

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM C. REED

Appeal No. 2001-0444
Application No. 08/949,803

ON BRIEF

Before THOMAS, KRASS, and BARRETT, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 7-12, 20 and 21.

The invention is directed to transmission cables for use in an underwater environment. In order to overcome disadvantages of utilizing steel strength systems in such transmission cables, the instant invention employs two non-metallic strength members, each comprised of at least one glass strand wherein each strand is

comprised of a plurality of glass filaments that are bound together with a polymeric material.

Representative independent claim 7 is reproduced as follows:

7. A power and communications transmission medium for use in an underwater environment, comprising:

an optical fiber core structure having an outer diameter for providing communications transmission;

at least one layer of conductive material other than steel concentrically surrounding the outer diameter of the core structure adapted to provide power transmission, strengthen and protect the medium, and absorb underwater pressures;

first and second non-metallic strength members concentrically surrounding the at least one layer of conductive material, each of the first and second non-metallic strength members comprising a plurality of strands wherein each strand is comprised of a plurality of filaments bound together and impregnated with a polymeric material such that the first and second non-metallic strength members mechanically shield the at least one layer of conductive material from the underwater environment,

wherein the first strength member is wrapped in a helical lay around the at least one layer of conductive material in a first direction, and the second strength member is wrapped in a helical lay around the first strength member in a second direction opposite the first direction; and

an outer jacket concentrically surrounding the strength members.

The examiner relies on the following references:

Arroyo (Arroyo 060)	4,818,060	Apr. 4, 1989
Arroyo (Arroyo 442)	5,389,442	Feb. 14, 1995
Gareis et al. (Gareis)	5,557,698	Sep. 17, 1996

Additionally, the examiner relies on admitted prior art (APA), designated as instant Figures 3-5.

Claims 7-12, 20 and 21 stand rejected under 35 U.S.C. 103. As evidence of obviousness, the examiner offers Arroyo 442 and Gareis with regard to claims 7 and 10-12, adding Arroyo 060 with regard to claims 10 and 11. With regard to claims 20 and 21, the examiner offers Arroyo 442, together with Gareis and APA.

Reference is made to the brief and answer for the respective positions of appellant and the examiner.

OPINION

The examiner contends that Arroyo 442 discloses a communications cable in Figures 1 and 2 wherein the cable has a nonmetallic fiber strength system 32 and an optical fiber core structure 22 for preventing the passage of water through a sheath system (column 1, lines 10-40).

With regard to claim 7, the examiner points to a strength system 32 having first and second nonmetallic strength members 32-33 comprised of a plurality of filaments that are bound together and impregnated with a polymeric material (column 7, lines 5-10). The examiner points to Figure 1 to show that the first strength member is wrapped in a helical lay around the core and that the second strength member is wrapped in a helical lay around the first member in a direction which may be opposite to that of the first strength member (columns 7 and 8, lines 65-68 and 1-2, respectively). The examiner further points to a jacket 34 which surrounds the strength system.

The examiner admits that Arroyo 442 fails to teach an insulating material surrounding the first and second strength members and at least one layer of conductive material being a plurality of copper conductors that concentrically surround the outer diameter of the core structure. However, the examiner relies on Gareis to supply these deficiencies, pointing to Gareis' fiber optic cable in Figure 1, wherein the cable has a cylindrical braided electrical conductor 37 which may be braided copper wires (column

5, line 23) and surrounds the core. Gareis also discloses a jacket 36 that surrounds the strength member 33 and acts as an insulator between two conductive layers (column 5, lines 10-25).

The examiner holds that it would have been obvious to modify the cable of Arroyo 442 to have a conductive material made of copper in view of Gareis' teaching "in order to have a cable that has a high flexibility torque design and high overall tensile strength (Col. 3, lines 55-64)" of Gareis [answer-page 5] "and to have an insulation layer surrounding the strength members, because it is well known in the art, as taught by Gareis...that having insulation layers provides a cable with superior insulation resistance levels (Col. 3, lines 55-59)" [answer-page 5].

For his part, appellant argues: 1. that Arroyo 442 and Gareis are not analogous art because they do not relate to underwater cables; 2. that the examiner has failed to establish a prima facie case of obviousness; 3. that the examiner is relying on an inherency theory which is unsupported; and 4. that the examiner has not given due consideration to the functional limitations of the claims.

Taking the arguments in order, as they relate to independent claim 7:

We are unconvinced that the applied references do not constitute analogous art. The test for analogous art outside an inventor's field of endeavor is whether the art pertains to the particular problem confronting the inventor. In re Clay, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060 (Fed. Cir. 1992); In re Greene (Fed. Cir. 1994). Not only are Arroyo 442 and Gareis within appellant's field of endeavor, i.e., power and communication transmission cables, but Arroyo 442 also pertains to the particular problem confronting appellant, i.e., the use of such cables underwater. Arroyo 442 suggests the use of the cable underwater because the cable is disclosed as having "water blocking provisions" (abstract) and as "preventing the passage of water through a sheath system of the cable" (column 1, lines 15-16).

Appellant contends that the references are not analogous because they do not relate to "withstanding underwater influences" (brief-page 11) and do not discuss "the concerns posed by the underwater environment" (brief-page 12). Appellant's argument is not convincing because independent claim 7 and the claims dependent therefrom recite nothing relevant to "withstanding underwater influences" and "concerns posed by the underwater environment" or "protecting against underwater pressures, corrosion from the sea, or other underwater influences" (brief-page 14). In fact, claim 7 merely mentions the claimed power and communications transmission medium "for use in an underwater environment" in the preamble, then recites in the body of the claim that the

medium will “absorb underwater pressures” and will be shielded from “the underwater environment.” Even if we agreed with appellant that these citations are more than the “intended use” argued by the examiner, the general recitations of the use in, and shielding from, an underwater environment, and the ability to absorb underwater pressures would have been suggested to the artisan by Arroyo 442 since this reference discloses the prevention of water passing through the sheath of the cable. Thus, the artisan would have understood that the cable of Arroyo 442 is meant to be used in an environment where there will be water. It may be a little water; it may be for use in a swimming pool, etc. While the reference does not recite anything about withstanding certain water pressure, corrosion, etc., the claims are not specific to any particular pressure or corrosion. While appellant may intend the cable to be used deep in the ocean, wherein there are problems with corrosion and/or large water pressure, the claims do not specify any particular pressure or the corrosive effects of the sea. Since Arroyo 442 would have suggested to the artisan to use the cable in a water environment and even a non-sea water environment of a swimming pool or a tank, for example, will have some water pressure associated therewith which the cable will “absorb,” it is our view that these specific claim recitations, as broadly stated, are suggested by Arroyo 442.

With regard to a prima facie case of obviousness, appellant contends that there is no motivation for combining the references. In particular, appellant argues that there is no suggestion for modifying the references with regard to surrounding the core structure with a conductive layer other than steel adapted to protect against underwater influences, and surrounding the conductive layer with first and second layers of strength members. Appellant urges that each of the references surrounds the fiber optic cores with plastic materials (30 in Arroyo 442 and 060 and 33, 35 and 36 in Gareis) and that even though Gareis shows braided copper conductor layers 37 and 38, these layers send electrical power and they are not surrounded by first and second strength members.

With regard to protection against underwater influences, we have treated this supra and need not repeat it here.

With regard to the motivation to combine the references, we agree with appellant that there is nothing within the disclosures of Arroyo 442 and Gareis that would have suggested taking the braided copper cables 37 and 38 of Gareis and placing such a copper cable, or cables, between Arroyo 442's fiber optic cable core 22 and strength member 32 in the cable of Arroyo 442 such that the copper conductors would surround Arroyo 442's fiber optic cable core 22 and be itself surrounded by the strength member

system 32 comprised of non-metallic strength members 33. While the examiner offers, as motivation, such generalities as “to have a cable that has a high flexibility torque design and high overall tensile strength,” this still does not explain why the artisan would have sought to place the copper cable of Gareis exactly where appellant places the conductive material, i.e., wrapped around the outer diameter of the core structure and having the non-metallic strength layers wrapped around the conductive material.

Since the examiner has presented no convincing rationale for employing the copper conductors of Gareis in Arroyo 442 in the manner recited in the instant claims, we will not sustain the rejection of claims 7-9 and 12 under 35 U.S.C. 103. Because Arroyo 060 is no help in this regard, we also will not sustain the rejection of claims 10 and 11 under 35 U.S.C. 103. Because we find no prima facie case since there would have been no reason to combine the copper conductors of Gareis with the cable of Arroyo 442 in a manner which would result in the instant claimed subject matter, we will not address the arguments relating to inherency and due consideration to the functional limitations of the claims.

Regarding claims 20 and 21, independent claim 20 is much narrower in scope than independent claim 7 and the reliance on APA for a termination of the cable by a cone configuration does nothing to address the deficiencies of the primary references.

Accordingly, we also will not sustain the rejection of claims 20 and 21 under 35 U.S.C. 103.

The examiner's decision rejecting claims 7-12, 20 and 21 under 35 U.S.C. 103 is reversed.

REVERSED

JAMES D. THOMAS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
ERROL A. KRASS)	APPEALS
Administrative Patent Judge)	AND

LEE E. BARRETT
Administrative Patent Judge

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