

PROVISIONAL PATENT APPLICATIONS

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PURPOSE

Why?

Of Filing Your Provisional

- Meet Capstone Requirement!
- Patent rights are lost by
 - Publication / Public Disclosure (e.g., Capstone)
 - Offer for Sale
 - Exception - U.S. Rights - 1 year Grace Period for OWN activity
- Preserve Rights In Foreign Markets
 - Business is International, not just National
 - Most Foreign Countries have Absolute Novelty Requirement
- NO assurance of available rights.

But!

PROVISIONAL CAUTIONS/CONSIDERATIONS

BEWARE

- NO PRIORITY for subject matter not fully disclosed and enabled in the Provisional. NOT PROTECT your improvements.
- Risk of COMPLACENCY... Thinking “We Have Filed a Patent Application So All Is Well ... So Relax” ... but the Disclosure Is Not Adequate to Support Desired Claims ... or avoid activity bars
- Automatically GOES ABANDONED By Law After 1 Year From Filing ... so, MUST file non-provisional before 1 Year ends. [TRACK this 1 year]

What?

UTILITY PATENT BASICS – Subject Matter Eligibility (Section §101)

- Invention must be directed to at least one of the following *{statutory}*:
 - **Process** (engine cycle; aluminum heat treatment; making fibers; detecting a golf ball)
 - **Machine** (box folding machine; Coin processing machine)
 - *Article of* **Manufacture** (fastener; toilet; guage)
 - **Composition of matter** (chemical composition)
 - **Except:** *{Judicial Exceptions}*
 - NO laws of nature
 - NO natural phenomena
 - NO abstract ideas ...

Patent Basics – Requirements for Patentability

- To be Patentable, an Invention must be:
 1. New / NOVEL
 2. Useful – has to have some utility
 3. NON-OBVIOUS – Would a person of ordinary skill, knowing the prior state of the art, think the invention obvious?
- [BUT, not our focus today ... we need to FILE!]

PROVISIONAL APPLICATION CONTENT

- Here is what is required:
 - ❖ Specification (formalities not important)
 - ❖ Drawings
 - ❖ Names Of Inventors
 - ❖ Must be identified as a Provisional Application
 - ❖ Correspondence address

PROVISIONAL APPLICATION SPECIFICATION

- Possible Sections:
 - » • background description
 - » • explicit definitions
 - » • general description (Summary)
 - » • preferred embodiments (Detailed text & drawings)
 - » • working examples (perhaps)
 - » • prophetic examples (perhaps)
 - » • addendum (perhaps)

WRITTEN DESCRIPTION

Sample 1 Provisional

DEVICE FOR MEASURING STRAIN IN A COMPONENT

Field of the Disclosure

5 The present disclosure relates to a device that measures strain in a component and more particularly to a device that measures diametral strain in a cylindrical element and the measurements are used to determine the load and stress within the cylindrical element.

Summary of the Disclosure

10 The present disclosure is directed to an element that senses diametral change in a cylindrical component and measures such diametral change using strain gauges arranged on a frame of the element and the strain gauges measure tensile and compressive strain developed in the frame as a result of the frame flexing.

15 The disclosure includes a method comprising measuring the diametral change in a cylindrical component by monitoring and measuring bending (compression and tension) effected by the diametral change in a plane perpendicular to the diameter of the cylindrical component. The apparatus for effecting the method comprises at least one web, but typically two webs, defining planes perpendicular to the diameter of the cylindrical component and strain measuring elements mounted on the web planes and arranged to sense and measure the compressive and tensile (bending) action of the strain-gauge-mounted webs.

25 Briefly described, the strain sensing element comprises a frame that has an outer surface, an inner surface, and a planar upper surface generally parallel to a planar lower surface. The frame further comprises a first support element arranged

component an inner surface of said arcuate frame is proximate said outer component surface and an outer surface of said arcuate frame is distal said outer component surface,

5 wherein said arcuate frame further comprises a passage extending through a width of said arcuate frame and arranged between said inner surface and said outer surface of said arcuate frame,

10 wherein said arcuate frame further comprises a first strain measuring element mounted to said inner surface proximate said passage of said arcuate frame and a second strain measuring element mounted to said outer surface proximate said passage;

(b) applying an unknown force to said cylindrical component causing a diameter of said outer component surface to increase and causing said arcuate frame to flex such that said first strain measuring element measures a tensile strain and said second strain measuring element measures a compressive strain; and

15 (c) converting said strains measured by said first strain measuring element and said second strain measuring element to a cylindrical component load and calculating said unknown force.

20 These and other aspects of the present invention will become apparent to those skilled in the art after a reading of the following description of the preferred embodiments when considered in conjunction with the drawings. It should be understood that both the foregoing general description and the following detailed description are exemplary and explanatory only and are not restrictive of the invention as claimed.

WRITTEN DESCRIPTION

Sample 1 Provisional

Brief Description of the Drawings

According to common practice, the various features of the drawings discussed below are not necessarily drawn to scale. Dimensions of various features and elements in the drawings may be expanded or reduced to illustrate more clearly the
5 embodiments of the disclosure.

Fig. 1 depicts a typical sensor element of the type used for measuring changes in the diameter of a specimen, and particularly for measuring changes in the diameter of a shaft;

Fig. 2 illustrates an isometric view of an embodiment of the sensor element of
10 the present disclosure;

Fig. 3 illustrates a second isometric view of the embodiment illustrated in Fig. 2;

Fig. 4 illustrates a plan view of a portion of the embodiment of Fig. 2 showing the passage of the sensor element in greater detail;

Fig. 5 illustrates an isometric view of a portion of the sensor element where the outer surfaces of the sensor element are translucent for illustrative purposes and clarity only;

Figs. 6A-6E illustrate alternate passage geometries;

Fig. 7 illustrates the adjustable support elements in more detail;

20 Figs. 8A-8M illustrate several views of a selected, first alternate embodiment of the present disclosure;

Figs. 9A-9M illustrate several views of a selected, second alternate embodiment of the present disclosure;

4

Figs. 10A-10N illustrate several views of a selected, third alternate embodiment of the present disclosure; and

Figs. 11A-11M illustrate several views of a selected, fourth alternate embodiment of the present disclosure.

5

Description of the Preferred Embodiments

Referring now in more detail to the drawing figures, wherein like reference numerals indicate like parts throughout the several views, Figs. 2 and 3 are isometric views of an embodiment of a sensor element 26 according to the present disclosure.

10 The sensor element 26, or extensometer 26, comprises a frame 28 that has an inner surface 30 and an outer surface 31. The frame also has an upper surface 29 and a

Figs. 8A-8M, 9A-9M, 10A-10N and 11A-11M provide illustration of several views of and additional information about selected alternate embodiments of the present disclosure.

Also, attached hereto and incorporated herein in its entirety by this reference is
5 an ADDENDUM that comprises sixteen (16) "slides" providing information and testing data related to various exemplary embodiments of the present disclosures.

Certain modifications and improvements will occur to those skilled in the art upon a reading of the foregoing description. It should be understood that all such modifications and improvements have been deleted herein for the sake of conciseness
10 and readability but are properly within the scope of the following claims.

DRAWINGS

Sample 1

1/19
 Title: Device for Measuring Strain...
 Inventor: Christopher Paul SMITH
 Filed: December 31, 2009

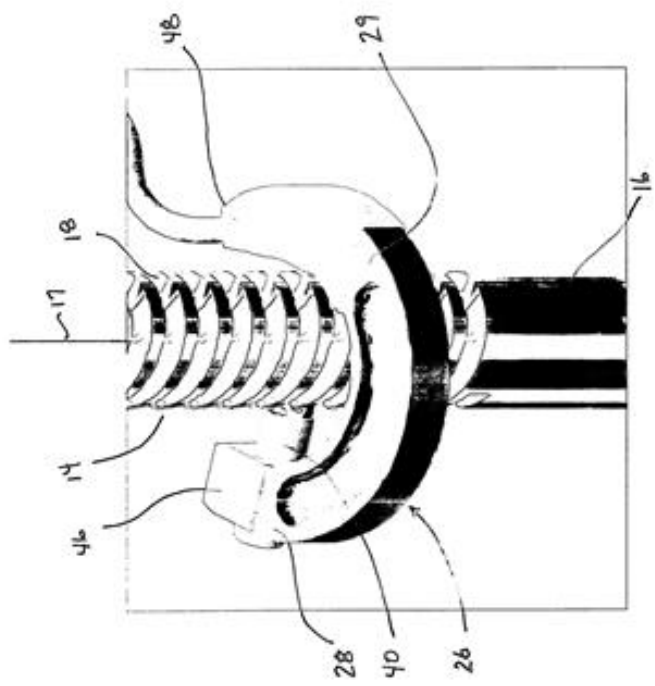


Fig. 1

Provisional

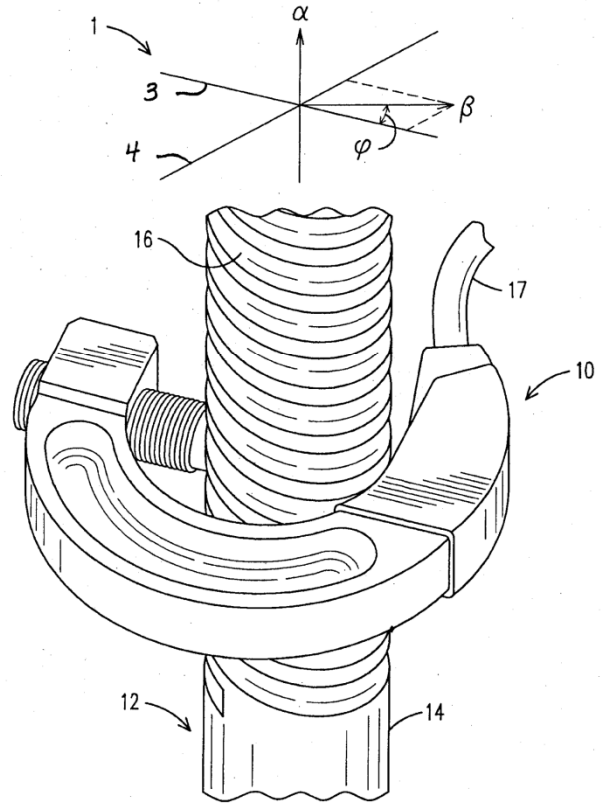
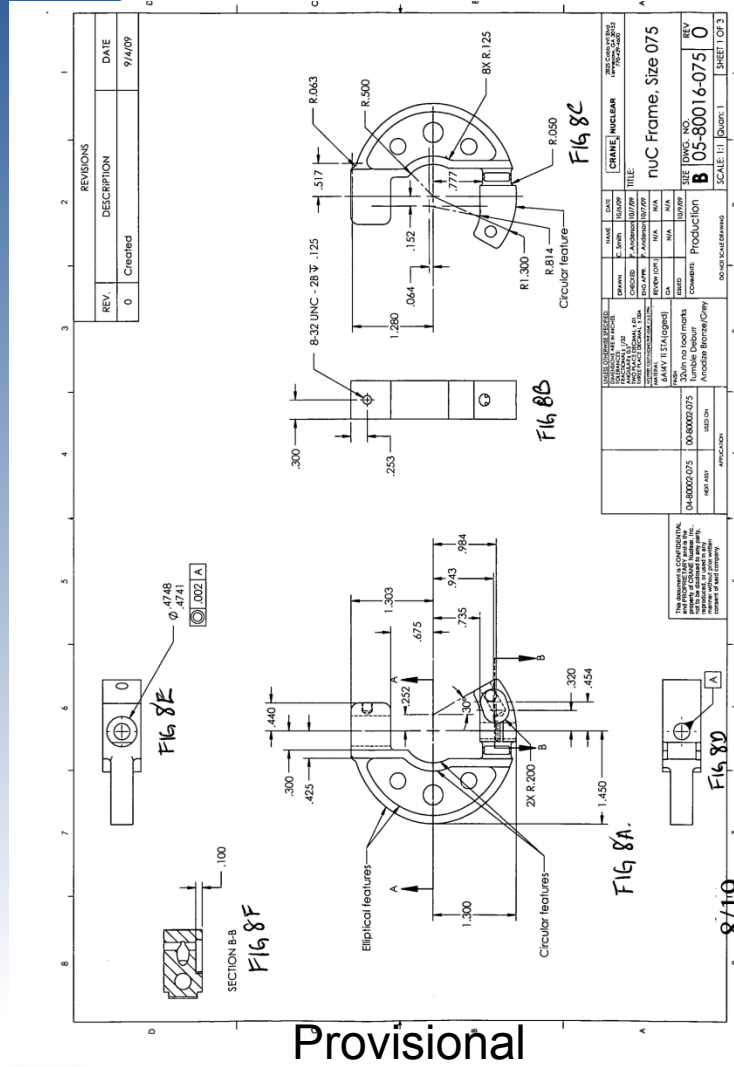


FIG. 1

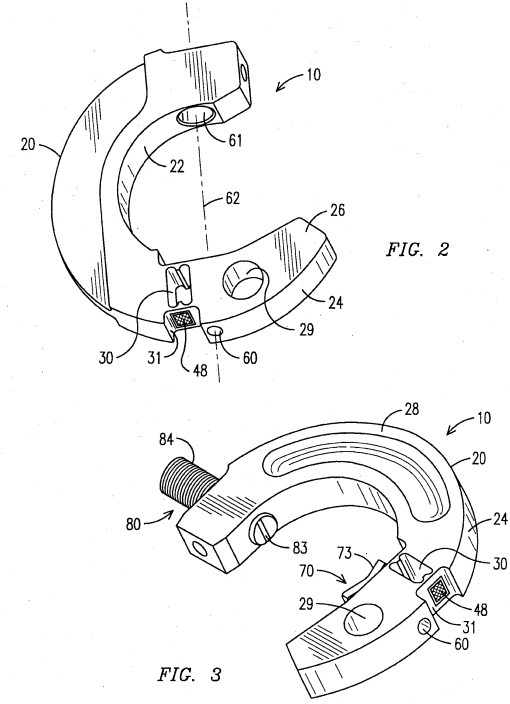
Non-Provisional

DRAWINGS

Sample 1



Provisional



Non-Provisional

WRITTEN DESCRIPTION

Sample 2 Provisional

ATTORNEY DOCKET NO. C154 144US.P1

SYSTEM AND METHOD FOR QUENCHING CASTINGS

Field

[0001] The present invention relates generally to the quenching of metallic castings after heat treatment or initial removal from the mold or die, and more specifically to the quenching of die-cast thin-wall aluminum castings after solution treatment and prior to aging.

Brief Description of the Drawings

[0002] FIG. 1 is a schematic diagram of a system for quenching castings, in accordance with a representative embodiment of the disclosure.

[0003] FIG. 2 is a graph of a casting's surface temperature over time that illustrates the temperature change in the casting throughout a multi-stage quenching process, in accordance with another representative embodiment.

[0004] FIG. 3 is a schematic diagram of a system for quenching castings, in accordance with yet another representative embodiment.

[0005] FIG. 4 is a flowchart depicting a method for quenching a casting, in accordance with yet another representative embodiment.

[0006] Those skilled in the art will appreciate and understand that, according to common practice, various features of the drawings discussed below are not necessarily drawn to scale, and that dimensions of various features and elements of the drawings may be expanded or reduced to more clearly illustrate the embodiments of the present invention described herein.

Detailed Description

[0007] The following description is provided as an enabling teaching of exemplary embodiments of a system and method for quenching metallic castings. Those skilled in the relevant art will recognize that changes can be made to the embodiments described, while still obtaining the beneficial results. It will also be apparent that some of the desired benefits of the embodiments described can be obtained by selecting some of the features of the

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embodiments without utilizing other features. In other words, features from one embodiment or aspect may be combined with features from other embodiments or aspects in any appropriate combination. For example, any individual or collective features of method aspects or embodiments may be applied to apparatus, product or component aspects, or embodiments and vice versa. Accordingly, those who work in the art will recognize that many modifications and adaptations to the embodiments described are possible and may even be desirable in certain circumstances, and are a part of the invention. Thus, the following description is provided as an illustration of the principles of the embodiments and not in limitation thereof, since the scope of the invention is to be defined by the claims.

[0008] Illustrated in FIGS. 1-4 are representative embodiments of a quenching system and a method for quenching hot metallic castings after initial formation or after heat treatment. As described below, the quenching system and method can provide several significant advantages and benefits over other systems and methods for quenching metallic castings, such as utilizing a series of quenching stages to maximize the mechanical properties of the castings while eliminating or substantially reducing the distortion of the castings. However, the recited advantages are not meant to be limiting in any way, as one skilled in the art will appreciate that other advantages may also be realized upon practicing the present disclosure.

[0009] In one embodiment of the present disclosure shown in FIG. 1, the quenching system 10 generally includes a housing 20 comprising an enclosure 22 that surrounds a chamber 26 within which a hot casting 80 can be positioned or secured. In FIG. 1, the casting 80 is shown as a control arm 82 for an automobile suspension system that has been formed from an aluminum alloy material through a high pressure die cast (HPDC) process. It is to be appreciated, however, that the casting 80 can be made from a wide variety of casting materials, including various aluminum alloys (being equal to or greater than 50% aluminum by weight) and non-aluminum alloys (being less than 50% aluminum by weight). In addition, the casting 80 can also be made through a variety of casting processes other than the HPDC process, including but not limited to low pressure die cast (LPDC), high vacuum die cast (HVDC), gravity die cast, and the like.

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2

WRITTEN DESCRIPTION

Sample 2 Provisional

ATTORNEY DOCKET NO. C154 1440US.P1

monitor and record the actual surface temperature of the castings as they pass through the quenching system 200. The computer or electronic processor-based device may also be used as a controller that adjusts the cooling provided by the forced air cooling systems 212, 232 and/or the liquid spray cooling system 222 to ensure that the castings experience a specific, pre-programmed quenching process.

[0027] Whether a cell-based quenching system (FIG. 1) or a continuous process quenching system (FIG. 3), the quenching system may also utilize a basic timer system where a set defined time schedule is used for the scheduling the three stages during the quench cycle.

[0028] In another embodiment of the present disclosure, FIG. 4 is a flowchart depicting a method 300 for quenching a hot casting that includes the steps of obtaining 302 a metallic casting having a surface temperature greater than or about 550 °C, and cooling 304 the casting in a first stage air quench to a surface temperature of about 350 °C within a first stage time duration of less than or about 20 seconds. The method also includes the steps of cooling 306 the casting in a second stage liquid spray quench to a surface temperature of about 100 °C within a second stage time duration of less than or about 20 seconds, and followed by cooling the casting 308 in a third stage air quench to a surface temperature of about 50 °C within a third stage time duration of less than or about 10 seconds.

[0029] The invention has been described herein in terms of preferred embodiments and methodologies considered by the inventor to represent the best mode of carrying out the invention. It will be understood by the skilled artisan, however, that a wide range of additions, deletions, and modifications, both subtle and gross, may be made to the illustrated and exemplary embodiments without departing from the spirit and scope of the invention. These and other revisions might be made by those of skill in the art without departing from the spirit and scope of the invention that is constrained only by the following claims.

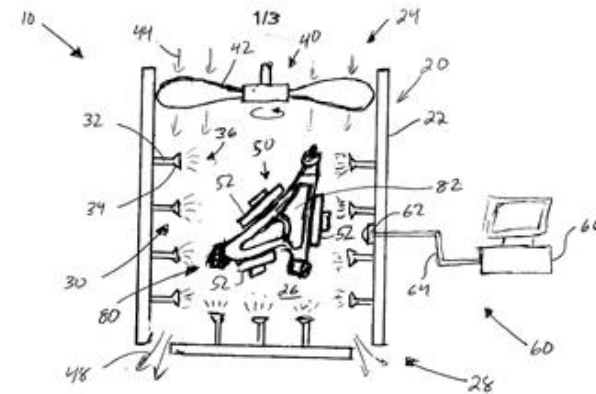


FIG. 1

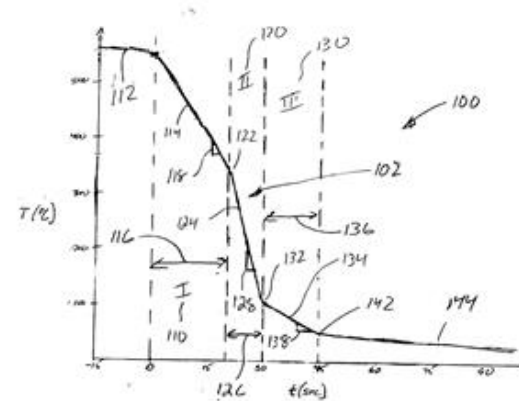


FIG. 2

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Your PROVISIONAL APPLICATION SPECIFICATION

- Written description of the invention, and of the manner and process of making and using it,
- in full, clear, concise, and exact terms
- to enable any person skilled in the art to which it pertains to make and use the same, and
- shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

Written Disclosure

Example Approach

- What is the **Problem** or need to be satisfied by the invention.
- What is the proposed **solution** to the problem, and why is it better than prior solutions?
- What is the likely **commercial embodiment** of the invention?
- Are there other ways to practice the invention?
- Test data • Details • Ranges • Examples

EXERCISE

Written Disclosure

Explaining the problem(s)

- Write it out ... What is (are) the Problem(s) to be solved by your invention?
- NOT always same as the project problem
- “At least some of the problems experienced in the prior devices/process ... “

EXERCISE

Do it!

Written Disclosure Explaining Your Solution

- WRITE down the Kernel/Core aspect of your solution... What is the main feature that distinguishes your solution from all known “prior art”?

EXERCISE

Do it!

Written Disclosure **Explaining Your Solution**

- WRITE down another distinguishing feature
- WRITE down a third distinguishing feature

EXERCISE

Do it!

Written Disclosure

Explaining your Solution (continued)

- Draft prose broadly expressing your solution ... focusing on the stated distinctions ...
- Stay high level ... not the full working embodiment ...
- Consider invention broader than you created it? Think expansively when drafting ...

EXERCISE

Do it!

Written Disclosure

Detailing Embodiments

- Now, Shift Gears ... Describe your primary embodiment
- The detailed facts!!
- What is your likely commercial embodiment?

EXERCISE

Written Disclosure

Detailing Embodiments

Do it!

Some terminology:

~~Invention~~ => Disclosure

~~Preferred embodiment~~ => First Exemplary embodiment

In some embodiments of the disclosure ...

In accordance with an alternate embodiment ...

According to one aspect ...

EXERCISE

Do it!

Written Disclosure

Detailing Embodiments

Enable – skilled person can practice

Written Description –

Full Scope;

Sufficient;

Possession of the invention

EXERCISE

Do it!

Written Disclosure

Detailing Embodiments

Write STRUCTURE

- components, links, combinations, interactions
- drawings
- number all groups, pieces, links
 - be consistent
 - numbering charts

EXERCISE

Written Disclosure

Detailing Embodiments

Do it!

Write METHOD of ASSEMBLY

Write METHOD OF OPERATION

Write METHOD OF USE

EXERCISE

Written Disclosure

Detailing Embodiments

Software

Think “Structure” ... [meet enablement]
Specially Programmed Computer

Think something more than a
programmed computer (added structure
or function not previously known or
performed by human) [avoid ABSTRACT]

[this is MUCH more complex]

EXERCISE

Written Disclosure

Detailing Embodiments

Software

Regarding “Structure” ...

- Software is not “structure”
- Structure is the computer programmed by a special algorithm
- Spec **MUST** disclose the algorithm

[FLOW CHART]

EXERCISE

Written Disclosure

Detailing Embodiments

Software

“Something more” than idea

Something the human mind didn't do
before

EXERCISE

Written Disclosure

Detailing Embodiments

Software

- An "Algorithm" is a finite sequence of steps for solving a logical or mathematical problem or performing a task."
 - "Applicant may express the algorithm in any understandable terms including a mathematical formula, in prose, **in a flowchart**, or in any other manner that provide sufficient structure."

EXERCISE

Written Disclosure

Detailing Embodiments

Software

A set of instructions:

- Is not machine or article of manufacture or composition of matter, and does not purport to be a process. Does not fit within any of the statutory categories of section 101,
- Is Intangible, and except for processes, “eligible subject matter must exist in some physical or tangible form.”

EXERCISE

Written Disclosure Detailing Embodiments

Software

- NOT GOOD
- Method of providing a secure online sales transaction is not patent-eligible because it is just a computerized way of creating a contractual relationship.

"This is simply a generic recitation of a computer and a computer network performing their basic functions." "The claim amounts to no more than stating create a contract on a computer and send it over a network."

EXERCISE

Written Disclosure

Detailing Embodiments

Software

- GOOD
- Method of displaying multiple merchant websites within a single page, allowing Web users to visit several stores without leaving the page, was shown as patent-eligible. ... Held: the patent did more than apply an existing business practice on a computer.

"The claim does not recite a mathematical algorithm; nor does it recite a fundamental economic or longstanding commercial practice," the office said. "The claim addresses a business challenge (retaining website visitors) that is particular to the Internet."

Software inventions likely need to have a component that improves the functioning of a computer, rather than simply using a computer to make an existing process run more efficiently

EXERCISE

Do it!

Written Disclosure

Detailing Embodiments

Write the Specific Embodiment AGAIN,
but broaden the language

Write as a second embodiment, keeping
the narrower, first embodiment

*e.g., “fastener, example of which is a screw
or a nail or adhesive”*

EXERCISE

Do it!

Written Disclosure **Detailing Embodiments**

Write any Alternate Embodiments ...

How might you or someone else do this differently and still take advantage of your “inventive thoughts” (your “distinguishing features”)?

“Third alternate embodiment”

“Forth alternate embodiment”

EXERCISE

Written Disclosure

Detailing Embodiments

Do it!

- Perhaps insert your Capstone Presentation and your Capstone “speech” as an addendum.
- That’s what would otherwise be barred by the Capstone Event

HOW TO FILE

- Electronic Filing System (EFS) ...
Non-Registered ... (see next slide)
- Or via US Postal Service Express Mail ... MUST
use express mail certificate. (Not Preferred)
- Always keep a copy of filing
- Pay fee ... \$130 Small / \$65 Micro
(Are you a Micro Entity) ... if yes, file affidavit ...
-

HOW TO FILE USING PTO EFS

- Go to www.USPTO.gov => ***EFS-Web***
(expect "Java not enabled")
- Select "Patents" from upper left menu
=> efile (unregistered)
- Proceed with forms and uploading, etc.

HOW TO FILE USING PTO EFS

- EFS TIPS:
 - No spaces in filename
 - Upload as PDF file, all fonts embedded
 - Review ONLINE the package, page-by-page, after upload
 - Micro entity needs a certification (PTO FORM PTO/SB/15A)
 - Print and keep the filing receipt, and a copy of what you filed

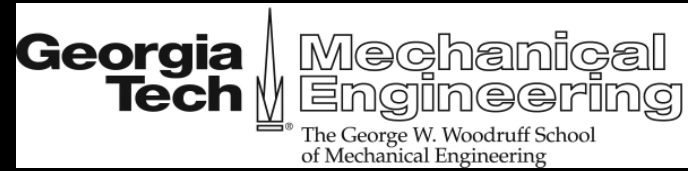
Help!

HOW TO FILE HELP

GLA (Georgia Lawyers for the Arts)
pro bono patents program:

<http://glarts.org/patents/>

- 2 weeks may not be enough
- Must qualify financially



END

GOOD LUCK AT
CAPSTONE