Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte PETER CURTIS ALWAY
and ROBERT MATTHEW ALWAY

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Appeal No. 2004-1796
Application No. 09/682,167

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ON BRIEF

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Before ABRAMS, McQUADE, and NASE, Administrative Patent Judges.

ABRAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-14, which are all of the claims pending in this application.

We REVERSE.

BACKGROUND

The appellants' invention relates to a rocket. An understanding of the invention can be derived from a reading of exemplary claim 1, which has been reproduced below.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Johnson et al. (Johnson)	5,707,270	Jan. 13, 1998
Japanese Patent Document[1] (Kawasaki)	H8-136198	May 31, 1996

Centuri Engineering Company Technical Information Report 33, "Calculating The Center Of Pressure Of A Model Rocket," pages 1-38, 1970 (Barrowman)

AVI astroport LINAEUS GIGANTUS flyer and instruction brochure, 1976 (LG)

Claims 1-14 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as the invention.

Claims 1-14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over LG in view of Barrowman and Johnson.

Claims 1-14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over LG in view of Barrowman and Kawasaki.

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[1]Our understanding of this foreign language document was obtained from a PTO translation, a copy of which is enclosed.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we make reference to the Answer (Paper No. 16) and the final rejection (Paper No. 13) for the examiner's reasoning in support of the rejections, and to the Brief (Paper No. 15) for the appellants' arguments thereagainst.

OPINION

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

Representative Claim 1

> A rocket comprising, fixed aerodynamic surfaces, a large length to diameter ratio, a fixed center of gravity between the Barrowman center of pressure and the center of lateral area wherein the center of gravity is less than 60% of the distance from the Barrowman center of pressure to the center of lateral area after the pitch maneuver, and a side thrusting means fixed on the rocket at a distance from the center of gravity sufficient to pitch the stable flying rocket in a manner to disrupt the aerodynamic stability of the rocket.

The Rejection Under Section 112

The second paragraph of 35 U.S.C. § 112 requires claims to set out and circumscribe a particular area with a reasonable degree of precision and particularity. In re Johnson, 558 F.2d 1008, 1015, 194 USPQ 187, 193 (CCPA 1977). In making this

determination, the definiteness of the language employed in the claims must be analyzed, not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. Id. The examiner has pointed out a number of instances wherein he believes the claims are indefinite for lack of antecedent basis for some of the recited terminology. Although there might be better ways in which to express the disputed terminology, we do not agree that the claims as presented are indefinite when one considers the explanation of the invention as presented in the specification taken in view of the knowledge that should be accorded to one of ordinary skill in the art.

For example, the examiner has taken the position that the limitations "the Barrowman center of pressure," "the center of lateral area," "the stable flying rocket," "the aerodynamic stability," "the distance," and "the pitch maneuver" in claims 1, 5, 8, 9 and 14 have no antecedent basis in the claims and therefore the claims are indefinite. However, these terms all are explained in the specification and appear from the applied references to be well known in the art. It therefore is our view that the lack of antecedent basis in the claims for these terms would not preclude one of ordinary skill in the art from determining the metes and bounds of the claims. We reach the same conclusion with regard to other limitations cited by the examiner in claims 4, 9 and 12. With regard to the appearance without antecedent basis of "the ejection charge" in

claims 11 and 13, it is our view that one of ordinary skill in the art would have recognized from the specification and from the language of claims 1 and 5, from which the disputed claims depend, that "the ejection charge" refers to side thrust generated by the engine at or near the apogee of the flight (specification, page 3).

The Section 112 rejection of claims 1-14 is not sustained.

The Rejections Under Section 103

The test for obviousness is what the combined teachings of the prior art would have suggested to one of ordinary skill in the art. See, for example, In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In establishing a prima facie case of obviousness under 35 U.S.C. §103, it is incumbent upon the examiner to provide a reason why one of ordinary skill in the art would have been led to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. Ex parte Clapp, 227 USPQ 972, 973 (BPAI 1985). To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from the appellant's disclosure. See, for example, Uniroyal, Inc. v. Rudkin Wiley Corp., 837 F.2d 1044, 1052, 5 USPQ2d 1434, 1052 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988).

(1)

The first of the Section 103 rejections is that claims 1-14 are unpatentable over LG in view of Barrowman and Johnson. Looking first to claim 1, in arriving at this conclusion the examiner has found all of the subject matter recited in this claim to be disclosed or taught by LG except for (1) the center of gravity being between the Barrowman center of pressure and the center of lateral area, (2) the center of gravity being less than 60% of the distance from the Barrowman center of pressure to the center of lateral area, and (3) a side thrusting means. However, the examiner has taken the position that it would have been obvious to one of ordinary skill in the art to modify the LG rocket to locate the center of gravity between the center of Barrowman pressure and the center of lateral area because "it appears as if this design concept is common knowledge in the art," apparently in view of unidentified teachings of Barrowman which suggest doing so "for the purpose of providing aerodynamic stability to the rocket" (Answer, page 4). With regard to the side thrusting means, the examiner opines that in view of Johnson's teaching of providing side thrust ports it would have been obvious to modify the LG rocket to provide it with side thrusting means for disrupting the aerodynamic stability of the rocket (Answer, sentence bridging pages 4 and 5). As for the limitation that the center of gravity be located less than 60% of the distance between the Barrowman center of pressure and the center of lateral area, the examiner is of the view that this merely involves the discovery of a result effective variable, which is considered to involve only routine skill in the art (Answer, page 5).

Among the appellants' arguments in opposition to this rejection is that LG has a removable nose cone that is jettisoned by the rocket's ejection charge at apogee, and therefore this reference fails to meet the limitation that the aerodynamic surfaces of the rocket are "fixed." The examiner contends that the nose cone of the LG rocket is not an "aerodynamic surface." We do not agree with the examiner's conclusion, however, for the nose cone clearly comprises a "surface" of the rocket, and from our perspective this surface must be "aerodynamic" in order for the rocket to fly properly. Moreover, the examiner has provided no evidence that one of ordinary skill in the art would consider the nose cone not to be an "aerodynamic surface," or pointed out where this shortcoming is remedied by the other references. Thus, the rejection is deficient at this juncture for failing to teach that all aerodynamic surfaces be fixed. Moreover, it is our view that modifying the LG rocket so that the nose cone is fixed would cause it not to be capable of operation in the manner intended.

An additional deficiency in the rejection lies in failing to meet the limitation that the center of gravity be located at a point less than 60% of the distance from the Barrowman center of pressure to the center of lateral area. We agree with the appellants that this placement does not constitute merely the selection of an optimum value in view of the teachings of Barrowman, because this reference is concerned with the stability of the rocket in upward flight, and there is no mention of recovering the rocket by means of the technique of a backwards glide. Thus, we fail to perceive any

teaching, suggestion or incentive in Barrowman which would have led one of ordinary skill in the art to so modify the LG rocket. From our perspective, the only suggestion for doing so is found in the hindsight afforded one who first viewed the appellants' disclosure which, of course, is not a proper basis for a rejection under Section 103. In re Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992).

Finally, the examiner is in error regarding the presence in the Johnson reference of a side thrusting means. The truth of the matter is that ports 26, 46 and 66 are for the purpose of releasing fumes from the detonated caps carried in the nose of the Johnson rocket (column 2, lines 66 and 67; column 3, lines 45 and 46; column 4, lines 9 and 10), and there is no teaching in the reference that the gases issuing therefrom constitute a "side thrusting means," as required by claim 1.

For the reasons set forth above, the references applied in this rejection fail to establish a prima facie case of obviousness with regard to the subject matter of claim 1, and this rejection cannot be sustained. It follows that the same rejection of dependent claims 2-4 also cannot be sustained.

Independent claim 5 contains the same limitations regarding fixed aerodynamic surfaces, 60% spacing of the center of gravity, and side thrusting means as were present in claim 1. Therefore, the like rejection of claim 5, and of dependent claims 6-13, fails for the reasons associated with these limitations expressed above with regard to claim 1.

This rejection of independent claim 14 also is deficient with regard to the limitations relating to fixed aerodynamic surfaces, 60% spacing of the center of gravity, and ejection charge vent hole. It therefore cannot be sustained.

(2)

The second rejection under Section 103 is that claims 1-14 are unpatentable over LG in view of Barrowman and Kawasaki. LG and Barrowman are applied in the same manner as in the other rejection of these claims, and Kawasaki for its teaching of providing side thrusters in a rocket body. We first point out that Kawasaki does not overcome the deficiencies discussed above in the combination of LG and Barrowman with regard to the limitations of fixed aerodynamic surfaces and the location of the center of gravity 60% of the distance from the Barrowman center of pressure to the center of lateral area, and therefore this second rejection of the claims cannot be sustained on those grounds.

In addition, while Kawasaki does disclose side thrusters, their purpose is to effectuate course changes and there is no teaching that they are located "a distance from the center of gravity sufficient to pitch the stable flying rocket in a manner to disrupt the aerodynamic stability," as required by independent claim 1, or are "sufficient to pitch the stable flying rocket substantially perpendicular to the direction of flight," as in independent claim 5. In fact, since they are used for changing the course of the Kawasaki rocket in flight (translation, page 1), acting in the manner required in claims 1

and 5 would be contra to the objectives of the invention disclosed in the reference because it would cause the rocket flight to be aborted rather than the rocket to be steered to another course.

This rejection of claims 1-14 is not sustained.

CONCLUSION

None of the standing rejections is sustained.

The decision of the examiner is reversed.

NEAL E. ABRAMS	)
Administrative Patent Judge	)
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	) BOARD OF PATENT
JOHN P. McQUADE	) APPEALS AND
Administrative Patent Judge	) INTERFERENCES

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