

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

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte ROBERT L. KOELZER

Appeal 2007-0605
Application 10/231,771¹
Technology Center 3700

Decided: April 25, 2007

Before: ANITA PELLMAN GROSS, JENNIFER D. BAHR, and STUART S. LEVY, *Administrative Patent Judges.*

LEVY, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF CASE

31 Appellant appeals under 35 U.S.C. § 134 (2002) from a final rejection
32 of claims 1 to 20. We have jurisdiction under 35 U.S.C. § 6(b) (2002).
33 An Oral Hearing was conducted on April 5, 2007.

¹ Application filed August 30, 2002. The real party in interest is Haldex Brake Corporation.

1 Appellant invented an unloading/venting valve having integrated
2 therewith a high-pressure protection valve (Specification 1). Claim 1 is
3 representative of the claimed invention and reads as follows:

4 1. An air system with a pressure reducing valve having a
5 discharge port in communication with the air system and a vent
6 comprising:

7 8 a valve body, said valve body biased to form a seal
9 between the discharge port and the vent;

10 11 a governor for monitoring the air pressure in the system,
12 said governor generating a signal when a first threshold
13 pressure within the system is reached;

14 15 wherein, said valve body is movable against the bias in
16 response to the signal generated by said governor, such that the
17 discharge port is in communication with the vent thereby
18 allowing air to escape from the system; and

19 20 wherein, in the case of a governor failure when said valve
21 body is not moved when the first threshold pressure within the
22 system is reached, said valve body is movable against the bias
23 in response to a second threshold pressure, greater than the first
24 threshold pressure, within the system being reached such that
25 the discharge port is in communication with the vent thereby
26 allowing air to escape from the system.

27 28 The Examiner rejected claims 1-3, 5-16, 18, and 20 under 35 U.S.C.
29 § 103(a) (2004) as being unpatentable over Daubenberger in view of known
30 air compressor systems.

31 32 The Examiner rejected claims 4, 17, and 19 under 35 U.S.C. § 103(a)
33 as being unpatentable over Daubenberger in view of known air compressor
systems and Compton.

1 The prior art relied upon by the Examiner in rejecting the claims on
2 appeal is:

3 Compton 2,700,397 Jan. 25, 1955

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5 Daubenberger 3,343,217 Sep. 26, 1967

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7 Appellant contends that the claimed subject matter would not have
8 been obvious. More specifically, with respect to claims 1-3, 5-16, 18, and
9 20, Appellant contends (Br. 8) that there is no teaching or suggestion in
10 Daubenberger that "a pressure force within chamber 38 will act directly on
11 the tapered pin 40 to effectuate the fluid passing through the central opening
12 under normal operation." Appellant further contends (*id.*) that in
13 Daubenberger, whether the system pressure is increasing or decreasing, the
14 system relies upon the pressure in the third chamber to regulate the system
15 pressure. Appellant further contends (Br. 9) that Daubenberger teaches
16 away from the present invention because tapered pin 40 provides a variable
17 orifice, depending on the position of the pin, and (Br. 9-10) that in
18 Daubenberger, pressure relief valve 27 will allow fluid to pass from pump
19 24 directly through line 28 back to reservoir 25, if the system pressure
20 exceeded a threshold. Appellant adds that in Daubenberger, if the system
21 pressure were relieved by pressure acting on tapered pin 40 alone, there
22 would be no reason for the pressure relief valve 27.

23 With respect to the rejection of claims 4, 17, and 19, Appellant
24 contends (Br. 12-13) that Compton fails to provide the elements missing
25 from Daubenberger and that Compton fails to suggest any motivation for the
26 modification of the operation of Daubenberger, as espoused by the

1 Examiner. The Examiner contends (Answer 3) that partition 36² of
2 Daubenberger meets the claimed vent port and that tapered pin 40 is biased
3 by a spring 42 to form a seal between the discharge port and the vent. The
4 Examiner additionally contends that control line 30 of Daubenberger is a
5 governor that monitors pressure in the system, and that if control line 30
6 became blocked or pinched off, pressure at a higher level in valve chamber
7 38 would move the valve body (tapered pin 40) against spring 42 to allow
8 fluid to escape from the system through vent 29 (Answer 3-4). In addition,
9 the Examiner takes Official Notice (Answer 6) that "air compressor systems
10 including a discharge bypass to the inlet, responsive to outlet pressure for the
11 purpose of limiting the discharge pressure are widely known and notoriously
12 old in the art." The Examiner is of the opinion (Answer 6-7) that it would
13 have been obvious to employ the valve element of figure 2 of Daubenberger
14 in an air compressor system for the purpose of controlling and limiting the
15 air pressure supplied in the air compressor system.

16 We reverse.

17

18 ISSUE

19 Has Appellant shown that the Examiner erred in holding that
20 Daubenberger and known compressors suggest the language of claim 1?
21 Has Appellant shown that the Examiner erred in holding that Compton
22 makes up for the deficiencies of Daubenberger with respect to claims 4, 17,
23 and 19?

² We presume the Examiner intended central opening 37 as responding to the vent port.

FINDINGS OF FACT

1. Appellant invented an unloading/venting valve having integrated therewith a high-pressure protection valve (Specification 1).
 2. The invention provides a high-pressure protection relief valve for an air compressor where the high pressure relief valve cannot fail due to isolation from the air system. (Specification 4).
 3. A governor monitors the air pressure in the system and generates a signal when a first threshold pressure within the system is reached. The valve body moves against a bias in response to the signal generated by the governor, such that the discharge port is in communication with a vent thereby allowing air to escape from the system. (Specification 5).
 4. In the case of failure of the governor resulting in the valve body not being moved when the first threshold pressure is reached, the valve body may be movable against the bias in response to a second threshold pressure. (*Id.*).
 5. Daubenger is directed to a press molding apparatus. (col. 1, l. 3).
 6. To maintain a constant closing force on the material as the mold parts on the plates are brought together by the press, it is necessary that the rate of closing the press varies in accordance with the resistance offered by the material. (col. 1, ll. 56-60).

- 1 7. A pressure controlled valve means includes a variable orifice the
- 2 size of which is automatically adjusted in response to the pressure
- 3 of fluid passed to hydraulic cylinders and pistons. (col. 2, ll. 54-
- 4 57).
- 5 8. Referring to figure 1, a pressure relief valve 27 is provided on
- 6 pump 24 so that if a predetermined pressure is exceeded fluid will
- 7 pass from pump 24 directly through line 28 back to reservoir 25.
- 8 The reservoir 25 is connected by line 29 to the pressure controlled
- 9 valve to receive fluid from the valve. (col. 3, ll. 52-60).
- 10 9. When it is desired to open the press, dump valve 35 is opened.
- 11 (col. 4, ll. 9-10).
- 12 10. Referring to figure 2, valve means 22 includes a valve body having
- 13 a partition 36 including a central opening 37. Partition 36 defines
- 14 first and second valve chambers 38 and 39. Tapered pin 40 is
- 15 positioned to extend into central opening 37. The taper of pin 40
- 16 varies the effective size of the opening to provide a variable orifice
- 17 depending upon the longitudinal position of the tapered pin.
- 18 Tapered pin 40 terminates at piston 41. Compression spring 42,
- 19 which may be adjusted by knob 31, exerts a biasing force on piston
- 20 41, tending to decrease the effective size of the opening. Piston 41
- 21 defines with a part of the valve body a third chamber 43 which is
- 22 in communication with the first chamber 38 by means of control
- 23 hydraulic line 30. (col. 4, ll. 19-35).

- 1 11. Hydraulic fluid passing to first chamber 38 will be communicated to
2 the forward side of piston 41 through control line 30. This pressure
3 tends to retract tapered pin 40 from central opening 37. (col. 4, ll.
4 36-40).
- 5 12. An increase in pressure will be immediately communicated through
6 control line 30 to third chamber 43 and thus cause the tapered pin 40
7 to retract slightly, which will increase the effective size of opening 37.
8 (col. 4, ll. 51-55).
- 9 13. Compton discloses an unloading solenoid valve 10, as illustrated in
10 figures 1 and 2. (Col. 1, ll. 46-50).
- 11 14. Compton discloses that upon energizing the solenoid, a venting
12 aperture is closed and pressure building up in the chamber urges the
13 spool valve to an open position in an extremely rapid fashion. (col. 1,
14 ll. 36-39).

PRINCIPLES OF LAW

17 To determine whether a prima facie case of obviousness has been
18 established, we are guided by the factors set forth in *Graham v. John Deere*
19 Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), *viz.*, (1) the scope and
20 content of the prior art; (2) the differences between the prior art and the
21 claims at issue; and (3) the level of ordinary skill in the art.

22 In addition to our review of the *Graham* factors, we also consider
23 whether a person of ordinary skill in the art, possessed with the
24 understandings and knowledge reflected in the prior art, and motivated by
25 the general problem facing the inventor, would have been led to make the
26 combination recited in the claims. *In re Kahn*, 441 F.3d 977, 988, 78

1 USPQ2d 1329, 1337 (Fed. Cir. 2006). “In considering motivation in the
2 obviousness analysis, the problem examined is not the specific problem
3 solved by the invention but the general problem that confronted the inventor
4 before the invention was made. *Kahn*, 441 F.3d at 988, 78 USPQ2d at 1336
5 (citations omitted).

6 ANALYSIS

7 We begin with the rejection of claims 1-3, 5-16, 18, and 20 under
8 35 U.S.C. § 103(a) as being unpatentable over Daubenberger in view of
9 known air compressor systems. We note at the outset that Appellant has
10 argued these claims as a group. Accordingly, we select claim 1 as
11 representative of the group. From Facts 7 and 10-12 we find a description of
12 the size of the opening 37 increasing and decreasing depending upon
13 movement of tapered pin 40. It is not clear from Daubenberger whether
14 opening 37 actually forms a seal with tapered pin 40, or whether the size of
15 the opening simply increases or decreases without a seal occurring.

16 In addition, claim 1 requires that the governor monitors air pressure in
17 the system. The control line 30 allows system pressure to pass through to
18 third chamber 43. We find no description of control line 30 monitoring
19 anything. Claim 1 additionally requires a vent that allows air to escape from
20 the system. From fact 8, we find that line 29 of Daubenberger is a return
21 line to reservoir 25. Since the system of Daubenberger is a closed system,
22 fluid in line 29 does not meet the claim language of allowing of air to escape
23 from the system.

1 Moreover, we find no description in Daubenberger of pressure
2 buildup in the system due to a governor failure causing the pressure on
3 chamber 38 to cause tapered pin 40 to move backward against the bias of the
4 spring 42. Rather, we find that due to the small size of the taper, and the
5 presence of pressure relief valve 27 (fact 8), if the pressure built up in
6 chamber 38 due to a clog or pinching of control line 30, pressure relief valve
7 27 would open and release the pressure in the system. Accordingly, we find
8 that even if we modified valve 22 of Daubenberger to operate in an air
9 compressor environment, as advanced by the Examiner, the resultant
10 structure would fall short of the invention set forth in claim 1. It follows that
11 we cannot sustain the rejection of claim 1 under 35 U.S.C. § 103(a). In
12 addition, because independent claims 10, 11, and 18-20 contain similar
13 limitations, we cannot sustain the rejection of these claims, or of dependent
14 claims 2, 3, 5-9, and 12-16.

15 We turn next to the rejection of claims 4, 17, and 19 under
16 35 U.S.C. § 103(a) as being unpatentable over Daubenberger in view of
17 known air compressor systems and Compton. We reverse the rejection of
18 these claims because Compton fails to make up for the basic deficiencies of
19 Daubenberger and known air compressors.

20

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1 CONCLUSION OF LAW

2 On the record before us, we find that Appellant has shown that the
3 Examiner erred in rejecting claims 1-20 under 35 U.S.C. § 103(a).

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5 DECISION

6 The Examiner's rejection of claims 1-20 is Reversed.

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8 REVERSED

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12 vsh

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