The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 50

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte ARUTHUR G. ZUEHLKE
and DAVID J. PECH

_____

Appeal No. 2003-1570
Application 08/748,986

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ON BRIEF

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Before FRANKFORT, STAAB, and MCQUADE, Administrative Patent Judges.

MCQUADE, Administrative Patent Judge.

DECISION ON APPEAL

Arthur G. Zuehlke et al. appeal from the final rejection (Paper No. 35) of claims 17 through 19 and 22 through 38, all of the claims pending in the application.[1]

This is the second appeal to this Board involving the instant application. In the first appeal (Appeal No. 1999-1772), a decision adverse to the appellants issued on December 7, 1999 (Paper No. 17).

[1] Claim 37 has been amended subsequent to final rejection.

THE INVENTION

The invention relates to a method of operating a liftcrane.

Representative claim 17 reads as follows:

17. A method of operating a liftcrane that has a boom, first and second hoisting mechanisms and a first rope and a second rope, comprising the steps of:

a) winding a first end of said first rope on the first hoisting mechanism;

b) winding a first end of said second rope on the second hoisting mechanism;

c) coupling a second end of said first rope to a second end of said second rope in a manner that transfers tension equally between said ropes;

d) operating the liftcrane to lift a load suspended from the boom and coupled to said first and second ropes by combined action of the first hoisting mechanism and the second hoisting mechanism wherein both the first and second hoisting mechanisms each lift a substantially equal part of the load and the first and second hoisting mechanisms together lift the entire load;

e) sensing the relative amount by which said first ends of said ropes are being taken up and sending a signal indicative of said sensing to a processor having a synchronization routine; and

f) adjusting operation of at least one of said hoisting mechanisms based upon said routine operating on said signal from said sensing.

THE PRIOR ART

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

Durand	3,575,300	Apr. 20, 1971
Maltby et al. (Maltby)	3,847,251	Nov. 12, 1974
Bayer	5,361,565	Nov. 8, 1994
Guerrero, British Patent Document	2 187 160 A	Sep. 3, 1987

Rudak et al., (Rudak) 943188 Jul. 15, 1982
Soviet Patent Document [2]

THE REJECTIONS

Claims 17, 22, 25, 26, 28 through 33 and 35 through 38 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Guerrero.

Claims 17, 25, 26, 28 through 30, 32, 33 and 35 through 38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Durand in view of Maltby.

Claims 17 through 19, 25, 26, 28, 30 through 33, 35, 37 and 38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Durand in view of Bayer.

Claims 22 through 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Durand in view of Bayer and Guerrero.

Claims 17 through 19, 22 through 28 and 30 through 38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rudak in view of Bayer.

Attention is directed to the appellants' main and reply briefs (Paper Nos. 41 and 43) and to the examiner's answer (Paper

[2] The record contains an English language translation of this reference submitted by the appellants (see Paper No. 12).

No. 42) for the respective positions of the appellants and the examiner regarding the merits of these rejections.[3]

DISCUSSION

I. The 35 U.S.C. § 102(b) rejection of claims 17, 22, 25, 26, 28 through 33 and 35 through 38 as being anticipated by Guerrero

Guerrero discloses a dual linear winch system which is described in the reference as follows:

> As shown in Figure 2, a dual linear winch system 10 includes a pair of [intermittent] linear winches 12 and 14 mounted on a bridge or support 16.
> Also mounted on bridge 16 is a power unit 18 which supplies the electrical and hydraulic power for linear winches 12 and 14.
> A dual linear winch system also includes a pair of storage reels 20 and 22 which store the cable 24 and 26 for linear winches 12 and 14 respectively. Cables 24 and 26 run through linear winches 12 and 14 and through pulley systems 28 and 30 which are in turn attached to substantially opposite ends of load 32 [page 1, lines 91 through 102].

To accomplish coordinated lifting of the load, the winches 12 and 14 include limit switches that sense the end of the travel stroke of each winch and communicate the sensing to a programmable controller 80 which ensures that the stroke cycles

[3] In the final rejection, claim 37 also stood rejected under 35 U.S.C. § 112, second paragraph, as being indefinite and claims 22, 24 through 26, 28 through 30, 32, 33 and 35 through 38 also stood rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,665,696 to Rosman. The examiner has since withdrawn both of these rejections (see the advisory action dated November 22, 2002, Paper No. 39, and page 2 in the answer).

of the winches commence simultaneously (see page 2, line 86 et seq.).

Anticipation is established only when a single prior art reference discloses, expressly or under principles of inherency, each and every element of a claimed invention. RCA Corp. v. Applied Digital Data Sys., Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984). In other words, there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. Scripps Clinic & Research Found. v. Genentech Inc., 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991).

Guerrero does not meet the limitations in independent claim 17, and the corresponding limitations in independent claims 22 and 25, requiring the first ends of the ropes to be wound on the hoisting mechanisms, the relative amount by which the ropes are taken up to be sensed and the operation of at least one of the hoisting mechanisms to be adjusted based on a processor routine operating in response to the sensing. Notwithstanding the examiner's findings to the contrary (see pages 3 and 5 in the answer), a person of ordinary skill in the art would not view Guerrero's cable storage reels 20 and 22, which perform no hoisting function, as constituting part of Guerrero's hoisting

mechanisms (linear winches 12 and 14) or Guerrero's limit switch and programmable control arrangement, which merely prevents new winch stroke cycles from starting until both winches are ready, as sensing the relative amount by which the ropes or cables 24 and 26 are taken up and adjusting the operation of at least one of the hoisting mechanisms based on a processor routine operating in response to the sensing.

Accordingly, we shall not sustain the standing 35 U.S.C. § 102(b) rejection of independent claims 17, 22 and 25, and dependent claims 26, 28 through 33 and 35 through 38, as being anticipated by Guerrero.

II. The 35 U.S.C. § 103(a) rejection of claims 17, 25, 26, 28 through 30, 32, 33 and 35 through 38 as being unpatentable over Durand in view of Maltby

Durand discloses a lifting crane (see Figure 3) comprising a tower 22, a jib 23, a hoist crossbar 17, a hoist carriage 20 which is translatable along the jib, two strictly synchronized winch drums 39a and 39b, two lifting cables 16a and 16b extending between the winches and the hoist bar, and a series of pulleys for guiding the cables. Durand states that "[t]o raise or lower a load, it suffices to rotate the two drums 39a-39[b], simultaneously at the same speed, to obtain an equal ascent or

equal descent of the two cables 16a-16b" (column 2, lines 62 through 64).

The examiner concedes that Durand does not meet the limitations in independent claims 17 and 25 requiring the relative amount by which the ropes are taken up to be sensed and the operation of at least one of the hoisting mechanisms to be adjusted based on a processor routine operating in response to the sensing. To overcome this deficiency, the examiner turns to Maltby.

Maltby discloses a pair of powered hoist arrangements 10 and 11 for lifting or lowering separate loads W. Each arrangement comprises a winch drum 12, a gas turbine 14 for driving the drum, a brake assembly 15, a cable 25 laid up on the drum in a single layer and a control apparatus 17, 18. A synchronizing circuit 180 connected to the control apparatuses is capable of reacting to differences in the rotation of the drums to reduce any tendency of the arrangements to lag or lead one another (see column 9, line 21 et seq.).

In proposing to combine Durand and Maltby, the examiner submits that "[i]t would have been obvious to one of ordinary skill in the art to modify the liftcrane of Durand by using an electronic processor [to] control the hoist drums, to accurately

synchronize the drums, as taught by Maltby" (answer, page 3). Maltby, however, does not teach or suggest an electronic processor, let alone an electronic processor having a routine for adjusting the operation of a hoisting mechanism in response to a sensed relative amount by which ropes or cables are taken up. Hence, Maltby does not cure the admitted shortcomings of Durand relative to the subject matter recited in independent claims 17 and 25.

Accordingly, we shall not sustain the standing 35 U.S.C. § 103(a) rejection of independent claims 17 and 25, and dependent claims 26, 28 through 30, 32, 33 and 35 through 38, as being unpatentable over Durand in view of Maltby.

III. The 35 U.S.C. § 103(a) rejection of claims 17 through 19, 25, 26, 28, 30 through 33, 35, 37 and 38 as being unpatentable over Durand in view of Bayer

In this rejection, the examiner relies on Bayer to overcome Durand's failure to meet the limitations in independent claims 17 and 25 requiring the relative amount by which the ropes are taken up to be sensed and the operation of at least one of the hoisting mechanisms to be adjusted based on a processor routine operating in response to the sensing.

Bayer discloses an elevating system for raising and lowering battens used to suspend lighting, scenery, drapery and other

equipment on a theatrical stage. Each batten 12 includes a plurality of winch assemblies 14 which are electrically interlocked by a control unit 16. The winch assemblies, which act on cables 36, comprise drive units 32 having synchronous motors 56 and overload/underload protection mechanisms 44 (see Figures 6 and 7) having overload and underload limit switches 158 and 160 which shut down all winch assemblies on the batten if tripped.

The examiner understands from Bayer's disclosure that "an overload or an underload condition would be one of the indicators of the 'relative' difference between loading or travel of the ropes" (answer, pages 5 and 6). Based on this understanding, the examiner concludes that it would have been obvious in view of Bayer's overload/underload protection mechanism "to modify the liftcrane of Durand by using sensors and an electronic processor to control the hoist drums, to accurately synchronize the drums" (answer, page 4).

Bayer's description of the overload/underload protection mechanism 44 (see column 11, line 33 et seq.), however, clearly belies the examiner's determination that an overload or underload condition is indicative of a relative difference between the travel of ropes or cables 36. In fact, the mechanisms 44 have

nothing to do with winch synchronization. Thus, Bayer would not have suggested modifying the method disclosed by Durand in the manner proposed by the examiner so as to arrive at the method recited in claims 17 and 25.

Consequently, we shall not sustain the standing 35 U.S.C. § 103(a) rejection of independent claims 17 and 25, and dependent claims 18, 19, 26, 28, 30 through 33, 35, 37 and 38, as being unpatentable over Durand in view of Bayer.

IV. The 35 U.S.C. § 103(a) rejection of claims 22 through 24 as being unpatentable over Durand in view of Bayer and Guerrero

Guerrero does not remedy the insufficiencies of the Durand and Bayer combination with respect to the limitations in independent claim 22 requiring the relative amount by which the ropes are taken up to be sensed and the operation of at least one of the hoisting mechanisms to be adjusted based on a processor routine operating in response to the sensing.

Therefore, we shall not sustain the standing 35 U.S.C. § 103(a) rejection of independent claim 22, and dependent claims 23 and 24, as being unpatentable over Durand in view of Bayer and Guerrero.

V. The 35 U.S.C. § 103(a) rejection of claims 17 through 19, 22 through 28 and 30 through 38 as being unpatentable over Rudak in view of Bayer

Rudak discloses a method of operating a liftcrane so as to change the inclination of its jib or boom 20. To this end, the liftcrane includes, inter alia, winding drums 1 and 2, cables 6 and 7 having first ends wound on a respective drum and second ends coupled to each other by a loop 5/stop 22, a series of blocks or pulleys 8 through 13 mounted respectively on the jib and crane substructure and over which the cables run, a series of terminal switches 23 through 27 for sensing movement of the loop 5/stop 22, and a mechanism for controlling the operation of the winding drums in response to the sensed movement of the loop 5/stop 22 (see pages 3 and 4 in the translation). As is evident from Figure 1, the movement of the loop 5/stop 22 is indicative of the relative amount by which the first ends of the cables 6 and 7 are taken up by the drums 1 and 2. The mechanism for controlling the operation of the winding drums in response to the sensed movement of the loop 5/stop 22 by the terminal switches halts operation of the winding drums if switches 24 and 27 are tripped, and includes a manually operated change-over switch 38 and push-buttons 37 for moving the loop 5/stop 22 back to its neutral position through rotation of one of the drums.

The examiner turns to Bayer to overcome the failure of Rudak to meet the limitations in independent claims 17, 22 and 25 requiring the operation of at least one of the hoisting mechanisms to be adjusted based on a processor routine operating in response the sensed relative amount by which the ropes are taken up. For the reasons specified above, however, Bayer falls short in this regard.

Hence, we shall not sustain the standing 35 U.S.C. § 103(a) rejection of independent claims 17, 22 and 25, and dependent claims 18, 19, 23, 24, 26 through 28 and 30 through 38, as being unpatentable over Rudak in view of Bayer.

SUMMARY

The decision of the examiner to reject claims 17 through 19 and 22 through 38 is reversed.

REVERSED

CHARLES E. FRANKFORT Administrative Patent Judge	)	
	)	BOARD OF PATENT
	)	APPEALS AND
LAWRENCE J. STAAB Administrative Patent Judge	)	INTERFERENCES
JOHN P. MCQUADE Administrative Patent Judge	)	

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