

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(2) is not binding precedent of the Board.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. 11

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FRANK D. FREUDENTHAL
and EDWIN L. VOLLMER

Appeal No. 98-1530
Application 08/492,590¹

ON BRIEF

Before COHEN, ABRAMS, and FRANKFORT, Administrative Patent Judges.

ABRAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the decision of the examiner
finally rejecting claims 1-19, which constitute all of the

¹ Application for patent filed June 21, 1995.

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claims of record in the application. However, the examiner has indicated in the Answer that claims 11-13 and 19 would be allowable if rewritten in independent form. Therefore, claims 1-10 and 14-18 remain before us on appeal.

The appellants' invention is directed to an improvement to an aerial apparatus comprising a sheave and means for measuring the components of a load applied to the sheave. The subject matter before us on appeal is illustrated by reference to claim 1, which has been reproduced in an appendix to the Brief.

THE REFERENCES

The references relied upon by the examiner to support the final rejection are:

Habern et al. (Habern)	3,330,154	Jul. 11, 1967
Rigney et al. (Rigney)	3,826,321	Jul. 30, 1974
Kovács	4,566,341	Jan. 28, 1986
Schenck (German)	1 067 230 ²	Oct. 15, 1959

² PTO translation attached.

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THE REJECTIONS

The following rejections stand under 35 U.S.C. § 103:

- (1) Claims 1, 3-10 and 14-18 on the basis of Schenck in view of Habern.
- (2) Claims 1, 3-10 and 14-18 on the basis of Habern in view of Schenck.
- (3) Claim 2 on the basis of Habern in view of Schenck and Rigney.
- (4) Claims 1, 3, 7, 8, 14, 15 and 18 on the basis of Schenck in view of Kovacs.

The rejections are explained in the Examiner's Answer.

The arguments of the appellants in opposition to the positions taken by the examiner are set forth in the Brief and the Reply Brief.

OPINION

In reaching our decision on the issues raised in this appeal, we have carefully assessed the claims, the prior art applied against the claims, and the respective views of the examiner and the appellants as set forth in the Answer and the Briefs.

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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 **In re Keller**, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In establishing a *prima facie* case of obviousness, 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. See **Ex parte Clapp**, 227 USPQ 972, 973 (Bd. Pat. App. & Int. 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, 1439 (Fed. Cir.), *cert. denied*, 488 U.S. 825 (1988).

The claims before us are directed to an invention that comprises an aerial apparatus having a longitudinal axis, a sheave, and a winch line passing over the sheave. The three independent claims also require, as expressed in the language of claim 1,

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(1) means for measuring the components of the force applied to the sheave of the aerial apparatus in two mutually perpendicular directions which are fixed relative to the longitudinal axis of the apparatus, and

(2) winch line guide means for maintaining a portion of the winch line adjacent to the sheave at a known orientation relative to the longitudinal axis of the apparatus.

In the first of the rejections of the three independent claims, it is the examiner's position that all of the subject matter recited is disclosed by Schenck, except for the means for measuring the components of the force applied to the sheave in two mutually perpendicular directions, but this is taught by Habern and it would have been obvious to one of ordinary skill in the art to modify Schenck by replacing the disclosed single axis load measuring system with a dual axis one (Answer, page 4). Implicit in this rejection is that the examiner believes that the required winch line guide means also is disclosed by Schenck. We find this rejection to be fatally defective on two counts, as explained below.

First, in the Schenck system the load on the winch line is sensed by a load cell (11) against which a movable sheave (13) is pressed (translation, page 4; Figure 1). The load cell senses the force applied in but a single direction,

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rather than in two mutually perpendicular directions that are fixed relative to the longitudinal axis of the aerial apparatus, as is required by the claims. As far as Habern is concerned, the examiner has not pointed out with specificity, and we are at a loss to determine on our own, where the reference teaches using a dual axis load sensing device. In our view, Habern also utilizes a single axis system, and therefore does not cure the above-mentioned shortcoming in Schenck. However, even considering, *arguendo*, that the examiner's interpretation of Habern is correct, we fail to perceive any incentive in either reference which would have led one of ordinary skill in the art to replace Schenck's single axis system with a dual axis one, for Schenck solves the problem of determining the load on the wire regardless of the angle of the apparatus (translation, page 4; Figures 2A, B and C), and there appears to be no reason why one of ordinary skill in the art would consider that a dual axis system would be an improvement. Equally important is the fact that to make this change essentially would require that the entire Schenck invention be discarded, which in our view would operate as a disincentive to the proposed modification.

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Second, in the Schenck system the winch line passes over a first sheave (8) that is fixed upon the end of the aerial structure, and then over a second sheave (13) from which the load is suspended. Basic to the Schenck invention is that the second sheave be movable (on springs 12) with respect to the rest of the structure, including the other sheave, so that it can press upon a load sensor (11) with a force related to the weight on the winch line. The output of the load sensor is utilized to calculate the real load on the apparatus, either directly, as is the case in Figure 1, or indirectly, as is the case in Figures 2A, B and C. Because the second sheave is movable with respect to the first sheave, the winch line does not maintain "a known orientation relative to said longitudinal axis" of the aerial apparatus, as is required by the appellants' claims.

For the reasons explained above, the rejection of Schenck in view of Habern fails to establish a *prima facie* case of obviousness with regard to the subject matter of independent claims 1, 8 and 15, and we will not sustain this rejection of these claims or, it follows, of claims 3-7, 9, 10, 14 and 16-18, which depend therefrom.

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The second rejection of the three independent claims is based upon Habern in view of Schenck. The deficiencies in each of these references, individually, have been discussed above. In this rejection, the examiner's position is that, as to the three independent claims, Habern discloses all of the required subject matter except for specifying that the crane is "a typical crane having a vertically swinging boom" (Answer, page 5). The examiner also is of the view that Habern teaches maintaining a portion of the winch line in the specified known orientation by virtue of the fact that the reference discloses a grooved guide (214) in Figure 13 (Answer, page 5). In our opinion, this rejection also is fatally defective. The first reason for reaching this conclusion is that neither reference discloses means for measuring, in two mutually perpendicular directions, the components of a load attached to the sheave, a feature that is required in all of the claims. Second, even taking the examiner's statements regarding the Habern chain guide means at face value, we are not persuaded by the explanation offered by the examiner on page 6 of the Answer that suggestion exists for combining the references in the manner proposed or that,

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even if such is the case, the result would be the claimed structure. In this regard, Habern's "guide" is actually one part of a mechanism (the other part is a pawl) for preventing the chain from running out in the direction of the load and for measuring the load in a sensor that is installed therein. It is not clear how the examiner would interface the elements of the two references, or what suggestion the examiner finds for doing so. However, if this mechanism of Habern were used for its intended purpose in conjunction with the Schenck crane, it would have to be located downstream rather than upstream of the sheaves, and therefore could not function in the manner required by the claims.

Couching the rejection in terms of Habern in view of Schenck, rather than the opposite, does not alter our view that a *prima facie* case of obviousness is not established with regard to the subject matter of the three independent claims, and this rejection of claims 1, 3-10 and 14-18 is not sustained.

Claim 2 stands rejected as being unpatentable over Habern in view of Schenck and Rigney, the latter being cited for its disclosure of a digital screen for displaying the load

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information. Be that as it may, Rigney does not alleviate the deficiencies in the basic combination of references which are discussed above, and we will not sustain this rejection.

The third rejection of the three independent claims is on the basis of Schenck in view of Kovacs. The examiner's position is that Kovacs shows a dual axis load pin, and that it would have been obvious to install this in the Schenck crane system, thus rendering the claimed structure obvious. We do not agree. Initially, we point out that Schenck fails to disclose or teach the required winch line guide means, and this shortcoming is not overcome by adding the teachings of Kovacs. Also, we find no explicit teaching in Kovacs that the disclosed transducers are of the dual axis type, nor does that appear to be inherent in their operation. From our perspective, although the Kovacs transducers utilize several strain indicators, it appears to us that the force is sensed in a single direction, and not along two mutually perpendicular directions, as is set forth in the appellants' claims. In any event, as stated above, we are of the view that one of ordinary skill in the art would not have been motivated to replace the single axis load sensing system with

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a dual axis one, for that would necessitate a wholesale redesign of the Schenck invention.

For the reasons set forth in the preceding paragraph, it is our opinion that the combined teachings of Schenck and Kovacs fail to establish a *prima facie* case of obviousness with regard to the subject matter of claims 1, 3, 7, 8, 14, 15 and 18, and we will not sustain this rejection.

The mere fact that the prior art structure could be modified does not make such a modification obvious unless suggestion exists for doing so. See ***In re Gordon***, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. See ***In re Fritch***, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). In our view, suggestion for combining the references in the manner proposed by the examiner is found only in the hindsight accorded one who first viewed the appellants' disclosure.

SUMMARY

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None of the rejections are sustained.

The decision of the examiner is reversed.

REVERSED

	Irwin Charles Cohen)	
	Administrative Patent Judge)	
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	Neal E. Abrams)	BOARD OF
PATENT	Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
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)	
	Charles E. Frankfort)	
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