

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 31

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN J. WOZNIAK,
and MICHAEL C. ROBERTSON

Appeal No. 96-3935
Application 08/209,673¹

ON BRIEF

Before ABRAMS, GARRIS and FRANKFORT, Administrative Patent Judges.

FRANKFORT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 2 through 10 and 40 through 49. Claims 26 through 38 have been withdrawn from further consideration under 37 CFR §

¹ Application for patent filed March 10, 1994. According to appellants, this application is a division of Application 07/627,801, filed December 14, 1990, now abandoned.

Appeal No. 96-3935
Application 08/209,673

Rather than reiterate the examiner's full statement of the above-noted rejections and the conflicting viewpoints advanced by the examiner and appellants regarding those rejections, we make reference to the examiner's answer (Paper No. 30, mailed December 15, 1995) for the examiner's reasoning in support of the rejections, and to appellants' brief (Paper No. 29, filed August 25, 1995) for appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by appellants and the examiner. As a consequence of our review we have reached the determinations which follow.

Looking first to the examiner's rejection of appealed claims 2 through 7 and 40 through 48 under 35 U.S.C. § 102(b) as being anticipated by Wozniak, we note that the examiner has taken the position that Wozniak discloses (col. 4, lines 2-6) a viscoelastic memory means comprising a polyethylene oxide having a molecular weight within the claimed range and which is crosslinked

with radiation. The examiner additionally notes that this crosslinked polyethylene oxide viscoelastic memory means is described as being used as a flow control valve in an injection device. The examiner further urges that

With regard to "produced by the steps of:" phrase, the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

Also, it has been held that functional "whereby" statement does not define any structure and accordingly cannot serve to distinguish. In re Mason, 114 USPQ 127, 44 CCPA 937 (1957). (Examiner's Answer, page 3)

We do not share the examiner's view of the pertinence of the method steps set forth in independent claim 40, or of the "whereby" clause in this claim. Contrary to the examiner's position, we consider that the steps recited in forming the viscoelastic memory means of appellants' claim 40 and the whereby clause therein together define a structural characteristic of the memory means which is not taught or suggested in Wozniak. More specifically, claim 40 sets forth that the viscoelastic memory means is produced by the steps of: exposing a hydrophilic polymer to ionizing radiation to create crosslinks within the polymer; heating the polymer to substantially its crystalline melt temperature; altering the shape of the polymer from a first configuration to a second configuration either before or after the heating step; and then cooling

the polymer while in the second configuration to reform the crystalline structure. As is clear from page 6 of appellants' specification, the cooling recrystallizes the amorphous regions of the polymer, thereby locking the viscoelastic memory means into the desired second configuration.

However, as is emphasized in the "whereby" clause of claim 40 on appeal, when the memory means in said second configuration is exposed to a solvent of the polymer (e.g., water), such exposure causes the polymer "to revert from the second configuration to the first configuration." It is this structural characteristic of reversion from a second configuration to a prior first configuration which is not taught or suggested in Wozniak. That is, while Wozniak clearly discloses using a polymer having viscoelastic memory to form an expansion plug apparently of the type seen in Figures 2A and 2B of the patent, there is no disclosure or teaching therein of providing such a polymer plug in a first configuration that is then altered to a second configuration by steps such as those recited in appellants' claim 40, whereby the plug is locked in the second configuration and upon exposure to a solvent of the polymer will revert or change back to the prior first configuration. Since the polymer plugs disclosed in Wozniak lack this critical characteristic of appellants' invention as set forth in independent claim 40, it follows that the examiner's rejection of claim 40 under 35 U.S.C. § 102(b) as being anticipated by Wozniak will not be sustained.

Claims 2 through 5 and 41 through 48 depend from claim 40 and thus include all the limitations of the independent claim. Since Wozniak does not disclose or teach the viscoelastic memory means as defined in appellants' claim 40, it follows that the examiner's rejection of dependent claims 2 through 5 and 41 through 48 under 35 U.S.C. § 102(b) will also not be sustained.

Claim 6 is an independent claim which defines a viscoelastic memory flow control valve for use in an auto-destruct injection device. More specifically, the claim sets forth that the viscoelastic memory flow control valve comprises "the memory means as recited in claim 44." Claim 44 depends through a chain of claims (i.e., claims 43, 42, 41) to independent claim 40. Thus, claim 6 also includes all of the limitations of claim 40 and, for the same reasons as have been set forth above with regard to claim 40, the examiner's rejection of claim 6 (and claim 7 which depends therefrom) under 35 U.S.C. § 102(b) as being anticipated by Wozniak will likewise not be sustained.

Claims 8 through 10 stand rejected by the examiner under 35 U.S.C. § 103 as being unpatentable over Popular Science Dec. 1989 or July 1989 in view of Wozniak. Claims 8 through 10 depend from claim 6 and add to this claim that the first configuration is a solid and that the second configuration comprises a solid with a flow orifice (claim 8). Claim 9 specifies that the solid of claim 8 is a disk, while claim 10 provides further limitation on the size of the flow orifice of the disk. The

Appeal No. 96-3935
Application 08/209,673

Popular Science articles relied upon by the examiner each disclose an auto-destruct injection device having a flow control valve in the form of a disc of water swellable hydrophilic polymer instead of a disc of hydrophilic polymer with viscoelastic memory. In each of the articles, the water swellable polymer disc, or flow control valve, has a small flow orifice therethrough which is closed off when the hydrogel polymer of the disc absorbs water from the drug injection and swells, thus rendering the syringe inoperative. The examiner is of the opinion that it would have been obvious to one of ordinary skill in the art to utilize Wozniak's teaching of using polyethylene oxide hydrogel as the hydrogel polymer of the disc disclosed in the Popular Science articles. We agree.

However, while the disc or plug member of each of the Popular Science articles has the same outward appearance as the flow control valve of appellants' invention as set forth in claims 8 through 10 on appeal and Wozniak teaches using a polymer having viscoelastic memory to form an expansion plug of the type seen in Figures 2A and 2B of that patent, there is no disclosure or teaching in the references applied by the examiner of providing a polymer plug or

viscoelastic memory flow control valve in a first configuration that is then altered to a second

Appeal No. 96-3935
Application 08/209,673

configuration by steps such as those recited in appellants' claim 40, whereby the plug is locked in the second configuration and upon exposure to a solvent of the polymer will revert back to the prior first configuration. Thus, since this critical physical/structural characteristic of the claimed subject matter is not taught or suggested by the references relied upon by the examiner or inherent therein, we are compelled to reverse the examiner's rejection of claims 8 through 10 under 35 U.S.C. § 103.

Independent claim 49 has also been rejected by the examiner under 35 U.S.C. § 103 as being unpatentable over Popular Science Dec. 1989 or July 1989 in view of Wozniak. On page 4 of their brief, appellants have argued that

claim 49 is allowable in accordance with the decision and rationale of the Board of Patent Appeals and Interferences opinion (Appeal No. 94-0253; see pages 4-6) mailed January 13, 1994. (Brief, page 4)

Since claim 49 was not part of the claims on appeal in the prior decision referred to by appellants, we are at a complete loss to understand this argument. In that regard, we also observe

that pages 4-6 of the decision in Appeal No. 94-0235 addressed a rejection made by the examiner

Appeal No. 96-3935
Application 08/209,673

under 35 U.S.C. § 112, second paragraph, and not a rejection under 35 U.S.C. § 103 as is presently before us for review. Thus, it appears that appellants' sole argument regarding claim 49 has no merit in the present case and is clearly not persuasive of error on the examiner's part. For that reason we will sustain the examiner's rejection of claim 49 under 35 U.S.C. § 103. We also note that claim 49 on appeal is broader than independent claim 40 since it does not include the "whereby" clause of claim 40, and instead merely requires that the water-soluble resin of the plug/memory means "retain the flow orifice until exposed to water thereby causing the flow orifice to close."

As is apparent from the foregoing, the decision of the examiner rejecting claims 2 through 7 and 40-48 of the present application under 35 U.S.C. § 102(b) based on Wozniak is reversed. The examiner's decision rejecting claims 8 through 10 under 35 U.S.C. § 103 as being unpatentable over Popular Science Dec. 1989 or July 1989 in view of Wozniak is also reversed. However, the rejection of claim 49 under 35 U.S.C. § 103 as being unpatentable over Popular Science Dec. 1989 or July 1989 in view of Wozniak is sustained.

The decision of the examiner is, accordingly, affirmed-in-part.

Appeal No. 96-3935
Application 08/209,673

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)

AFFIRMED-IN-PART

NEAL E. ABRAMS)	
Administrative Patent Judge)	
)	
)	
)	BOARD OF PATENT
)	APPEALS AND
BRADLEY R. GARRIS)	INTERFERENCES
Administrative Patent Judge)	
)	
)	
)	
CHARLES E. FRANKFORT)	
Administrative Patent Judge)	

CEF/dal

Appeal No. 96-3935
Application 08/209,673

FRANCIS A. COOCH
THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
JOHNS HOPKINS RD.
LAUREL, MD 20723-6099

APPENDIX

6. A viscoelastic memory flow control valve for use in an auto-destruct injection device comprising the memory means as recited in claim 44.

40. A viscoelastic memory means comprising a hydrophilic polymer and produced by the steps of:

exposing the polymer to ionizing radiation sufficient to create intramolecular crosslinks within the polymer;

heating the polymer to substantially a crystalline melt temperature;

altering the shape of the polymer from a first configuration to a second configuration either before or after the heating step; and

cooling the polymer while in the second configuration to reform the crystalline structure;

whereby the polymer will remain in the second configuration until exposed to a solvent of the polymer thereby causing the polymer to revert from the second configuration to the first configuration.

49. A viscoelastic memory means comprising a water-soluble resin manufactured by Union Carbide designated POLYOX® WSR-309 NF and produced by the steps of:

exposing the water-soluble resin to cobalt-60 gamma rays to a total dose of five to twelve megarads;

heating the water-soluble resin to substantially a crystalline melt temperature;

forming a flow orifice in the water-soluble resin either before or after the heating step; and

cooling the water-soluble resin with the flow orifice to reform the crystalline structure;

whereby the water-soluble resin will retain the flow orifice until exposed to water thereby causing the flow orifice to close.