# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE PATENT TRIAL AND APPEAL BOARD

American National Manufacturing Inc., Petitioner

v.

Select Comfort Corporation, Patent Owner

Patent No. 5,904,172 Filing Date: July 28, 1997 Issue Date: May 18, 1999

Title: VALVE ENCLOSURE ASSEMBLY

OPENING EXPERT REPORT OF DR. ROBERT GIACHETTI IN SUPPORT OF
PETITIONER AMERICAN NATIONAL MANUFACTURING, INC.'S PETITION
FOR INTER PARTES REVIEW OF U.S. PATENT 5,904,172

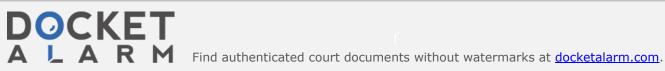


### TABLE OF CONTENTS

I.	BRIE	BRIEF STATEMENT OF QUALIFICATIONS			
II.	I HAVE BEEN ADEQUATELY AND ACCURATELY INSTRUCTED ON THE LAW OF CLAIM INTERPRETATION, ANTICIPATION, AND OBVIOUSNESS				
		a.) Anticipation	7		
		b.) Obviousness	9		
III.	BAC	KGROUND OF THE '172 INVENTION	13		
IV.	I HAVE DETERMINED THE APPROPRIATE LEVEL OF SKILL				
V.	I HAVE INTERPRETED GIFFT '172 PATENT CLAIM TERMS 'FLUIDLY COUPLED', 'PRESSURE MONITOR MEANS', 'SNAP-FIT', 'MONITORING THE PRESSURE'				
VI.	THE	ASSERTED PATENT, U.S PATENT NO. 5,904,172 (GIFFT '172)	30		
VII.	CLAIMS 2, 9, 12, 22 AND 23 OF GIFFT '172 ARE ANTICIPATED BY SHAFER, A PRIOR ART PATENT				
	A.	Overview of WO 96/13947: "Improved Air Control System For An Air Bed"	33		
	B.	Analysis of Gifft Claims 2, 12, 22, and 23 In View Of Shafer:	35		
VIII.	CLAIMS 3 AND 13 OBVIOUS OVER SHAFER IN VIEW OF CAMMACK, A PRIOR ART PATENT				
	A.	Overview of U.S. Patent 4,309,783: "Adjustably Conformable Bed"	60		
	B.	Motivation to Combine Shafer and Cammack	61		
	C.	Analysis of Gifft '172 Claims 3 and 13 in View of Shafer and Cammack	62		
IX.	CLAIMS 4, 11, 14, AND 19 ARE OBVIOUS OVER SHAFER IN VIEW OF DUNHAM, A PRIOR ART PATENT				
	A.	Overview of U.S. Patent 3,155,991, "Mattress With Pump and Method For Forming Same"	67		
	B.	Motivation to Combine Shafer and Dunham	68		
	C.	Analysis of Claims 4, 11, 14 and 19 In View Of Shafer and Dunham:	69		
X.	CLAIMS 4, 5, 11, 14, AND 15 ARE OBVIOUS OVER SHAFER IN VIEW OF RAMACIER, A PRIOR ART PATENT				
	A.	Overview of U.S. Patent 4,494,074: "Quick Connection Coupling			



		Valve Assembly"	86	
	B.	Motivation to Combine Shafer and Ramacier	87	
	C.	Analysis of Gifft '172 Claims 4, 5, 11, 14, and 15 in View of Shafer and Ramacier	90	
XI.	CLAIMS 6, 7, 8, 16, 17, 18, 20, 21, 24 AND 25 ARE OBVIOUS OVER SHAFER IN VIEW OF GRANT, A PRIOR ART PATENT			
	A.	Overview of U.S. Patent 5,353,838: "Pressurized Diaphragm Pump and Directional Flow Controller Therefor"	104	
	B.	Motivation to Combine Shafer and Grant	105	
	C.	Analysis of Gifft '172 Claims 6, 7, 8, 16, 17, 18, 20, 21, 24 and 25 in View of Shafer and Grant	108	
XII.	CLAIMS 2, 6, 12, 16, 20, 24 ARE ANTICIPATED BY VRZALIK, A PRIOR ART PATENT			
	A.	Overview of U.S. Patent 5,044,029: "Alternating Pressure Low Air Loss Bed"	123	
	B.	Analysis of Gifft Claims 2, 6, 12, 16, 20, and 24 In View Of Vrzalik:	125	
XIII.	CLAIM 22 IS OBVIOUS OVER SHAFER IN VIEW OF VRZALIK			
	A.	Motivation to Combine Shafer and Vrzalik	151	
	B.	Analysis of Gifft Claim 22 in View of Shafer and Vrzalik	152	
XIV.	CLAIMS 2 AND 9 ARE OBVIOUS OVER SHAFER IN VIEW OF KASHIWAMURA, A PRIOR ART PATENT			
	A.	Overview of U.S. Patent 4,655,505: "Pneumatically Controlled Seat for Vehicle"	153	
	B.	Motivation to Combine Shafer and Kashiwamura	155	
	C.	Analysis of Gifft Claims 2 and 9 In View Of Shafer and Kashiwamura:	156	
XV.	CLAIMS 4 AND 19 ARE OBVIOUS OVER SHAFER IN VIEW OF KASHIWAMURA AND DUNHAM			
	A.	Analysis of Gifft Claims 4 and 19 In View Of Shafer, Kashiwamura, and Dunham:	163	
XVI.	CLAIMS 6 AND 20 ARE OBVIOUS OVER SHAFER IN VIEW OF KASHIWAMURA AND GRANT			
	A.	Analysis of Claims 6 and 20 in Light of Shafer, Kashiwamura, and Grant	170	
XVII.	CLAIM 12 IS OBVIOUS OVER SHAFER IN VIEW OF DYE			
	A. Overview of U.S. Patent 5.383.894: "Compression Device Having			



		Stepper Motor Controlled Valves"	175
	B.	Motivation to Combine Shafer and Dye	176
	C.	Analysis of Claim 12 in View of Shafer and Dye	176
XVIII.		MS 11 AND 14 ARE OBVIOUS OVER SHAFER IN VIEW OF AND DUNHAM	180
	A.	Analysis of Claims 11 and 14 in View of Shafer, Dye, and Dunham	180
XIX.		M 16 IS OBVIOUS OVER SHAFER IN VIEW OF DYE AND T	185
	A.	Analysis of Claim 16 in View of Shafer, Dye, and Dunham	185
XX.	CONC	LUSION	187
XXI.	APPEN	NDIX A: U.S. PATENT NO. 5,904,172 CLAIM LISTING	188
XXII	APPEN	NDIX B. U.S. PATENT NO. 5 904 172 INVALIDITY GROUNDS	201



#### I. BRIEF STATEMENT OF QUALIFICATIONS

- 1. I am a Licensed Professional Engineer in Illinois and Oklahoma, with over 10 years of experience in mechanical engineering. My experience in machinery and mechanisms spans numerous industries; I have worked directly designing mechanical systems and machinery and have consulted on the operation of machinery in various fields including rail, hydraulic equipment, hydraulic cylinders, and industrial machinery.
- 2. I am currently employed by Exponent, Inc. as a Senior Managing Engineer. I joined Exponent in June 2008 after graduating from the University of Wisconsin-Madison and University of Illinois at Chicago where I achieved a Ph.D. in mechanical engineering and a master's in mechanical engineering, respectively. My graduate studies involved advanced coursework in in fluid dynamics and controls.
- 3. My responsibilities with Exponent include engineering consulting and testing with respect to consumer product design and machinery design, product and machinery performance, accident reconstruction, and failure analysis. As part of these studies I use standardized tests and I also design and develop custom testing methods and devices. As an example, this work has involved the development of a hydraulic test bed and computer control system that was used to fill and relieve flexible/expandable client devices using pumps, computer controlled solenoid



# DOCKET

# Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## **Real-Time Litigation Alerts**



Keep your litigation team up-to-date with **real-time** alerts and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

#### **Advanced Docket Research**



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

### **Analytics At Your Fingertips**



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

#### API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

#### **LAW FIRMS**

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

#### **FINANCIAL INSTITUTIONS**

Litigation and bankruptcy checks for companies and debtors.

#### **E-DISCOVERY AND LEGAL VENDORS**

Sync your system to PACER to automate legal marketing.

