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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte PATRICK G. LINNANE, IAN S. TABRON, ARSENIO FERNANDEZ, ANDERS L. BOSTRÖM, PETER L. HANSEN, and MUHAMMAD SALIM MIRZA

Appeal 2019-003896
Application 14/152,385
Technology Center 3700

BEFORE JILL D. HILL, LEE L. STEPINA, and ARTHUR M. PESLAK,
Administrative Patent Judges.

HILL, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 15, 18, 19, 21, 24, 27, 28, 30 and 32–34. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Swelling Solutions, Inc. Appeal Br. 2.

BACKGROUND

The claims are directed to a compression device for a limb. Claims 15 and 24 are independent. Claim 15, reproduced below, is illustrative of the claimed subject matter:

15. A compression device for a limb comprising a sleeve adapted to surround the limb, wherein the sleeve has a perimeter and comprises:

an inelastic layer; and

at least two adjacent inflatable cells forming at least part of an external edge along a perimeter of the sleeve, the at least two adjacent cells, collectively, comprising:

an inner layer adapted to be in contact with and conform to the shape of the limb when the at least two adjacent inflatable cells are inflated,

an outer layer adjacent the inelastic layer, wherein the inner layer and the outer layer are joined along at least portions of the external edge to the inelastic layer, and

one or more sidewalls, wherein each sidewall extends from a first part of the external edge to a second part of the external edge to define at least one internal sidewall for each cell of a pair of adjacent cells of the at least two adjacent inflatable cells, and further wherein each sidewall of the one or more sidewalls comprises:

a first edge extending from the first part of the external edge to the second part of the external edge and joined to the inner layer; and

a second edge opposite the first edge, the second edge being joined to the outer layer.

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Arkans	US 4,320,746	Mar. 23, 1982
Tissot	US 4,573,453	Mar. 4, 1986
Taheri	US 4,941,458	July 17, 1990
Ibrahim	US 5,711,760	Jan. 27, 1998
Stolpmann	US 2003/0046762 A1	Mar. 13, 2003

REJECTIONS

I. Claims 15, 21, 24, 30, and 32 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Ibrahim, Arkans, and Tissot. Final Act. 3.

II. Claims 18, 19, 27, and 28 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Ibrahim, Arkans, Tissot, and Taheri. Final Act. 13.

III. Claims 33 and 34 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Ibrahim, Arkans, Tissot, and Stolpmann. Final Act. 16.

ANALYSIS

Rejection I – Claim 15, 21, 24, 30, and 32

Independent Claim 15

The Examiner finds, *inter alia*, that Ibrahim discloses a compression device for a limb including a sleeve that surrounds the limb and has a single inflatable cell forming an external edge along a perimeter of the sleeve, but does not disclose at least two adjacent inflatable cells. Final Act. 3. The Examiner finds that Tissot discloses an inflatable pressure sleeve with a plurality of adjacent inflatable cells defined by at least one sidewall. *Id.* at 5. The Examiner concludes that it would have been obvious to modify Ibrahim

by dividing its single cell into a plurality of cells having sidewalls to create a pressure gradient that would better assist circulation. *Id.* at 5–6.

Appellant argues that, because Tissot has a continuous sidewall, the Examiner has not established that each sidewall extends from a first part of the external edge to a second part of the external edge to define at least one internal sidewall as required by claims 15 and 24. Appeal Br. 8. Specifically, Appellant contends that Tissot’s partitions C4, C5, like sheath G, encircle the limb. *Id.* at 9. According to Appellant, because Tissot’s partitions are completely circular, they do not extend from an edge. *Id.* at 9–10.

The Examiner responds that Appellant is arguing the references individually, whereas the rejection is based on Tissot in combination with Ibrahim. Ans. 21. The Examiner notes that Ibrahim already discloses an inflatable cell extending to an external edge, and Tissot is cited to teach a partition wall C4, C5 that divides the cell into individually inflatable chambers. Ans. 22. According to the Examiner, Tissot’s “sidewalls (C4, C5) [] extend from a first part of the external edge (the left external edge, near side wings 53A and 55A ...) and a second part of the external edge (the right external edge, near side wings 53B and 55B ...).” *Id.* at 23. In support of these findings, the Examiner provides an annotated copy of Figure 10 of Tissot, reproduced below. Ans. 7.

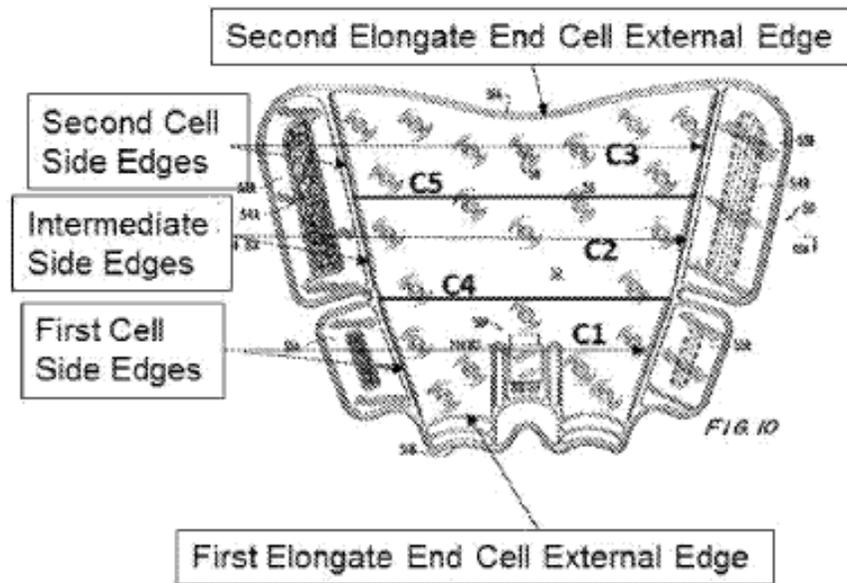


Figure 10 is a plan view of the fabric pattern form for constructing the air cell or air pressure chamber. Tissot, 6:25–26. As shown in annotated Figure 10, the Examiner proposes to divide Ibrahim’s single cell into three cells, C1, C2, and C3 using partitions C4 and C5. Final Act. 7.

Appellant replies that Tissot does not – and could not – suggest such a modification, because Tissot suggests a continuous sidewall. Reply Br. 3. According to Appellant, “one of ordinary skill in the art would not be presented with *sufficient factual teachings* to create a device having a non-continuous sidewall that terminates at edges.” *Id.*

Appellant’s argument that “[t]he teaching or suggestion of a *continuous* sidewall that does not extend from or to an external edge is not factually sufficient to provide all the elements as recited in each of independent claims 15 and 24” (Reply Br. 3), is not persuasive. As the Examiner correctly notes, Appellant is unpersuasively attacking Tissot individually. *Ans. 21* (citing *In re Keller*, 642 F.2d 413 (CCPA 1981); *In re Merck*, 800 F.2d 1091 (Fed. Cir. 1986); “One cannot show nonobviousness

by attacking references individually where the rejections are based on combinations of references.”). Although we appreciate that Tissot has a continuous sidewall, the Examiner explains that the rejection relies on Tissot for its teaching of partition walls to separate the bladder of Ibrahim into a plurality of chambers. Ans. 22–23. Tissot is not relied on for disclosing an external edge along a perimeter – Ibrahim discloses such an external edge. *Id.* Lacking any explanation regarding why using Tissot’s partition walls to separate the bladder of Ibrahim into a plurality of cells would not teach the claimed invention, we are not persuaded of Examiner error.

Appellant also argues that, because no reference suggests a sidewall that extends from an edge, the Examiner’s rejection is based on impermissible hindsight. Appeal Br. 10. According to Appellant, “the Examiner’s *ad hoc* modification of the continuous sidewall of Tissot to be non-continuous and terminating at the external edge of the device of Ibrahim is improper hindsight reconstruction” and only Appellant’s application discloses “such non-continuous and terminating sidewalls.” *Id.* at 11.

The Examiner responds that the motivation to modify Ibrahim’s single compartment inflatable bladder to be three inflatable chambers comes from Tissot, “to create a pressure gradient along the limb (*see* col. 4:13–16 of Tissot) which is beneficial for assisting circulation (*see* col. 2:8–15 of Tissot).” Ans. 25. The Examiner notes that Tissot discloses that pressure sleeves can be either a single compartment inflatable bladder or a plurality of inflatable chambers. *Id.* at 25–26 (citing Tissot, 1: 34–42). Thus, according to the Examiner, Tissot teaches that “providing a wall to divide a bladder into a plurality of chambers is well within the skill and knowledge of one of ordinary skill in the art.” *Id.* at 26.

Appellant responds that, although Ibrahim teaches an external edge along a perimeter, neither Ibrahim nor Tissot “teach or suggest the specific configuration of the claimed sidewall (e.g., extending from a first part to a second part of the external edge) as recited in independent claims 15 and 24.” Reply Br. 4. According to Appellant, the claimed configuration could only be derived from its Specification.

Because it is the combination of Ibrahim and Tissot that the Examiner determines teaches the specific configuration of the claimed sidewall, we are not persuaded by Appellant’s argument that neither reference individually makes such a teaching. Further, Appellant’s argument that the rejection is based on hindsight because “the Examiner has cobbled together teachings from Tissot,” is not persuasive. Reply Br. 4. Tissot discloses two types of sleeves that are alternately placed under pressure and released from pressure to increase circulation. Tissot, 1:24–28, 2:9–11. The types of sleeves include a sleeve having an outer cover and an inner cover that “define only a single inflatable hollow volume ... or single enclosure sleeve,” and a “sleeve is divided into a plurality of volumes or cells or enclosures which are independent.” *Id.* at 1:30–38. Tissot discloses that “the division into independent enclosures is effected by means of transverse partitions connecting the inner sheath F of the sleeve to its outer sheath G.” *Id.* at 3:20–23. An exemplary embodiment of a divided sleeve is depicted in Figure 3 of Tissot, reproduced below.

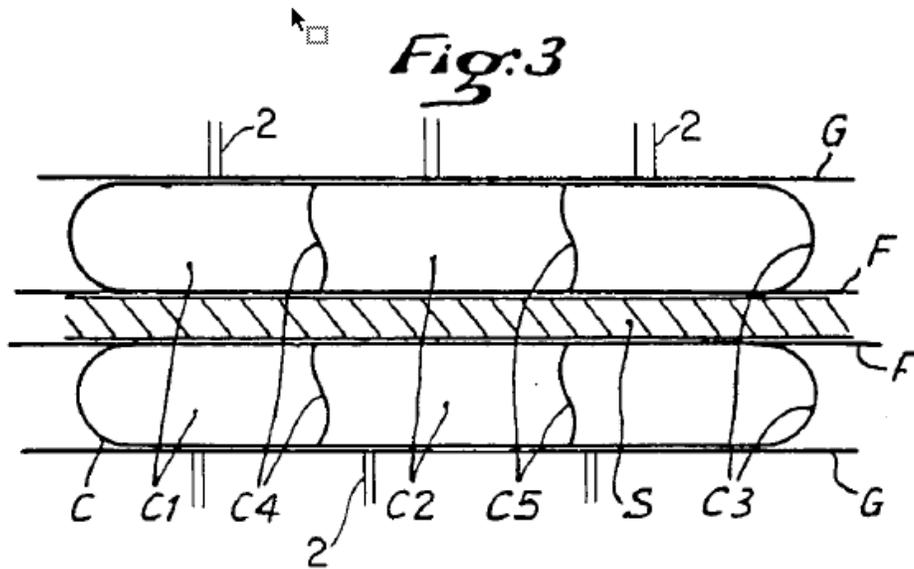


Figure 3 is a diagrammatic view of a sleeve. Tissot, 2:54–55. In Figure 3, sleeve C covers a portion of limb S and is divided into three separately inflatable enclosures C1, C2, C3 by two partitions C4 and C5 having a sufficient width to connect inner sheath F to outer sheath G. *Id.* at 3:26–30. Given that Ibrahim also discloses “a sleeve” having a “pressure-applying chamber” that surrounds a limb to apply “cyclic pressure applied to the blood vessels within the leg” to improve circulation, we agree with the Examiner that a skilled artisan would understand Tissot to suggest dividing Ibrahim’s chamber into a plurality of cells.

Because Tissot teaches a single enclosure, or plural enclosures separated by partitions, we are not persuaded that one skilled in the art would have needed to employ impermissible hindsight to include partitions in Ibrahim’s device to create plural enclosures. Indeed, one skilled in the art would have had the example of Tissot’s partitions to follow. *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. . . . Rather, the test is what the

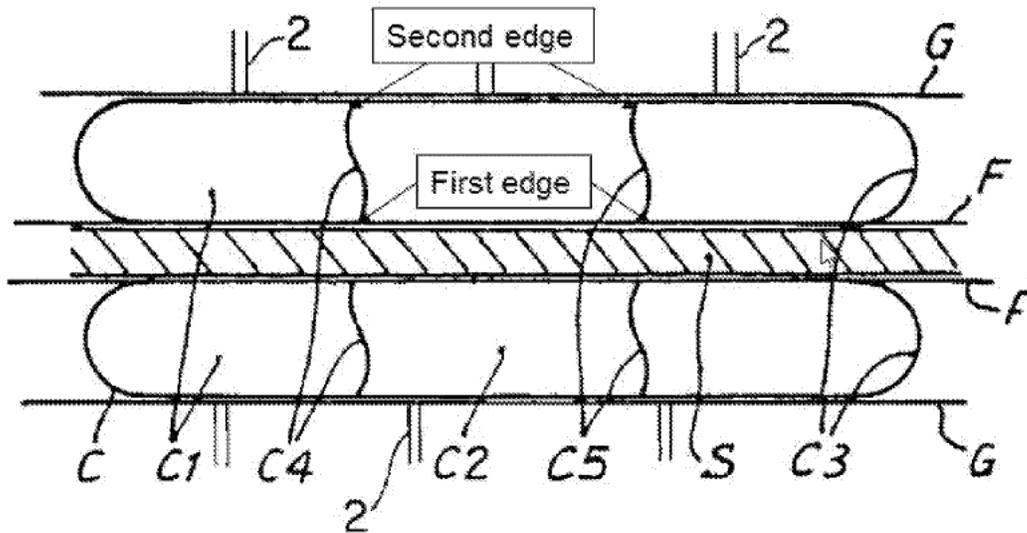
combined teachings of the references would have suggested to those of ordinary skill in the art.”); *see also KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420–421 (2007) (“A person of ordinary skill is also a person of ordinary creativity, not an automaton” who can “fit the teachings of multiple patents together like pieces of a puzzle.”).

Moreover, the Examiner’s reasoning is supported by rational underpinnings, in that providing internal sidewalls to create a pressure gradient “to better assist circulation,” comes directly from Tissot. *See* Final Act. 5–6 (citing Tissot, 2:8–15, 4:13–16). Because the Examiner provides reasoning with a rational basis for combining Tissot with Ibrahim, we are not persuaded that the rejection is based on impermissible hindsight. *See In re McLaughlin*, 443 F.2d 1392, 1395 (CCPA 1971) (“[a]ny judgment on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant’s disclosure, such a reconstruction is proper.”).

Appellant also argues that “the Examiner failed to show a first edge extending from the first part of the external edge to the second part of the external edge as recited in claim[] 15.” Appeal Br. 14. Appellant contends that, because Tissot teaches that sheath G extends around the inflatable device, it does not have external edges. According to Appellant, Tissot’s partitions C4, C5 extend to form separately inflatable enclosures within sheath G, and “the partitions C4, C5 of Tissot form inflatable enclosures because they encircle the limb (e.g., the partitions C4, C5 do not extend

from the first part of an external edge to the second part of an external edge).” *Id.* at 15.

In response, the Examiner notes that Tissot’s first and second edges were described in the Final Action, and are depicted in annotated Figure 3 of Tissot, reproduced below.



Annotated Figure C: (from Fig. 3 of Tissot): As stated in the rejection statement, Tissot has “a first edge (the inner edge of sidewalls C4, C5 which connect with layer F, Fig. 3)” and “a second edge (the outer edge of sidewalls C4, C5 which connect with layer G, Fig. 3) opposite the first edge, the second edge being joined to the outer layer (G).”

Figure 3 of Tissot depicts a diagrammatic view of a sleeve, as annotated by the Examiner to designate the first and second edges. Ans. 29. The Examiner notes that Ibrahim’s bladder has external edges along the perimeter of the sleeve, and that the bladder of Ibrahim is modified by dividing the bladder into cells having sidewalls so that “in the modified device, the walls (C4, C5) extend vertically between the inner and outer layers of the bladder of Ibrahim, and these walls (C4, C5) will span the width of the bladder in order to isolate the three independently inflatable chambers.” Ans. 30. According to the Examiner:

The walls (C4, C5) of the modified device have a first edge (*see* [annotated] Fig. C above) which extends from the first part of the external edge (the left external edge, near side wings 53A and 55A, *see* annotated Fig. A above) to the second part of the external edge (the right external edge, near side wings 53B and 55B, *see* annotated Fig. A) and joined to the inner layer (as seen in [annotated] Fig. C above, the ‘first edge’ is joined to the inner layer F, which corresponds to the inner layer of Ibrahim, 52A, Fig. 10A).

Ans. 30.

The Examiner notes that Appellant’s argument that Tissot’s partitions encircle the limb does not address the rejection, which relies on the combined teachings of Ibrahim and Tissot to result in a device as depicted in annotated Figure 10. Ans. 31–32.

Appellant’s argument that the Examiner does not “show a first edge extending from the first part of the external edge to the second part of the external edge as recited in claim[] 15” is not persuasive. In the “Summary of Claimed Subject Matter” section of the Appeal Brief, Appellant describes claim 15 as including, *inter alia*, “a first edge (e.g., first edge (34): *see Specification*, page 7, line 28 to page 8, line 5 & *see Amendments to the Specification*, 30 March 2018) extending from the first part of the external edge to the second part of the external edge and joined to the inner layer.” Appeal Br. 3–4. The above described embodiment is depicted in Figure 7, reproduced below.

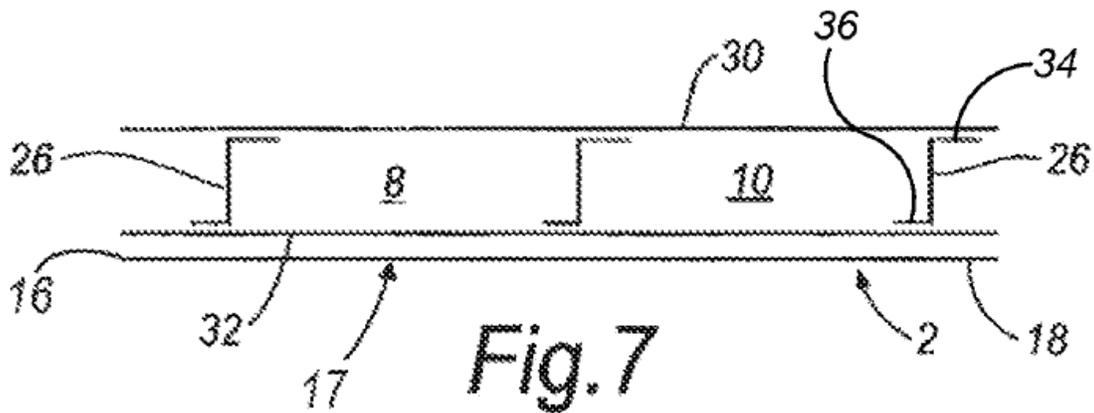


Figure 7 is a cross-sectional view of an embodiment of cell construction. Spec. 6:16–17. A box-like structure, or cell structure 8, 10, is formed by joining inner part 30 to outer part 32 through walls 26. Spec. 8:1–5. Specifically, the inner part 30 of the cells are joined to sidewalls 26 at a first edge 34 of each sidewall 26 and the outer part 32 of the cells are joined to sidewalls 26 at a second edge 36 of each sidewall 26. *See* Amendments to the Specification, filed Mar. 30, 2018. In Tissot, a box-like structure or cell C2 is formed by top (inner) and bottom (outer) parts that are joined by partitions (walls) C4 and C5. *See* annotated Fig. 3, above. In Tissot, partitions C4 and C5 also “connect the inner sheath F to the outer sheath G.” Tissot, 3:28–30.

In the modified device of Ibrahim, the Examiner proposes to place a similar cell, namely, C2, between inner layer 52A and outer layer 52B. Because Ibrahim discloses an external edge, we agree with the Examiner that partitions C4, C5 would extend “from the first part of the external edge (the left external edge, near side wings 53A and 55A, *see* annotated Fig. A) to the second part of the external edge (the right external edge, near side wings 53B and 55B.” Ans. 30. We also agree with the Examiner that, in the modified device of Ibrahim, a first edge of the cell would extend from the

left external edge (first part) to the right external edge (second part). As discussed above, the Examiner does not propose a bodily incorporation of the partitions. Given the teachings of Tissot of using partitions to divide a chamber, the Examiner has a sound basis for determining that the chamber of Ibrahim would have been modified to include sidewalls as taught by Tissot. Appellant does not provide a persuasive reason why modifying the chamber of Ibrahim, as the Examiner proposes, would be beyond the abilities of one of ordinary skill. Thus, one of ordinary skill in the art would reasonably expect the modification to be successful.

Independent Claim 24

Independent claim 24 is similar to independent claim 15, but recites “two first cell side edges ... of the at least three adjacent inflatable cells ... two second cell side edges ... of the at least three adjacent inflatable cells and ... two intermediate cell side edges ... of the at least three adjacent inflatable cells.” Appeal Br. (Claims App. 3). The Examiner finds that Tissot discloses first, second, and third elongate end cells, and that, as above with respect to claim 15, modifying the chamber of Ibrahim to divide the chamber into three adjacent cells would result in a device having the claimed edges, as depicted in annotated Figure 10, above. Final Act. 11–12.

Appellant argues that the references relied on by the Examiner do not teach the cell side edges as recited in claim 24 because the Examiner relies on “enclosures C1, C2, C3 of Tissot (that) extend around the limb and, therefore, define an annular shape with a continuous rounded outer surface.” Appeal Br. 12. Appellant argues that Tissot does not teach edges, because “enclosures C1, C2, C3 encircle a limb.” *Id.* at 13.

For the reasons explained above regarding claim 15, we agree with the Examiner that the combination of Ibrahim and Tissot suggest the claimed device. Specifically, the Examiner does not propose a bodily incorporation of the partitions, and uses Tissot's partitions to divide Ibrahim's chamber, which results in three adjacent cells having the claimed edges, as depicted in annotated Figure 10, above. Absent a persuasive reason why modifying the chamber of Ibrahim, as the Examiner proposes, would be beyond the abilities of one of ordinary skill, we are not apprised of Examiner error as to claim 24.

Appellant does not argue separately for the patentability of claims 21 and 30, and these claims fall with claims 15 and 24 from which they respectively depend. *See* Appeal Br. 17. Although Appellant provides a separate argument for claim 32, this argument is the same unpersuasive argument for claim 15 discussed above that “Tissot only describes a continuous sleeve that encircles a limb and, therefore, partitions C4, C5 that define inflatable enclosures do not have ends at an external edge of the perimeter.” Appeal Br. 16.

For the reasons set forth above, Appellant does not persuade us of Examiner error in rejecting independent claims 15 and 24. Appellant does not separately argue dependent claims 21 and 30, which therefore fall with their respective independent claims. We are not persuaded by Appellant's argument regarding dependent claim 32 (Appeal Br. 15–16). Accordingly, we sustain the Examiner's rejection of claims 15, 21, 24, 30, and 32 as unpatentable over Ibrahim, Arkans, and Tissot.

Rejections II and III – Obviousness of Claims 18, 19, 27, 28, 33, and 34

Claims 18, 19, 27, 28, 33, and 34 depend directly or indirectly from one of claims 15 or 24. Appeal Br. (Claims App. 2, 4–5). Appellant does not separately argue the patentability of dependent claims 18, 19, 27, 28, 33, and 34. *See* Appeal Br. 17–18. These claims fall with claims 15 and 24. *See* 37 C.F.R. § 41.37(c)(1)(vii).

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Basis	Affirmed	Reversed
15, 21, 24, 30, 32	103(a)	Ibrahim, Arkans, Tissot	15, 21, 24, 30, 32	
18, 19, 27, 28	103(a)	Ibrahim, Arkans, Tissot, Taheri	18, 19, 27, 28	
33, 34	103(a)	Ibrahim, Arkans, Tissot, Stolpmann	33, 34	
Overall Outcome			15, 18, 19, 21, 24, 27, 28, 30, 32–34	

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED