

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Engineering Law

Professor Barich
Class 14



illinois.edu



Reminders

- Today –
 - Law and Engineering Career lecture
 - Questions about exam
 - Evaluations
 - Exam #3
 - No Final!

- TE450 – Startups: Incorporation, Funding, Contracts, and Intellectual Property
 - Spring 2019 – Fridays 10am-12:20pm



Societal Context of Law

- Torts – reflection of society’s belief about what duty of care we should reasonably have toward each other
- Contracts – reflection of society’s belief about the importance of keeping our word
- IP – reflection of the value society places on the creation of new art and innovation, as well as the importance of consumers not being deceived as to who is making their goods



Impact of Legal Systems

- Tort system – greater care for the safety of others
- Contracts – greater faith in dealings with others due to strong enforcement makes deals more likely
- IP – more art, more inventions, and greater consumer faith in their products.



Engineering In A Legal Context

- Typically, real-world engineering is performed as part of a multi-disciplinary team
- Need the ability to interface with and understand the concerns of:
 - Legal
 - Management
 - Sales/Marketing
 - Manufacturing, etc.



The Legal Framework

- Having a basic legal understanding helps you to more readily identify potential legal concerns and appreciate the legal limitations on how you can operate and design your product
 - Must watch out for tort liability
 - Thorough review of proposed contracts
 - May not be able to use your preferred design due to blocking patent
- Also gives you some idea of what you can do to safeguard your work to prevent others from copying it
 - Patents, copyrights, trademarks, etc.



Effective Communication - 1

- In addition to being able to identify potential concerns, you must be able to communicate them to your team so that they can be addressed
 - Have the courage to ask a question about patent infringement, when you think “Surely, these wise and experienced engineers have already thought of this?”
 - Be able to clearly convey your concern, including the relevant standard of infringement and potential damages – practice explaining it beforehand
 - Be honest about knowing when you have reached the limits of your knowledge, but know who in the company to direct your group’s inquiry to



Effective Communication - 2

- Meh – “Is there an IP issue with the product?”
 - Does not clearly convey concerns
 - Not even really sure what you are talking about
 - Does not provide path forward
- Better – “This device may be similar to X’s device. Have we taken a look to see if X has any patents with regard to this device? I can perform an initial search at the PTO – or we can ask Ann in legal. I even know a lawyer that we can call.”
- Presents the issue clearly and provides a potential way forward



Real-Life Example

- ISE Student - Summer Internship at John Deere
 - Student comes up with new tool for installing lock collars
 - Student took Engineering Law
 - Familiar with patents
 - Knows they have the responsibility to get things done
 - Takes initiative and contacts JD patent counsel herself
 - Result
 - Pending Patent Application
 - Dan Levensgood Excellence in Ergonomics Award
 - Illinois Innovation Prize
-  But! It may not have happened without knowledge, initiative, and communication!



US 20170050302A1

(19) **United States**

(12) **Patent Application Publication**
Borders et al.

(10) **Pub. No.: US 2017/0050302 A1**

(43) **Pub. Date: Feb. 23, 2017**

(54) **AIR HAMMER TOOL FOR INSTALLING
ECCENTRIC LOCKING COLLAR ON A
BEARING**

F16C 35/073 (2006.01)

B25B 13/48 (2006.01)

(52) **U.S. Cl.**

CPC *B25B 27/06* (2013.01); *B25B 13/48*
(2013.01); *B25B 21/02* (2013.01); *F16C*
35/073 (2013.01)

(71) Applicant: **Deere & Company**, Moline, IL (US)

(72) Inventors: **Andrew R. Borders**, Davenport, IA
(US); **Amy B. Doroff**, Highland Park,
IL (US)

(21) Appl. No.: **14/827,874**

(22) Filed: **Aug. 17, 2015**

Publication Classification

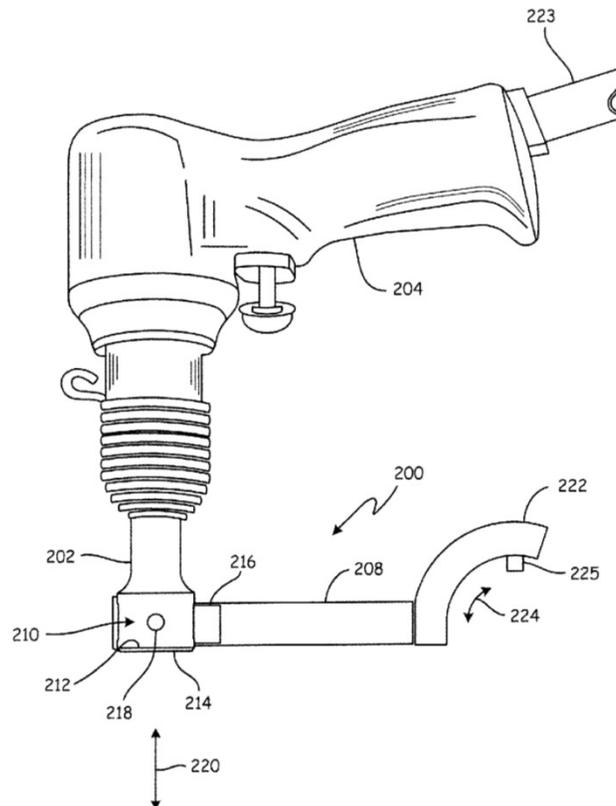
(51) **Int. Cl.**

B25B 27/06 (2006.01)

B25B 21/02 (2006.01)

(57) **ABSTRACT**

A tool for installing a locking collar on a bearing using an air hammer is provided. The tool includes a first portion having an air hammer coupling portion configured to couple to the air hammer. A torque arm is coupled to the first portion. A collar-engaging portion is coupled to the torque arm and is configured to couple to a locking collar to impart rotational impacts to the locking collar when the air hammer is actuated.



Need For Life-Long Learning -1

- We live in a continually changing world
 - Technology advances
 - Statutes, Agency rules, Case law changes
 - Technology moves first and laws take years to catch up
- 1980s - estimate of the “half-life” of an engineer’s technical skills (how long it takes for half of everything an engineer knew about field to become obsolete)
 - 7.5 years for mechanical engineers
 - 5 years for electrical engineers
 - 2.5 years for software engineers



Need For Life-Long Learning -2

- Best practice - seek out learning opportunities
 - New technologies and tools
 - New business and management skills
 - Changes in law impacting your work
 - YOU are responsible for your self-learning
 - Don't rely on your company to teach you what is best for you to know. Have a learning plan and act on it.
- Why is it important to keep learning?
 - Distinguish yourself (higher salary, stay employed)
 - High technical competence, specialized T/B/L knowledge
 - Maintain competency as aging
 - After a half-life, if your knowledge is not current, why not fire you and get a recent grad who is more current and cheaper?
 - Transition to management (whole new set of skills)
 - Watch out for new/changed legal pitfalls



Make A Positive Difference

- Your Mission: To advance technology to provide a better life for everyone
- Make a difference in your company
 - Pay attention not just to what you are told to do, but what you should really be actually doing as well
 - Don't just “work there”, take initiative
 - Stretch yourself and you will grow
- Make a difference in your country and the world
 - Think not only about “can we do it,” but also “should we do it” and “if we do it, how can we safeguard everyone's rights?” “How do we make it safe?”
 - Have the courage to take a stand



Some Practical Suggestions

- Document/Memorialize correctly
 - Document permissions, agreements, etc. basically anything that you want to be able to rely on later
 - Be careful what you put in e-mail. Later readers will not understand context/will take worst possible meaning
 - E-mail is forever – “front page of the Daily Illini”
- Don't be afraid to get help or admit you don't know something – it is not a failing or a lack
 - You are a genius, but everyone calls a plumber
 - Do not allow yourself to be misled, if something seems off, call for help to verify your rights
 - Dealing with unknowns – Identify and solve or delegate, don't just pretend they don't exist – SPEAK UP!
- Don't take advantage of other people



- Karma as a sociological phenomenon

Thanks!

- And so we have come to the end of the class ... but it is just the beginning of your career.
- Remember that you don't have to go it alone, you don't have to know everything – just know who you need to call and when!
- If you need a quick insight into a hypothetical situation, you can always give me a call
- Thanks for a great class!
- I wish you all the best in your bright and wonderful futures!



- Questions?

