim 36 depends from claim 35 and states “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.” As I have explained above in Sections XI and XII, claim 36 lacks written description support and is indefinite. But if it is somehow determined that this claim is supported and not indefinite, then the claimed limitations would be disclosed by Clary.

132. If the '703 patent somehow discloses this limitation, then Clary discloses the same configuration and would also disclose this limitation. Annotated Figure 48 below shows that the embodiment of the '703 patent identified by Patent Owner as corresponding to these claims has a lowered configuration in which the first axis and second axis are spaced apart from and located below a small portion of the actuator.



EX1001 at Fig. 48 (annotated).

133. Clary's display mounting system has a similar configuration including a lower arm with a first axis of rotation 5a and second axis of rotation 5b, as shown below. These axes of rotation of the lower arm are spaced apart from and located below a similarly small portion of the actuator assembly when the arm assembly is

in the lowered configuration, as shown below in Fig. 6. EX1004 at Fig. 6. Thus, if the '703 patent embodiment somehow discloses this limitation with an extendable actuator above the first and second axes of the lower arm, then Clary's same configuration also discloses this limitation. Therefore, a POSITA would have understood that Clary discloses this limitation if it is somehow supported and not indefinite.

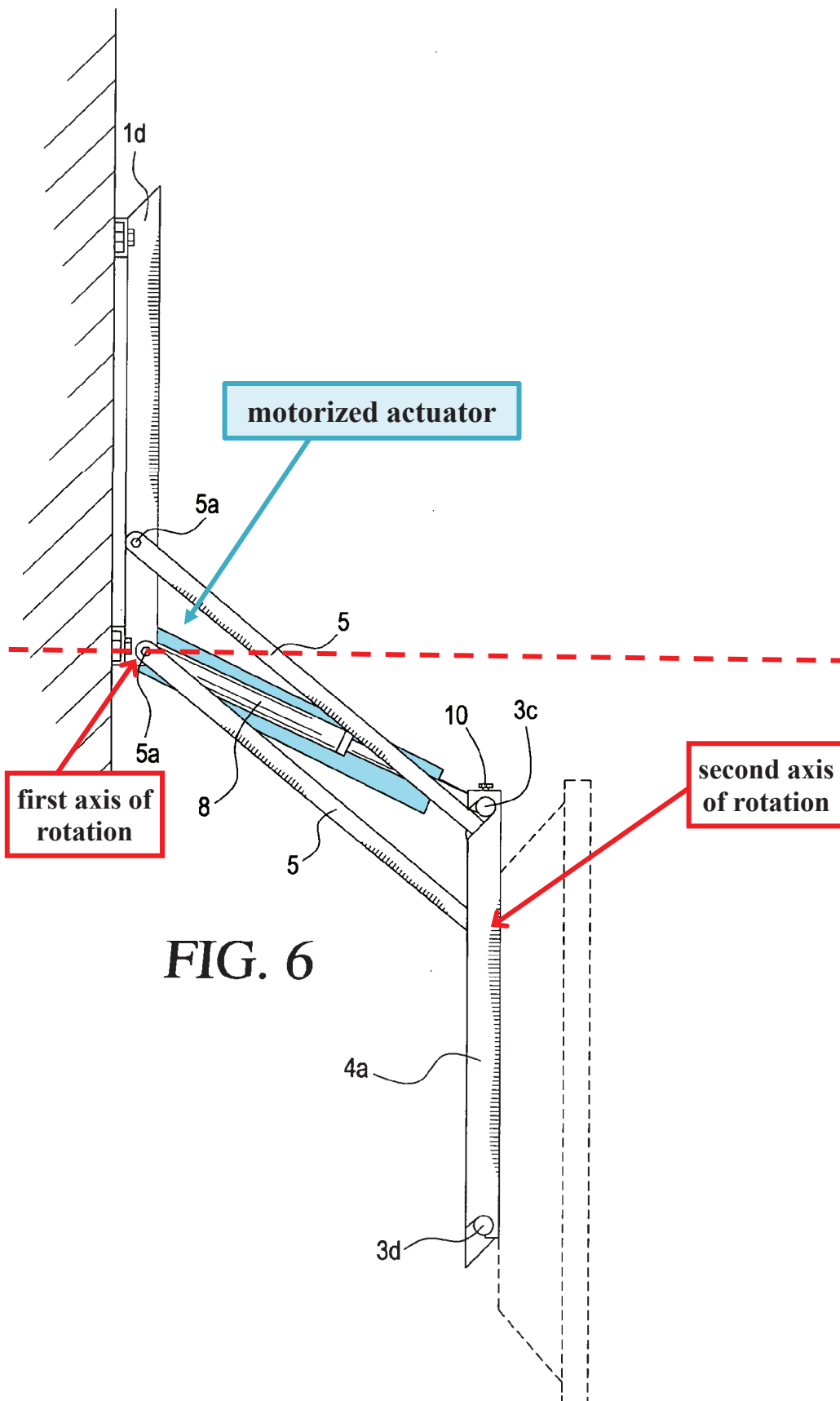


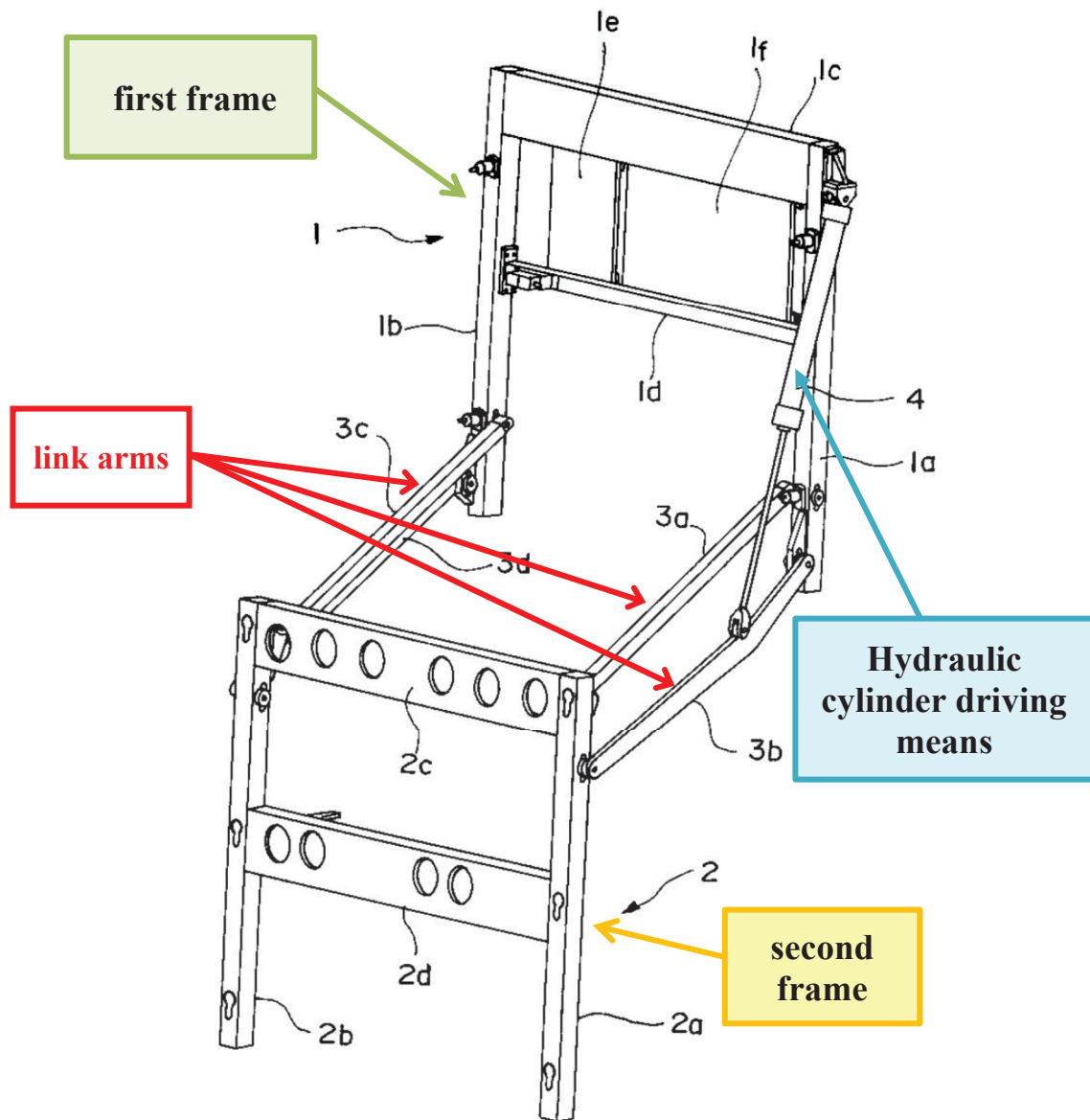
FIG. 6

XIV. GROUND 4: CLARY COMBINED WITH TSUJI AND THE GENERAL KNOWLEDGE OF A POSITA RENDERS OBVIOUS CLAIMS 33-36

A. Summary of Tsuji (EX1015)

134. Tsuji relates to a support device for mounting a flat screen television against a vertical structure. EX1015 at [0001], Fig. 1. For example, Figure 1 below shows one system that includes a first frame 1 attached to a vertical structure and a second frame 2 mounted to support the display. *Id.* at [0015]-[0018]. Linkage arms 3a, 3b, 3c, and 3d are rotatably supported by the first frame and coupled to the second frame, as shown in Figure 1. *Id.* at [0018]-[0020]. The system includes a motorized hydraulic cylinder 4 connected to the first frame 1 and the link arm 3b to drive movement of the linkage arms. *Id.* at [0022]-[0023], [0037], Figs. 1-4. The cylinder 4 is driven to extend the support device to a deployed state in which the frame 2 is lowered and upward to a raised position. *Id.*

[Fig. 1]



Id. at Fig. 1 (annotated).

B. Clary Combined With Tsuji and the General Knowledge of a POSITA Renders Obvious Claims 33 and 34

135. As I explained above in Ground 3, a POSITA would understand that Clary discloses all the limitations of claim 33. But if Clary somehow fails to disclose certain limitations such as the actuator assembly being motorized or rotatably coupled to the arm assembly, these limitations were well known to a POSITA and would have been obvious.

136. If Clary somehow does not disclose a **motorized** actuator assembly, it would have been obvious to use a motorized linear actuator for the linear actuator 11 disclosed in Clary. In fact, a POSITA would have understood that Clary's remote-controlled actuator already includes a motor to power the actuator. Using a motor to power a remote controlled actuator would have been an obvious feature for an actuator in a mounting system and would have been part of a POSITA's general knowledge.

137. A POSITA would have known that motorized actuators were commonly used in movable mounting systems, including controllable television mounting systems. For example, Tsuji discloses a motorized hydraulic cylinder 4 that is motor driven. EX1015 at [0037]. Juan also describes a linear actuator 810 that is powered by an electric motor. EX1005 at [0070]. Pankros is another example which describes a motor that powers its linear actuator which is similar to Clary's linear actuator. EX1006 at Claim 4 ("wherein the actuator is an electro-mechanical

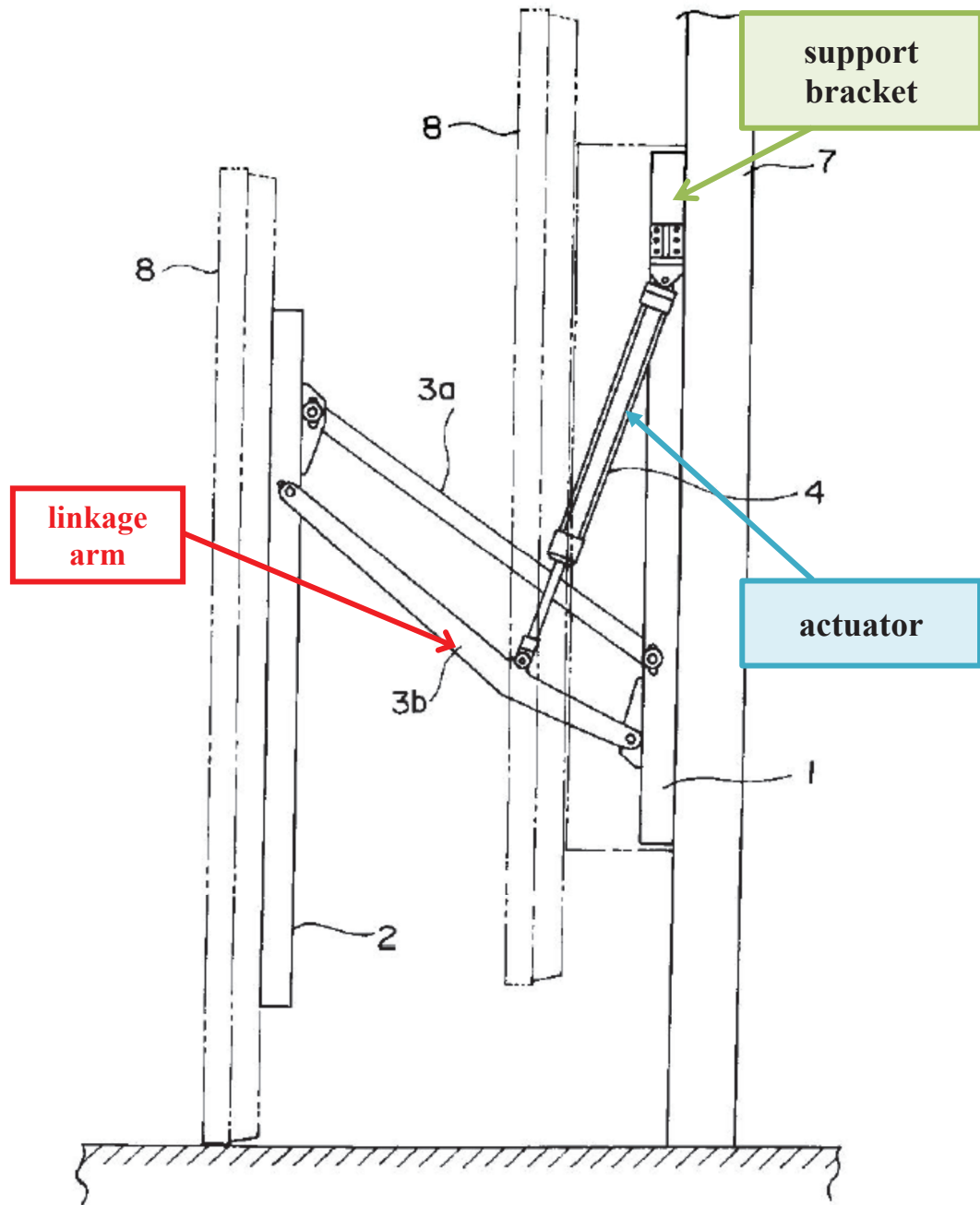
linear actuator, a stepper motor, a servo motor, a DC motor, an AC motor, and a universal motor.”). Xu also uses a motor to power a linear actuator. EX1017 at 7. A POSITA would have been familiar with motorized actuators and would have understood that using a motorized actuator is a mere design choice and was the most common option for actuators in this context. Motorized actuators were commonly used in mounting systems and other similar mechanical systems, and a POSITA also would have reasonably expected success in using such an actuator in the Clary system. A POSITA would have also been motivated to use a motorized actuator to provide automatic control of the step system through use of a remote. Therefore, a POSITA would have known that Clary’s linear actuator 11 is motorized, and it would have also been obvious to use a motorized actuator as a common actuator used in television mounting systems.

138. If Clary somehow fails to disclose the actuator assembly having a display bracket end rotatably coupled to the arm assembly, it would have been obvious to rotatably couple Clary’s actuator assembly directly to one of the arms of the arm assembly. As I explained above in Ground 3, limitation 33[d] does not require direct coupling of the actuator assembly to the arm assembly. A POSITA would have understood that Clary’s actuator assembly has an end that is rotatably coupled to the arm assembly. But even if claim 33 was somehow interpreted to require direct connection/contact of the actuator assembly and an arm of the arm

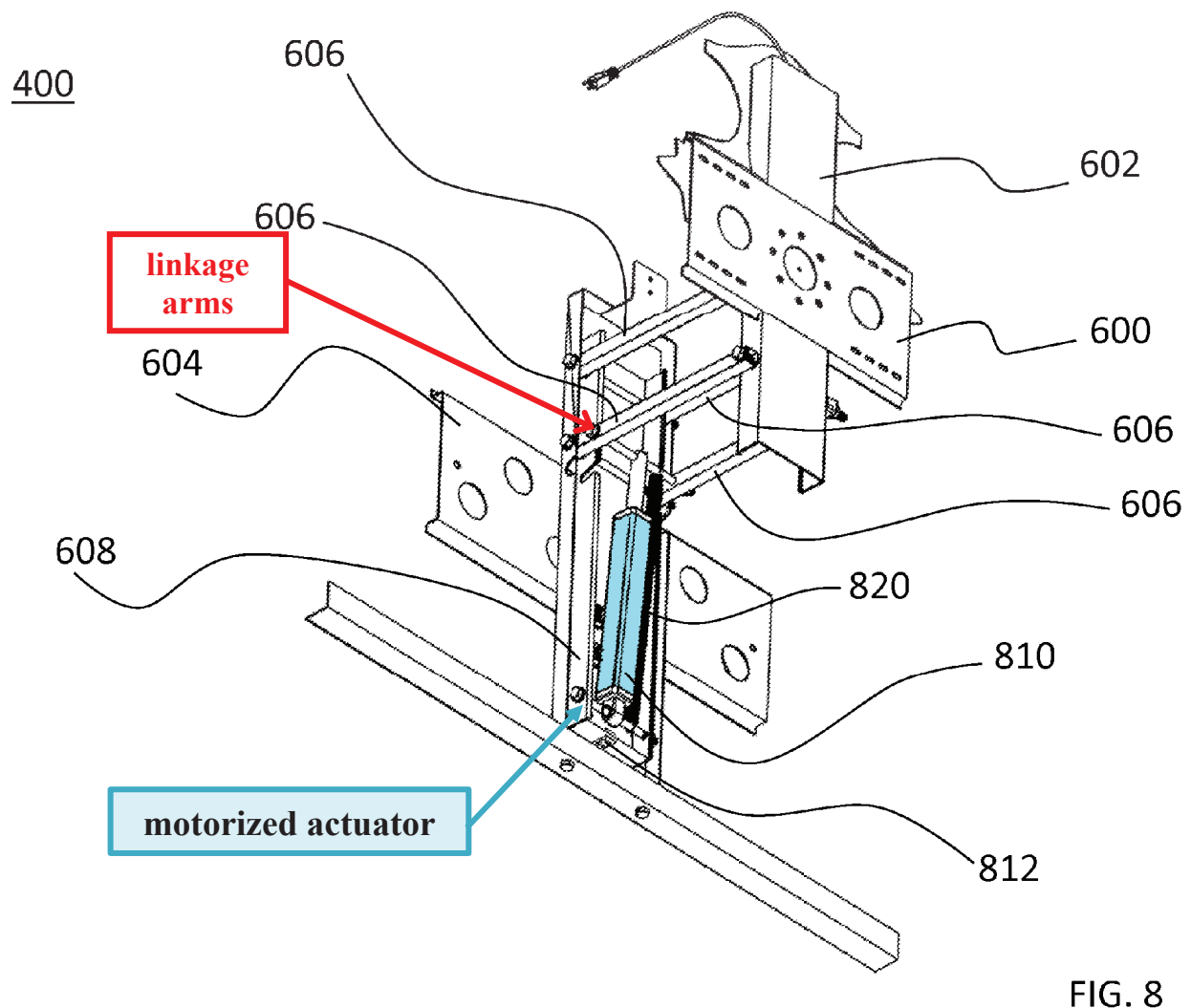
assembly, it would have been obvious for a POSITA to modify Clary to have the actuator assembly directly coupled to an arm of the arm assembly.

139. It was well within the general knowledge of a POSITA to directly couple an end of the actuator assembly to the arm assembly. There are several examples of this in the prior art. For example, Tsuji discloses an actuator assembly 4 that is directly rotatably coupled to a linkage arm 3b at one end and directly rotatably coupled to the support bracket 1 at the other end, as shown below in annotated Figure 4. EX1015 at [0022]-[0023]. Tsuji's display mounting system is very similar to Clary's with the actuator assembly being coupled to the support bracket and the arm assembly. It would have been obvious to a POSITA to modify Clary's system so that the actuator assembly rotatably couples directly to an arm of the arm assembly in view of well-known system arrangements like Tsuji's.

[Fig. 4]

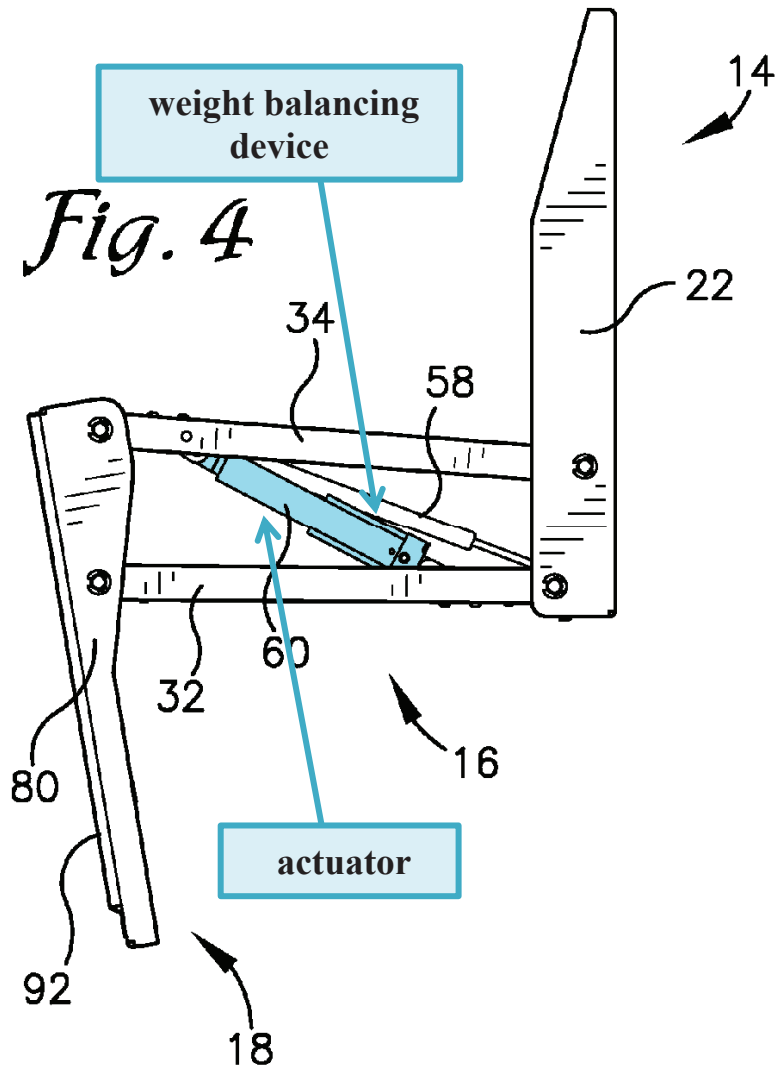


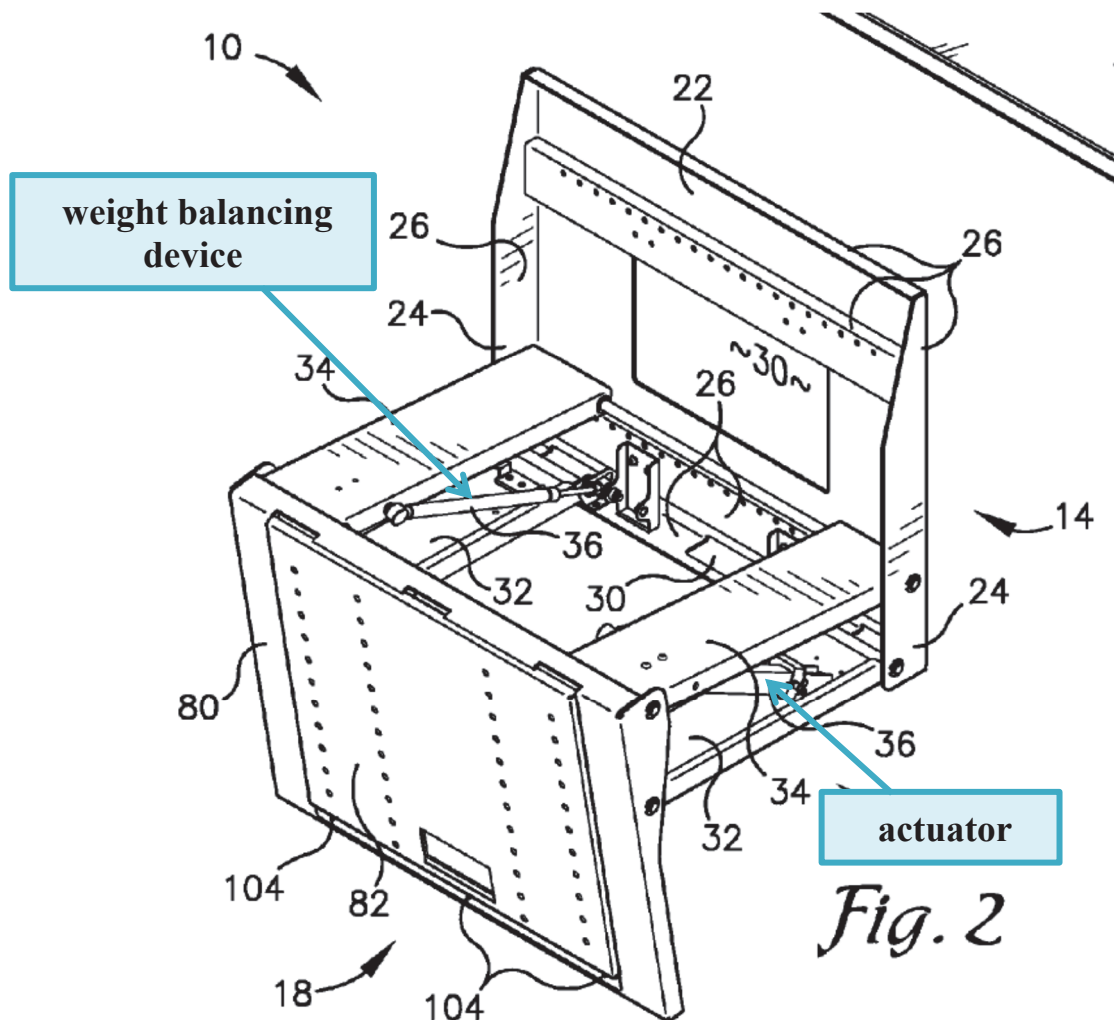
140. Juan also discloses a mounting system with a motorized actuator assembly (including linear actuator 810) which is attached to the arms of the arm assembly (bars 606), as shown in the figure below. EX1005 at [0066], Fig. 8 (annotated); EX1007 at 12-13 (First Embodiment Figure, Element 13, Element 16.)



Id. at Fig. 8 (annotated).

141. Pankros is another example of a mounting system with the actuator assembly directly rotatably coupled to an arm 34 of the arm assembly, as shown in annotated Figure 4 below. EX1006 at [0051] (“The actuator 60 is rotatably secured at a second end 76 to the upper support arm 34 with a fastener 78. . .”). Pankros also describes a weight balancing device 58, which can also be a motorized linear actuator, that has a display bracket end rotatably coupled to the arm assembly. *Id.* at [0050] (“the second attachment point 66 connects the weight balancing device 58 to the support mechanism 16. . .”), Figs. 2, 3 and 7. These references confirm that it was well-known to a POSITA at the relevant time to directly rotatably couple the actuator assembly to an arm of the arm assembly.





Id. at Figs. 2 and 4 (annotated).

142. This feature was well-known in mounting systems and a POSITA would have also been motivated to directly rotatably couple the actuator assembly to the arm assembly in a mounting system. Rotatably coupling the actuator assembly directly to a linkage arm instead of a bracket or other intervening part would have been a mere design choice from a finite number of options. A POSITA would have understood that in a four-bar linkage system like Clary, there are only a few options for coupling the actuator. For example, if one end of the actuator assembly is

rotatably coupled to the support bracket, then the other end of the actuator assembly can be coupled to a linkage arm or the display bracket. Juan confirms this and explains that the actuator assembly has four options for coupling: “a linear actuator 810 is attached to two points on the four-bar linkage (composed of the set of bars 606, mounting plate 600/rear casing 602, and front mount 604/front casing 608).” EX1005 at [0066]. A POSITA would have been motivated to directly rotatably couple the actuator assembly to an arm of the arm assembly because this could reduce the number of parts in the system and provide direct force from the actuator to the arm assembly which causes the display bracket to move. This configuration would simplify the design by reducing part count resulting in reduced inventory, assembly and inspection costs. A POSITA would have also known that directly coupling the actuator assembly to an arm of the arm assembly could allow for a shorter actuator because it would not need to reach from the support bracket to the display bracket, and would instead be coupled at a shorter distance along the arm assembly. A shorter actuator could reduce expense and allow for a more compact system in the lowered and raised configurations.

143. A POSITA would have been confident in the prior art designs and would have reasonably expected success in using a design that directly coupled the actuator assembly to an arm of the arm assembly. For example, a POSITA would have known from experience and the prior art that the end of the actuator assembly

could be directly rotatably coupled to a linkage arm instead of one of the brackets, as described and shown in Pankros, Tsuji and Juan. A POSITA would have known that a simple modification to Clary would be to directly rotatably couple the actuator assembly 11, 11b, 3c to the upper arm(s) of the system because Clary already has the actuator assembly coupled adjacent to the upper arm axis 5b. Changing the position of the actuator end or the upper arm end to directly couple these two parts would be a minor modification in a simple four-bar linkage system to perform the same function of driving the linkage movement. A POSITA would have understood that the modification would have involved no more than the routine changing of the coupling location to another coupling location but still providing all the same desired functionality.

144. A POSITA would have understood that modifying Clary's configuration such that the actuator assembly directly couples with an arm(s) of the arm assembly would not affect the other functional limitations of claim 33. For example, as I explain below in the Pankros Ground (Section XV), coupling the actuator assembly directly to an upper arm of the arm assembly results in a configuration in which 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, as required by claim 33. A POSITA would have understood that this simple modification of directly coupling the actuator assembly to an upper arm of

arm assembly, similar to Pankros' system, would not significantly change the movement of Clary's actuator assembly relative to the lower arm of the arm assembly.

145. Therefore, these limitations and all the other limitations of claims 33 and 34 would have been obvious in view of the combination of Clary with Tsuji and the general knowledge of a POSITA.

C. Clary Combined With Tsuji and the General Knowledge of a POSITA Renders Obvious Claim 35

146. Claim 35 depends from claim 33 and states "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."

147. As I explained above in Ground 3, a POSITA would understand that Clary discloses this limitation. But if Clary somehow does not disclose this specific limitation, it would have been obvious for a POSITA to use an actuator configuration in which this limitation is present. Having a portion of the actuator assembly positioned forward of the axes of the lower arm in the raised configuration is not a novel feature, but rather it is merely an expected result of using an actuator and linkage arms having certain size and dimensions. The '703 patent does not mention this feature in its description other than what is shown in the figures. A POSITA

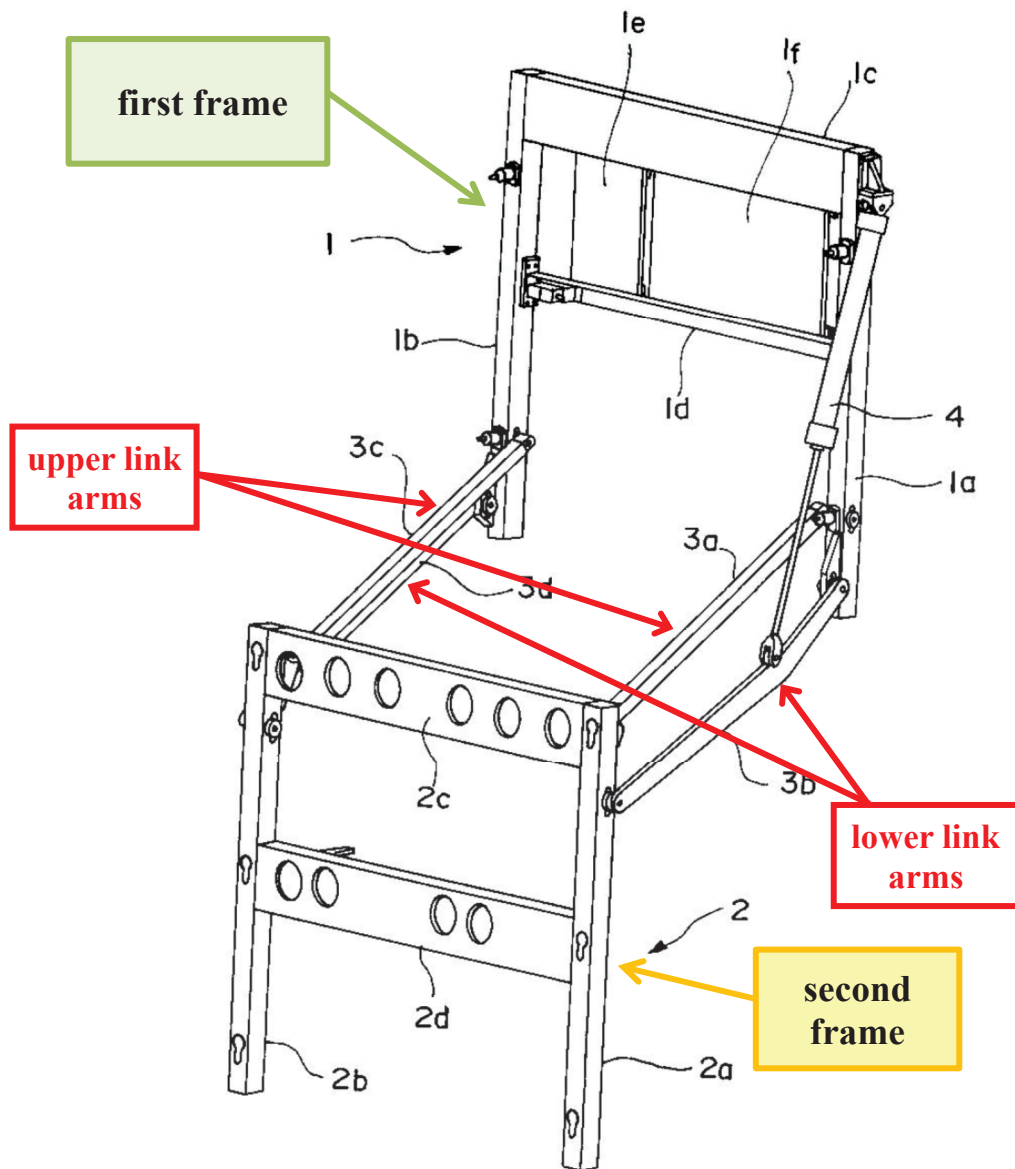
would have known that this was a common design feature in mounting systems and would have been within the general knowledge of a POSITA.

148. A POSITA would have understood that it would have been obvious to slightly change Clary's arrangement so that a greater portion of the actuator assembly (including the portion) is forward of the lower arm axes in the raised position. For example, a POSITA would have used a more powerful actuator which would be larger in diameter and would extend further forward in the raised position. An actuator with a larger diameter would provide additional support, stability, and longevity to the system. Changing the size of the actuator to have a larger or more powerful actuator or motor would have been a common modification and not an inventive feature.

149. Also, based on their general knowledge, a POSITA would have simply modified the arrangement of the upper and lower linkage arms of Clary's arm assembly so that they are not aligned and do not rotate in the same plane. For example, a POSITA would couple the lower arms to the system at a position inward or outward of the upper arms so that the upper and lower arms do not abut against each other in the raised position. A POSITA would be motivated to make this modification because it would allow the raised configuration to be more compact with the television closer to the wall. Instead of the television extending further from the wall in the raised configuration, this modification would allow the television to

be stowed much closer to the wall which takes up less space and is aesthetically desirable. A POSITA would have known that the linkage arms and other features of the four-bar linkage do not need to be aligned vertically and there can be benefits to them not being aligned so that they can overlap and pass each other during movement of the system. For example, Tsuji describes a system in which the linkage arms 3a-3d are not aligned vertically (they are offset) so that they can pass one another and not abut, as shown below in annotated Figure 1. EX1015 at [0019]-[0022], Figs. 1-4. This allows for a more compact system as it moves to different positions.

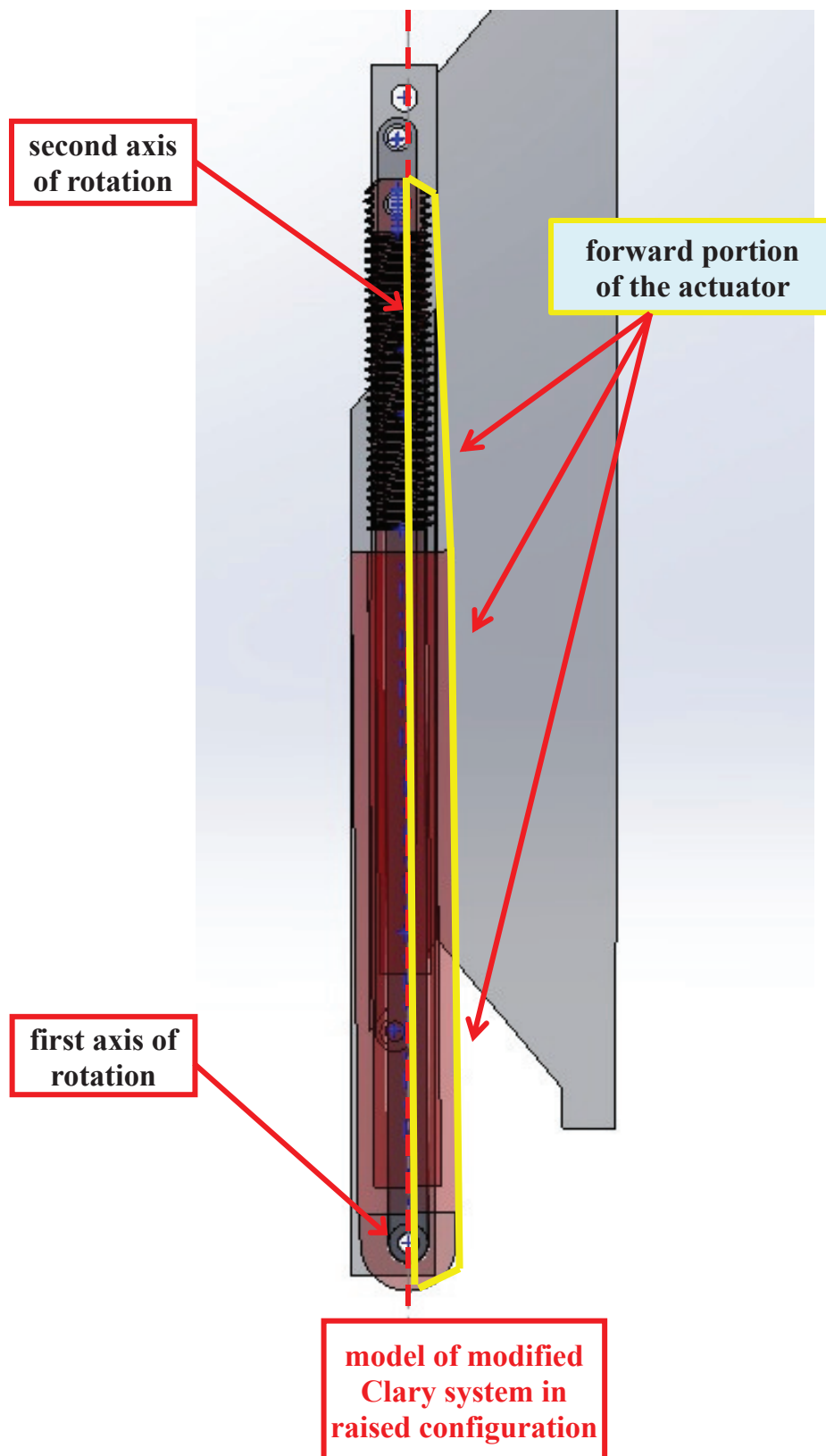
[Fig. 1]



150. This offset feature is also taught by Pankros with its weight balancing device 58 which is rotatably coupled to the arm assembly and support bracket at a position inside the linkage arms so that it is not aligned with the linkage arms.

EX1006 at [0050], [0052], Figs. 2-5. Pankros also discloses a folding support arm 410 that is not aligned vertically with the other arms of the arm assembly and is positioned inside the other arms. EX1006 at [0085], Figure 16.

151. Once modified to have upper and lower linkage arms that are not aligned, Clary's upper and lower arms would not abut in the raised configuration which would allow the raised configuration to be more compact and would cause a larger portion (including the portion) of the actuator assembly to be forward of the lower arm axes in the raised configuration. I have created a model of such a modified Clary system and provided an image of that model below to show how the portion of the 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. The model has the same dimensions and configuration as Clary's Figure 5, but the upper and lower arms have been modified so that they are not aligned vertically and do not abut one another in the raised configuration. Therefore, claim 35 would have been obvious to a POSITA in view of the combination of Clary with Tsuji and the general knowledge of a POSITA.

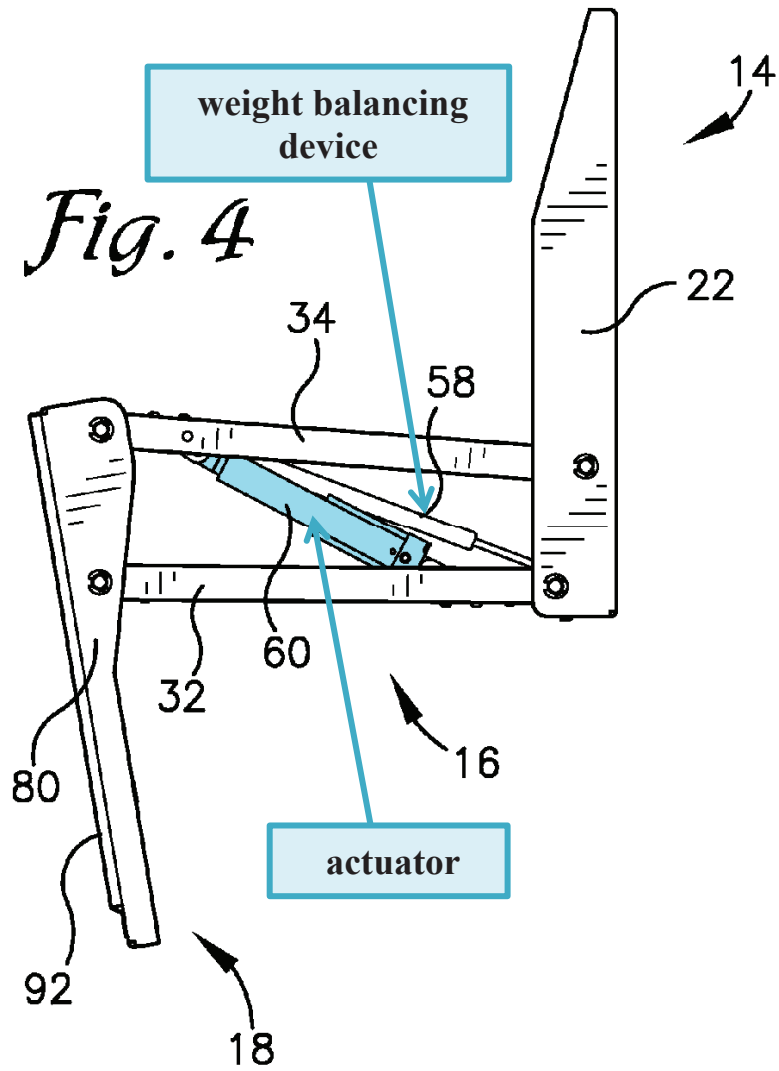


D. Clary Combined With Tsuji and the General Knowledge of a POSITA Renders Obvious Claim 36

152. Claim 36 depends from claim 35 and states “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.”

153. If this limitation is somehow supported and not indefinite, a POSITA would understand that Clary discloses this limitation because a portion of the motorized actuator assembly is located above the first and second axes when the arm assembly is in the lowered configuration, just like the corresponding embodiment of the '703 patent. But if it is determined that this limitation somehow requires the actuator assembly to be positioned higher above the first and second axes in the lowered configuration, which the claim does not say, such modification would have been obvious to a POSITA. Raising the position of the actuator relative to the lower arm was a common design feature in mounting systems and would have been within the general knowledge of a POSITA. This was also described in the prior art references. For example, Tsuji's actuator assembly is rotatably coupled to the support bracket at a location higher than the first and second axes of the lower arm. EX1015 at Figs. 1-4. Juan confirms the basic knowledge that the ends of the actuator assembly can be attached at locations on the linkage arms and to the support bracket. EX1005 at [0066] (“a linear actuator 810 is attached to two points on the four-bar

linkage (composed of the set of bars 606, mounting plate 600/rear casing 602, and front mount 604/front casing 608).”). Pankros also discloses specific examples of rotatable coupling the actuator assembly to the support bracket at position above the first and second axes of the lower arm. For example, Pankros describes and shows a weight balancing device 58, which can be a linear actuator, that is rotatably coupled to the support bracket at point above the axes of the lower arm when the arm assembly is in the lowered position, as show in annotated Figures 2, 4 and 16 below. EX1006 at claim 20, [0050] and [0052]. Based on the prior art and general knowledge of a POSITA, it would have been well-known and obvious for a POSITA to couple the actuator assembly to the support bracket at a position higher than the axes of the lower arm in the lowered configuration.



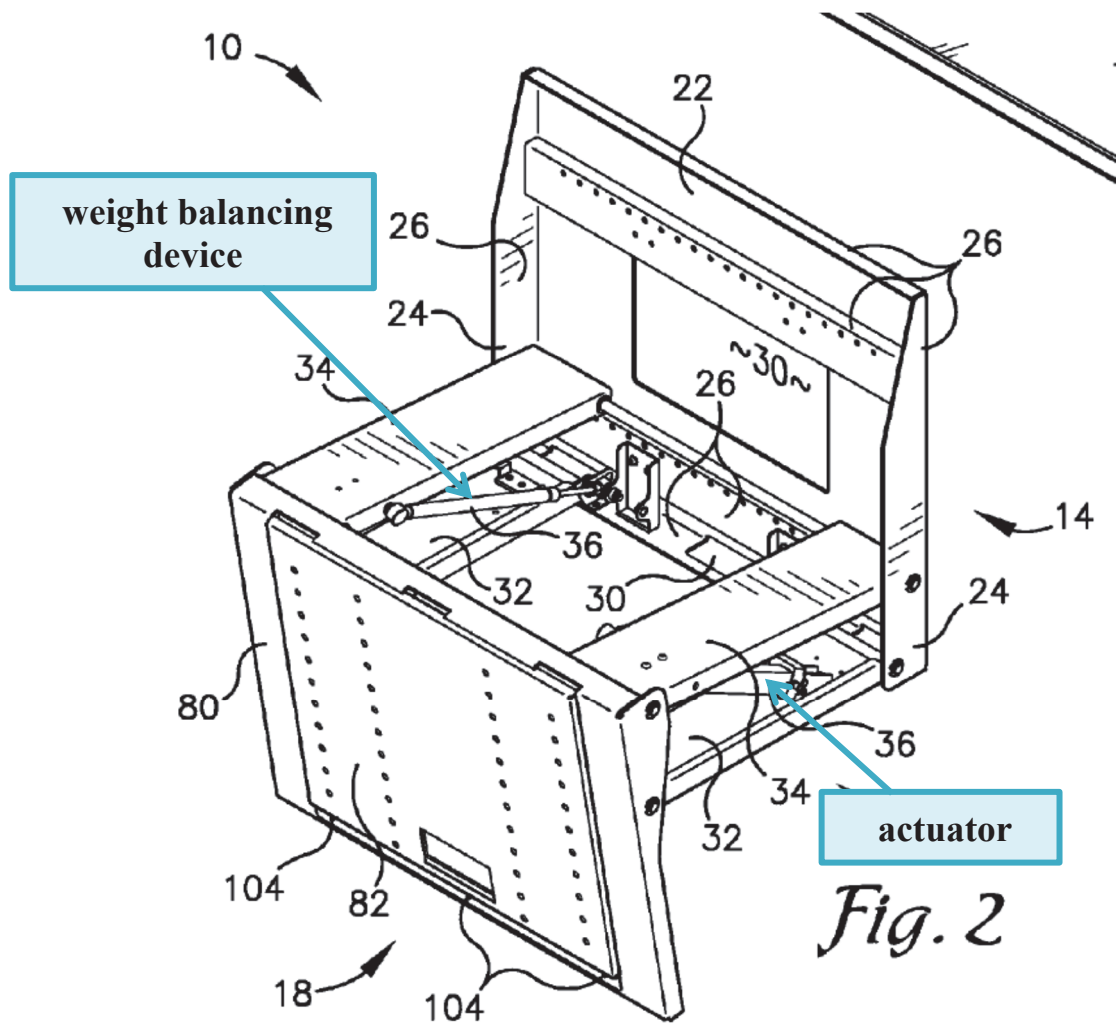
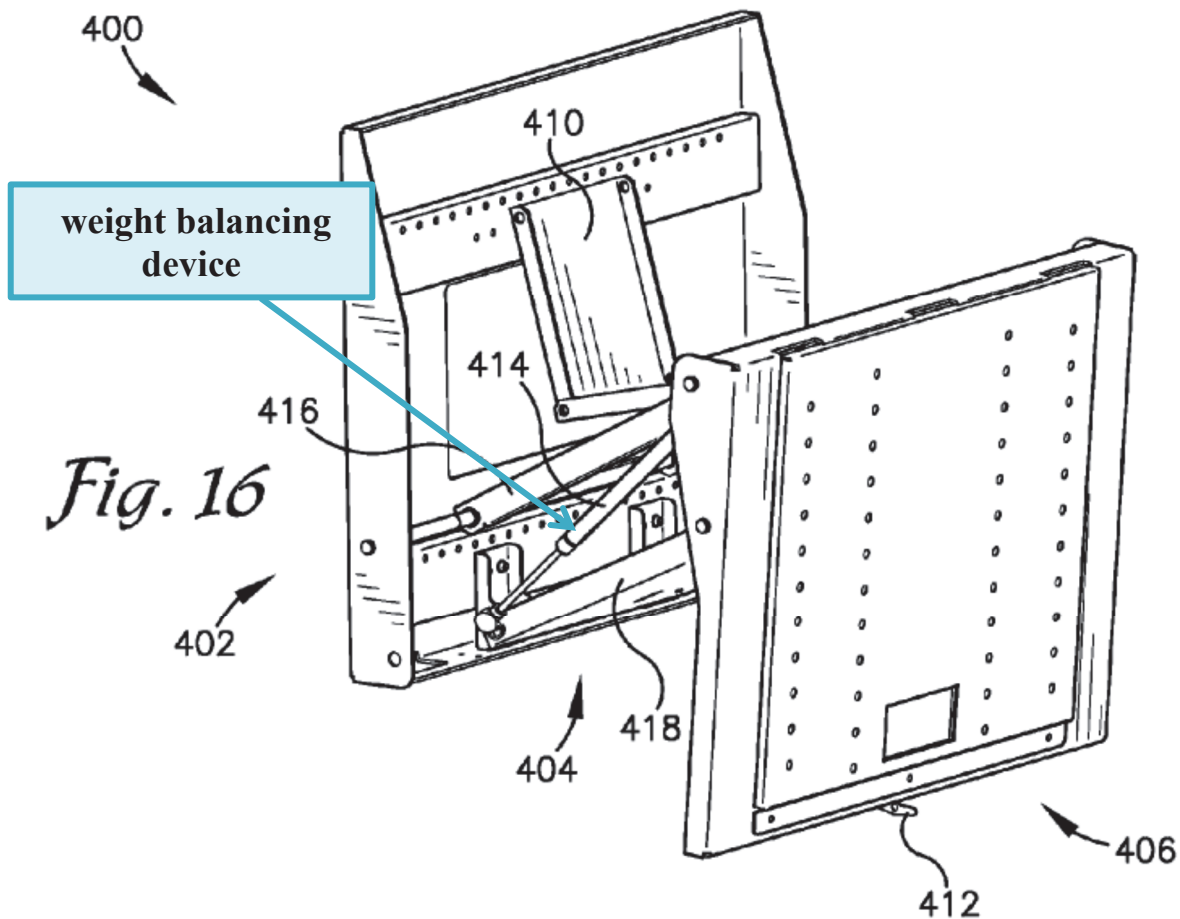


Fig. 2



Id. at Figs. 2, 4, 16 (annotated).

154. A POSITA would have understood that coupling the actuator assembly to the support bracket at a higher position would have been a mere design choice from a finite number of options. It was well-known that in a four-bar linkage system like Clary's, Tsuji's, Pankros', Xu's and Juan's, there are a limited number of locations for coupling the actuator. There was nothing novel about coupling the actuator assembly at different positions on the support bracket, as shown in Pankros.

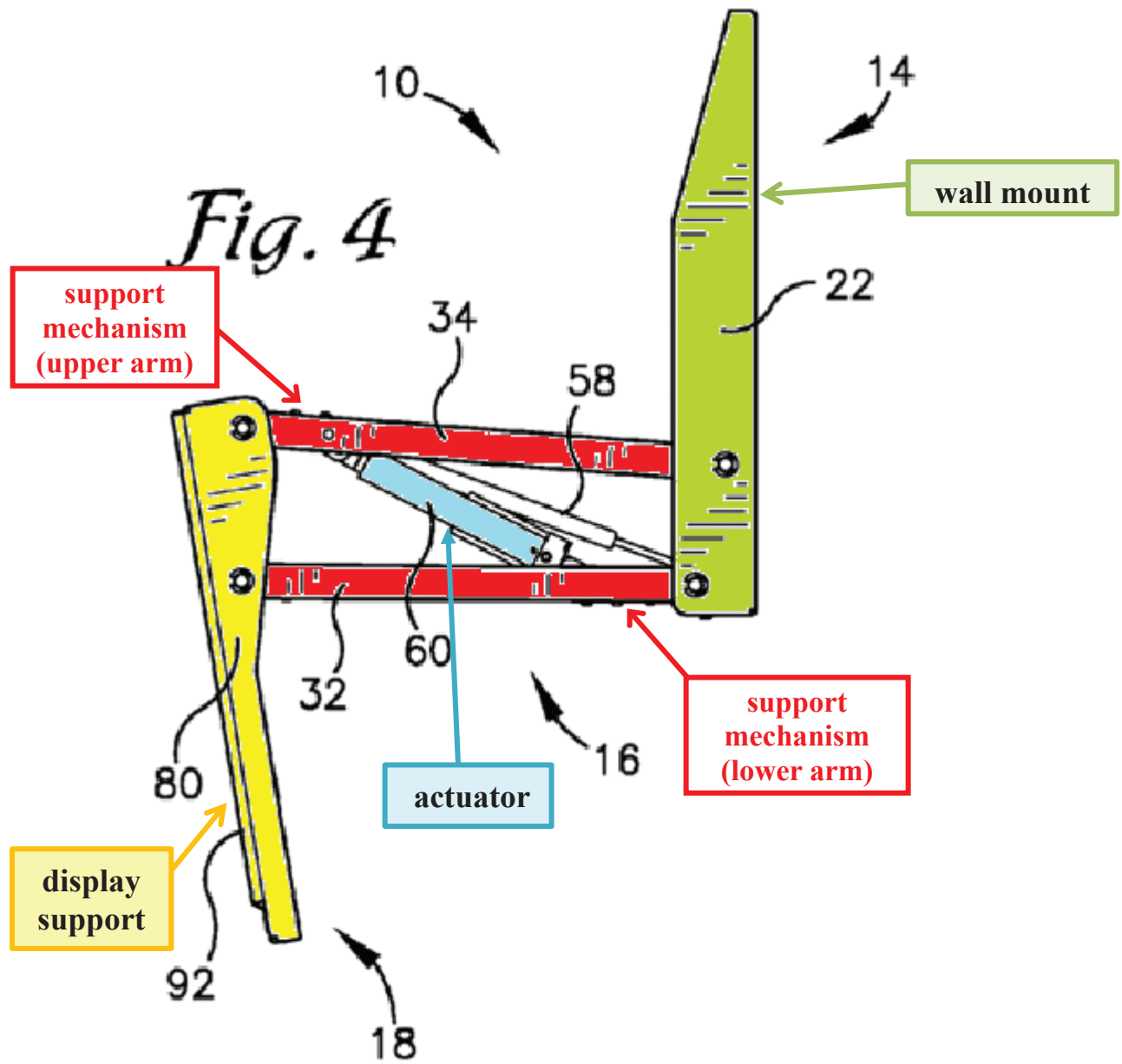
A POSITA would have been motivated to rotatably couple the actuator assembly to the support bracket because the support bracket is attached to the wall and is thus stable and secure, and to reduce part count and associated inventory, assembly and inspection costs. A POSITA would have also known that coupling the actuator assembly at a location on the support bracket between the axes of the upper and lower arms could also allow for a shorter actuator, a more self-contained system, and a more compact system in the raised and lower configurations. This would have been a routine design choice for a POSITA who would have expected success in connecting the actuator assembly to a higher location on the support bracket than the lower arm. A POSITA would have known that the support bracket end of the actuator assembly could be coupled to the support bracket at a higher location above the lower arm and still would provide the same movement of the arm assembly, as disclosed in Pankros. Moving the actuator connection higher would be a simple modification, and a POSITA would have expected success in making this modification in a simply four-bar linkage system to perform the same function of driving the linkage movement. Therefore, a POSITA would have understood that the modification would have involved no more than a routine substitution of one coupling location for another coupling location but still providing the same desired functionality of the system.

155. Therefore, a POSITA would have understood that claim 36 would have been obvious in view of the combination of Clary with Tsuji and the general knowledge of a POSITA.

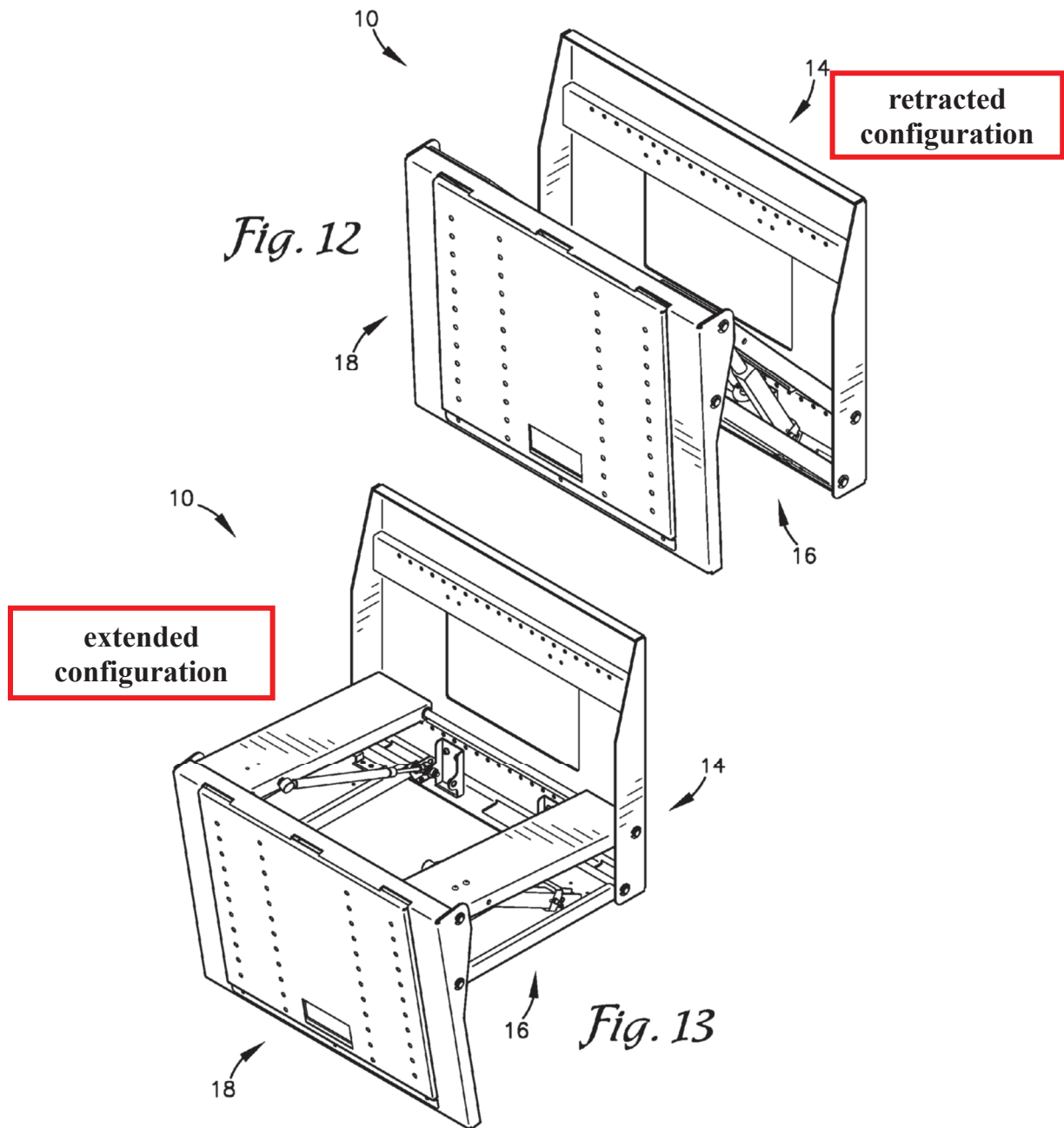
XV. GROUND 5: PANKROS ANTICIPATES CLAIMS 33-36

A. Disclosure of Pankros

156. Pankros discloses a display mounting apparatus. EX1006 at [0041], Fig. 4; EX1008 at [0004]. The apparatus includes a wall mount 14, a support mechanism 16, a display support 18, and an electronics system. EX1006 at [0041], Fig. 4; EX1008 at [0009], [0039]. The wall mount 14 secures the apparatus to a wall. EX1006 at [0043], Fig. 4; EX1008 at [0010]. The support mechanism 16 includes an upper support arm 34 and a lower support 32 arm which rotatably connect the to the display support 18 and the wall mount 14. EX1006 at [0046], [0047], Fig. 4; EX1008 at [0014]. The display support 18 removably attaches a display to the mounting apparatus. EX1006 at [0053], Fig. 4; EX1008 [0018]. The support mechanism 34 can also include a lift mechanism 36 which may be an actuator 60. EX1006 at [0046], [0051], Fig. 4; EX1008 at [0017]. The actuator 60 moves the apparatus to extended and retracted configurations based on input received from the electronics system. EX1006 at [0046], [0051], Fig. 4; EX1008 at [0040].



EX1006 at Fig. 4 (annotated).



EX1006 at Fig. 12 and Fig. 13 (annotated).

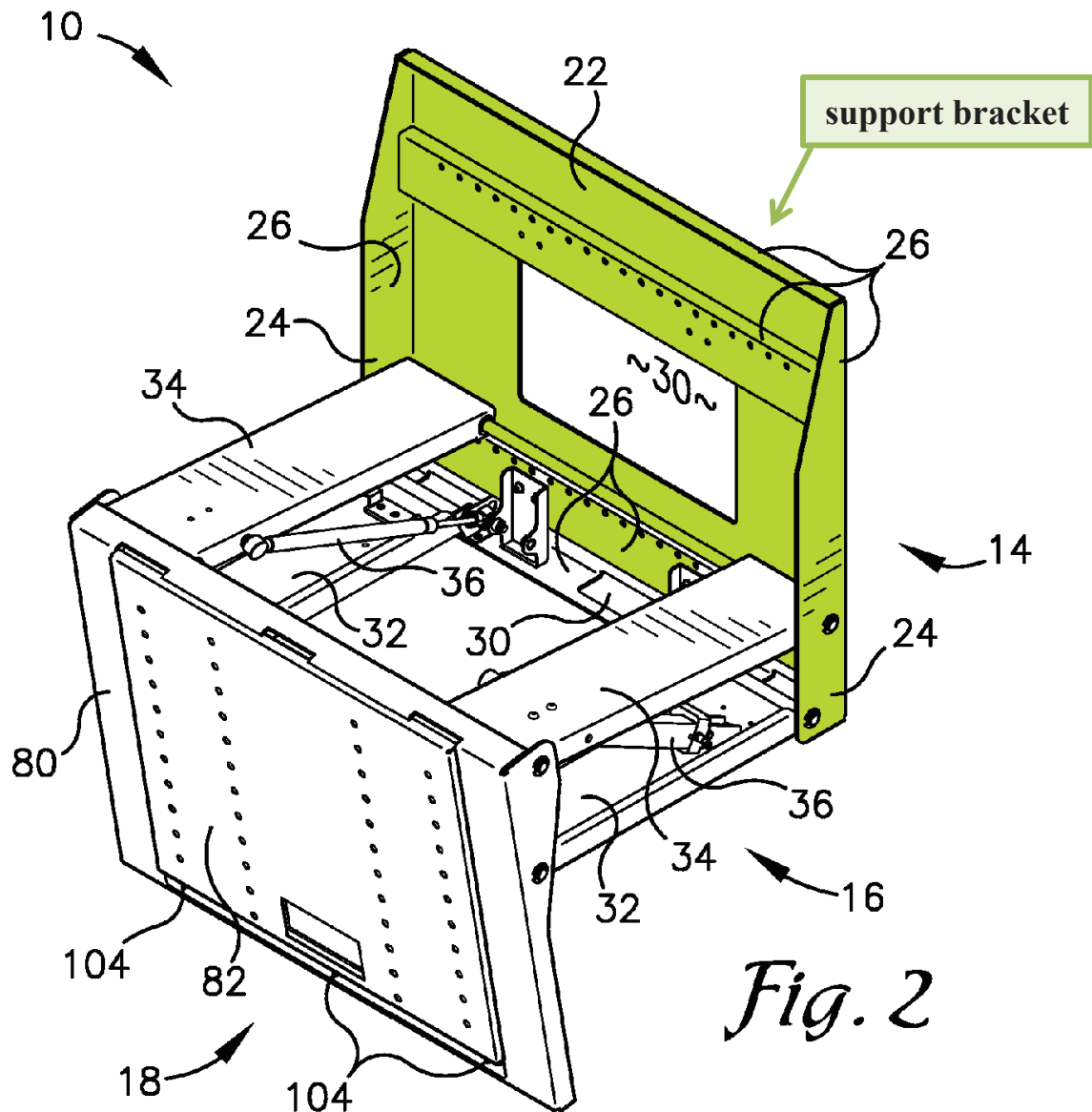
B. Pankros Anticipates Claim 33

1. Preamble of Claim 33

157. The preamble of claim 33 states: “A television mounting system comprising.” Pankros discloses this type of mounting system. For example, Pankros describes “adjustable flat panel display mounts.” EX1006 at [0002]; EX1008 at [0004].

2. Limitation 33[a]: “a support bracket configured to couple to a wall;”

158. Pankros discloses this limitation, including a support bracket configured to couple to a wall, as shown below in Figure 2 (wall mount 14). *See, e.g.*, EX1006 at [0007] (“The wall mount fixably secures to a wall”), [0041], [0042], Fig.2 (annotated); EX1008 at [0010].

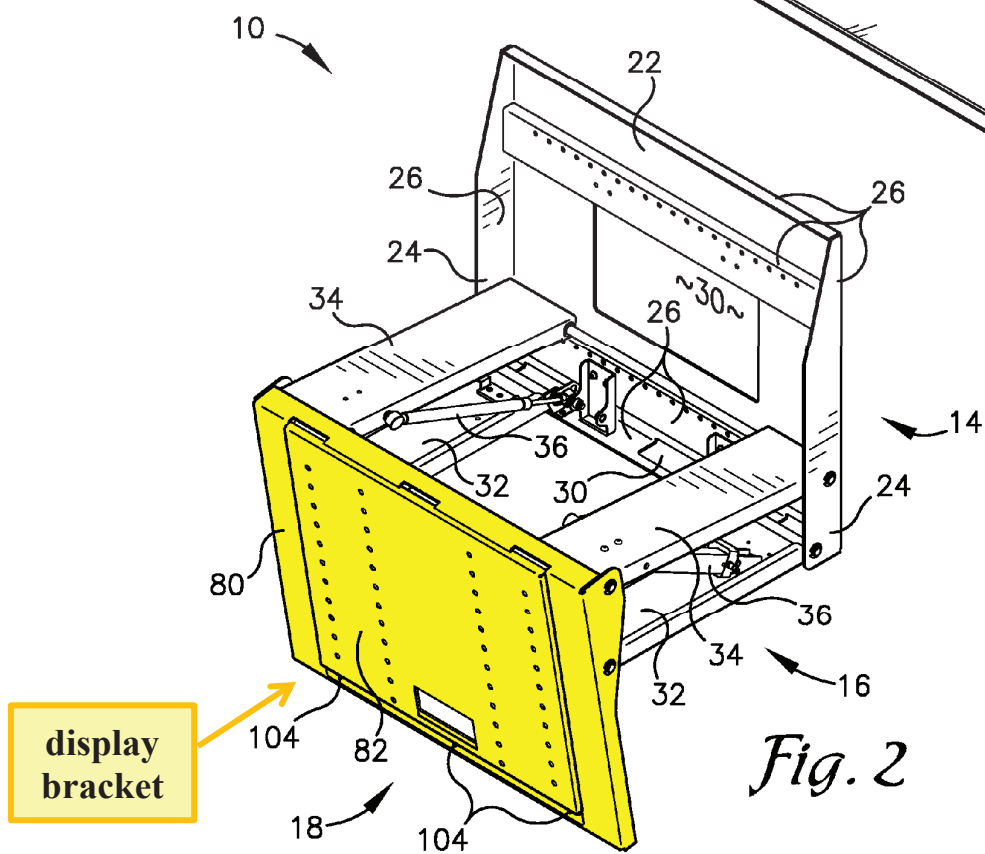
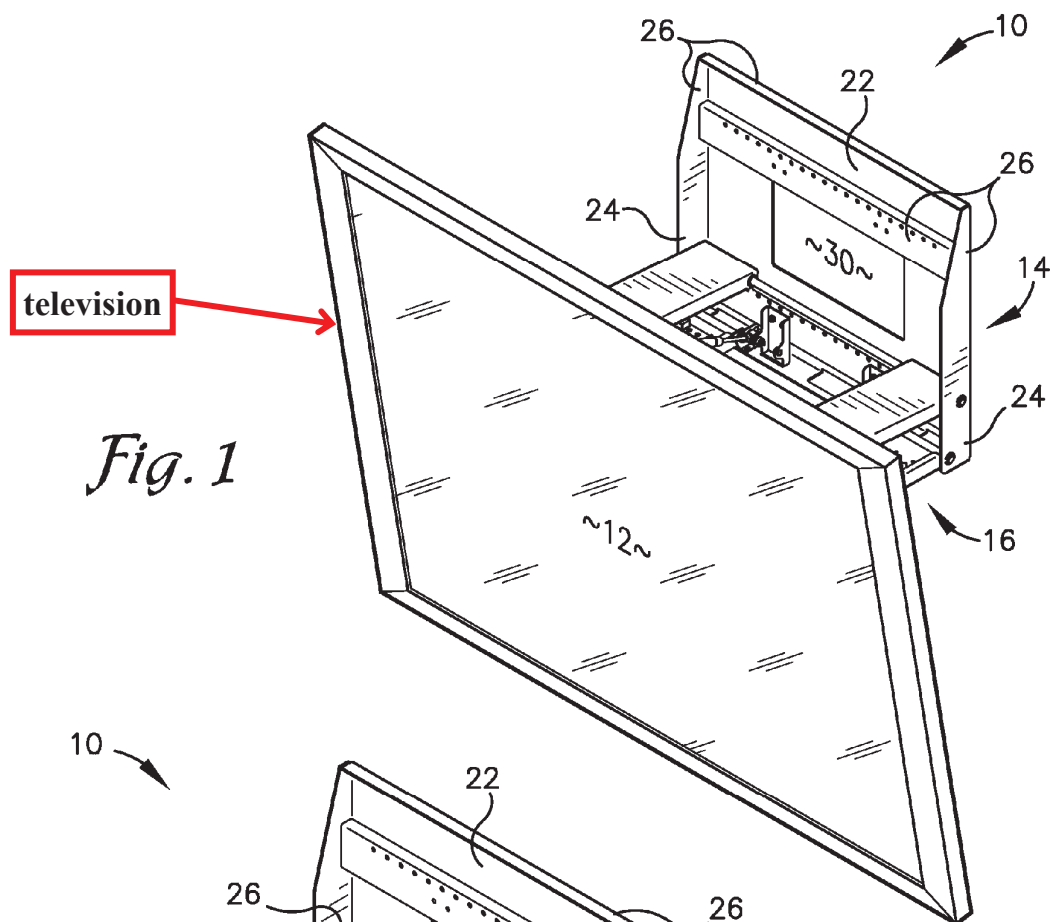


Id. at Fig. 2 (annotated).

3. Limitation 33[b]: “a display bracket configured to hold a television”

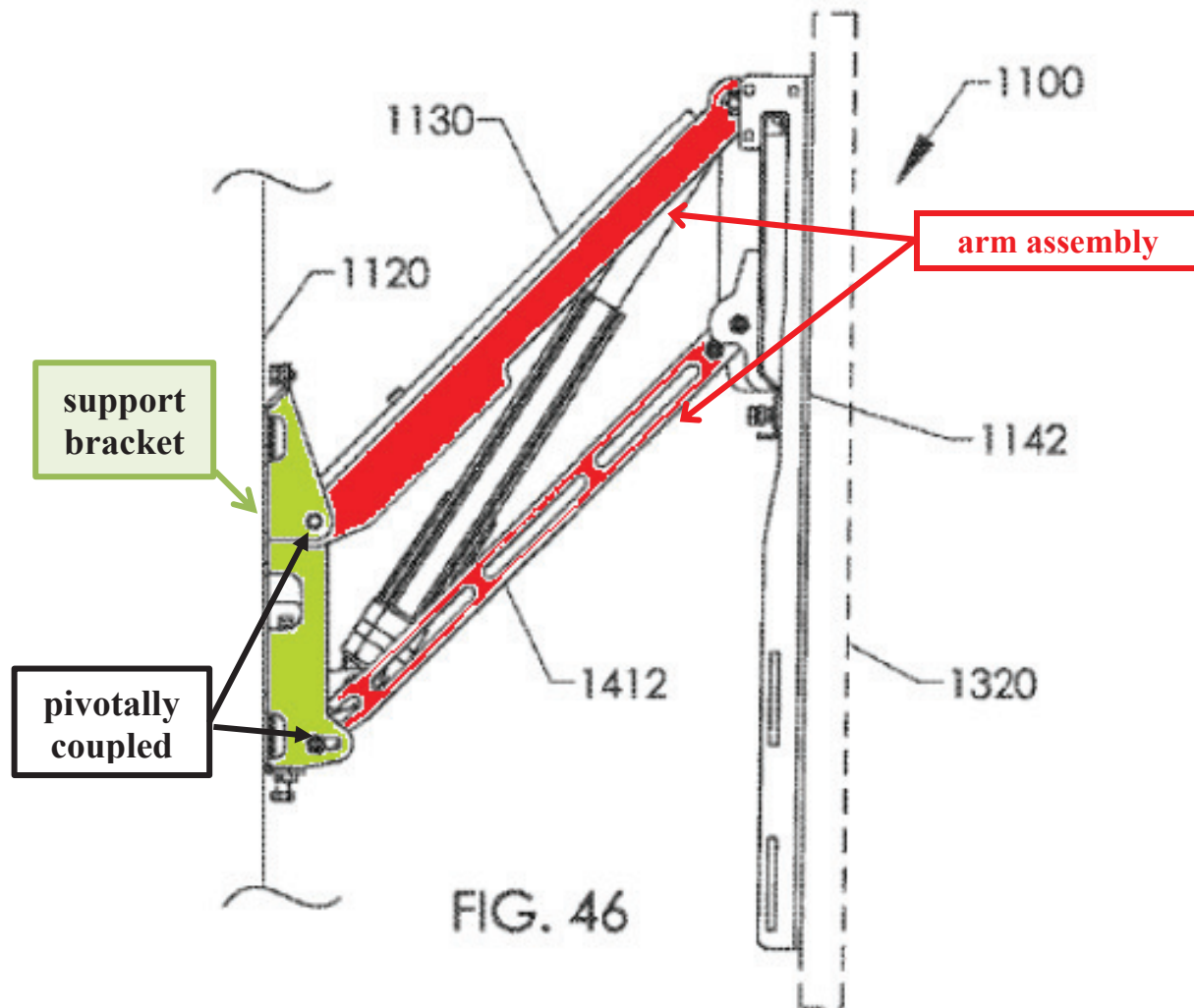
159. Pankros also discloses this limitation, for example the display bracket (display support 18) is configured to hold a television (flat panel display) as shown

below. EX1006 at [0007] (“The display support removably attaches a display to the display mounting apparatus. . .”), [0041], Figs. 1-2) (annotated); EX1008 at [0018].



4. Limitation 33[c]: “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”

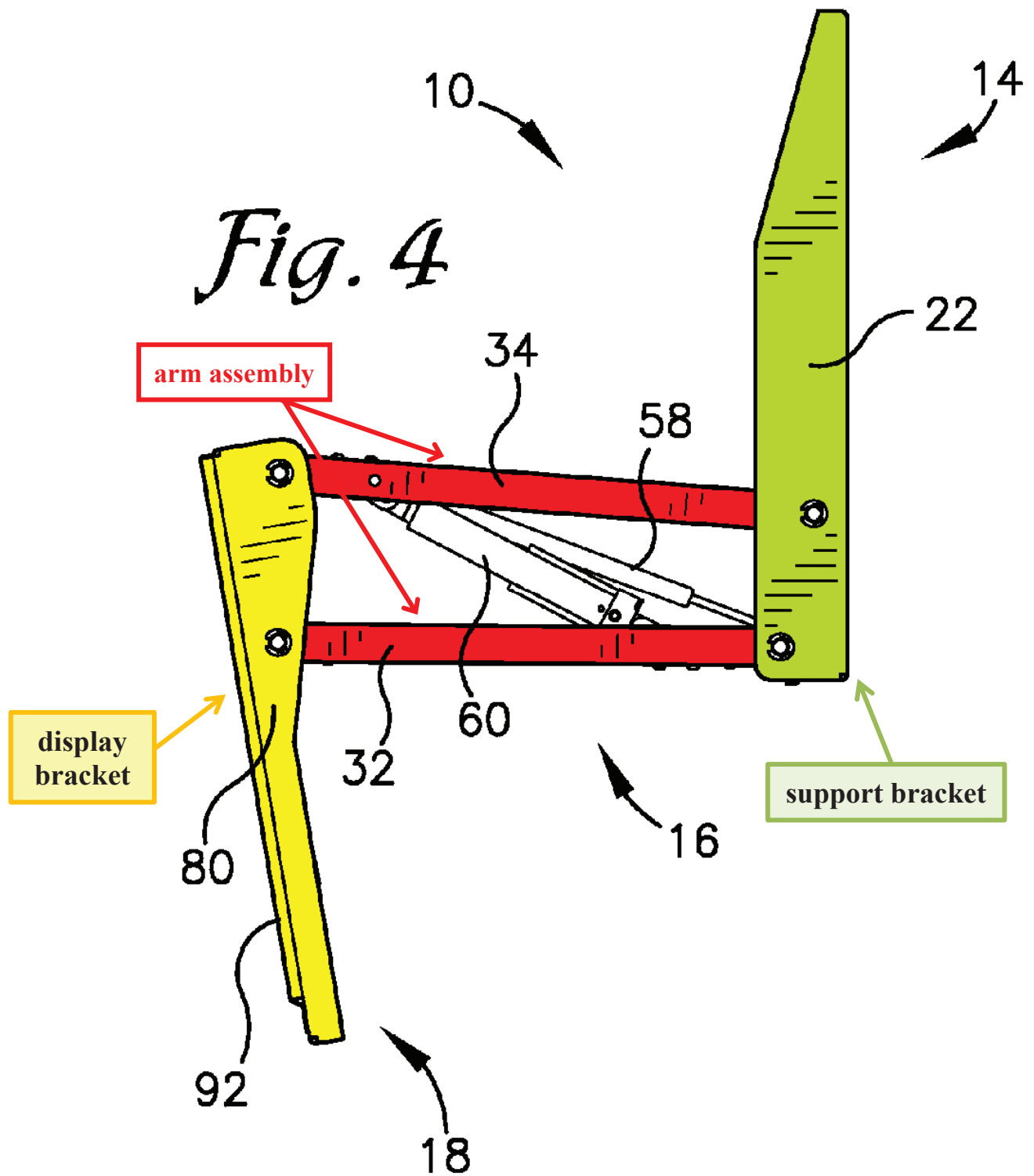
160. Although the '703 patent specification does not use the phrase “arm assembly,” it does disclose a linkage assembly 1130 that is pivotally coupled to the support bracket at support pivots on the support bracket 1140. EX1001 at 17:42-54. Figure 46 below shows the '703 patent arm/linkage assembly that is movable to position the display bracket in different configurations. EX1001 at 1:64-2:1 (“The mounting apparatus can automatically move the television to a desired viewing position and can include, without limitation, one or more components for allowing a user to smoothly raise or lower the television.”), Id. at 17:23-31 (“The linkage assembly 1130 is rotatably coupled to the support and display brackets 1140, 1142 and can swing upwardly [] or downwardly []”), Figs. 43-46. Pankros discloses this limitation.



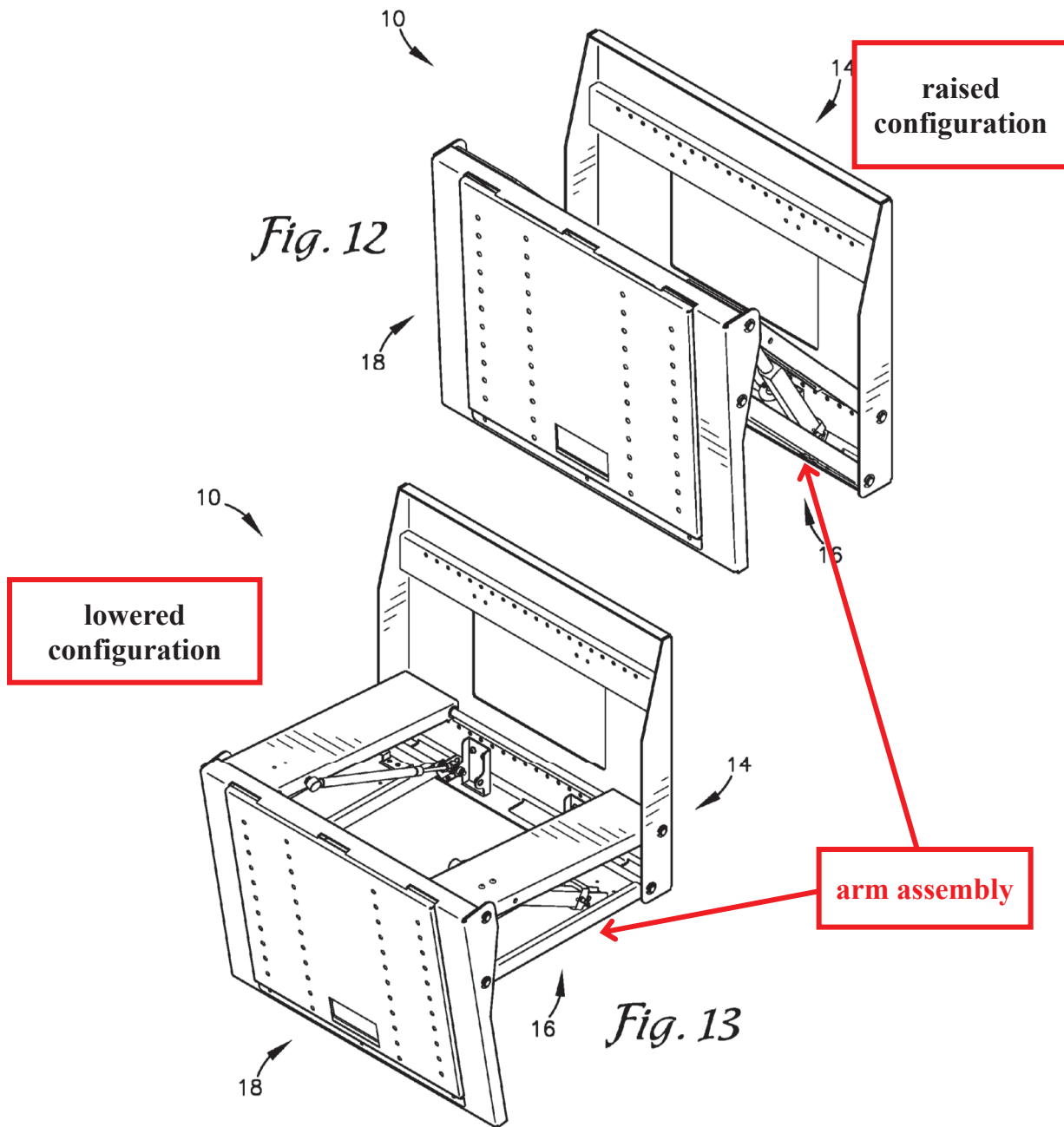
Id. at Fig. 46 (annotated).

161. As shown in annotated figure 4 below, similar to the mounting system described in the '703 patent, Pankros discloses an arm assembly (support mechanism 16) which is rotatably connected to the display bracket (display support 18) and the support bracket (wall mount 14). EX1006 at [0007] (“The support mechanism ... [is] rotatably connected at a proximal end to the wall mount” and “[t]he display support ... is rotatably attached to the upper support arm and lower support arm.”),

[0046] (“the support mechanism 16 pivotally connects the display support 18 to the wall mount 14 and includes a lower support arm 32, an upper support arm 34 and, in some embodiments, the support mechanism 16 may further include a lift mechanism 36.”), Fig. 4 (annotated); EX1008 at [0014]-[0016], Figs. 2-3, Figs. 9-11.



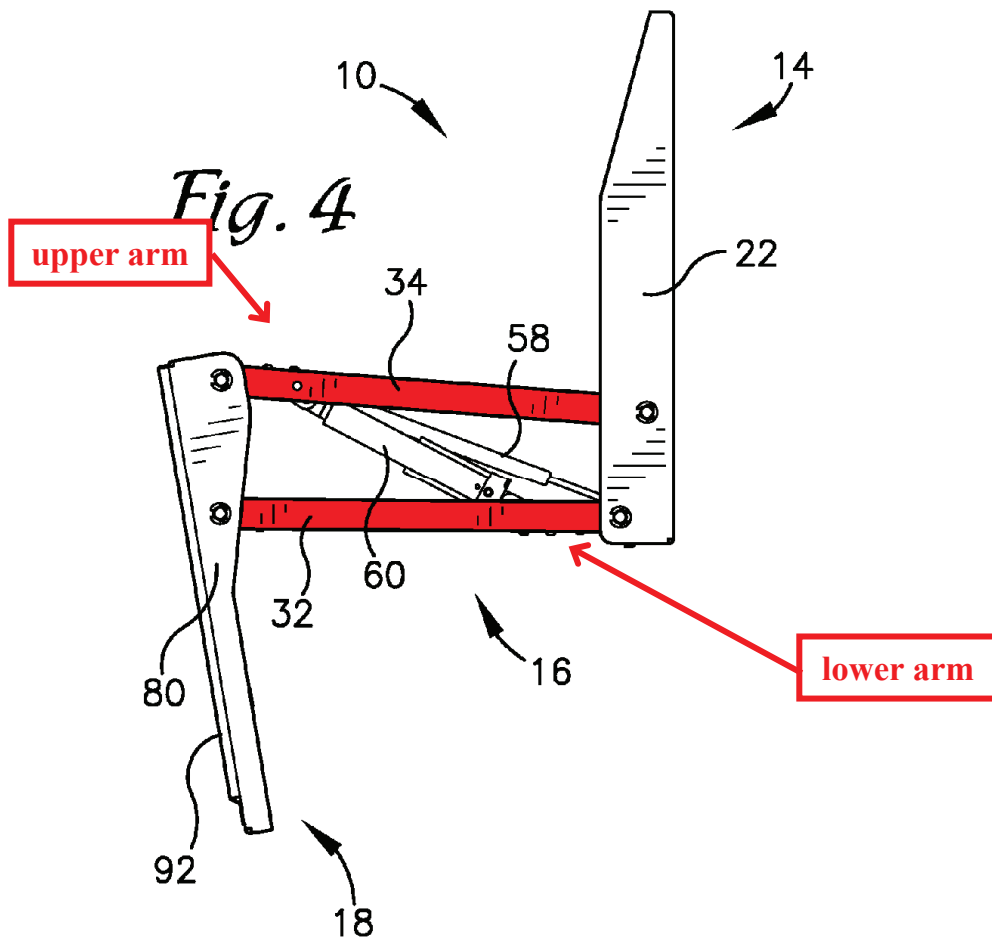
162. The arm assembly in Pankros is also movable between a raised configuration to position the display bracket at a raised position and a lowered configuration to position the display bracket at a lowered position, as illustrated in Figures 12 and 13 below. EX1006 at [0067] (“As the length of the actuator 60 decreases, the support mechanism 16 rotates from a substantially vertical position at 0-degree extension, to a substantially horizontal position at 90-degree extension, or to a downward-tilting position at 120-degree extension.”), [0068] (“The display mounting apparatus 10 may be retracted using substantially the reverse steps.”), [0069]-[0070], Figs. 12-13 (annotated); EX1008 at Figs. 9-11). Therefore, a POSITA would have understood that Pankros discloses this limitation.



Id. at Figs. 12 and 13 (annotated).

5. Limitation 33[c][i]: “wherein the arm assembly includes an upper arm and a lower arm”

163. Pankros also discloses this limitation. For example Pankros’ arm assembly (support mechanism 16) includes an upper arm (upper support arm 34) and a lower arm (lower support arm 32). EX1006 at [0007] (“The support mechanism includes an upper support arm and a lower support arm”), [0046], Fig. 4; EX1008 at [0014]. Annotated Fig. 4 below shows the arm assembly (support mechanism 16) with its upper and lower arms.



Id. at Fig. 4 (annotated).

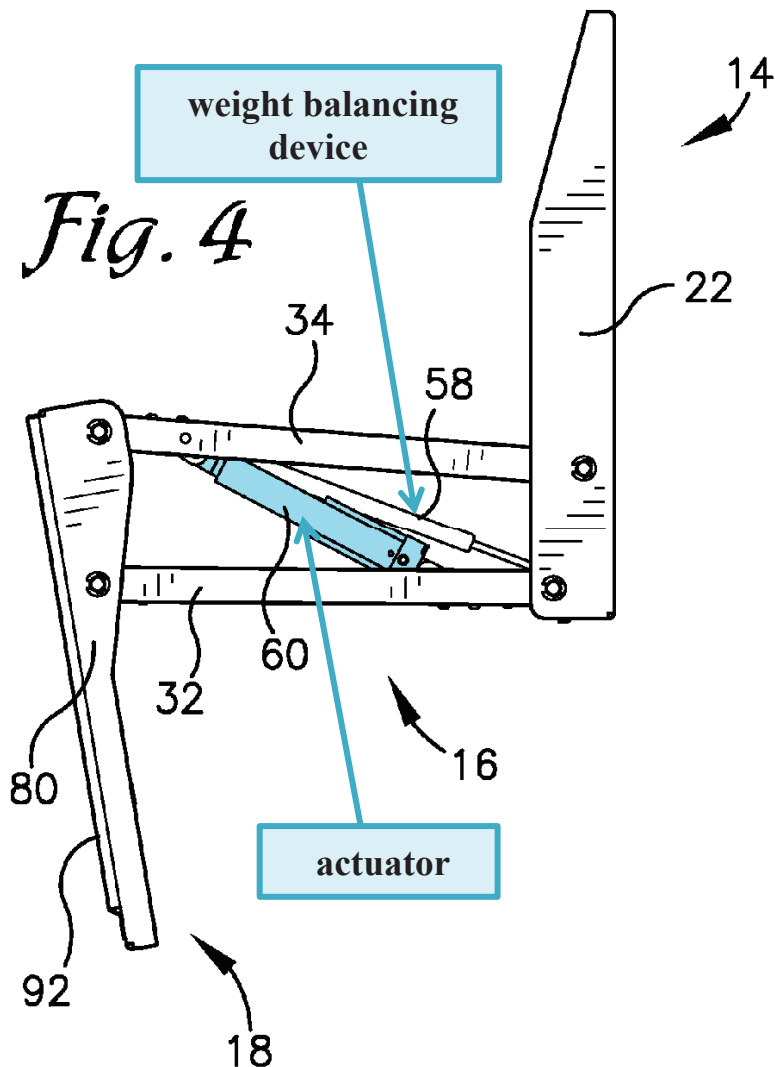
6. Limitation 33[d]: “a motorized actuator assembly having a support bracket end rotatably coupled to the support bracket and a display bracket end rotatably coupled to the arm assembly”

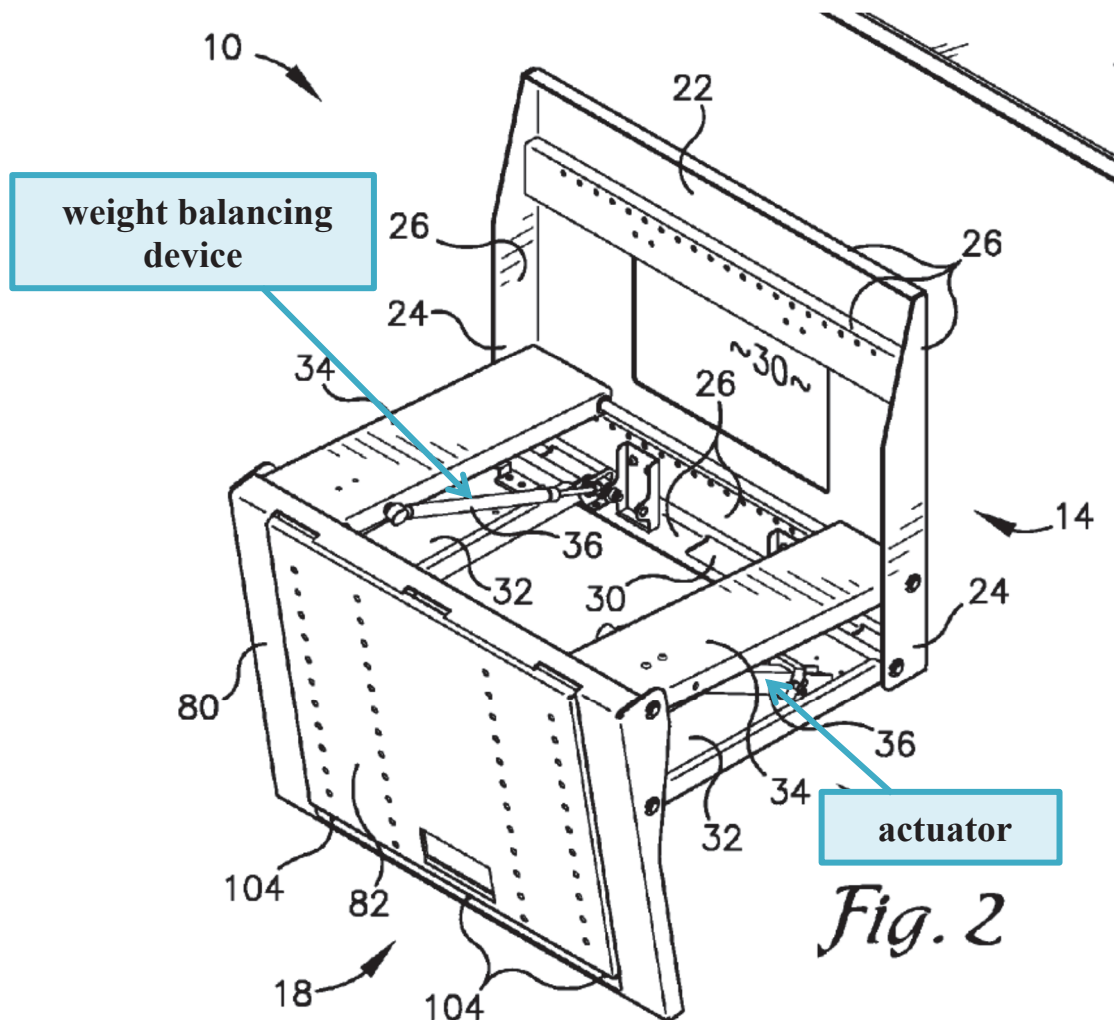
164. Pankros describes a motorized actuator assembly (including a linear actuator which utilizes a motor). EX1006 at [0051] (“The actuator 60 connects the upper support arm 34 to the lower support arm 32 for electronically controlling the position of the display support 18. . .”), *Id.* at [0064], [0067] (“The processing subsystem 108 directs the motion-control subsystem 112 to extend or retract the actuator 60.”), *Id.* at Claim 4 (“wherein the actuator is an electro-mechanical linear actuator, a stepper motor, a servo motor, a DC motor, an AC motor, and a universal motor.”); EX1008, at [0017], [0040]. Therefore, Pankros discloses this limitation.

165. Pankros describes that its weight balancing device 58 can also be a linear actuator like actuator 60. EX1006 at [0050] (“The weight balancing device 58 may be a linear actuator”); EX1008 at [0017].

166. A POSITA would have also understood that Pankros discloses a motorized actuator assembly with a display bracket end rotatably coupled to the arm assembly, as shown in annotated Figure 4 below. EX1006 at [0051] (“The actuator 60 is rotatably secured at a second end 76 to the upper support arm 34 with a fastener 78. . .”). Pankros’ weight balancing device 58, which Pankros states can be a motorized linear actuator, also has a display bracket end rotatably coupled to the arm

assembly. *Id.* At [0050] (“the second attachment point 66 connects the weight balancing device 58 to the support mechanism 16. . .”), Figs. 2, 3 and 4.





Id. at Figs. 2 and 4 (annotated).

167. Pankros’ actuator assembly also has a support bracket end rotatably coupled to the support bracket. For example, Pankros describes its actuator 60 as “rotatably secured at a first end 72 to the lower support arm 32” and the lower support arm 32 is “pivotally connected” to the main body 22 of the support bracket. EX1006 at [0046] and [0051]. Because the claim does not require that the actuator assembly be directly coupled to the support bracket, a POSITA would understand

that Pankros' indirect rotatable coupling of actuator 60 to the support bracket satisfies this limitation. So Pankros' actuator 60 satisfies this limitation.

168. Alternatively, Pankros also discloses an actuator assembly directly rotatably coupled to the support bracket. For example, Pankros discloses “a lift mechanism connected at a first end to the upper support arm and connected at a second end to the wall mount.” EX1006 at claim 20. Pankros explains that the lift mechanism 36 [] comprises a weight balancing device 58 and an actuator 60.” *Id.* at [0050]. Pankros discloses that the weight balancing device 58 “may be a linear actuator” like actuator 60, and the weight balancing device 58 has “a first attachment point 64 may connect to the wall mount 14 and the second attachment point 66 may connect to the display support 66” at the upper arm, as shown in Figure 2 above. *Id.* at [0050] and [0052]. Therefore, Pankros discloses systems in which the actuator assembly is directly coupled to the support bracket, and Pankros' linear actuator 58 also satisfies this limitation. A POSITA would understand that Pankros discloses this limitation with either of its disclosed actuator assemblies.

7. Limitation 33[d][i]: “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.”

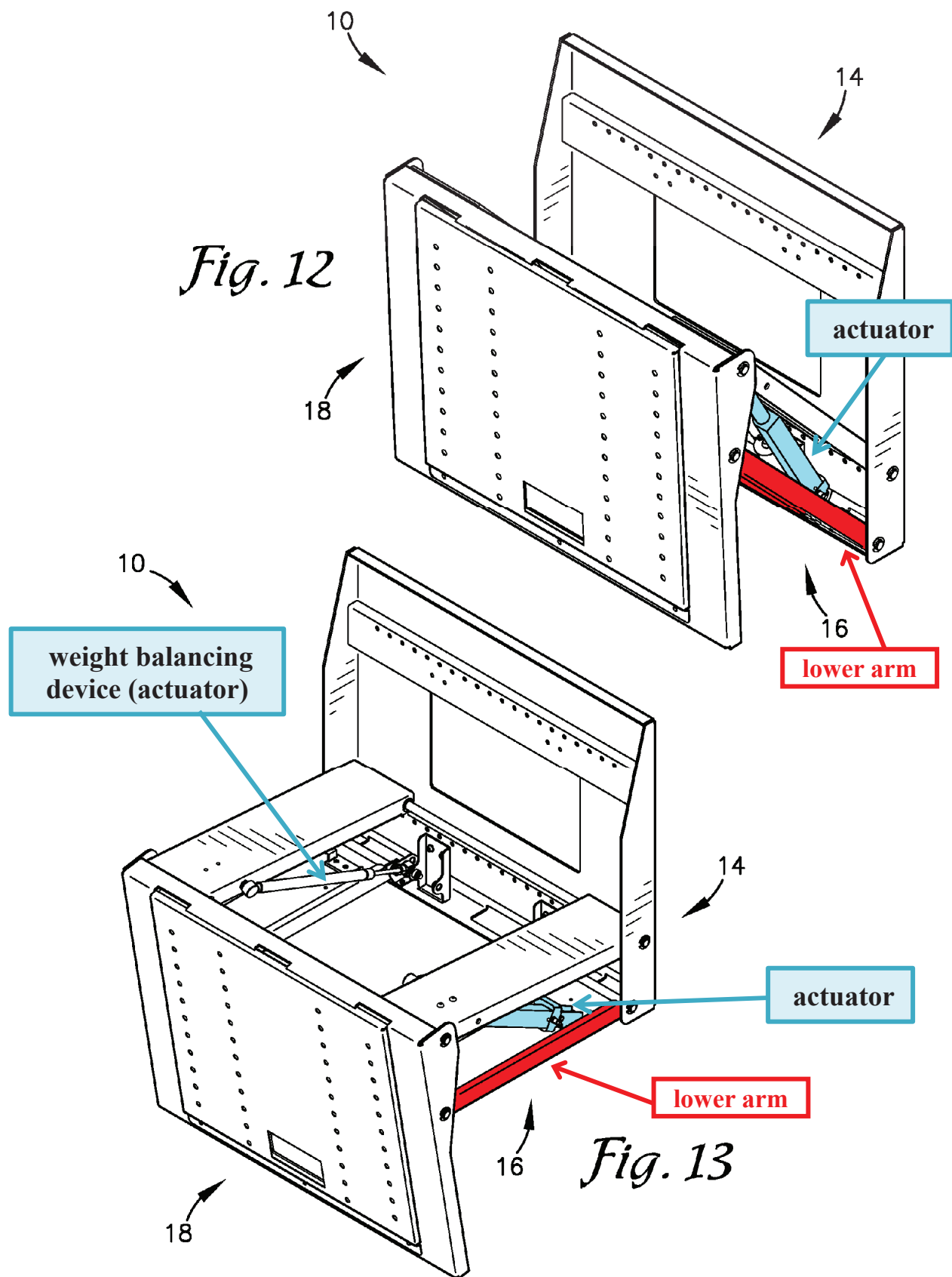
169. A POSITA would understand that Pankros discloses this limitation. For example, Pankros describes an actuator assembly that moves relative to the arm assembly 16 when the arm assembly moves toward the raised position, as shown in

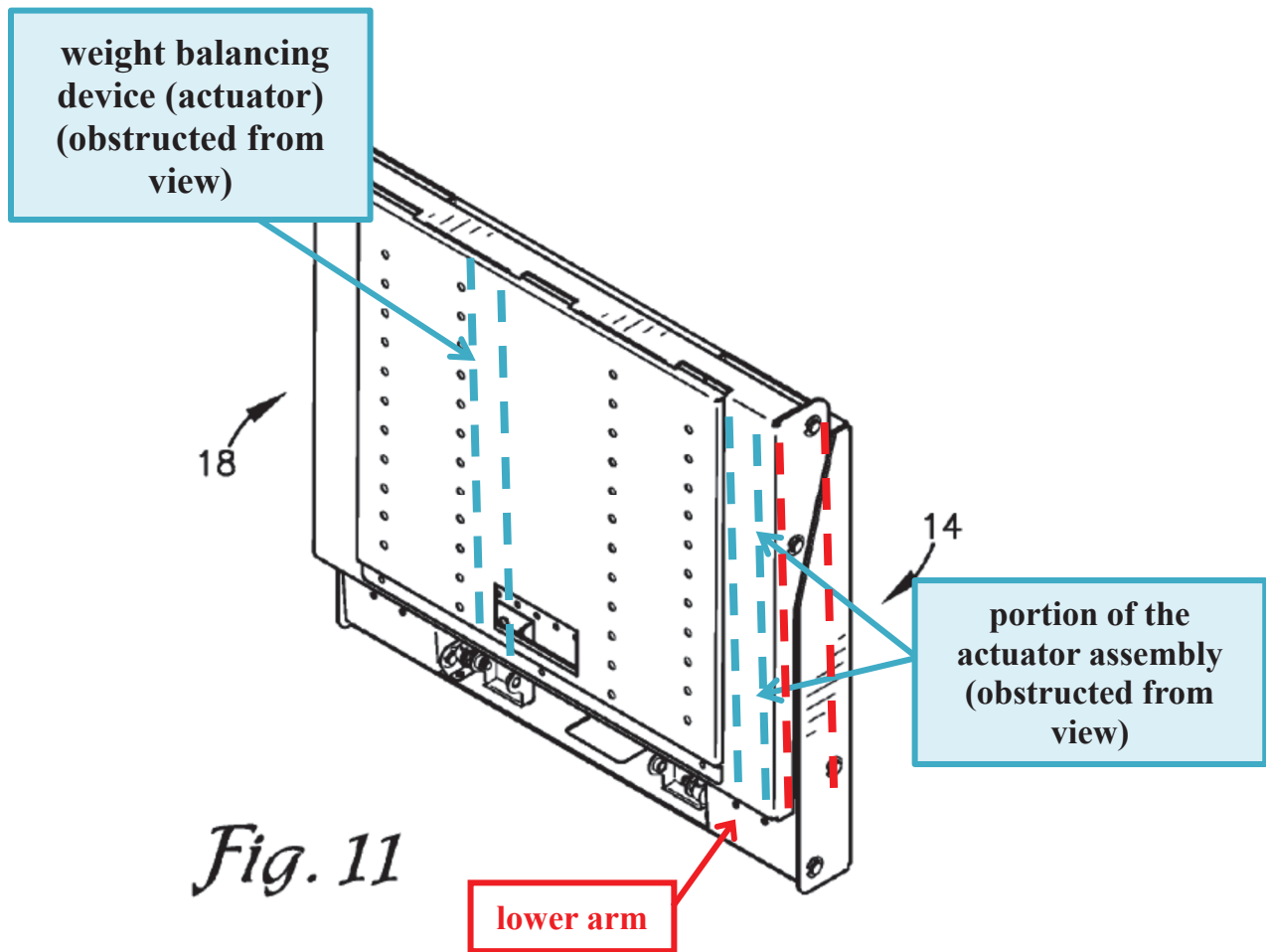
annotated Figures 11-13 below. As with the corresponding embodiment of the '703 patent (Figures 41–48), at least a portion of Pankros' actuator assembly gets closer to and past a portion of the lower arm 32 when the arm assembly moves toward the raised configuration. EX1001 at Figs 45-46; EX1006 at Figs. 11-13.

170. As I explained in Section XIII.B.7 above, during prosecution of the '703 patent, Patent Owner confirmed that the embodiment of Figures 41-48 is covered by the challenged claims and satisfies this limitation. EX1002 at 29. This embodiment of the '703 patent includes an actuator assembly 1200 and arm assembly that provide relative movement of the lower arm 1412 toward and past a portion of the motorized actuator assembly 1200 when the arm assembly moves toward the raised configuration.

171. Like the system of the '703 patent, Pankros provides relative movement between the lower arm toward and past a portion of the actuator assembly when the assembly moves from the lowered configuration to the raised configuration. *Id.* As I explained above, Pankros discloses two actuator assemblies. One includes the actuator 60 and the other includes weight balancing device 58 which may be a linear actuator like actuator 60. EX1006 at [0049]-[0052]. Pankros describes and shows the same arm assembly configuration and actuator movement as the relevant embodiment of the '703 patent, as shown below in annotated Figures 11-13. EX1006 at Figs. 11-13; EX1008 at Figs. 9-11. Pankros' actuator assemblies each

overlap with the lower arm as the arm assembly moves to the raised position of Figure 11. In this upward rotational movement, a portion of each of the actuator assemblies 60 and 58 gets closer to and past a portion of the lower arm when the arm assembly moves toward the raised configuration.





EX1006 at Figs. 11-13.

172. As illustrated in Pankros' Figures 11-13, the mounting system includes two actuator assemblies and arm assembly that provide relative movement of the lower arm toward and past a portion of the motorized actuator assemblies when the arm assembly moves toward the raised configuration. Figure 13 shows the arm assembly in a lowered configuration and Figure 11 shows the arm assembly in the

raised configuration. EX1006 at [0026]-[0028]. These figures illustrate the movement of the arm assembly and actuator assemblies from the lowered configuration (Fig. 13) to the raised configuration (Fig. 11). *Id.* When the arm assembly moves upward toward the raised configuration, the actuators 60 and 58 and the lower arm all rotate clockwise, but they move relative to one another such that the lower arm and actuators pass one another when viewed from the side. As they move toward the raised configuration, at least a portion of Pankros' actuator assemblies gets closer to and past the lower arm which is confirmed by the fact that the view of the actuators 60 and 58 is largely obstructed by the wall mount 14 and lower arm, as shown in Figures 11-13 above. EX1006 at Fig. 11. Pankros' movement and configuration is the same as the corresponding embodiment of the '703 patent, wherein the relative movement of the actuator and lower arm causes at least a portion of the actuator assembly to get closer to and past a portion of the lower arm when the arm assembly moves toward the raised configuration.

173. In the embodiments of Pankros that have an actuator assembly 58 that is directly rotatably coupled to the support bracket, the system still has the same relative movement of the actuator assembly 60 and lower arm. For example, directly coupling the actuator to the support bracket like the connection of the weight balancing device (actuator) 58 would be the same configuration of the relevant '703 patent embodiments. *Id.* When the actuator 58 is coupled directly to the support

bracket, it provides the same relative movement and overlapping as the Pankros' actuator assembly 60 and both disclose this limitation. Therefore, a POSITA would have understood that each of Pankros' disclosed actuator assemblies satisfy this limitation.

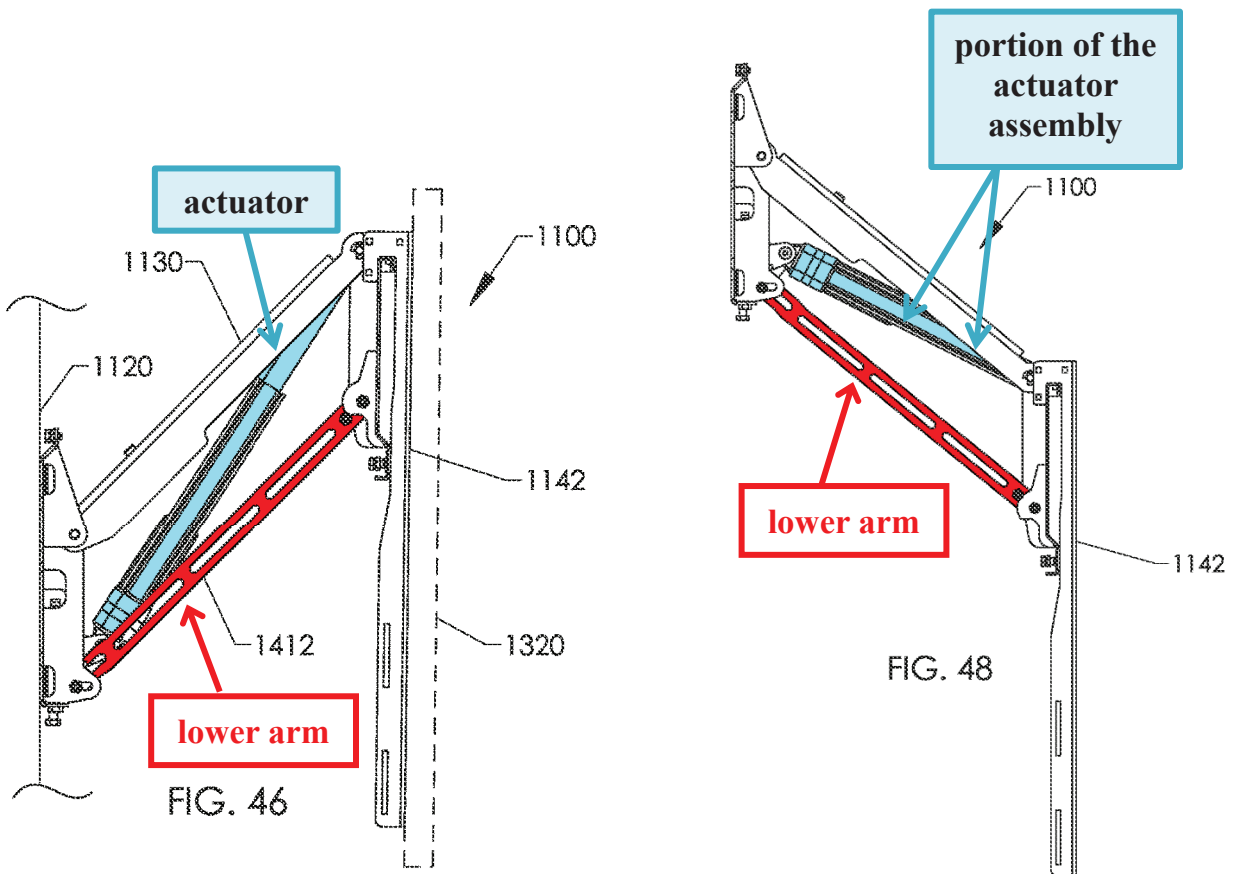
C. Pankros Anticipates Claim 34

174. Claim 34 depends from claim 33 and states “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.”

175. A POSITA would have understood that Pankros discloses this limitation. For example, when the Pankros assembly moves to the lowered configuration, the portion of each of the actuator assemblies 60 and 58 gets further away from and is spaced from the lower arm. EX1006 at Figs. 12-13; EX1008 at Figs. 9-11.

176. As I explained above in Section VIII.B, the “moves away from” language of this limitation must include relative movement of the lower arm and the portion of the actuator assembly in which the lower arm moves away from the portion of the actuator assembly, as the arm assembly approaches the lowered configuration. The claimed movement is not limited to movement of the portion of the actuator assembly in an upward direction away from the first arm, but rather it includes movement of the lower arm away from the actuator assembly which causes

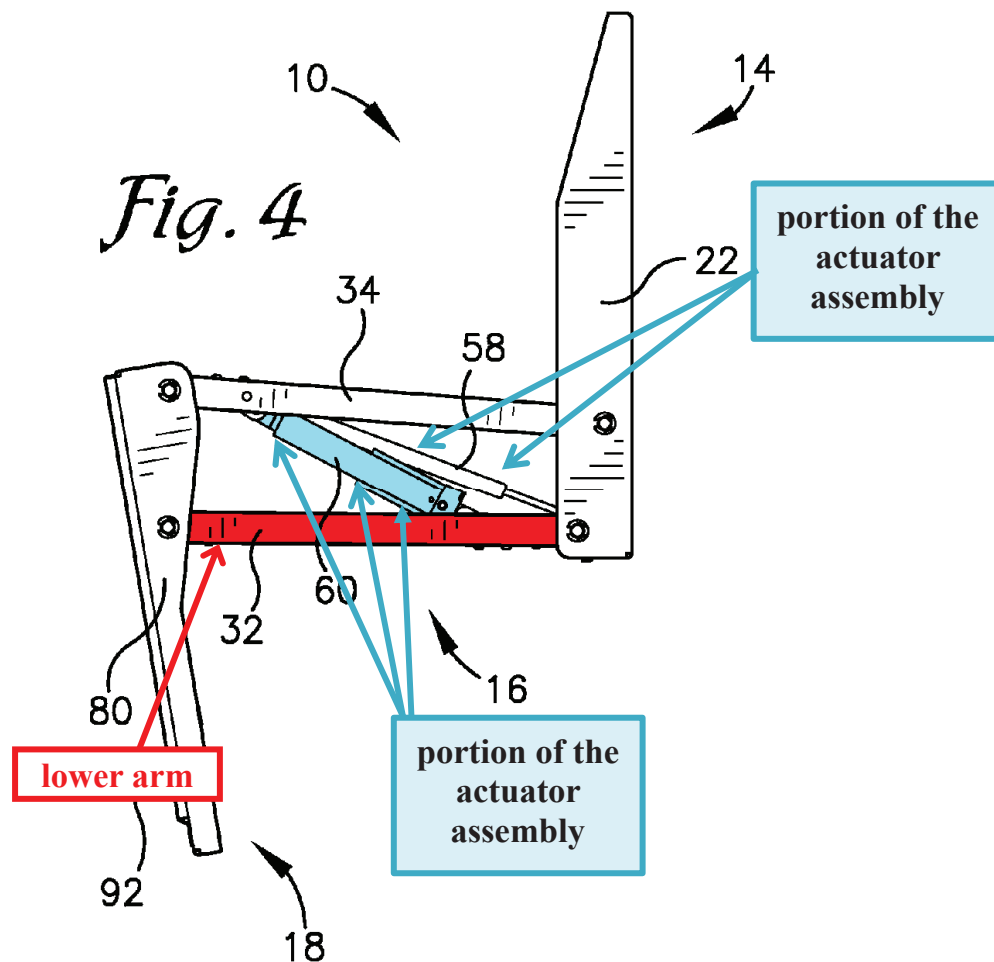
relative movement between these parts, causing the portion of the actuator assembly to get further away from the lower arm, as illustrated in annotated Figures 46 and 48 of the '703 patent below. The figures show that the portion of the actuator assembly gets further away from and vertically spaced apart from the lower arm 1412 when the arm assembly is in the lowered configuration of Figure 48.

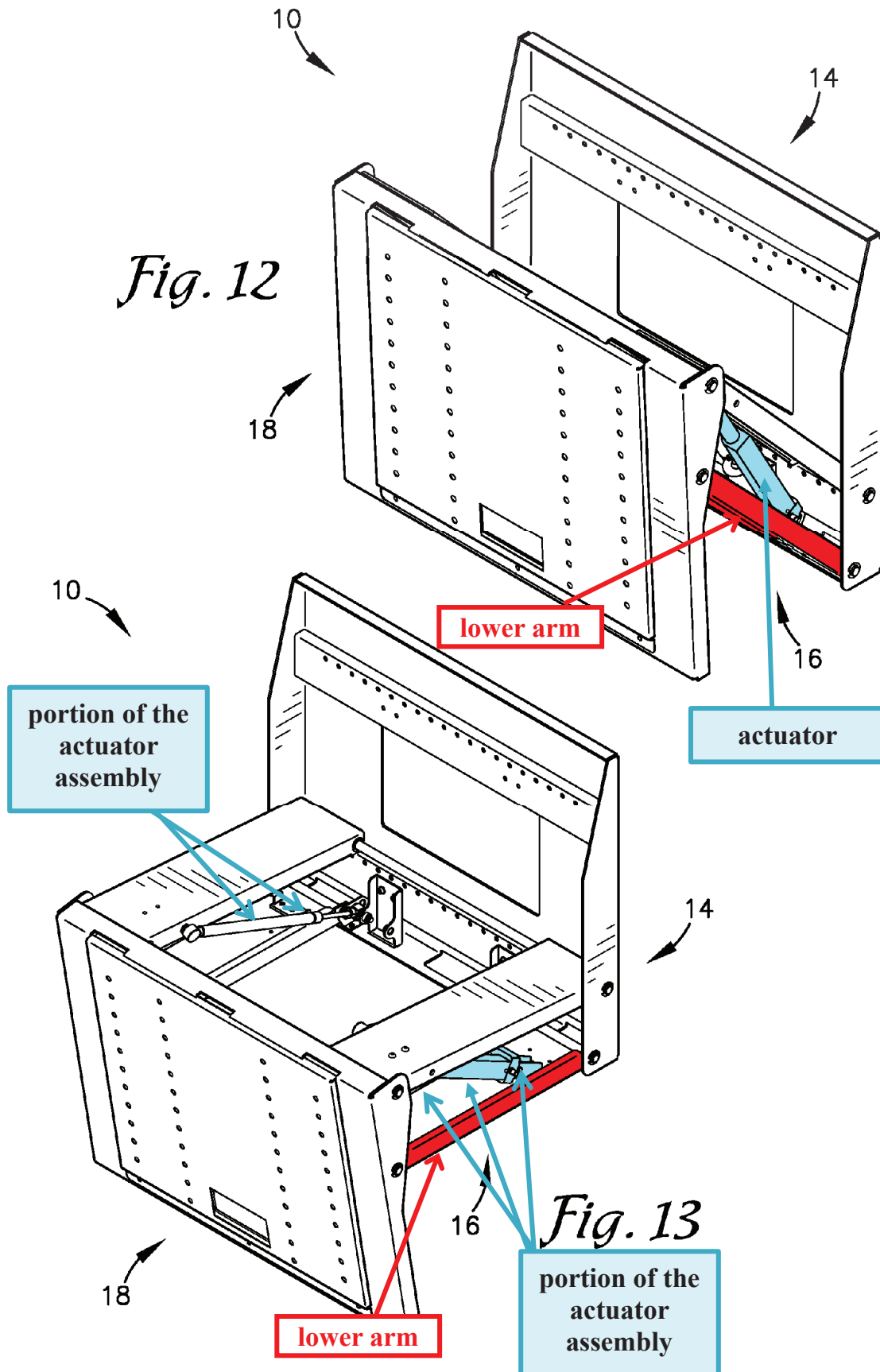


EX1001, Figs. 46 and 48 (annotated).

177. Like the covered embodiment of the '703 patent, in Pankros' system the portions of the motorized actuator assemblies 60 and 58 get further away from and are vertically spaced apart from the lower arm when the arm assembly is in the

lowered configuration, as shown in annotated Pankros Figures 4 and 13 below. EX1006 at Figs. 4, 12-13. As illustrated in Figure 4, most of the actuator assemblies is further away from and is vertically spaced apart from the lower arm 5 in the lowered configuration of Figure 4.





Id. at Figs.4, 12-13 (annotated).

178. In the examples of Pankros' where the actuator assembly couples directly to the support bracket (actuator 58), system has the same relative movement of the actuator assembly 60 and lower arm. For example, the direct coupling of the actuator to the support bracket like the connection of the weight balancing device (actuator 58) is the same configuration of the relevant '703 patent embodiments. A POSITA would understand that both configurations of Pankros' actuator assemblies would satisfy this limitation.

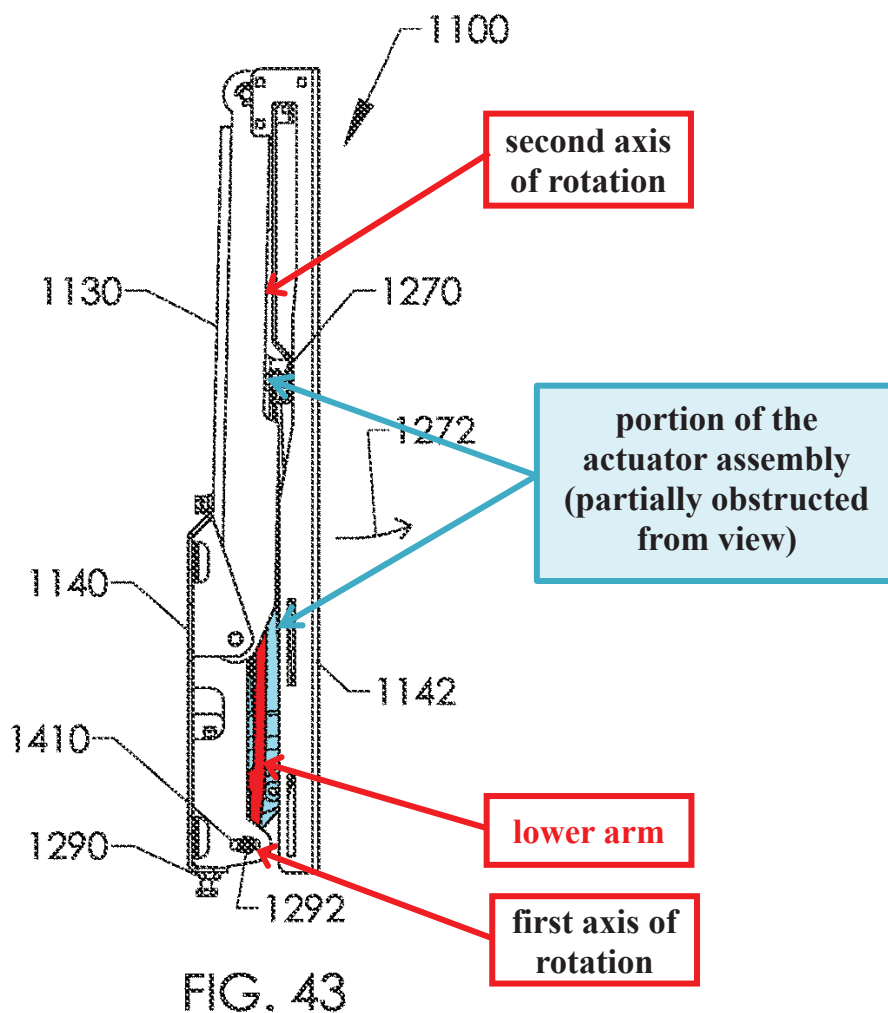
179. Therefore, a POSITA would have understood that Pankros describes this limitation and has the same configuration as the corresponding '703 patent system and discloses the same movement and positioning of the actuator assembly relative to the lower arm in the lowered configuration.

D. Pankros Anticipates Claim 35

180. Claim 35 depends from claim 33 and states "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." Patent Owner stated during prosecution that the embodiment of

Figure 43 of the '703 patent provides an example of this limitation. EX1002 at 29.

I provide an annotated version of Figure 43 below for reference.

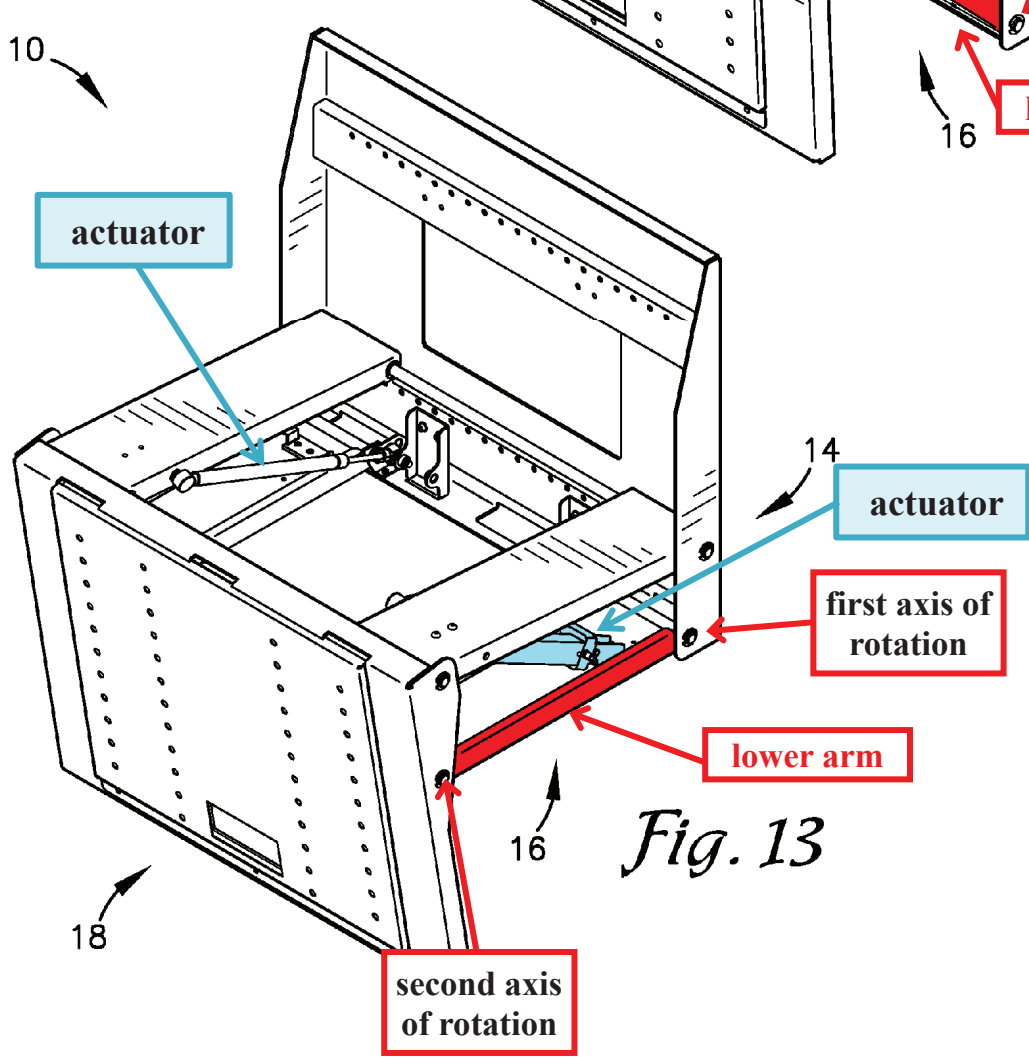
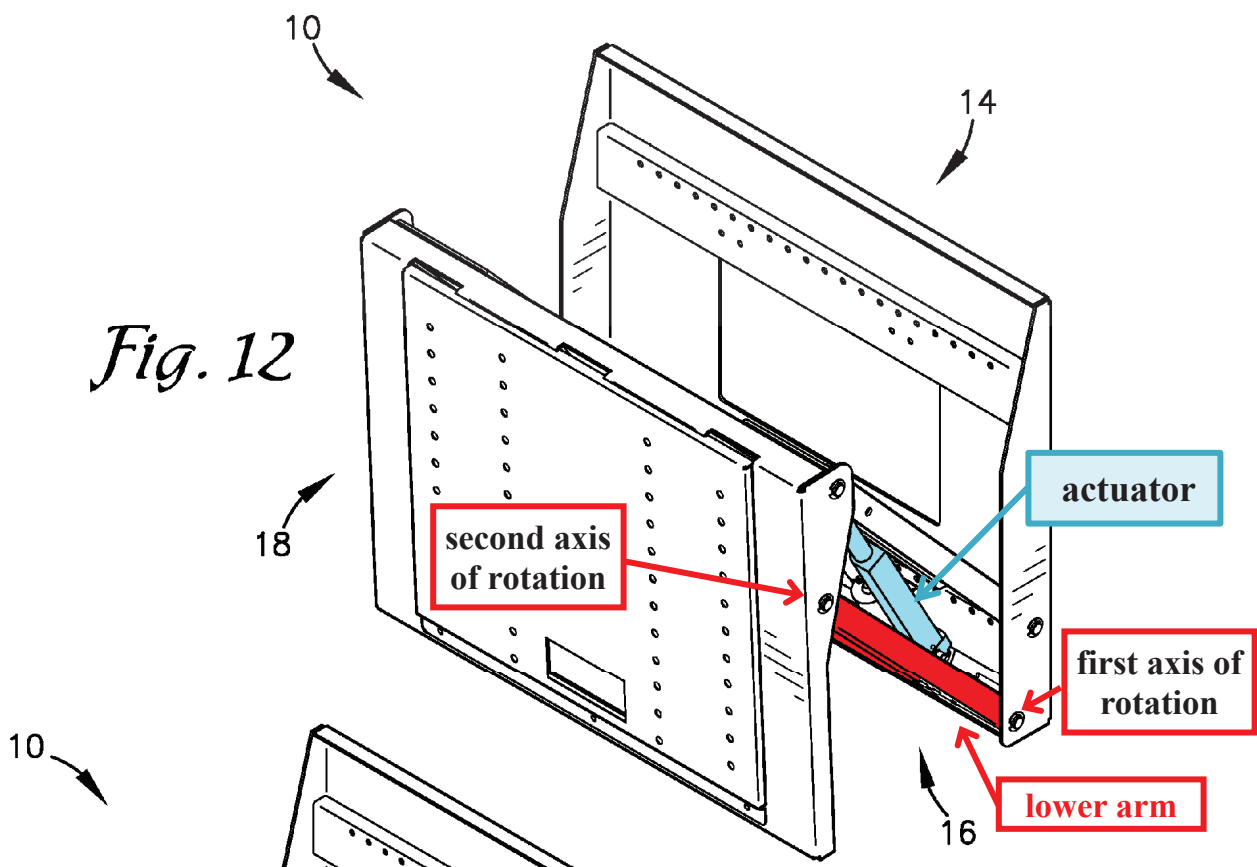


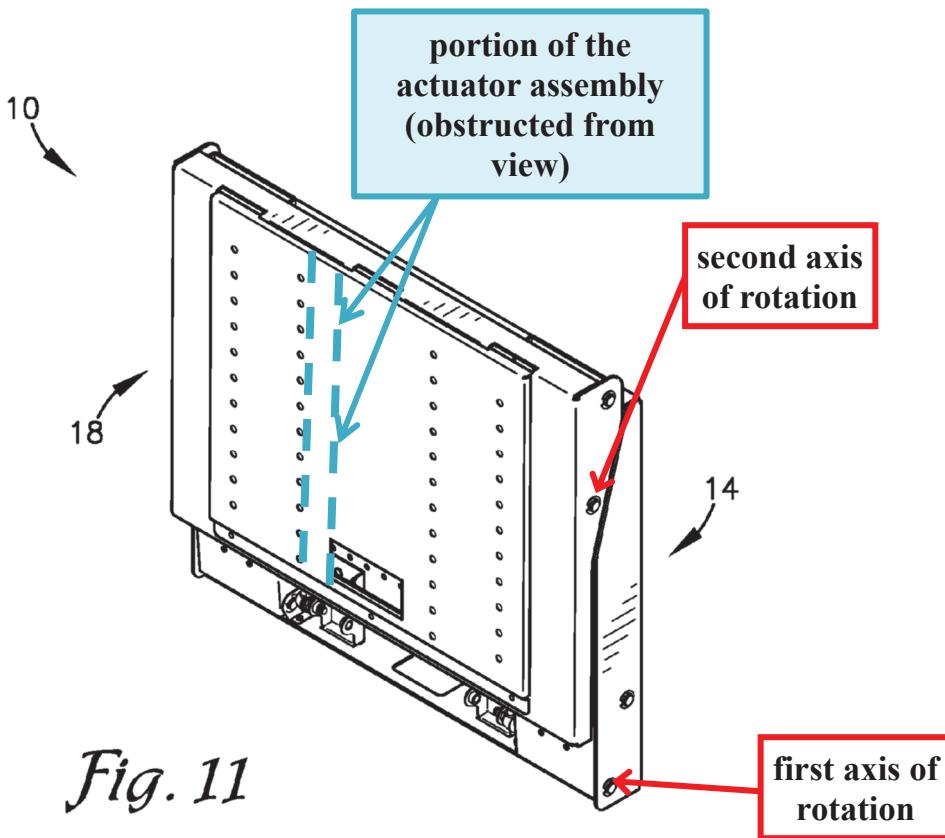
EX1001 at Fig. 43 (annotated).

181. Pankros is similar to the system described in the '703 patent and discloses this limitation, as shown in the annotated version of Pankros' Figures 11-13 below. EX1006 at Fig. 11. For example, Pankros discloses weight balancing device 58, which may be a linear actuator like actuator 60, that is rotatably coupled

to the support bracket and an upper arm of the arm assembly. EX1006 at claim 20, [0050] and [0052]. A POSITA would have understood that Pankros' figures show the weight balancing device 58 as a spring (e.g. gas or air). But Pankros specifically discloses that the spring 58 "may be a linear actuator" which would be like the actuator 60 shown in the figures. *Id.* at [0050]. Therefore, a POSITA would understand that Pankros discloses replacing the spring 58 with a linear actuator like actuator 60.

182. As illustrated in the figures below, when the Pankros arm assembly is in the raised configuration (Figure 11), the portion of the motorized actuator assembly (weight balancing device 58 replaced by a linear actuator) is positioned forward of the first axis of rotation and the second axis of rotation when the arm assembly is at the raised configuration. As I explained above in sections XV.B and XV.C, Pankros' weight balancing device 58 can be the claimed actuator and satisfies all of the actuator limitations of claims 33 and 34 because the weight balancing device (actuator) 58 is coupled to the system in a similar way as the actuator 60 and has similar movement relative to the arm assembly when moving between the raised and lowered configurations. Thus, for all the reasons I provided above with regard to the actuator 60, Pankros' weight balancing device 58, which can be an actuator, also meets the actuator limitations.



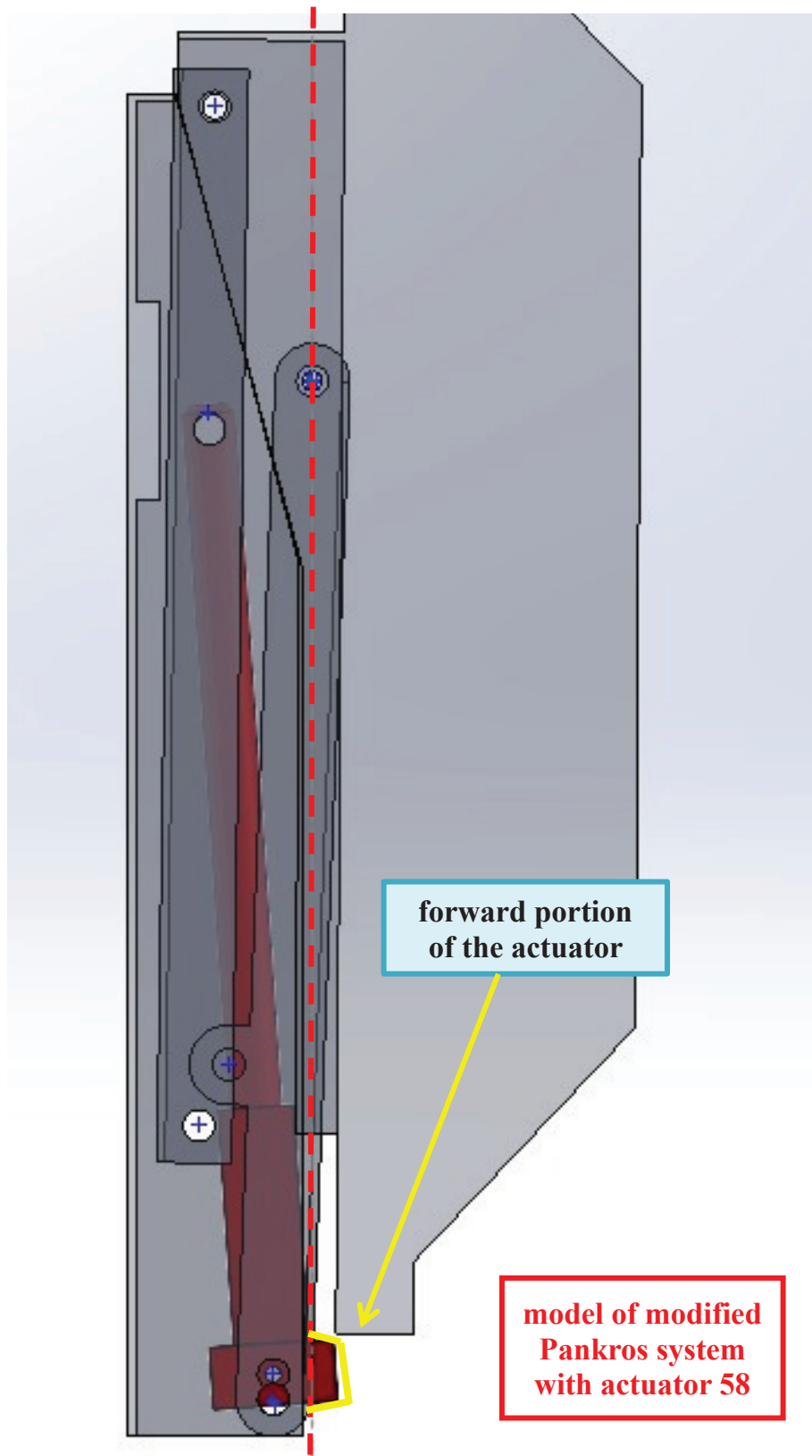


EX1006 at Figs. 11-13 (annotated).

183. In Figure 11 above, Pankros shows that the portion of the actuator assembly (weight balancing device 58) has moved past part of the lower arm, such that view of the actuator is largely obstructed by the lower arm and support bracket. EX1006 at Fig. 11. The lower arm has the first and second axes of rotation at its ends and the portion of the actuator 58 is positioned forward of these axes in the raised configuration shown above. Therefore, if Figure 43 of the '703 patent show an embodiment that includes this limitation, as confirmed by Patent Owner during

prosecution, then Pankros' similar configuration and Figure 11 also provide a configuration that meets this limitation.

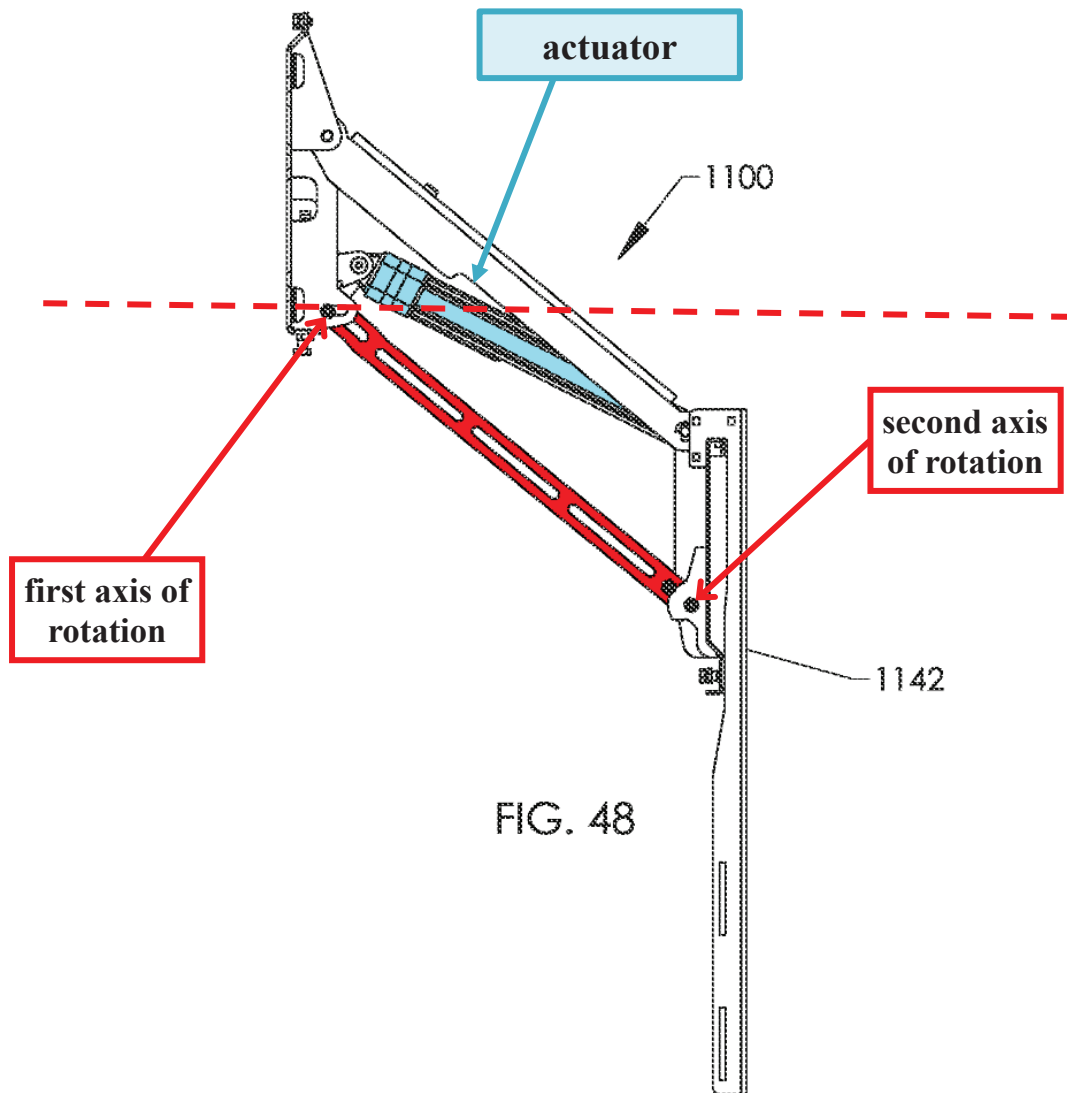
184. As shown below, I created a model of the Pankros' system in the raised configuration of Figure 11 with visibility through the display bracket, support bracket and linkage arms so that the position of the actuator 58 is visible relative to the lower arm's first and second axes of rotation, as shown below in the figure of the model. I have also replaced the gas/air spring 58 shown in the figures with the described linear actuator which has the same dimensions as actuator 60. This modeled figure of Pankros' raised configuration has the same configuration and relative dimensions as Pankros' original Figure 11, but the visibility of the parts has been changed and spring 58 is replaced with an actuator. As shown in this figure below, at least the portion of the actuator assembly 58 is positioned forward (to the right) of the first axis and the second axis when the arm assembly is at the raised configuration. Therefore, a POSITA would have understood that Pankros discloses this limitation.



E. Pankros Anticipates Claim 36

185. Claim 36 depends from claim 35 and states “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.” As I explained above in Sections XI and XII, this claim 36 lacks written description support and is indefinite. However, if this claim is somehow supported and not indefinite, its features are disclosed by Pankros.

186. If the '703 patent somehow discloses this limitation, Pankros discloses the same configuration and thus would disclose this limitation. As shown below in annotated Figure 48, the relevant embodiment of the '703 patent has a lowered configuration in which the first axis and second axis are spaced apart from and located below some of the actuator.

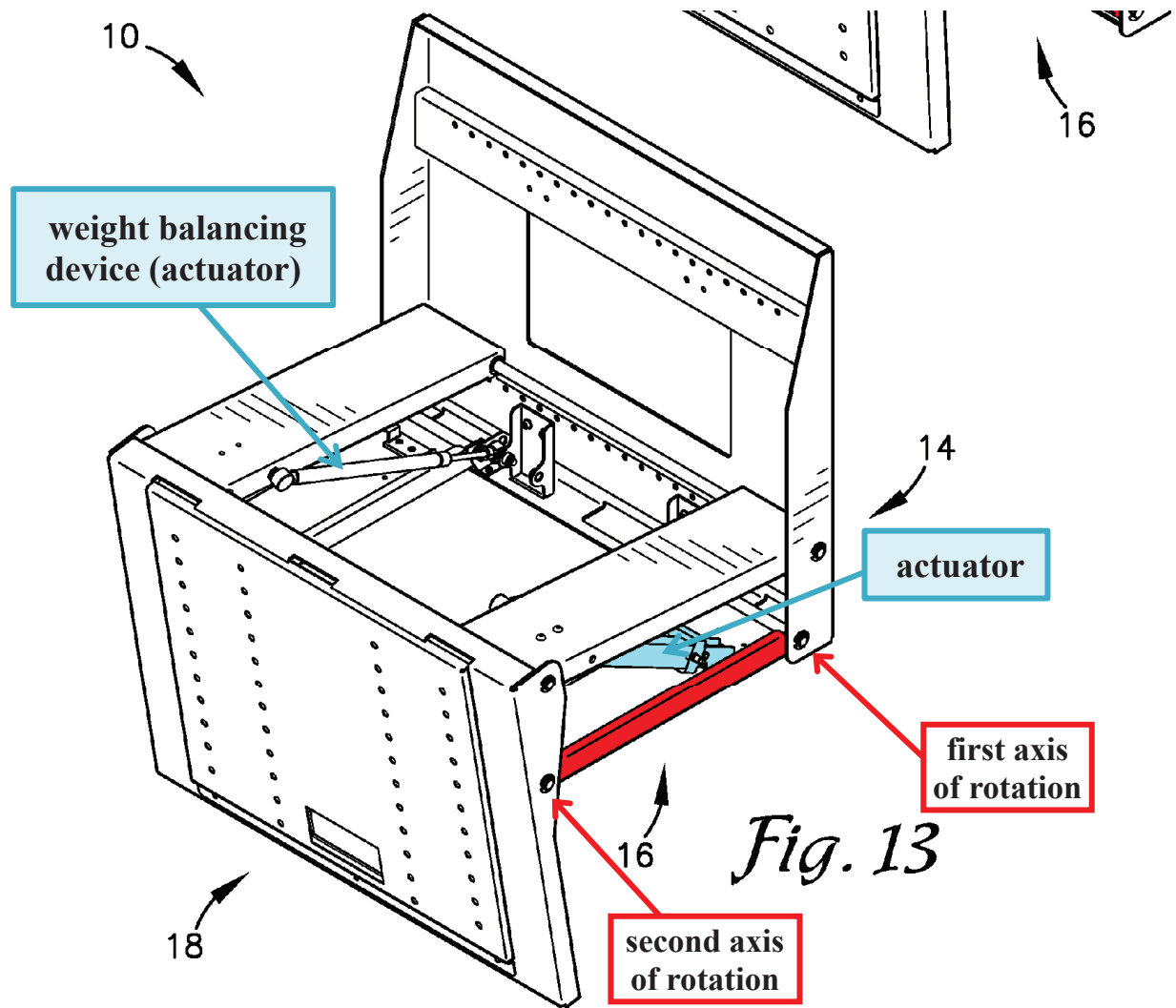


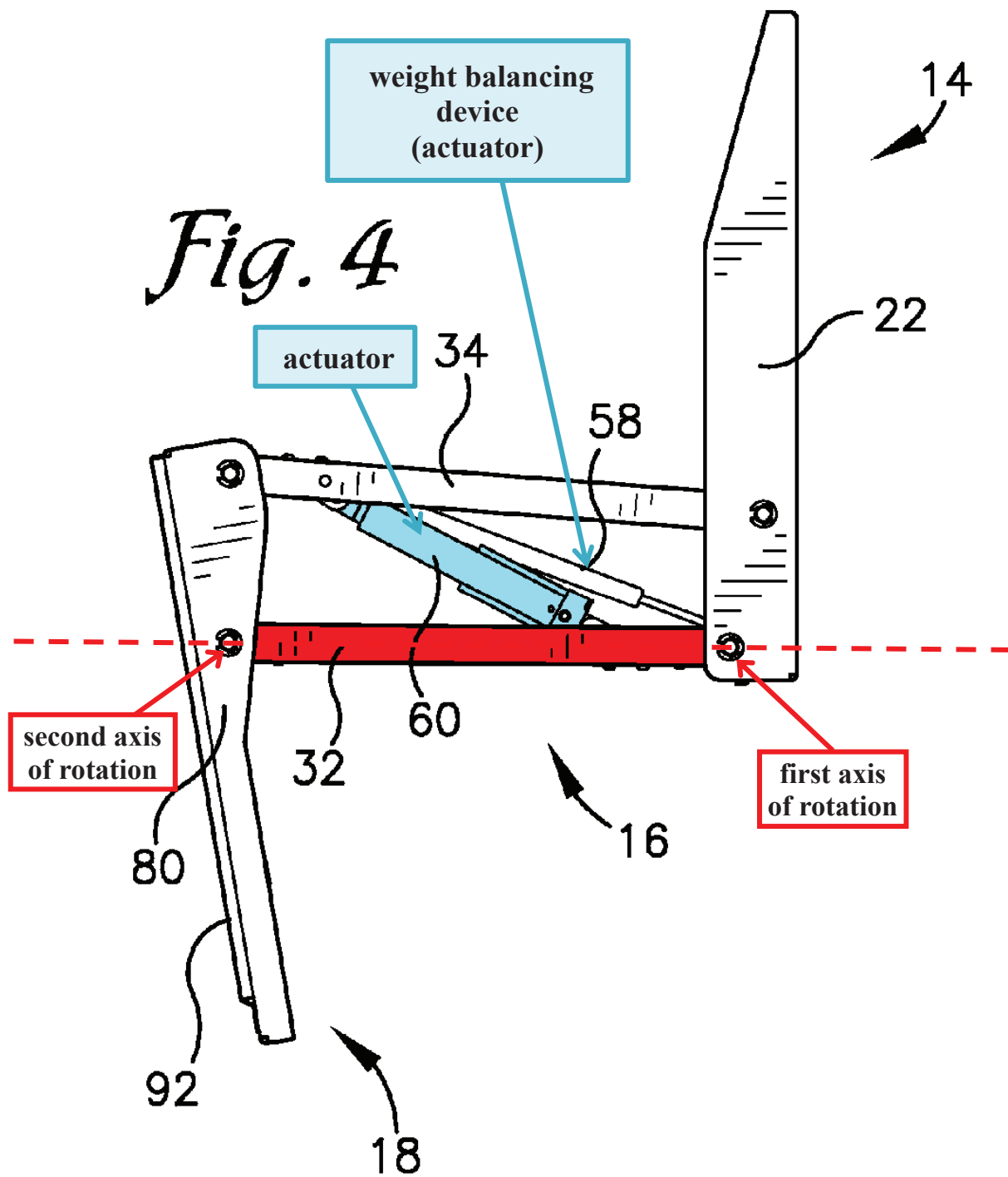
EX1001 at Fig. 48 (annotated).

187. Like the '703 patent, Pankros' display mounting system has a lower arm with a first axis of rotation and second axis of rotation, as shown below. These axes are spaced apart from and located below the actuator assemblies, including actuators 58 and 60, when the arm assembly is in the lowered configuration, as shown below in annotated Figures 4 and 13. EX1006 at Figs. 4 and 13. This is true whether the actuator assembly is the actuator 60 or the weight balancing device 58

which can be an actuator assembly. EX1006 at [0049]-[0052], claim 20. In fact, the axes are spaced apart from and located below even more of the actuator assemblies of Pankros than the '703 patent embodiment. Therefore, if the '703 patent embodiment somehow includes this limitation in the relevant embodiment with an extendable actuator above the first and second axes, then the Pankros system also discloses this limitation with its similar arrangement.

188. I have provided Figures 4 and 13 of Pankros below, and these figures show that the first and second axes of rotation are spaced apart from and below the actuator assemblies (weight balancing device 58 and actuator 60) when the assembly is in the lowered configuration. EX1006 at [0019] and [0028], Figs. 4 and 13; EX1008 at Fig. 9. Therefore, a POSITA would have understood that Pankros discloses this limitation.





EX1006 at Figs. 4 and 13 (annotated).

**XVI. GROUND 6: PANKROS COMBINED WITH CLARY AND THE
GENERAL KNOWLEDGE OF A POSITA RENDER
OBVIOUS CLAIMS 33-36**

189. As shown in my analysis above, Pankros discloses the limitations of these claims, but to the extent Pankros somehow fails to disclose any of the limitations of claims 33-36, those limitations would have been obvious in view of Clary and the general knowledge of a POSITA.

A. Pankros Combined With Clary and the General Knowledge of a POSITA Renders Obvious Claims 33 and 34

190. As I explained above in Ground 5 above, Pankros discloses all the limitations of claim 33 and 34. To the extent Pankros somehow fails to disclose specific limitations such as the actuator assembly being motorized or that it is rotatably coupled to the support bracket, these limitations were well known to a POSITA and would have been obvious.

191. If Pankros somehow does not disclose a **motorized** actuator assembly, it would have been obvious to use a motorized linear actuator for the actuator disclosed in Pankros. In fact, a POSITA would have understood that Pankros' remote-controlled actuator already includes a motor to power the actuator. Using a motor to power a remote controlled actuator would have been an obvious feature for an actuator in a mounting system and would have been part of a POSITA's general knowledge. *See* Section XIV.B above.

192. If Pankros somehow does not disclose a motorized actuator assembly having a support bracket end **rotatably coupled to the support bracket**, this configuration would have been obvious to a POSITA. This would have been part of a POSITA's general knowledge as a well know design option. For example, Pankros describes a lift mechanism, including an actuator, that can be rotatably connected to the upper support arm and to the wall mount (support bracket). EX1006 at [0050], claim 20. Also, Pankros' weight balancing device 58, which can be an actuator, is rotatably coupled to the upper arm and the support bracket. *Id.* at [0050] and [0052]. As I explained above in Section XIII.B.6, Clary also discloses a mounting system in which the actuator assembly is rotatably coupled to the support bracket. Tsuji also discloses an actuator assembly 4 that is directly rotatably coupled at one end to a linkage arm 3b and to the support bracket 1 at the other end, as shown below in annotated Figure 4. EX1015 at [0022]-[0023]. Xu also discloses directly rotatably coupling the actuator assembly to the support bracket. EX1017 at 7, Figs. 1-5.

193. A POSITA would have understood that rotatably coupling the actuator assembly to the support bracket would have been a mere design choice from a finite number of options. It was well-known that, in a four-bar linkage system like Pankros' and Clary, there are only a few options for coupling the actuator. For example, if one end of the actuator assembly is coupled to an upper arm, then the other end of the actuator assembly can be coupled to a lower arm, the display bracket,

or the support bracket. The Juan reference confirms this and states “a linear actuator 810 is attached to two points on the four-bar linkage (composed of the set of bars 606, mounting plate 600/rear casing 602, and front mount 604/front casing 608).” EX1005 at [0066]. A POSITA would have been motivated to rotatably couple the actuator assembly to the support bracket because the support bracket is attached to the wall and is thus stable and secure. It is also a simple design choice. A POSITA would have known that this configuration would simplify the design by rotatably securing one end of the actuator assembly such that the actuator would not move translationally but would only move rotationally. A POSITA would have known that having one end of the actuator assembly fix and only allowed to pivot would simplify the design and allow for easier control of the resulting linkage movement. This configuration would also simplify the design by reducing part count resulting in reduced inventory, assembly and inspection costs. Such a modification could also allow for a shorter actuator.

194. A POSITA also would have reasonably expected success in coupling the actuator assembly to the support bracket. For example, a POSA would have known that the support bracket end of the actuator assembly could be directly coupled to the support bracket instead of a linkage arm. This is disclosed in both Clary and Pankros, as well as the other references discussed above. Moving the actuator connection to the support bracket from a linkage arm would be a minor

modification within the skill of a POSITA. Also, a POSA would have expected success in making this modification in a simply four-bar linkage system to perform the same function of driving the linkage movement. A POSITA would have understood that coupling the actuator assembly directly to the support bracket would have involved no more than the routine substitution of one coupling location for another coupling location which would still allow for all the same desired functionality.

195. A POSITA would have also known that modifying Pankros' actuator 60 so the actuator assembly directly couples to the support bracket would not affect the other functional limitations of claim 33. For example, as I explained above with respect to Clary, coupling the actuator assembly directly to the support bracket provides a configuration in which a portion of the motorized actuator assembly still gets closer to and past a portion of the lower arm when the arm assembly moves toward the raised configuration. A POSITA would have understood that a minor modification of coupling the actuator assembly directly to the support bracket, similar to Clary's configuration, would not significantly change the movement of Pankros' actuator assembly relative to the lower arm of the arm assembly.

196. Therefore, in view of the analysis above in Ground 5 and the further analysis in this section (Ground 6), a POSITA would have understood that Pankros

combined with Clary and the general knowledge of a POSITA render obvious claims 33 and 34.

B. Pankros Combined With Clary and the General Knowledge of a POSITA Renders Obvious Claim 35

197. Claim 35 depends from claim 33 and states “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.”

198. As I explained above in Ground 5, a POSITA would understand that Pankros discloses this limitation with a similar arrangement as the '703 patent. But if Pankros somehow does not disclose this specific limitation, it would have been obvious for a POSITA to use an actuator configuration in which this limitation is present. Having a portion of the actuator assembly positioned forward of the axes of the lower arm in the raised configuration is not a novel feature, but rather it is merely an expected result of using an actuator and linkage arms having certain size and dimensions. The '703 patent does not mention this feature in its description other than what is shown in the figures. A POSITA would have known that this was a common design feature in mounting systems and would have been within the general knowledge of a POSITA.

199. A POSITA would have understood that it would have been obvious to slightly change Pankros' arrangement so that a greater portion of the actuator assembly (including the portion) is forward of the lower arm axes in the raised position. This is true whether the actuator assembly is the actuator 60 or the weight balancing device 58 which can be an actuator assembly. EX1006 at [0049]-[0052], claim 20. For example, a POSITA would have used a more powerful actuator which would be larger in diameter and would extend further forward in the raised position. An actuator with a larger diameter would provide additional support, stability, and longevity to the system. Changing the size of the actuator to have a better or more powerful actuator or motor would have been a common modification and not an inventive feature. In fact, if Pankros' weight balancing device 58 were a larger linear actuator, which is disclosed as an option in Pankros, it would be much larger and wider so that a greater portion of the larger version of actuator 58 would be positioned forward of the lower arm axes in the raised position. EX1006 at [0049]-[0052], claim 20.

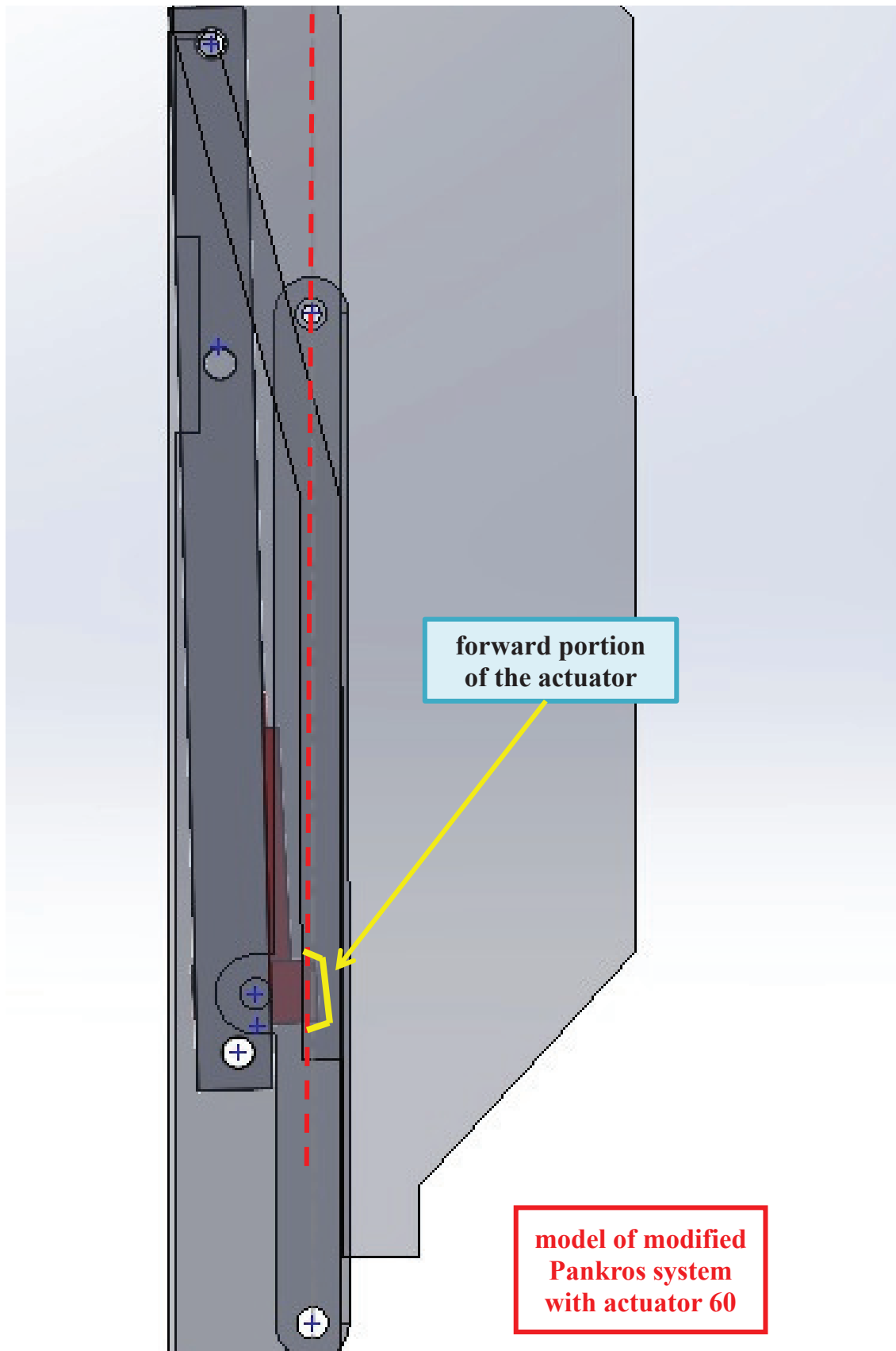
200. Also, a POSITA would have easily modified the arrangement of the upper and lower linkage arms of Pankros' arm assembly so that the arms are not aligned vertically and do not rotate in the same plane. For example, A POSITA would couple the lower arms to the system at a position inward or outward of the upper arms so that the upper and lower arms do not abut against each other in the

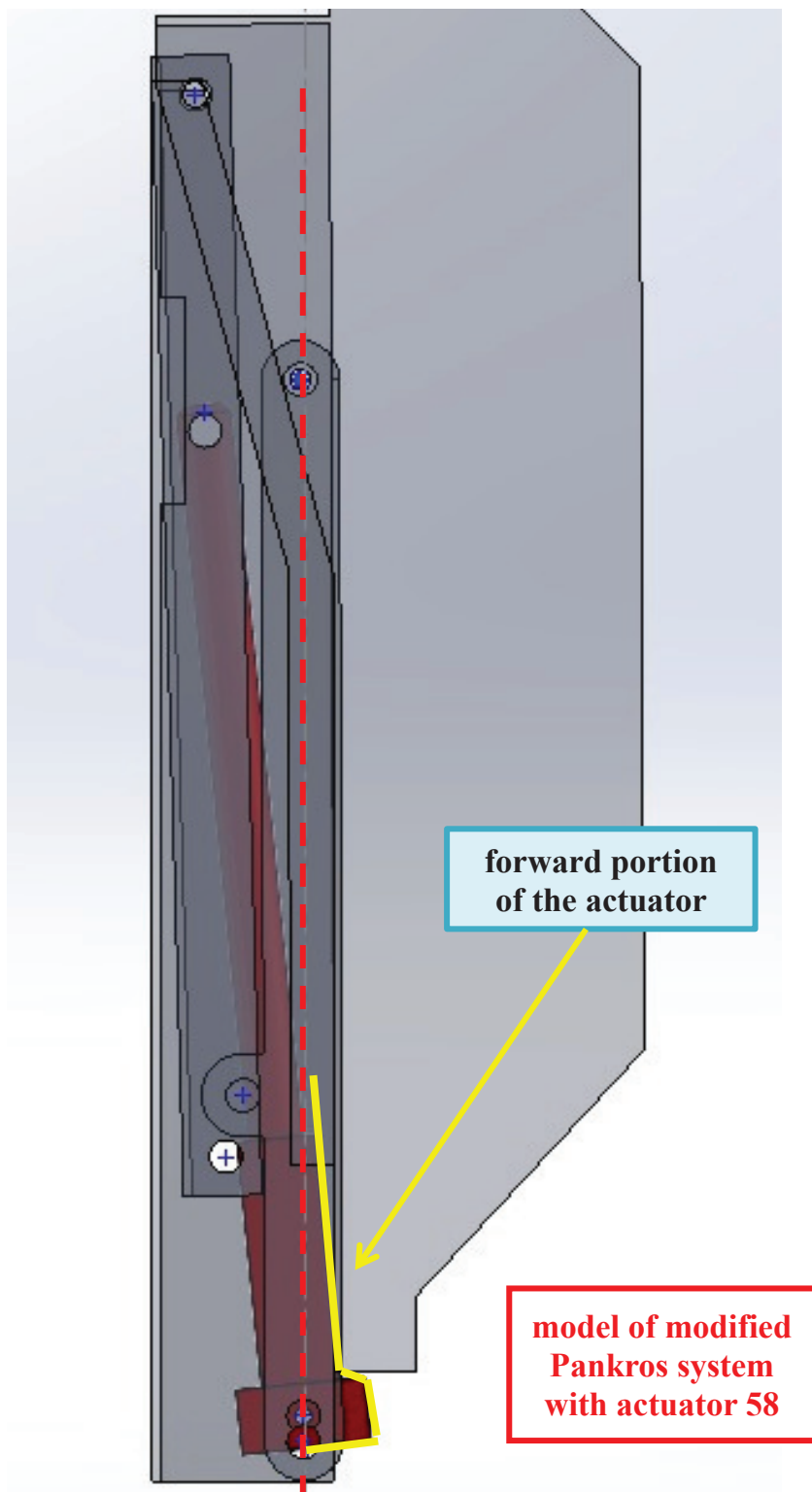
raised position. A POSITA would be motivated to make this modification because it would allow the raised configuration to be more compact with the display screen closer to the wall. Rather than the television extending further from the wall in the raised configuration, this modification would allow the television to be stowed much closer to the wall which takes up less space and is aesthetically desirable. A POSITA would have known that the linkage arms and other features of the four-bar linkage do not need to be aligned vertically and there can be benefits to them being offset so that they can overlap and pass each other during movement of the system.

201. This is taught by Pankros itself with its weight balancing device 58 which is rotatably coupled to the arm assembly and support bracket at a position inside the linkage arms so that it is not aligned with the linkage arms. EX1006 at [0050], [0052], Figs. 2-5. Pankros also discloses a folding support arm 410 that is not aligned vertically with the other arms of the arm assembly and is positioned inside the other arms. EX1006 at [0085], Figure 16. Tsuji also describes a system in which the linkage arms 3a-3d are not aligned vertically (offset) so that they can pass one another and not abut, as shown in Figure 1. EX1015 at [0019]-[0022], Figs. 1-4. This allows for a more compact design. A POSITA would have also been motivated to remove the side portions of Pankros' wall mount 14 and display support 18 because they do not serve any functional purpose and might also abut one another

and prevent the Pankros system from achieving its most compact raised configuration.

202. Once modified to have upper and lower linkage arms that are not aligned and to remove the extended side portions that could also stop the system from retracting, Pankros' upper and lower arms would overlap in the raised configuration which would allow the raised configuration to be more compact and would cause a larger portion (including the portion) of the actuator assembly to be forward of the lower arm axes in the raised configuration. This is true whether the actuator assembly is the actuator 60 or the weight balancing device 58 which can be an actuator assembly. EX1006 at [0049]-[0052], claim 20. I have created models of such a modified Pankros system and provided images of the models below to show how the portion of the 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, for both the actuator 58 and the actuator 60.





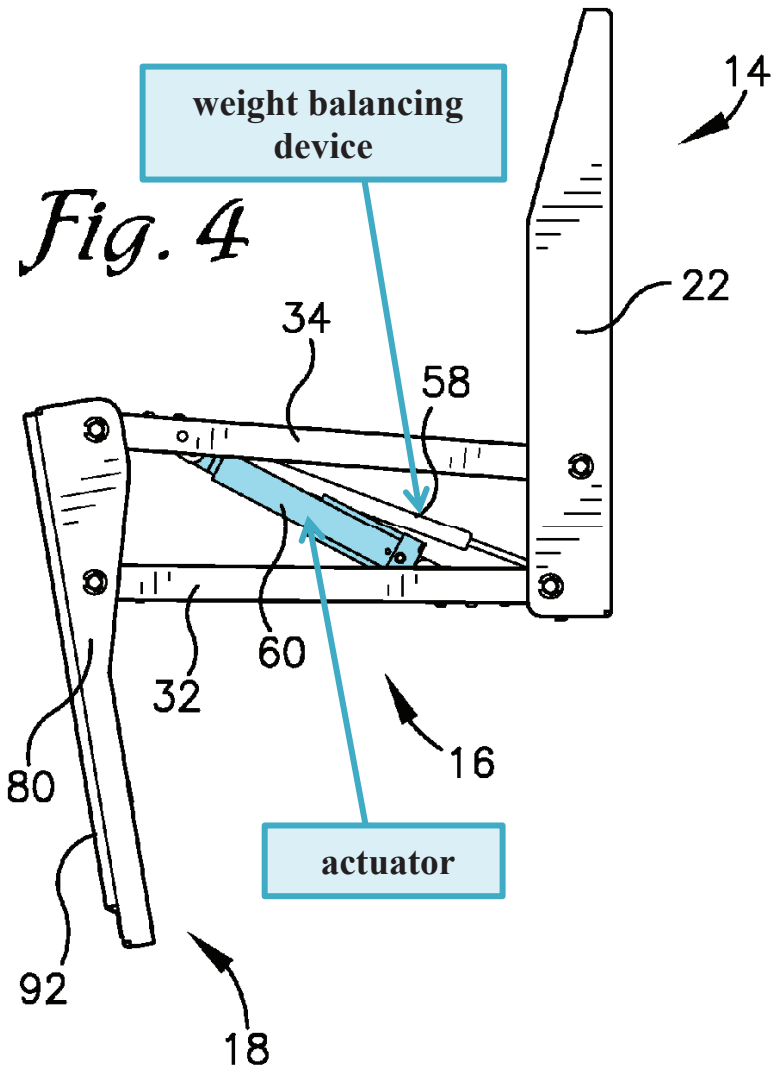
203. Therefore, a POSITA would have understood that claim 35 would have been obvious in view of the combination of Pankros with Clary and the general knowledge of a POSITA.

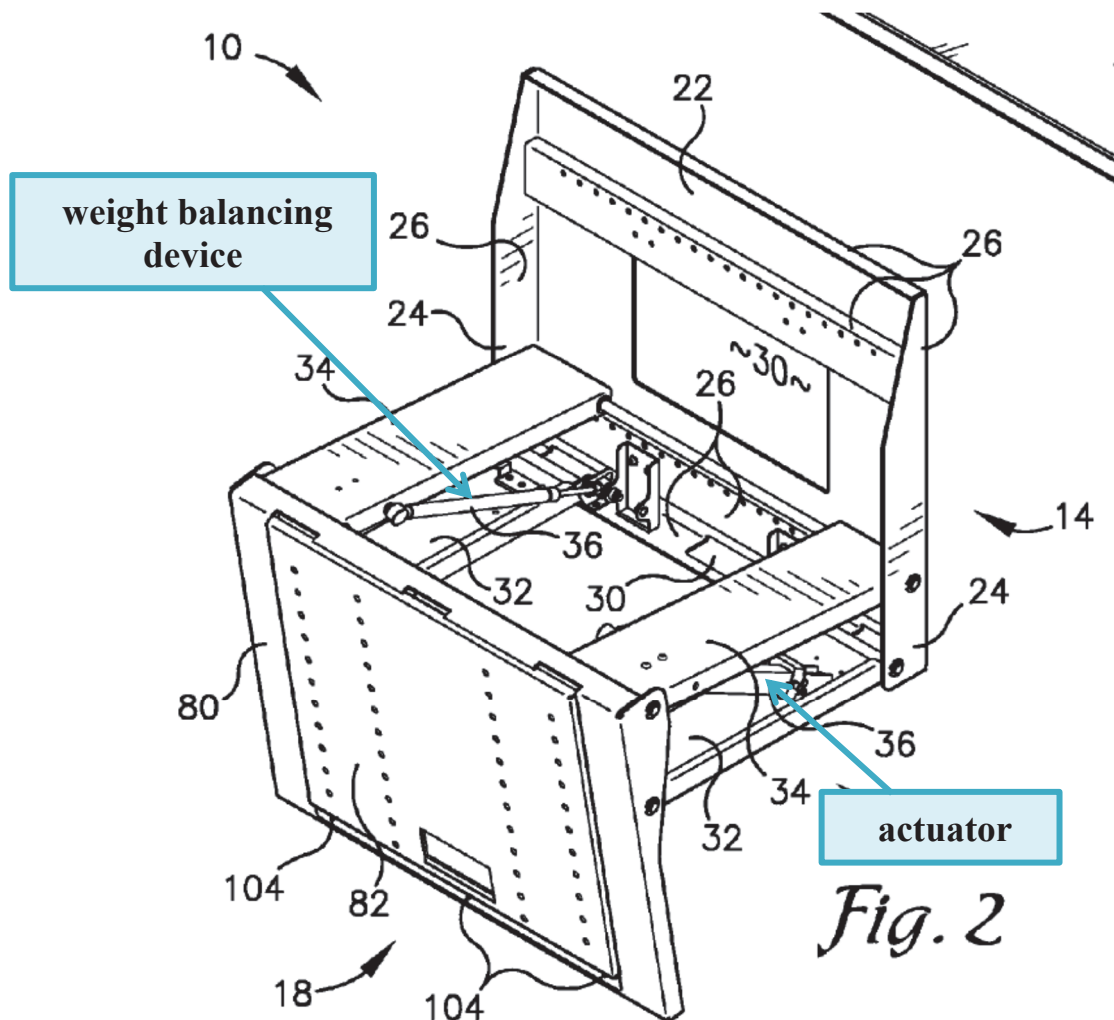
C. Pankros Combined With Clary and the General Knowledge of a POSITA Renders Obvious Claim 36

204. Claim 36 depends from claim 35 and recites “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.”

205. As I explained above, this claim is indefinite and lacks written description. Even if it somehow is not indefinite and has sufficient written description, Pankros discloses this limitation at least because a portion of the motorized actuator assembly is located above the first and second axes when the arm assembly is in the lowered configuration, similar to the relevant embodiment of the ’703 patent, as I explained above in Ground 5. But if this limitation is somehow interpreted to require that the actuator assembly needs to be coupled to the support bracket at a location higher above the first and second axes in the lowered configuration, which it does not, such a modification would have been obvious. An actuator with a higher position relative to the lower arm was a common design feature in mounting systems and would have been within the general knowledge of

a POSITA. *Id.* For example, Juan discloses that the actuator can be attached at a location on the linkage arms or to the support bracket. EX1005 at [0066] (“a linear actuator 810 is attached to two points on the four-bar linkage (composed of the set of bars 606, mounting plate 600/rear casing 602, and front mount 604/front casing 608).”). Pankros itself discloses a rotatable connection of the actuator assembly to the support bracket at a position above the first and second axes of the lower arm. For example, Pankros discloses weight balancing device 58, which may be a linear actuator, that is rotatably coupled to the support bracket at an attachment positioned above the axes of the lower arm when the arm assembly is in the lowered position, as show in annotated Figures 2 and 4 below. EX1006 at claim 20, [0050] and [0052]. Tsuji also discloses an actuator assembly that is rotatably coupled to the support bracket at a location higher than the first and second axes of the lower arm. EX1015 at Figs. 1-4. Therefore, it would have been well-known and common for a POSITA to connect the actuator assembly to the support bracket at a position higher than the axes of the lower arm in the lowered configuration, as disclosed in the prior art.





EX1006 at Figs. 2 and 4 (annotated).

206. A POSITA would have understood that this concept of rotatably coupling the actuator assembly to the support bracket at a location that is higher than the lower arm axes would have been a mere design choice from a finite number of options. A POSITA would know that, in a four-bar linkage system like the prior art references Pankros, Clary, Tsuji, Xu, and Juan, there are limited number of locations for coupling the actuator. *Id.* A POSITA would have been motivated to rotatably couple the actuator assembly to the support bracket because the support bracket is

attached to the wall and is thus stable and secure. A POSITA would have also known that coupling the actuator assembly at a location on the support bracket between the axes of the upper and lower arms could also allow for a shorter actuator, a more self-contained system, and a more compact system in the raised and lower configurations. A POSITA also would have reasonably expected success in coupling the actuator assembly to a higher location on the support bracket because it was common in the prior art. For example, a POSA would have understood that the support bracket end of the actuator assembly could be coupled to the support bracket at a higher location that still provides the same movement of the arm assembly, as disclosed in Pankros itself. Moving the actuator connection higher would be a minor modification that was within the skill of a POSITA. A POSITA would have expected success in making this modification in a simply four-bar linkage system and would know that the resulting system would perform the same function of driving the linkage movement, as shown in Pankros and Clary. Therefore, a POSITA would have understood that the modification would have involved no more than the routine substitution of one coupling location for another coupling location but still providing all the same desired functionality.

207. Therefore, it is my opinion that a POSITA would have understood that claim 36 would have been obvious in view of the combination of Pankros with Clary and the general knowledge of a POSITA.

XVII. SECONDARY CONSIDERATIONS

208. I understand that secondary considerations of non-obviousness, such as commercial success, unexpected results, skepticism of others, long felt but unmet need, etc., should be considered when evidence of such factors has been introduced. I am not aware of any evidence of secondary considerations that would support non-obviousness of the '703 patent.

209. Given that the mounting systems claimed in the '703 patent are not new or nonobvious, and were invented long before relevant priority date, I am not aware of any long-felt need in the industry, unexpected results, skepticism of the invention, or teaching away from the invention. I am also not aware of any praise for the alleged inventions or copying of the alleged inventions by other companies. If Patent Owner identifies any alleged evidence of secondary considerations in the future, I reserve the right to respond to that information.

XVIII. CONCLUSION

210. For the foregoing reasons, it is my opinion that claims 33-36 of the '703 patent are anticipated and would have been obvious to a POSITA at the relevant time in view of the prior art referenced above.

211. I declare that all statements made herein on my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: JAN. 23, 2024

By: _____



Dr. John D. Pratt