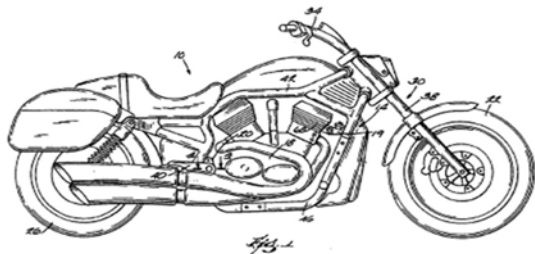


MICHAEL BEST & FRIEDRICH LLP

(12) **United States Patent**
Dennert et al. (10) Patent No.: **US 6,846,018 B2**
(45) Date of Patent: **Jan. 25, 2005**

(54) **MOTORCYCLE FRAME HAVING REMOVABLE PORTION**
(75) Inventors: Robert L. Dennert, Waukesha, WI (US); R. Bruce Dennert, Milwaukee, WI (US); Paul Lehr, Waukesha, WI (US); Michael W. Hamann, Pewaukee, WI (US)
(73) Assignee: Harley-Davidson Motor Company Group, Inc., Milwaukee, WI (US)
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
(21) Appl. No.: 10/159,443
(22) Filed: May 31, 2002
(65) Prior Publication Data US 2003/022425 A1 Dec. 4, 2003
(51) Int. Cl.⁷ B62H 1/00
(52) U.S. Cl. 280/785; 280/781; 280/291; 180/219
(58) Field of Search 280/287, 278, 280/299, 302, 274, 281.1, 781, 785, 291; 180/311, 219
(56) References Cited U.S. PATENT DOCUMENTS 3,945,463 A * 3/1976 Okano et al. 1845.13 4,461,366 A * 7/1984 Honda 180/229 4,650,854 A * 4/1987 Suzuki et al. 280/782 4,805,716 A * 2/1989 Turawa et al. 180/219 5,248,012 A 9/1993 Kawasaki et al. 5,284,221 A * 2/1994 Warner 180/219 5,577,776 A * 1/1995 Saito 180/219 5,704,442 A * 1/1998 Okazaki et al. 180/219 5,845,228 A * 12/1998 Itoh et al. 180/219 5,921,339 A * 2/1999 Matsuno 180/219 6,446,996 B1 * 9/2002 Ileri 280/281.1
* cited by examiner
Primary Examiner—Lesley D. Morris
Assistant Examiner—Tony Winner
(74) Attorney, Agent, or Firm—Michael Best & Friedrich, LLP
(57) **ABSTRACT**
A motorcycle frame including a base portion and a removable portion that both bear operating loads of the motorcycle. The removable portion and base portion are fastened together at a joint comprising a first end cap having a protrusion, a second end cap having a recess, and a fastener having a fastener axis and extending through the first and second end caps. The protrusion and the recess are characterized by angled walls oriented at an acute angle with respect to the fastener axis. The angled wall engagement of the end caps ensures that substantially all shear loads in the joint are borne by the end caps and not by the fastener. The motorcycle frame position can be changed by replacing the removable portion with a second removable portion having a fastener mounting structure at a different location than the removable portion.
19 Claims, 6 Drawing Sheets



JANUARY MEETING

Thursday, 19-Jan-2006



Meeting Location:
MSOE – Todd Wehr Center
Downtown Milwaukee
1025 N. Broadway
Milwaukee, WI 53202-3109

- - - **EVENT AGENDA** - - -

Registration / Social:	5:00pm
Dinner:	5:45pm
Program:	6:30 - 8:00pm

- - - **DINNER** - - -

MENU:
Please select one - CHICKEN or PORK will be served for dinner. Vegetable, rolls and butter, dessert, and beverages will be included.

DINNER PRICES:

SAE Members / Spouses:	\$20.00
Retirees:	\$15.00
Guests / Non-members:	\$25.00
Students w/ID	\$10.00

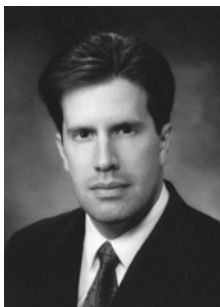
PROGRAM TOPIC:
“Legal Protection of Technology and Other Intellectual Property”

- ◆ **Chris Austin, a partner at Michael Best & Friedrich LLP, will shed light on legal protection for intellectual property – it’s good to know more!**
- ◆ **Achieve an important business goal by learning how to protect your intellectual property**
- ◆ **Bring your Q&A questions**
- ◆ **NEW! – Inform us of your wheelchair needs on the SAE registration line**

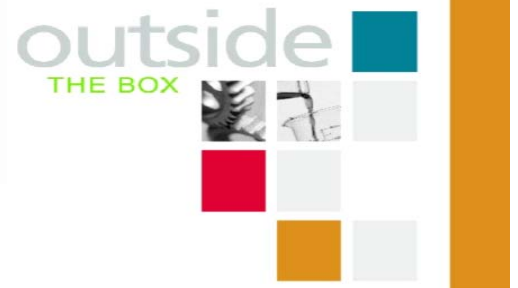
Registration:
Dinner reservations must be received the week before the event. Only pre-payments made with a **charge card** can be completed online via <http://milwaukee.sae.org>.
Pay-at-the-door registrations are email: milw-sae@wi.rr.com or by phone on the SAE Registration Line (414-687-3032). Please be thorough. “No-shows” with reservations will be billed. 50-Year members entitled to 1 annual free dinner.
Registration deadline: 10pm – January 15th, 2006



Downtown Milwaukee Map:
<< January 19th meeting >>
Todd Wehr Conf. Center
MSOE Campus
1025 N. Broadway
Milwaukee, WI 53202-3109



MICHAEL BEST
& FRIEDRICH LLP



Tonight's Speaker: **Chris Austin** is a partner at Michael Best & Friedrich and focuses his practice on intellectual property with an emphasis on domestic and international patent matters that relate to mechanical, electro-mechanical, materials science, software, and business method technologies. Chris helps clients acquire and enforce United States and foreign trademark rights, copyrights and trade secrets. He negotiates intellectual property licenses and technology transfers and prepares patentability and non-infringement opinions. Chris works to apply strategic planning to intellectual property protection, helping his clients to achieve their business goals.

Professional Activities

- Member, American Bar Association
- Member, Milwaukee Bar Association
- Chairman, Society of Manufacturing Engineers, Milwaukee Chapter, 2004
- Member, Technical Association of the Pulp and Paper Industry

Admissions

- Wisconsin, 1996
- U.S. District Court for the Eastern District of Wisconsin
- U.S. Patent & Trademark Office

Education

- Marquette University Law School (J.D. 1996)
- Northwestern University Technological Institute (B.S.M.E. 1991)

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- Chairman's Note -

Happy New Year SAE friends! We've got a lot more left to do in our 2005-2006 section's season. We have planned all of our meetings and events for this season, so grab your new 2006 planner and pen in dates of the *UPCOMING EVENTS* shown in this newsletter.

Our section would like to thank Poclair Hydraulics (Sturtevant, WI) for hosting our November meeting. The tours were well organized and our Board received many complements about the quality of the tour as well as the technical presentations that followed. I now know how a high torque cam-lobe motor is built and how it functions in each of its intended applications. Poclair Hydraulics' hydrostatic transmissions, pumps, computerized control systems, and intelligent transmission products serve their mobile machinery applications well. To use our host's words, "Our products drive innovation." Our Milwaukee Section also would like to thank Poclair for a generous financial contribution towards hosting this meeting. This kind support allows us to better serve our members as well as our student member needs. If you enjoy fluid motion and hydraulics, please check out their website for job offerings and further information regarding their products and applications at www.poclair-hydraulics.com.

We need much support for the 2006 SAE Midwest Mini Baja® event which will take place May 24-26, 2006. Look at the last page of this newsletter for a description of this student competition and some event details. It is our section's responsibility to host this event this year and we are looking for corporate support from our section to help make this event a success. I encourage you to contact Glenn Bower at 608-263-7252, or call me at 262-636-1362 for detail on where we need your help. For example, there are few good curves that need a corporate sponsor's name attached to them. Other information can be found at www.baja.wisc.edu.

In addition to our spring Baja event, we have begun to look north to Houghton, MI for the Clean Snowmobile Challenge™. This event will be held March 13-18, 2006. This week long event will feature an intercollegiate engineering design competition for engineering students tasked with reengineering an existing snowmobile for improved emissions and lower audible noise while maintaining performance with cost effective solutions. This will be the first year that battery powered sleds will have their own category. Please contact Jay Meldrum, Director at Keweenaw Research Center, at 906-487-3178 or Pat Schoepel at 262-636-1200 for any questions you may have. A number of our section members will be driving north to enjoy this event as well as attend a section meeting with Lotus Engineering on March 18th. Lotus Engineering will be providing a technical presentation for members on hand during this event. Call Pat Schoepel for car pool details.

I would like to congratulate one of our section's student members on his efforts in 2005. Jim has been selected to participate in the first SAE Leadership Development Program for SAE's younger members under the SAE Power Track program to be held at our leadership seminar in Arizona this January. Jim was selected to participate in the program by exhibiting outstanding leadership skills while maintaining involvement in our section.

Please continue to check our website at www.saemilwaukee.org. Drop us an email and provide us with input. I'll see you at the Patent presentation on January 19th.

Best regards,

Joe Sagat



2006 MINI BAJA



Mini Baja® consists of three regional competitions simulating real-world engineering design projects and challenges. Engineering students design and build an off-road vehicle that will survive the severe punishment of rough terrain.

The object of the competition is to provide SAE student members with a challenging project that involves the planning and manufacturing tasks found when introducing a new product to the consumer industrial market. Teams compete against one another to have their design accepted for manufacture by an imaginary firm. Students must function as a team to not only design, build, test, promote, and race a vehicle within the limits of the rules, but also to generate financial support for their project and manage their educational priorities.

Four Baja events are held in different regions of North America - East, Midwest, West and Mexico. The Milwaukee Section is privileged to host the Midwest event every other year. International SAE events are held in Korea, Brazil and South America. The Baja is a very popular student challenge. A number of students in high school have gotten involved in engineering because of these types of events and the college teams use this event to recruit engineering students as well. Events of this type breed winners and mold the hands of engineers that work in a team environment. Companies are encouraged to look hard at this event as an opportunity to recruit some of their best young engineers, and to make good use of advertising opportunities that foster corporate name recognition during the competition.

SAE Midwest Baja 2006 is hosted by SAE Milwaukee Section. The competition will occur at two sites this year - the MGA Research Corporation facility and the Walworth County Fairgrounds. We're very excited about the change in venue! The Baja Committee feels in 2006 we will better serve the event and our participants by using these locations. Please visit www.baja.wisc.edu for more information and contact Joe at 262-636-1362. Get caught up in the action!

- | | |
|------------------------------------|---|
| February 15 Meeting | (tour) MATC Diesel Engine Event – Milwaukee |
| March 13-18 Event | (trip) Clean Snowmobile Challenge 2006 – Houghton, MI |
| March 16 Meeting | Bruno Independent Living Aids – Waukesha |
| April 19 Meeting | SAE Student Night – UWM Milwaukee Campus |
| May 27 Family Night Meeting | 2006 Mini-Baja – Jefferson County Fairgrounds |

*Upcoming
Events*

Meeting Sponsorship

We wish to thank the following organizations for their continued support of the Milwaukee Section:

MICHAEL BEST
A FRIEDRICH LLP

Michael Best & Friedrich, LLP [Milwaukee]



Poclain Hydraulics, Inc [Sturtevant]



Harley-Davidson Motor Co [Milwaukee]

For more information on becoming a sponsor, please contact any Section Board member.

Keep current with us on these SAE web sites:

www.saemilwaukee.org for the Milwaukee Section or
the national site at www.sae.org

For more information on **A World In Motion** call: 724-772-8514, and ask for Darlene Geweth
email: awim@sae.org internet: www.sae.org/foundation/awim