

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* STEVEN G. LISA and LOUIS J. HOFFMAN

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Appeal 2007-0814  
Application 10/243,417  
Technology Center 3600

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Decided: April 30, 2007

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Before ANITA PELLMAN GROSS, ROBERT E. NAPPI, and  
LINDA E. HORNER, *Administrative Patent Judges*.

HORNER, *Administrative Patent Judge*.

DECISION ON APPEAL

## STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134 of the Examiner's final rejection of claims 1-16, all of the claims now pending the present application.<sup>1</sup> We have jurisdiction under 35 U.S.C. § 6(b) (2002).

## SUMMARY OF DECISION

We AFFIRM-IN-PART.

## THE INVENTION

Appellants' claimed invention relates to a passive aerial protection system. More specifically, the claimed invention is directed to a defense system for passively protecting a facility against aerial incursion of aircraft. Claim 1, reproduced below, is representative of the subject matter on appeal.

1. A defense system to protect a facility against aerial incursion, the facility (i) extending above ground level, (ii) occupying an area of terrain, and (iii) having at least some portion exposed to a substantially horizontal flight path of an aircraft, the defense system comprising:

(a) a multitude of vertical support masts, each mast extending from ground level to a height at least substantially equal to the exposed portion of the facility, the masts located along a perimeter at least partially surrounding the area of terrain that is occupied by the facility; and

(b) a plurality of cable groups that each include a multitude of cables, wherein for each group, a plurality of cables are coupled to and substantially coplanar with an adjacent pair of the support masts;

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<sup>1</sup> Claims 17-20 have been withdrawn from consideration pursuant to a restriction requirement.

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(c) wherein the cables of each cable group form a pattern that will disruptively intercept any substantially horizontal flight path of an aircraft toward the exposed portion of the facility.

### THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

Schultz	US 2,465,936	Mar. 29, 1949
Crisp, Sr.	US 4,979,817	Dec. 25, 1990

The following rejections are before us for review.

1. Claims 1, 3-5, 10-12, and 14-16 stand rejected under 35 U.S.C. §102(b) as anticipated by Schultz (Answer 3).
2. Claims 1, 5-7, 10, and 16 stand rejected under 35 U.S.C. §102(b) as anticipated by Crisp (Answer 3-4).
3. Claims 2 and 13 stand rejected under 35 U.S.C. §103(a) as unpatentable over Schultz (Answer 4 and 6).
4. Claim 6 stands rejected under 35 U.S.C. §103(a) as unpatentable over Schultz in view of Crisp (Answer 5).
5. Claims 8 and 9 stand rejected under 35 U.S.C. §103(a) as unpatentable over Crisp (Answer 5-6).

### ISSUES

Appellants contend that the Examiner erred in rejecting the claims as anticipated by or obvious in view of Schultz, because Schultz fails to disclose or

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suggest each and every claimed element. Appellants further contend that the Examiner erred in rejecting the claims as anticipated by or obvious in view of Crisp because Crisp fails to disclose or suggest each and every claimed element. More specifically, Appellants contend that Schultz and Crisp do not disclose a defense system that includes: masts located along a perimeter partially surrounding an area of terrain occupied by a facility that extend from ground level to a height substantially equal to an exposed portion of the facility and cables horizontally spaced such that they restrain an aircraft (claim 1) (Br. 5-6); at least one cable group movably coupled to adjacent masts so that the cable group may be selectively raised and lowered (claim 12) (Br. 9); masts that may be selectively raised and lowered (claim 15) (Br. 9); a plurality of ground-level cables forming a grid more densely spaced than the spacing formed by the remainder of the cable groups (claim 13) (Br. 10); masts that extend to a height above the height of the exposed portion of the facility (claim 4) (Br. 10); cables in each group spaced between 15 and 150 feet apart (claim 2) (Br. 11); at least one partially buried concrete anchor disposed between an adjacent pair of support masts wherein a plurality of the cables are fastened both to the concrete anchor and one of the adjacent pair of masts (claim 7) (Br. 11-12); a concrete anchor shorter than the masts and the cables fastened between the masts and concrete anchor run at an acute angle relative to the mast (claim 8) (Br. 12).

The Examiner contends that Schultz and Crisp disclose or suggest each of the claimed structural limitations, and are suitable for use in protecting a facility from aerial incursion.

The issues before us are:

- (1) Whether Appellants have shown that the Examiner erred in finding Schultz discloses a defense system as recited in claims 1, 3-5, 10-12, and 14-16 and teaches or suggests the defense system recited in claims 2 and 13.
- (2) Whether Appellants have shown that the Examiner erred in finding Crisp discloses a defense system as recited in claims 1, 5-7, 10, and 16 and teaches or suggests the defense system recited in claims 8 and 9.
- (3) Whether Appellants have shown that the Examiner erred in finding that Schultz and Crisp, when combined, would have led one having ordinary skill in the art to the combination of claim 6.

#### FINDINGS OF FACT

We find the following facts by a preponderance of the evidence:

1. Schultz discloses a shock absorbing device for decelerating both small and large objects which may be moving at relatively high velocities (Schultz, col. 1, ll. 1-3).
2. Schultz's shock absorbing device is generally composed of a plurality of horizontal and vertical plies which are supported by posts (Schultz, col. 2, ll. 35-40).
3. The plies may be securely attached to each post or alternate posts depending upon the distance between the posts, the diameter of the plies,

- the force of the contemplated impact, and the nature of the material of which the plies are constructed (Schultz, col. 3, ll. 64-70).
4. The ability of the barrier or net to absorb the shock incident to stopping or decelerating an object resides in the physical properties of the material from which all or some of the plies of the barrier/net are constructed (Schultz, col. 4, ll. 13-18).
  5. The height of the barrier is determined based on the nature of the object to be decelerated or stopped (Schultz, col. 3, ll. 20-24).
  6. Schultz teaches that the barrier may be utilized to prevent an aircraft from crashing over the edge of a field; to prevent automobiles from running off the road at dangerous locations; and to protect individuals engaged in hazardous occupations from falls (Schultz, col. 1, ll. 51-52, col. 3, ll. 60-61, and col. 4, ll. 1-5). Schultz does not disclose that the safety barrier is utilized to defend a facility.
  7. Crisp discloses a high strength security fence for resisting penetration by vehicles. The fence includes a snare means for snaring or immobilizing an intruding vehicle upon impact. (Crisp, col. 2, ll. 12-14).
  8. An aircraft is a vehicle.
  9. The snare means includes a plurality of high strength cables encased in a conduit or sheath and supported at selected points by a plurality of posts. The plurality of posts includes one or more post superstructures, referred to as super posts (Crisp, col. 2, ll. 15-25).

10. The fence takes on any contour required to enclose a specific area to be protected (Crisp, col. 2, ll. 59-62).
11. Typically the line posts extend approximately four (4) feet above ground level, and are securely anchored below ground in a vertical orientation using concrete or a like material (Crisp, col. 2, ll. 65-67 and col. 3, ll. 22-24).
12. The superstructure posts 14, 14' provide high strength terminations for cables 24, 24' and their enclosures 22, 22' (Crisp, col. 3, ll. 29-45).
13. The anchor means consists of passing the sheath and its corresponding cable through the super post 14 at a predetermined point, and bending them downwardly at an angle so that the sheath and cable terminate within the concrete anchor 28' used to secure an adjacent super post (Crisp, col. 3, ll. 36-42).
14. Thus, the cables are not fastened to both the post and the concrete anchors.
15. The flight path of an aircraft includes its path from its point of origin to its destination, including take-off and landing. During take-off, an aircraft is substantially horizontal to the ground.

#### PRINCIPLES OF LAW

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art

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reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 827 (1987).

“To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted) (internal quotation marks omitted).

The claim preamble must be read in the context of the entire claim. The determination of whether preamble recitations are structural limitations or mere statements of purpose or use “can be resolved only on review of the entirety of the [record] to gain an understanding of what the inventors actually invented and intended to encompass by the claim.” *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257, 9 USPQ2d 1962, 1966 (Fed. Cir. 1989). If the body of a claim fully and intrinsically sets forth all of the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention’s limitations, then the preamble is not considered a limitation and is of no significance to claim construction. *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999). *See also Rowe v. Dror*, 112 F.3d 473, 478, 42 USPQ2d 1550, 1553 (Fed. Cir. 1997) (“where a patentee defines a structurally complete invention in the claim body and uses the

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preamble only to state a purpose or intended use for the invention, the preamble is not a claim limitation”). Further, “[i]t is well settled that the recitation of a new intended use for an old product does not make a claim to that old product patentable.” *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997) (citations omitted) (anticipation rejection affirmed based on the Board’s factual finding that the reference dispenser (a spout disclosed as useful for purposes such as dispensing oil from an oil can) would be capable of dispensing popcorn in the manner set forth in appellant’s claim 1 (a dispensing top for dispensing popcorn in a specified manner)).

The examiner bears the initial burden of presenting a prima facie case of obviousness in rejecting claims under 35 U.S.C. § 103. *See In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993).

The Examiner can satisfy this burden by showing that some objective teaching in the prior art or knowledge generally available to one of ordinary skill in the art suggests the claimed subject matter. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

A prima facie case of obviousness is established by presenting evidence that would have led one of ordinary skill in the art to combine the relevant teachings of the references to arrive at the claimed invention. *See Id.* and *In re Lintner*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

To determine whether a prima facie case of obviousness has been established, we are guided by the factors set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), viz., (1) the scope and content of the

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prior art; (2) the differences between the prior art and the claims at issue; and (3) the level of ordinary skill in the art. In addition to our review of the *Graham* factors, we also consider “whether a person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem facing the inventor, would have been led to make the combination recited in the claims.” *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1337 (Fed. Cir. 2006). From this it may be determined whether the overall disclosures, teachings, and suggestions of the prior art, and the level of skill in the art – i.e., the understandings and knowledge of persons having ordinary skill in the art at the time of the invention-support the legal conclusion of obviousness. *Id.*

## ANALYSIS

### REJECTION OF CLAIMS 1, 3-5, 10-12, AND 14-16 UNDER 35 U.S.C. §102(B) AS ANTICIPATED BY SCHULTZ

Appellants argue claims 1, 3, 5, 6, 9, 10, 11, 14, and 16 as a first group. We consider claim 1 as the representative claim from this group. Claim 1, directed to a defense system for protecting a facility against aerial incursion, requires “a multitude of vertical support masts, each mast extending from ground level to a height at least substantially equal to the exposed portion of the facility, the masts located along a perimeter at least partially surrounding the area of terrain that is occupied by the facility,” and a plurality of cable groups “wherein the cables of each cable group form a pattern that will disruptively intercept any substantially horizontal flight path of an aircraft toward the exposed portion of the facility.”

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Furthermore, claim 1 requires that the facility to be protected (1) extends above ground level, (2) occupies an area of terrain, and (3) has at least some portion exposed to a substantially horizontal flight path of an aircraft. Appellants argue that Schultz does not anticipate claim 1 because Schultz fails to teach (1) each mast extends from ground level to a height at least substantially equal to an exposed portion of the facility, (2) the masts are located along a perimeter at least partially surrounding the area of terrain occupied by the facility, and (3) the cables of each cable group form a pattern that will intercept any substantially horizontal flight path of an aircraft toward the exposed portion of the facility (Appeal Br. 3-6). In response, the Examiner asserts that the structural limitations of claim 1 require a defense system comprising (1) vertical support masts that have vertical height, and (2) a plurality of cable groups, each group having cables coupled to and coplanar with an adjacent pair of support masts, where (3) the cables of each group form a pattern, all of which are met by Schultz (Answer 7). We disagree.

Although the Examiner is correct that a specific facility and airplane are not claimed, we disagree with the Examiner's assertion that the claimed references to the facility and flight path are merely intended use and do not provide any structural limitation. The preamble sets forth the minimum requirements for the facility and the body of the claim clearly references these minimum structural requirements in defining the structure of the defense system (i.e., height and position). Therefore, we find that the reference to the structural requirements of the facility and flight path provide, albeit broadly, structural limitations to the claimed defense system. Accordingly, we interpret the structural limitations, under

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their broadest reasonable interpretation in view of the Specification to require (1) a multitude of vertical support masts which extend above ground at some height equivalent to some exposed portion of a facility and are positioned such that they partially surround the area occupied by the exposed portion of the facility, and (2) a plurality of cable groups including a multitude of cables coupled to and coplanar with a pair of adjacent masts, where the cables form a pattern which would disrupt the horizontal flight path of an aircraft towards the exposed portion of the facility.

Schultz discloses a safety barrier or net for vehicles and/or falling objects that includes at least two posts and a plurality of cables. The posts of the barrier extend above ground a predetermined height, and the net forms a pattern designed to intercept the path of an aircraft (Finding of Fact 2-6). However, the posts of Schultz's barrier are not positioned along a perimeter at least partially surrounding an area occupied by a facility (Finding of Fact 5-6). To the contrary, Schultz's barrier is located so that it intercepts an object (i.e., an airplane, car, or person) to protect the *object* from destruction not a facility. As such, we do not sustain the Examiner's rejection of claim 1 or its dependent claims 3-5, 10-12, 14, and 15 under 35 U.S.C. §102(b) in view of Schultz.

Claim 16, also directed to a defense system for protecting a facility against aerial incursion, requires vertical masts positioned such that the cables therebetween substantially block the exposed portion of the facility. Schultz fails to teach positioning the masts of the barrier such that the cables therebetween would substantially block the exposed portion of a facility. As such, we do not

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sustain the Examiner's rejection of claim 16 under 35 U.S.C. §102(b) in view of Schultz.

REJECTION OF CLAIMS 1, 5-7, 10 AND 16 UNDER 35 U.S.C. §102(B) AS  
ANTICIPATED BY CRISP

As discussed *supra*, Claim 1 requires (1) a multitude of vertical support masts which extend above ground level at some height substantially equal to some portion of a facility exposed to a substantially horizontal flight path of an aircraft and are positioned such that they partially surround the area occupied by the facility, and (2) a plurality of cable groups including a multitude of cables coupled to and substantially coplanar with a pair of adjacent masts, where the cables form a pattern which would disrupt the horizontal flight path of an aircraft towards the exposed portion of the facility.

Crisp discloses a high strength security fence for snaring vehicles (Finding of Fact 7). The fence is positioned to enclose a specific area/facility to be protected and extends approximately four feet above ground level (Finding of Facts 10, 11). The fence includes cabling and support masts/posts of suitable strength to withstand the impact of high speed vehicular intrusion attempts (Finding of Facts 7, 9). Appellants argue that Crisp fails to disclose that "the fence extends at least as high as the embassy building" (Br. 7). However, claim 1 requires only that the masts extend "to a height at least substantially equal to the exposed portion of the facility," where "the exposed portion" is defined in the preamble to be "at least some portion exposed to a substantially horizontal flight

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path of an aircraft.” As such, claim 1 does not require the masts to extend to the height of the entire facility. Accordingly, the fence of Crisp satisfies the claimed height because the fence extends as high as *some portion* of the facility which it surrounds (i.e., a four foot height perimeter of the building). Appellants further assert that Crisp fails to disclose a fence capable of protecting “against horizontal *flight impacts*” (Br. 8). However, claim 1 requires only that the cables “disruptively intercept any substantially horizontal flight path of an aircraft toward the exposed portion of the facility.” As discussed, *supra*, the exposed portion of the building does not have to include the entire facility but some portion thereof. As a result the exposed portion as claimed includes an area of the facility which is one to four feet above ground level. The fence of Crisp satisfies the claimed interception as the fence would disrupt the flight path of an aircraft if aimed at a portion of the embassy which it surrounds (Finding of Fact 7-10). As such, we sustain the Examiner’s rejection of claims 1, 5, 6, 10, and 16 under 35 U.S.C. §102(b).

Appellants argue claim 7 as a separate group. Claim 7, which depends from independent claim 1, further requires at least one partially buried concrete anchor disposed between an adjacent pair of the support masts and wherein a plurality of the cables of a cable group are fastened both to the concrete anchor and to at least one of the adjacent pair of masts. Crisp discloses concrete anchors for vertically securing the line posts. However, the cables are not fastened to both the concrete anchor and at least one adjacent mast or post (Finding of Fact 13). We disagree with the Examiner’s finding that Crisp discloses cables fastened to the masts

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(Finding of Fact 14). As such, we do not sustain the Examiner's rejection of claim 7 under 35 U.S.C. §102(b).

REJECTION OF CLAIMS 2 AND 13 UNDER 35 U.S.C. §103(A)  
AS UNPATENTABLE OVER SCHULTZ

Appellants separately argue claim 2. Claim 2, which depends from representative claim 1, further requires that the cables of each group are spaced between 15 and 150 feet apart. Although we agree that the specified range for spacing between the cables appears to be nothing more than an optimizing result for an intended use, i.e., to stop a particular class of aircraft, the Examiner has not established a prima facie case of obviousness with regard to Schultz's failure to disclose each of the claimed elements discussed *supra*. Accordingly, we do not sustain the Examiner's rejection of claim 2 under 35 U.S.C. §103(a) in view of Schultz.

Appellants separately argue claim 13. Claim 13, which depends from claim 1, further requires a plurality of ground-level cables forming a grid more densely spaced than the remainder of cables within a cable group, wherein the grid may be selectively raised or lowered to intercept ground-based vehicles. The cabling of Schultz is permanently and securely anchored in concrete anchors (Finding of Fact 13). Thus, we disagree with the Examiner's finding that the cabling of Schultz may be selectively raised or lowered. Furthermore, the Examiner has not established a prima facie case of obviousness with regard to Schultz's failure to

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disclose each of the claimed elements discussed *supra*. As such, we do not sustain the Examiner's rejection of claim 13 under 35 U.S.C. §103(a) in view of Schultz.

REJECTION OF CLAIM 6 UNDER 35 U.S.C. §103(A) AS UNPATENTABLE  
OVER SCHULTZ IN VIEW OF CRISP

Claim 6, which depends from representative claim 1, further requires that the defense system includes a plurality of partially buried concrete base structures, wherein each of the support masts is embedded in a respective one of the base structures. Crisp teaches a plurality of partially buried concrete base structures, wherein each of the support masts is embedded in a respective one of the base structures (Finding of Fact 11).

In view of the above discussion, since Crisp teaches all of the limitations of claim 1 and a plurality of partially buried concrete base structures, as recited in claim 6, Schultz is merely cumulative for rejecting claim 6.<sup>[1]</sup> Accordingly, we sustain the Examiner's rejection of claim 6 under 35 U.S.C. §103(a).

REJECTION OF CLAIMS 8 AND 9 UNDER 35 U.S.C. §103(A) AS  
UNPATENTABLE OVER CRISP

Appellants did not separately argue claim 9. Therefore, we sustain the Examiner's rejection of claim 9 for substantially the same reasons as discussed *supra* for claim 1.

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<sup>[1]</sup> The Board may rely on less than all of the references applied by the Examiner in an obviousness rationale without designating it as a new ground of rejection. *In re Bush*, 296 F.2d 491, 496, 131 USPQ 263, 266-67 (CCPA 1961); *In re Boyer*, 363 F.2d 455, 458 n.2 150 USPQ 441, 444 n.2 (CCPA 1966).

Claim 8, which depends from claim 7, further requires that the cables is fastened between the mast and a concrete anchor run at an acute angle relative to the mast, and that the concrete anchor is shorter than the masts. We disagree with the Examiner's findings that the cables are fastened to the masts and run at acute angle with respect to the masts. As such, we do not sustain the Examiner's rejection of dependent claim 8 under 35 U.S.C. §103(a).

#### CONCLUSIONS OF LAW

We conclude:

- 1) The Examiner erred in rejecting claims 1, 3-5, 10-12, and 14-16 under 35 U.S.C. §102(b) as anticipated by Schultz.
- 2) Appellants have not shown that the Examiner erred in rejecting claims 1, 5, 6, 10, and 16 under 35 U.S.C. § 102(b) as anticipated by Crisp.
- 3) The Examiner erred in rejecting claim 7 under 35 U.S.C. § 102(b) as anticipated by Crisp.
- 4) The Examiner erred in rejecting claims 2 and 13 under 35 U.S.C. § 103(a) as unpatentable over Schultz.
- 5) Appellants have not shown that the Examiner erred in rejecting claim 6 under 35 U.S.C. § 103(a) as unpatentable over Schultz and Crisp.
- 6) The Examiner erred in rejecting claim 8 under 35 U.S.C. §103(a) as unpatentable over Crisp.
- 7) Appellants have not shown that the Examiner erred in rejecting claim 9 under 35 U.S.C. § 103(a) as unpatentable over Crisp.

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#### OTHER ISSUES

Attached to this decision we provide an article entitled "Barrage Balloons For Low-Level Air Defense" Maj. Franklin J. Hillson USAF, *Airpower Journal*, summer 1989, <http://www.airpower.maxwell.af.mil/airchronicles/apj/apj89/hillson.html>. The Examiner should consider whether the article's discussion of barrage balloons anticipates or renders obvious the invention as claimed.

#### DECISION

The Examiner's rejection of claims 1, 3-5, 10-12, and 14-16 as anticipated by Schultz is reversed, rejection of claims 1, 5, 6, 10, and 16 as anticipated by Crisp is sustained, rejection of claim 7 as anticipated by Crisp is reversed, rejection of claims 2 and 13 as unpatentable over Schultz is reversed, rejection of claim 6 as unpatentable over Schultz in view of Crisp is sustained, rejection of claim 8 as unpatentable over Crisp is reversed, and rejection of claim 9 as unpatentable over Crisp is sustained.

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) (2006).

AFFIRMED-IN-PART

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