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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DARREN BUDDEMEYER, HARTWING AHNFELDT, and
MATTHIAS HAHN

Appeal 2019-002771
Application 14/756,633
Technology Center 3700

Before DANIEL S. SONG, STEFAN STAICOVICI, and
MICHAEL J. FITZPATRICK, *Administrative Patent Judges*.

FITZPATRICK, *Administrative Patent Judge*.

DECISION ON APPEAL

Darren Buddemeyer, Hartwing Ahnfeldt, and Mathias Hahn (collectively, “Appellant”¹) appeal under 35 U.S.C. § 134(a) from the Examiner’s final decision rejecting claims 16–20 and 22–24. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ Appellant is the “applicant” under 37 C.F.R. § 1.42(a). Appellant identifies “Ortho Solutions, LC, dba DynaFlex,” as an additional real party in interest. Appeal Br. 4.

STATEMENT OF THE CASE

The Specification

The Specification's "disclosure relates to orthodontic devices for assisting in orthodontic treatments or procedures, and more particularly to a dental repositioning device for repositioning a tooth for use in orthodontic correction treatments or procedures." Spec. 2:8–11. Figure 1, taken from Replacement Sheet filed November 16, 2016, is reproduced below.

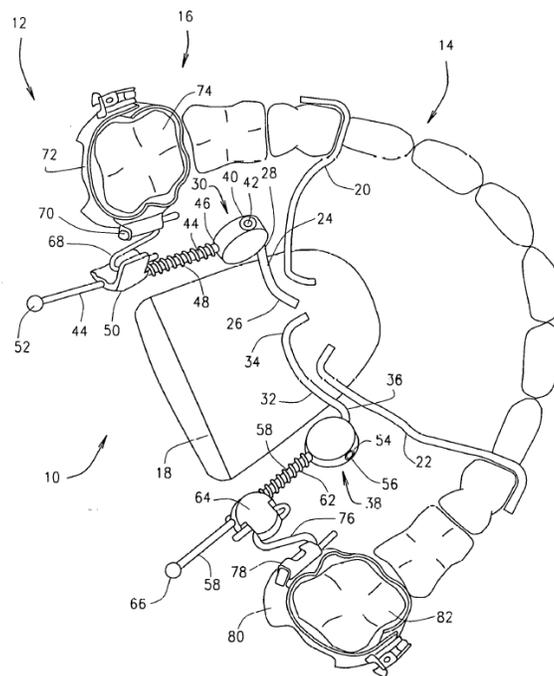


FIG. 1

Figure 1, reproduced above, shows "a top perspective view of a dental repositioning device constructed according to the present disclosure being positioned on the inside of a mouth of a patient." Spec. 8:7–9. According to Appellant, dental repositioning device 10 is an embodiment of the broadest claim on appeal, independent claim 22. Appeal Br. 8.

The Claims

Claims 16–20 and 22–24 are rejected. Final Act. 1. No other claims are pending. *Id.* Claim 22 is the sole independent claim. It is representative of the claimed subject matter and reproduced below.

22. A dental repositioning device comprising:

a support plate having a first support rod embedded therein and extending out of the support plate adapted for placement on a tooth, and a second support rod embedded therein and extending out of the support plate and adapted for placement on another tooth;

a first front rod embedded within said support plate and having an end extending out of said support plate, and a second front rod embedded within said support plate, and said second front rod having an end extending out of the support plate,

a first anterior mechanism having the end of said first front rod connecting therewith, and a second anterior mechanism having the end of the second front rod connecting therewith;

said first anterior mechanism having a top opening for receiving a set screw, and having a front opening for receiving the end of said first front rod therein for connection, and said first anterior mechanism having a rear opening;

said second anterior mechanism having a top opening for receiving a set screw, and said second anterior mechanism having a front opening for receiving the end of said second front rod therein for connection, and said second anterior mechanism having a rear opening;

a first back rod inserted into the rear opening of the first anterior mechanism and extending between the first anterior mechanism and a first rear mechanism, and a first spring inserted over the first back rod between the first anterior mechanism and the first rear mechanism, and said first back rod being secured within the first anterior mechanism upon tightening of said set screw;

said first front rod and said first back rod are *the same rod*;

a second back rod inserted into the rear opening of the second anterior mechanism and extending between the second anterior mechanism and a second rear mechanism, and a second spring inserted over the second back rod between the second anterior mechanism and the second rear mechanism, and

said second back rod being secured within the rear opening of said second anterior mechanism upon tightening of its said set screw;

said second front rod and said second back rod are *the same rod*;

a first Z-clip for insertion into the first rear mechanism and securing with a first buccal tube;

a second Z-clip for insertion into the second rear mechanism and securing with a second buccal tube;

the rear openings of the first and second anterior mechanisms along their inner surfaces having formed spiral grooves for accommodating the threaded engagement of the respective first and second springs therein, surrounding their respective rods, to affix the springs in place relative to the first and second anterior mechanisms upon their installation and adjustment of the setting for the dental repositioning device;

wherein each of said buccal tubes secure to separate bands for application to the patient's molars during application and usage of the repositioning device.

Amendment filed June 23, 2017 (emphasis added).²

² The Appeal Brief erroneously reproduces claim 22 substituting “integral” for both instances of the italicized language above, i.e., “the same rod.” Appeal Br. 17–18. Appellant had attempted to amend claim 22 to substitute each instance of “the same rod” with “integral” after the Final Action, but that amendment was not entered. *See* Amendment filed Oct. 2, 2017.

The Examiner's Rejections

The rejections before us are:

1. claims 16–20 and 22–24, under 35 U.S.C. § 112(b), as indefinite (Final Act. 2);
2. claims 22–24, under 35 U.S.C. § 103, as unpatentable over Bowman,³ Papadopoulos,⁴ and Rothman⁵ (*id.* at 3);
3. claims 16 and 17, under 35 U.S.C. § 103, as unpatentable over Bowman, Papadopoulos, Rothman, and Keles⁶ (*id.* at 7);
4. claims 18 and 19, under 35 U.S.C. § 103, as unpatentable over Bowman, Papadopoulos, Rothman, and McCance⁷ (*id.* at 7–8); and
5. claim 20, under 35 U.S.C. § 103, as unpatentable over Bowman, Papadopoulos, Rothman, and Shilliday⁸ (*id.* at 8).⁹

DISCUSSION

Rejection 1

The Examiner determined that claim 22's recitation of "said first front rod and said first back rod are the same rod" and "said second front rod and

³ US 2003/0091952 A1, published May 15, 2003 ("Bowman").

⁴ US 2008/0020339 A1, published Jan. 24, 2008 ("Papadopoulos").

⁵ US 2006/0229612 A1, published Oct. 12, 2006 ("Rothman").

⁶ US 2005/0221249 A1, published Oct. 6, 2005 ("Keles").

⁷ US 2011/0311937 A1, published Dec. 22, 2011 ("McCance").

⁸ US 5,133,659, issued July 28, 1992 ("Shilliday").

⁹ At times, the Examiner refers to a "Carano" reference. *See, e.g.*, Final Act. 7 ("Bowman/Carano/Papadopoulos/Rothman are silent regarding wherein the first back or second back rod has a ball end."). Each instance of mentioning "Carano" appears to be unintentional, as it is clear that the Examiner is not relying on "Carano." It is clear because Carano is never mentioned when each rejection is initially identified in boldface type. *See generally* Final Act. Further, Appellant agrees that Carano is not part of any rejection. *See* Appeal Br. 11.

said second back rod are the same rod” renders claim 22 and dependent claims 16–20, 23, and 24 indefinite. Final Act. 2. In particular, the Examiner determined that it is unclear how two rods can be the same rod. *Id.*

Appellant does not present arguments against this rejection. *See generally* Appeal Br.; *see also* Appeal Br. at 11 (listing rejections to be reviewed upon appeal and omitting the instant rejection).

Accordingly, we summarily affirm Rejection 1.

Rejection 2

The Examiner rejected claims 22–24 as unpatentable over Bowman, Papadopoulos, and Rothman. Final Act. 3. Appellant argues the rejection of these claims together. Appeal Br. 12–16. We select claim 22 as representative. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Referring primarily to Bowman Figure 5, the Examiner found that Bowman discloses most of the subject matter of claim 22. Final Act. 3–5 (citing Bowman ¶¶38–39, Fig. 5). Figure 5 of Bowman is reproduced below.

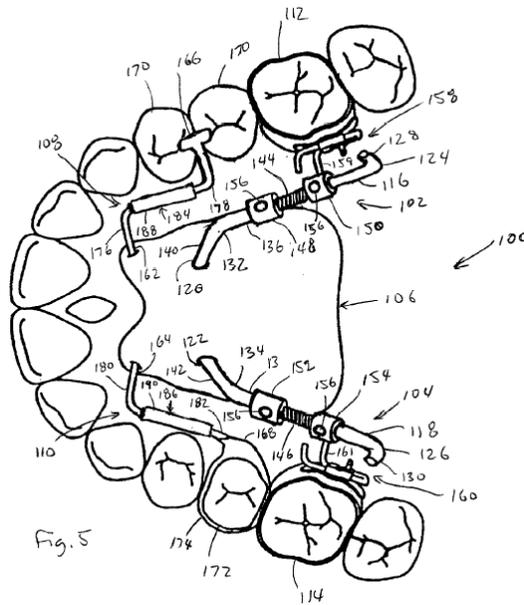


Figure 5 of Bowman, reproduced above, shows “orthodontic distalizing apparatus 100 . . . mounted to a maxillary jaw.” Bowman ¶34. The Examiner found that the Bowman apparatus discloses all of the claimed subject matter of claim 22 except that:

Bowman is silent regarding that the Z-clips are inserted into their respective rear mechanisms and that the rear openings of the first and second anterior mechanisms along their inner surfaces having formed spiral grooves for accommodating the threaded engagement of the respective first and second springs therein, surrounding their respective rods, to affix the springs in place relative to the first and second anterior mechanisms upon their installation and adjustment of the setting for the dental repositioning device.

Final Act. 5.

The Examiner found that Papadopoulos, which also discloses a dental repositioning device (i.e., “orthodontic device for shifting a molar along the mandibular arch” (*see, e.g.*, Papadopoulos ¶1)), teaches “insertion of a Z-clip (8) into a rear mechanism (6) for the purpose of securing the rear mechanism (6) to a band encircling the tooth to be shifted.” Final Act. 5

(citing Papadopoulos ¶29, Fig. 1). The Examiner determined that it would have been obvious to a person of ordinary skill in the art at the time of the claimed invention to modify Bowman, by inserting each Z-clip into its respective rear mechanism, as taught by Papadopoulos, “for the purpose of securing the rear mechanism to the Z-clip and further [to] a band encircling the tooth to be shifted.” Final Act. 5–6.

The Examiner conceded that such a modification would not satisfy claim 22’s recitation of “the rear openings of the first and second anterior mechanisms along their inner surfaces having formed spiral grooves for accommodating the threaded engagement of the respective first and second springs therein, surrounding their respective rods. . . .” *See* Final Act. 6. However, the Examiner found that Rothman, which discloses a “spinal stabilizer” (*see, e.g.*, Rothman ¶38), “teaches a spring/spiral threaded mechanism . . . having threaded grooves (128C, 128D) formed within their inner surfaces . . . for accommodating the threaded engagement of a spring within its grooves [] for the purpose of preventing the coil spring from collapsing or excessively deforming as compressive forces increase.” *Id.* (citing Rothman ¶¶49, 57, Fig. 6b). The Examiner determined:

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention, to modify Bowman/Papadopoulos, by requiring that the rear openings of the first and second anterior mechanisms along their inner surfaces having formed spiral grooves for accommodating the threaded engagement of the respective first and second springs therein, surrounding their respective rods, to affix the springs in place relative to the first and second anterior mechanisms upon their installation and adjustment of the setting for the dental repositioning device, as taught by Rothman, for the purpose of preventing the coil spring from collapsing or excessively deforming as compressive forces increase.

Id. at 6–7.

Appellant implicitly argues that Rothman is non-analogous art. *See* Appeal Br. 12 (“The Rothman reference is a spinal column mechanism for stabilizing vertebrae, and has nothing to do with the precision use and application of an orthodontic appliance within a patient’s mouth.”). This argument does not apprise us of Examiner error. The Examiner, applying the proper legal standard, persuasively demonstrates that Rothman is reasonably pertinent to the problem faced by Appellant even though it may not be in the same field of endeavor as the claimed invention. Ans. 10; *see also* Final Act. 6 (“[Rothman] is analogous art because it teaches a mechanism to retain the spring into spiral grooves and is intended to solve the same problem as applicants, which is to provide a mechanism to hold the spring.”). Appellant did not file a Reply Brief.

Appellant presents additional arguments but they are not commensurate with the rejection. *See* Appeal Br. 13–15. For example, Appellant argues that “Bowman does not show springs that are threadedly engaged within first and second anterior mechanisms.” *Id.* at 13. However, the Examiner explicitly conceded that Bowman is silent with respect to such a feature and relied on a modification in view of Rothman’s disclosure to meet that limitation. Final Act. 6–7. Similarly, Appellant argues that “Bowman is just not structured like the Applicants’ device, that allows for better precision in the adjustment and setting in the amount of pressure necessary, as obtained by compression of the various fixed springs, against their various rear mechanisms.” Appeal Br. 14. However, the rejection is not anticipation by Bowman. It is an obviousness rejection based on Bowman, Papadopoulos, and Rothman. Such arguments are not persuasive

as “[n]on-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references.” *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

For the forgoing reasons, we affirm the rejection of claim 22, as well as that of claims 23 and 24, which fall therewith. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Rejection 3

The Examiner rejected claims 16 and 17 as obvious over Bowman, Papadopoulos, Rothman, and Keles. Final Act. 7. Claims 16 and 17 depend from claim 22 and further recite, respectively, “wherein the first back rod has a ball end” and “wherein the second back rod has a ball end.” The Examiner found that Keles, which discloses an “intraoral appliance” used “[f]or maxillary molar distalization” (*see* Keles ¶13), “teaches a dental repositioning device (1) wherein the first and second rod (6; FIG. 2 shows two rods) has a ball end (6a).” Final Act. 7. The Examiner concluded that it would have been obvious to a person of ordinary skill in the art to further modify Bowman, Papadopoulos, and Rothman, in view of Keles “for the purpose of protecting the tongue and interior of the mouth from damage.” *Id.*

Appellant argues that, “[w]hile Keles may show a ball at the end of his wire rod, it appears that [Keles’s] ball is of integral structure, as can be noted, and is not removable for assembly purposes, such as can be done with Applicants’ invention.” Appeal Br. 13. However, and as correctly noted by the Examiner, this argument is not commensurate with the scope of either claim, as neither claim 16 nor claim 17 includes language directed to the ball

being “removable.” Ans. 11. As such, Appellant does not apprise us of Examiner error and we affirm Rejection 3.

Rejection 4

The Examiner rejected claims 18 and 19 as obvious over Bowman, Papadopoulos, Rothman, and McCance. Final Act. 7–8. Claims 18 and 19 depend from claim 22 and further recite, respectively, “wherein the first spring is a super elastic nickel titanium spring” and “wherein the second spring is a super elastic nickel titanium spring.” The Examiner found that McCance, which discloses an “orthodontic space-closing appliance” (*see* McCance, [57]), teaches these additional limitations and concluded that it would have been obvious to a person of ordinary skill in the art to further modify Bowman, Papadopoulos, and Rothman, in view of McCance “for the purpose of utilizing the superelastic properties of nickel-titanium to change the resilient forces induced on the dental repositioning device and furthermore the teeth.” Final Act. 8 (citing McCance ¶26).

Appellant argues the following:

The examiner goes on to cite the McCance reference for showing the use of elastic nickel titanium springs. Applicants do not claim to be the first to utilize a nickel titanium spring within an orthodontic appliance, but certainly they are the first when you look at the use of that type of spring within the claimed subject matter, where one can thread into the defined anterior mechanisms, in order to attain precise adjustment, within the structure of a Dental Repositioning Device, of the type as explained in claim 22.

Appeal Br. 13–14. This argument does not rebut the instant rejection in any manner. The Examiner has provided adequate reasoning with rational underpinnings to combine the teachings of Bowman, Papadopoulos,

Rothman, and McCance. As such, Appellant does not apprise us of Examiner error and we affirm Rejection 4.

Rejection 5

The Examiner rejected claim 20 as obvious over Bowman, Papadopoulos, Rothman, and Shilliday. Final Act. 8. Claim 20 recites: “The dental repositioning device of claim 22 further comprising a hand wrench for rotating the set screws.” The Examiner found that Shilliday, which discloses an “a method and apparatus for adjusting an orthodontic appliance” (*see* Shilliday 1:6–7), teaches such a wrench and concluded that it would have been obvious to further modify Bowman, Papadopoulos, and Rothman, in view of Shilliday “for the purpose of having a way to adjust the pressure/force on the teeth.” Final Act. 9 (citing Shilliday, [57]).

Appellant argues the following:

The examiner also cites Shilliday for showing the use of a tool. Once again, Applicants do not claim to be the first to invent a tool for use in the setting and tightening of an orthodontic appliance, but the particular style of hand wrench as shown in Applicants’ invention, when used in combination with the Dental Repositioning Device of the claim 22, it is submitted, includes some elements of inventiveness, for use with Applicants’ specific device.

Appeal Br. 14. This argument does not rebut the instant rejection in any manner. The Examiner has provided adequate reasoning with rational underpinnings to combine the teachings of Bowman, Papadopoulos, Rothman, and Shilliday. As such, Appellant does not apprise us of Examiner error and we affirm Rejection 5.

SUMMARY

Claims Rejected	35 U.S.C.	Basis	Affirmed	Reversed
16–20, 22–24	§ 112(b)	Indefiniteness	16–20, 22–24	
22–24	§ 103	Bowman, Papadopoulos, Rothman	22–24	
16, 17	§ 103	Bowman, Papadopoulos, Rothman, Keles	16, 17	
18, 19	§ 103	Bowman, Papadopoulos, Rothman, McCance	18, 19	
20		Bowman, Papadopoulos, Rothman, Shilliday	20	
Overall Outcome			16–20, 22–24	

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)(1).

AFFIRMED