



Program Title \_\_\_\_\_

Date Presented \_\_\_\_\_ Inn Year \_\_\_\_\_

Presenting Inn \_\_\_\_\_ Inn Number \_\_\_\_\_

Inn City \_\_\_\_\_ Inn State \_\_\_\_\_

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E-mail Address \_\_\_\_\_

Please consider this program for the Program Awards: Yes No This program is being submitted for Achieving Excellence: Yes No

**Program Summary:**

Indicate the legal focus and be concise and detailed in summarizing the content and setup of your program. Please attach additional sheets if necessary.

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**Program Materials:**

The following materials checklist is intended to insure that all the materials that are required to restage the program are included in the materials submitted to the Foundation office. **Please check all that apply and include a copy of any of the existing materials with your program submission:**

Script	Articles	Citations of Law	Legal Documents	Fact Pattern	List of Questions	Handouts
PowerPoint Presentation	CD	DVD	Other Media (Please specify) _____			

**Specific Information Regarding the Program:**

Number of participants required for the program \_\_\_\_\_ Has this program been approved for CLE? Yes No

Which state's CLE? \_\_\_\_\_ How many hours? \_\_\_\_\_

**Recommended Physical Setup and Special Equipment:**

i.e., VCR and TV, black board with chalk, easel for diagrams, etc. When submitting video, please indicate the length of all videos. i.e., 30 or 60 min.

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**Comments:**

Clarify the procedure, suggest additional ways of performing the same demonstration, or comment on Inn members' response regarding the demonstration.

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# Program Submission Form

## Roles:

List the exact roles used in the demonstration and indicate their membership category; *i.e.*, Pupil, Associate, Barrister or Master of the Bench.

Role	Membership Category

## Agenda of Program:

List the segments and scenes of the demonstration and the approximate time each step took; *i.e.*, "Introduction by judge (10 minutes)."

Item	Time

**Program Awards:** *Please complete this section only if the program is being submitted for consideration in the Program Awards.*

**Describe how your program fits the Program Awards Criteria:**

**Relevance:** How did the program promote or incorporate elements of our mission? (*Fostering Excellence in Professionalism, Ethics, Civility, and Legal Skills*)

\_\_\_\_\_

**Entertaining:** How was the program captivating or fun? \_\_\_\_\_

\_\_\_\_\_

**Creative and Innovative:** How did the program present legal issues in a new way? \_\_\_\_\_

\_\_\_\_\_

**Educational:** How was the program interesting and challenging to all members? \_\_\_\_\_

\_\_\_\_\_

**Easily Replicated:** Can the program be replicated easily by another Inn?    Yes    No    This program is:    Original    Replicated

## Questions:

Please contact Christina Hartle at (703) 684-3590 ext 105 or by e-mail at [chartle@innsofcourt.org](mailto:chartle@innsofcourt.org).

**Please include ALL program materials. The committee will not evaluate incomplete program submissions.**

# Atlanta IP Inn of Court

## Program Materials for The Cross Examination of Prof. Duckworth

Presented on January 16, 2013

Special Thanks to Our Host



### Program Summary:

This was a program demonstrating direct, cross-examination, and rehabilitation techniques for a technical expert witness in a patent case that is used for an invalidity defense. The fictional technology uses flamethrowers from the front of a plane to vaporize birds and prevent bird strikes.



Thanks to the Pupilage Group Chairs: John Harbin (King & Spalding LLP) & Frank Landgraff (GE Energy)

Also thanks to the primary script author: Michael Kline (Woodcock WashburnLLP)

### Setup:

You will need a good expert witness, plaintiff and defense counsel, a judge, and an experienced narrator that can provide critiques and explanation of the expert examination theories. Optional Props include super soaker watergun, water pik, large obnoxious textbook that expert is proud of.

**The Atlanta Inn of Court**

**January 16, 2013**

**THE CROSS EXAMINATION OF PROFESSOR DUCKWORTH**

**By Michael J. Kline**

**Dramatis Personae**

Narrator/Moderator:

Defendant's Attorney, Amy Solaris:

Professor Phineas Duckworth:

Plaintiff's Attorney, Terry Firma:

The Court:

Dr. Jennifer Starr:

Courtroom, evening, with judge's bench, witness box with table or shelf nearby, plaintiff's and defendant's counsel tables, and extra chair at each table for witnesses. A screen hangs near the witness box for showing slides. The moderator has control of a laptop or other remote device for showing the slides. On defendant's table is a copy of Professor Duckworth's treatise. (Optional props are a Super Soaker and a Water Pik.) Counsel tables include laptops, documents, notepads, etc.

**(Narrator):** All rise, this Honorable Court is now in session.

(The Court bangs gavel to call the courtroom to order)

**(Narrator):**

We are here for a trial about U.S. Patent No. 9,000,000, otherwise known as the "double triple zero" patent. It is entitled "Humane and Environmentally Friendly Bird Strike Deflector."

The number of bird strikes by commercial aircraft has mushroomed in recent years. FAA regulations require that jet engines be designed to continue operating after ingesting birds, but that has not eliminated bird strikes from causing engine damage or even failure.

Four years ago almost to the day, a double bird strike involving Canadian geese impacted U.S. Airways Flight 1549 three minutes after take-off from La Guardia, when the jet was 2,800 feet above ground level. This caused an immediate and complete loss of thrust to both engines, forcing the crew to ditch the plane in the Hudson River.

**(Show Slide #1)**

The inventor of the double triple zero patent sought to prevent such problems by designing a bird strike deflector that is safe, reliable, and humane to the birds. The inventor knew that prior art bird abatement technologies, including

ground based flashing lights, noise makers, and water canon were ineffective, because many bird strikes occur high above the ground. As with the U.S. Air flight, some occur at altitudes of 3,000 feet or higher. The inventor knew that, to be effective at any altitude, a bird strike deflector should be positioned on the aircraft itself.

The inventor was also aware of prior attempts by Professor Phineas Duckworth to employ the jet's engine fuel as a sort of napalm **(Show Slide #2)** that could be diverted through nozzles on the jet's wings in an effort to either frighten the birds away, or if that failed, quickly carbonize them so they could be more efficiently ingested by the jet's engines. This is a photograph from Professor Duckworth's treatise employing this technology:

**(Show Slide #3) [CAUTION SLIDE]**

**(Narrator):** Please note, this technology is only for experts.

The inventor also knew it would be important to use a technology that, unlike piercing noise or napalm flame throwers, would be environmentally friendly.

The inventor's first attempted solution was to install large water tanks based on these **(pick up Super Soaker)** on the aircraft and put nozzles on the wings to shoot water at approaching birds.

**(Show Slide #4)** Here is an early prototype, which became Figure 1 of the parent application of the double triple zero patent. But such large water cannons required too much water and added too much weight to the aircraft. So the inventor revised his design to use finer water sprays, at higher pressure, which used much less water. This design, which became the subject of the double triple zero patent, used water spray technology similar to that used for teeth cleaning devices such as **(Pick up Waterpik)** Waterpiks. Shown here **(Show Slide #5)** is a figure from the double triple zero patent demonstrating the concept.

The patent owner, BirdBusters, Inc., has accused defendant ACME Aerodynamics of infringement. We pick up the trial at the testimony of the accused infringer's expert witness on validity, Professor Phineas Duckworth.

**Ms. Solaris:** The defense calls Professor Duckworth. Good morning, Professor Duckworth.

**Professor Duckworth:** Actually, it's evening.

**Ms. Solaris:** Yes. Please state your name for the record.

**Professor Duckworth:** Professor Phineas Duckworth.

**Ms. Solaris:** And what do you do, Professor?

**Professor Duckworth:** I'm a professor of aerospace engineering at Georgia Tech.

**Ms. Solaris:** And what do you teach?

**Professor Duckworth:** Didn't I just say that? Aerospace engineering.

**Ms. Solaris:** Do you not have a specialty?

**Professor Duckworth:** No, I do have a specialty.

**Ms. Solaris:** (looks a bit exasperated) And that specialty is bird strike avoidance, is it not?

**Mr. Firma:** Object leading.

**The Court:** Overruled.

**Mr. Firma:** May I ask why your Honor?

**The Court:** No. Proceed.

**Ms. Solaris:** That specialty is bird strike avoidance?

**Professor Duckworth:** No.

**Ms. Solaris:** (looks befuddled) Approach, your Honor?

(Judge waives attorneys forward and they approach bench)

**Ms. Solaris:** Your honor, the witness seems to be having trouble with my questions.

**The Court:** Well he's your witness, and they're your questions.

**Ms. Solaris:** Yes, but this witness has such a beautiful mind that he processes normal questions in rather creative ways sometimes. That's why I'm asking leading questions, to help him along.

**The Court:** Oh, for Pete's sake, why don't you just ask him "What's your specialty?"

**Ms. Solaris:** Because I don't know for sure what answer I'll get.

**The Court:** All the more reason to ask; this could be entertaining.

(Court motions counsel to return to their positions)

**Ms. Solaris:** Professor Duckworth, do you have a specialty?

**Professor Duckworth:** Yes.

**Ms. Solaris** (looks worried) What is that specialty?

**Professor Duckworth:** Orbital matter avoidance.

**Ms. Solaris:** Can you translate?

**Professor Duckworth:** I figure out how space ships, satellites, and the like can avoid collisions with space junk.

**Ms. Solaris:** Anything else?

**Professor Duckworth:** Yes, meteors and meteorites.

**Ms. Solaris:** No, I meant is there anything besides avoiding space collisions that you specialize in? Anything closer to earth?

**Professor Duckworth:** Yes, I also develop technologies to help planes avoid collisions with airborne matter, primarily birds.

**Ms. Solaris:** Do you hold any patents?

**Professor Duckworth:** Yes, many. In fact, I'm number five on Wikipedia's list of most prolific inventors, right behind Thomas Edison. I should pass him this year.

**Ms. Solaris:** Wonderful. And do you have any publications?

**Professor Duckworth:** Many.

**Ms. Solaris:** Books?

**Professor Duckworth:** Yes.

(Ms. Solaris retrieves copy of book from defendant's counsel table)

**Ms. Solaris:** I now show you what's been marked as Defendant's Exhibit 1. Can you please identify?

**Professor Duckworth:** Yes, this is my latest textbook.

**Ms. Solaris:** What's the title?

**Professor Duckworth:** *Duckworth on Geese, Space Junk, and Other Things that Get in the Way* (proudly shows book to audience, then places on table beside witness box).

**Ms. Solaris:** What's the photo on the cover?

**Professor Duckworth:** That's NASA's plot of orbital debris, otherwise known as "space junk."

**Ms. Solaris:** I see. Have there been any accolades for the book?

**Professor Duckworth:** On the back cover. "Duckworth does it again," and so on. (Shows audience) The book is required reading for aerospace engineering students. And Steven Spielberg just optioned the movie rights.

**Ms. Solaris:** Isn't it a little unusual for a technical textbook to be made into a movie?

**Professor Duckworth:** (somewhat arrogantly) It's a special textbook.

**Ms. Solaris:** What's the title of the movie going to be?

**Professor Duckworth:** Well, I wanted Spielberg to just call it "Duckworth," like he did with "Lincoln."

**Ms. Solaris:** What is he calling it?

**Professor Duckworth:** "What's a Duckworth?"

**Ms. Solaris:** I see. What's the answer?

**Professor Duckworth:** I'm worth quite a lot, actually.

**Ms. Solaris:** How much?

**Mr. Firma:** (Stands) Objection, your honor. Professor Duckworth's net worth has no bearing on any issue in this case.

**Ms. Solaris:** Goes to commercial success of his inventions, and therefore his ability to opine on what's inventive and what isn't.

**Mr. Firma:** Approach, your honor?

**The Court:** If you must.

(Attorneys approach bench)

**Mr. Firma:** Your honor, this is a cheap trick by Ms. Solaris to make this case about the Professor rather than the issues.

**Ms. Solaris:** Your honor, we're merely trying to demonstrate the professor's credibility as an expert. The commercial success of his inventions goes right to the heart of that.

**The Court:** I'm intrigued to see where this goes. I'll allow it.

(Attorneys return to positions)

**Ms. Solaris:** What's your net worth, Professor Duckworth?

**Professor Duckworth:** About \$20 million, give or take a few million.

**Ms. Solaris:** And how did you make so much money?

**Professor Duckworth:** Well, of course there's the book, the movie deal, and quite a few government contracts.

**Ms. Solaris:** Any government contracts for getting rid of space junk?

**Professor Duckworth:** Yes.

**Ms. Solaris:** I'd now like you to take a look at Defendant's Exhibit 2.

**(Show Slide #6)**

**Ms. Solaris:** Can you please explain what this is?

**Professor Duckworth:** Yes, this is my concept of using high powered lasers to vaporize space junk. The same concept can be used to vaporize or carbonize birds before they strike an aircraft.

**Ms. Solaris:** Your Honor, we offer Professor Duckworth as an expert in the field of mitigating collisions with airborne debris.

**The Court:** (to Mr. Firma) Objections?

**Mr. Firma:** No, your Honor.

**The Court:** Very well, you may proceed.

**Ms. Solaris:** Professor, have you had a chance to study the double triple zero patent?

**Professor Duckworth:** Yes.

**Ms. Solaris:** Do you have an opinion on whether or not that patent is invalid?

**Professor Duckworth:** Yes.

**Ms. Solaris:** And what is that opinion?

**Professor Duckworth:** Based on my knowledge of the prior art, it's my opinion that the double triple zero patent is clearly invalid.

**Ms. Solaris:** And on what prior art do you base that opinion?

**Professor Duckworth:** Well, first and last, the alpha and omega, is my own treatise, which clearly discusses, in Chapter 7, the possibility of shooting water through a cannon to disperse birds before they can strike an aircraft.

**Ms. Solaris:** And you wrote Chapter 7 of your treatise?

**Professor Duckworth:** Yes.

**Ms. Solaris:** And so it was well known to you, at the time you wrote your treatise, that bird strikes could be avoided by spraying water at the birds?

**Professor Duckworth:** Yes.

**Ms. Solaris:** Is your opinion of invalidity based on any other prior art?

**Professor Duckworth:** Yes, my own work using jet fuel to deter bird strikes.

**Ms. Solaris:** How does that prior work invalidate the double triple zero patent in your opinion?

**Professor Duckworth:** Well, my treatise teaches that one can divert jet fuel through nozzles on the jet's wings to shoot the fuel at oncoming birds and divert them. It would be obvious to

replace jet fuel with water, which is really all this patent did.

**Ms. Solaris:** Nothing further.

[Ms. Solaris returns to counsel table]

**Narrator:** Now we are at the point of cross-examination. The materials we emailed you include some of the best articles about cross-examination and transcripts of actual cross-examinations. One key rule, similar to the doctor's creed of "first, do no harm," is do no harm to your case. So if a witness called by your opponent does not harm your case, think hard before asking any question. Saying "no questions" after the direct exam can be very powerful.

But, as here where the good Professor has opined the Plaintiff's patent is invalid, there are witnesses you will have to cross, and cross-examination is often the pivotal point of a trial. You can disprove the opponent's case directly, disprove it indirectly by discrediting their witnesses, and, sometimes prove your own case. Sometimes the only way to prove elements of your case is through adverse witnesses. So let's see how the cross goes.

I will interject comments from time to time during the examinations. But to keep the skit rolling and our cast in character, please save your questions and comments until the end.

**The Court:** Your witness, Mr. Firma.

(Mr. Firma approaches witness and picks up treatise from table beside witness box; the Court starts playing with his i-Phone)

**Mr. Firma:** Professor Duckworth, I notice that you are the only author identified on your treatise; why is that?

**Professor Duckworth:** (with mock surprise) Well, call me Professor Obvious, but I believe it's because I *am* the only author.

**Mr. Firma:** None of your friends or colleagues sought to collaborate with you?

**Professor Duckworth:** No.

**Mr. Firma:** You never sought out any friends or colleagues?

**Professor Duckworth:** No.

**Mr. Firma:** Do you *have* any friends or colleagues?

**Ms. Solaris:** Object.

**Mr. Firma:** Withdrawn. You never sought out any co-authors?

**Professor Duckworth:** No one knows this field like I do. I began working on this as an undergrad. Built my own flamethrower to scare

crows away. (Laughs) Almost caught my frat house on fire. I ...

**Mr. Firma** (interrupting): Perhaps my question was not clear, Professor. I merely asked you to confirm you never sought out any co-authors.

**Professor Duckworth**: I did not. Once you get to my position, there really are no peers. I mean, I would love to have had a co-author or two, but there simply wasn't anyone qualified.

**Mr. Firma**: So this book is entirely your work?

**Professor Duckworth**: Define "entirely."

**Mr. Firma**: 100%.

**Professor Duckworth**: Define "work."

**Mr. Firma**: The researching, the outlining, the writing, the editing.

**Professor Duckworth**: Define "your."

**Mr. Firma**: Your Honor, may we approach? (Judge is playing with i-Phone).

**Mr. Firma**: (Louder) Your Honor, may we approach?

**The Court**: (Puts down i-Phone) If you must. (to audience) All this talk about birds made me go on Twitter. I have 10 followers.

**Mr. Firma:** (to the Court) I'm looking for some guidance, your Honor. He's just not answering the question, and asking me to define words that he clearly understands is, frankly, abusive. How would you like me to deal with it?

**The Court:** I'd like you to leave me alone.

**Ms. Solaris:** I agree your Honor, Mr. Firma should leave you alone.

**The Court:** (to Ms. Solaris) I'd like you to leave me alone too.

**Mr. Firma:** Would it be okay if I simply object to this whole line on the basis that the professor is non-responsive?

**The Court:** If you do that, I'll have to do my best to rule on it. I don't welcome that because then it makes me do some work. But I'll do my best.

(Court motions to Attorneys to return, end of sidebar).

**Mr. Firma** (to audience): "I'll have to do some work." I should make *him* (thumb over shoulder at judge) define "work."

**The Court:** What was that?

**Mr. Firma:** Nothing, your Honor. (to witness)

**Mr. Firma:** Going back to my question, by "your" I mean you and you alone.

**Professor Duckworth:** Well, all work necessarily builds on work that came before. So I don't think anyone, even a sole author, can claim that every idea, every concept, every formula is his alone. But I am certainly the leader in this field.

**(Narrator):** Another commandment of cross-examination is to always ask leading questions. There are rare exceptions, if for example you know you have the witness trapped and are giving him rope to hang himself, and we'll see if that happens with the Professor, but otherwise you want to be as brief and as focused on the important points as you can, and get the clearest admissions you can. In short, you want to control the witness and ask leading questions. But, like Mr. Firma is, you will encounter experienced witnesses, often an expert, who do not want to cooperate with your plan. They will not answer questions directly or will go off on tangents to argue their case, bolster other testimony, or just confuse things. We've given glimpses of both here via the Professor.

So what do you do? One method is to politely say as did Mr. Firma that your question must not have been clear and ask the same - hopefully clear - question again, and I'll talk a bit at the end about the importance of clear questions.

Interrupting a witness as Mr. Firma did can be dicey but sometimes you have to. But if the witness continues you will have to do more. You can ask for an instruction from the judge in front of the jury but what if the judge declines your request? So, like Mr. Firma, you might want to ask for a side bar. This exchange - including the question, Judge, what do you suggest I do, and the Judge's great answer, "I want you to leave me alone," actually happened in the *Qualcomm v. Broadcom* patent case, during the cross of an expert, and we have included that transcript in your materials. So let's continue ...

**Mr. Firma:** Did you have any help at all in creating the book?

**Professor Duckworth:** Define help.

**Mr. Firma:** Object. Nonresponsive.

**The Court:** (to the witness) Well, for example, a research assistant, a graduate assistant, someone like that.

**Professor Duckworth:** Well, of course, there was a grad assistant that helped by verifying my sources, conducting routine experiments under my direction, and so on.

**Mr. Firma:** And that grad assistant would be Jennifer Starr, correct?

**Professor Duckworth:** Yes.

**Mr. Firma:** (Hands treatise to witness) And now please turn to the acknowledgments section of the book.

(Professor Duckworth turns to back of book)

**Mr. Firma:** I notice that you give acknowledgements, well, why don't you just read them?

**Professor Duckworth:** (reading from book) The author wishes to thank the following for their contributions to physics and astronomy, whose . . . (mumbles).

**Mr. Firma:** What was that? Whose what?

**Professor Duckworth:** (grudgingly) Whose genius made mine possible.

**Mr. Firma:** Please continue.

**Professor Duckworth:** Yes, I list:

Leonardo Da Vinci  
Sir Isaac Newton  
Galileo Galilei  
Albert Einstein, and  
Werner von Braun

**Mr. Firma:** So you picked all dead men to acknowledge?

**Professor Duckworth:** Well, I picked those whose work influenced mine. And I didn't just acknowledge dead men.

**Mr. Firma:** Who else?

**Professor Duckworth:** Well, of course, there's Dr. Starr.

**Mr. Firma:** So Dr. Starr collaborated?

**Professor Duckworth:** Collaborated is way too strong. I'd say Dr. Starr lent yeomanship to the work.

**Mr. Firma:** Yeomanship?(punching smart phone) My dictionary doesn't have that word.

**Professor Duckworth:** It's a word I invented. It means performing time consuming, often tedious work, like proofreading, verifying experimental results, the sort of digging in the dirt that every graduate assistant must do to earn a Ph.D.

**Mr. Firma:** Does yeomanship include making any substantive or creative contributions to the work?

**Professor Duckworth:** No.

**Mr. Firma:** I see. Professor, I'd like you to turn to Chapter 7.

**Professor Duckworth:** Ok. (Thumbs through book)

**Mr. Firma:** Now you would agree, wouldn't you, that Chapter 7 is one of the most important chapters in the book?

**Professor Duckworth:** Well, they're all important.

**Mr. Firma:** Of course they are. But your opinion of invalidity relies on Chapter 7, doesn't it?

**Professor Duckworth:** Yes.

**Mr. Firma:** And so, if I asked you to rank the chapters in terms of relative importance, would Chapter 7 be near the top of that order or near the bottom?

**Ms. Solaris:** Objection, calls for speculation.

**The Court:** Overruled.

**Mr. Firma:** Please answer.

**Professor Duckworth:** Assuming you mean the top is most important, then yes, I would rank Chapter 7 near the top.

**Mr. Firma:** And Chapter 7 is entitled "Vaporizing Airborne Debris," correct?

**Professor Duckworth:** That's what it says.

**Mr. Firma:** Why is it important to vaporize airborne debris, professor?

**Professor Duckworth:** Well, I think it's obvious. If you can vaporize floating debris—whether it's space junk or a flock of geese—before it impacts a space craft or an aircraft, it can't do serious damage. At orbital speed, a piece of space junk the size of a pea can destroy a spacecraft.

**Mr. Firma:** I show you what was previously marked as Defendant's Exhibit 2,

**(Show Slide #6)**

**Mr. Firma:** This shows your prototype solution of a laser device to vaporize space junk?

**Professor Duckworth:** Yes.

**Mr. Firma:** Indeed, you obtained a number of government grants for vaporizing floating debris, didn't you?

**Professor Duckworth:** Yes.

**Mr. Firma:** In fact, this photograph, Defendant's Exhibit 2, was taken during a government-funded research project, correct?

**Professor Duckworth:** Correct.

**Mr. Firma:** What became of that project?

**Professor Duckworth:** (Angrily) It was cancelled.

**Mr. Firma:** Do you know why?

**Professor Duckworth:** I'd have to speculate on that.

**Mr. Firma:** Well, why do you think it was cancelled?

**Professor Duckworth:** Budget cuts.

**Mr. Firma:** Not because your laser system failed?

**Professor Duckworth:** Clearly it didn't fail. That photograph shows total vaporization by the laser.

**Mr. Firma:** But, the government did cancel the project?

**Professor Duckworth:** Yes.

**Mr. Firma:** And what did that do to your income?

**Ms. Solaris:** Object. Professor Duckworth's income is not an issue in this case. On direct we only discussed net worth, not income.

**Mr. Firma:** On direct, they argued that the commercial success of the Professor's inventions goes to the heart of his credibility as an expert. If so, then the commercial failure of those inventions would be an arrow through the heart of his credibility.

**The Court:** I like the symmetry there. I'll allow it.

**Mr. Firma:** So what did the project cancellation do to your income?

**Professor Duckworth:** I'm still a one per-center!

**Mr. Firma:** Object. Nonresponsive.

**The Court:** Professor Duckworth, please just explain how losing the government contract impacted your income relative to what it had been.

**Professor Duckworth:** I don't know the precise numbers.

**Mr. Firma:** Perhaps I can help you. (Picks up sheet of paper from counsel table). I have here your tax returns for 2011, the year your government contract was awarded, and 2012, the year it was cancelled. Your net income in 2011 was just over \$11 million. Your income in 2012 was just over \$1 million. Sound about right?

**Professor Duckworth:** If you say so.

**Mr. Firma:** Would you like a moment to review your returns?

**Professor Duckworth:** No, I believe you.

**Mr. Firma:** Of the \$1 million you made in 2012, isn't it true that over \$900,000 came from consulting work, particularly your expert witness work in this case?

**Professor Duckworth:** I don't know, but that sounds awful high. I have substantial income from the book, including the movie option.

**Mr. Firma:** (reading document) According to the financial records your attorney produced, the book, including the movie option, accounted for a little over \$50,000. Sound right?

**Professor Duckworth:** Could be.

**Mr. Firma:** So, the balance of your \$1 million comes from teaching and consulting?

**Professor Duckworth:** Yes.

**Mr. Firma:** And most of the consulting work was actually for the defendant in this case, wasn't it?

**Professor Duckworth:** I really don't know.

**Mr. Firma:** (Looking at document) Well, according to the invoices your attorney produced, you've charged over \$900,000 in expert witness fees on this case.

**Professor Duckworth:** If you think experts are expensive, you should try hiring amateurs.

**Mr. Firma:** Please turn to Section 2 of Chapter 7.

**Professor Duckworth:** (leafs through book) Okay. I'm there. Section 2.

**Mr. Firma:** What's that heading say?

**Professor Duckworth:** Vaporizing Birds

**Mr. Firma:** And you have proposed techniques for doing that, haven't you?

**Professor Duckworth:** Yes.

**Mr. Firma:** I ask you to now look at Plaintiff's Exhibit 2. What does this show? Let's put it up on the screen.

**(Show Slide #2)**

**Professor Duckworth:** This is a prototype of one of my inventions for vaporizing birds before they can strike an aircraft.

**Mr. Firma:** Was this concept ever commercialized, professor?

**Professor Duckworth:** No.

**Mr. Firma:** And why is that?

**Professor Duckworth:** Both the FAA and the NTSB killed it.

**Mr. Firma:** So that concept never got off the ground, did it professor?

**Ms. Solaris:** Object, your Honor.

**The Court:** On what basis?

**Ms. Solaris:** It's a ridiculous pun. And Mr. Firma is mocking the witness.

**The Court:** Well, this is cross examination. There has to be some mocking. I'll allow it.

**Mr. Firma:** Again, that concept never got off the ground, did it?

**Professor Duckworth:** Neither did some of Da Vinci's concepts.

**Mr. Firma:** I'd like a yes or no answer to my question.

**Ms. Solaris:** Your Honor, I object. Mr. Firma is trying to make this a case about Professor Duckworth. His past experiments are irrelevant to any issue in this case.

**Mr. Firma:** Excuse me, but we heard Ms. Solaris rave about Professor Duckworth's supposed success as an inventor, his great book, his big movie deals. Seems to me I can therefore cross him on his failed inventions.

**The Court:** So you're saying what's sauce for the Duckworth goose is sauce for the Duckworth gander?

**Mr. Firma:** Precisely, your Honor.

**The Court:** (to audience) I can do puns too. (to Mr. Firma) I'll allow it.

**Mr. Firma:** Thank you, your Honor. Please answer the question, yes or no, it never got off the ground.

**Professor Duckworth:** (grudgingly) No.

**Mr. Firma:** Another government contract cancelled?

**Professor Duckworth:** There was no government contract for that project.

**Mr. Firma:** Oh, my mistake. But there was a contract, correct?

**Professor Duckworth:** Yes, with a large government contractor.

**Mr. Firma:** That government contractor was the defendant, ACME Aerodynamics, wasn't it?

**Professor Duckworth:** Yes.

**Mr. Firma:** And ACME cancelled the contract?

**Professor Duckworth:** Yes.

**Mr. Firma:** And after ACME killed your project, which relied on using jet fuel, they approached BirdBusters?

**Professor Duckworth:** Yes.

**Mr. Firma:** And after working with BirdBusters for a time, ACME decided to develop a concept that sprayed water, correct?

**Professor Duckworth:** Yes.

**Mr. Firma:** But ACME did not acquire rights to that technology from BirdBusters?

**Professor Duckworth:** I don't know, but that is my understanding.

**Mr. Firma:** So, to sum up, ACME contracted with you to develop bird strike capability. You suggested your flamethrower concept, but the safety regulators killed it. ACME then cancelled your contract and turned to BirdBusters and the invention of the double triple zero patent for a solution. And now ACME has dropped BirdBusters and hired you to say that BirdBuster's patent is invalid?

**Ms. Solaris:** Object. This is cross examination, not closing argument. Move to strike.

**The Court:** Sustained.

**(Narrator):** We're addressing a couple of points in this portion of the cross. The first is using cross to raise a question about the witness's credibility, here by showing the Professor's financial incentive to slant his testimony in favor of the defendant, which has

paid him almost \$1 million, and how sometimes witnesses' reluctance to admit facts adverse to them will help you. Second, sometimes you have the opportunity to ask questions that will presage your closing argument or summarize your case. Sometimes you can get the witness in such a box you do not care what the answer is. If you go too far the judge may sustain an objection that it is argument, as the judge did here, but it is a tool to consider.

**Mr. Firma:** Now, let's turn, Professor, to your opinion that the double triple zero patent is invalid. Your opinion relies in part on Chapter 7 of your book, correct?

**Professor Duckworth:** Yes.

**Mr. Firma:** In fact, I'll read from your opinion—

“as set forth in Chapter 7, Section 2 of my book, it is possible to mount nozzles to the fuselage, wings, etc., of aircraft that may communicate with the aircraft's jet fuel supplies. In this way, the same fuel that is used to propel the aircraft may be diverted to the nozzles, ignited, and directed at the approaching birds, which may then be either diverted by the heat of the flame being thrown by the nozzles or carbonized by the flame.”

**Mr. Firma:** Did I read that correctly?

**Professor Duckworth:** Yes.

**Mr. Firma:** And to quote further from your report: "It may also be possible to divert a pressurized stream of fuel at the approaching birds without igniting it, in this way diverting them from the aircraft."

**Mr. Firma:** Did I read that correctly?

**Professor Duckworth:** Yes.

**Mr. Firma:** And your opinion concludes—well, why don't you just read the last sentence. Let's put it up for the jury.

**(Show Slide #7)**

**Professor Duckworth:** (Reading from expert report)

Because it was known, by virtue of my treatise, that it is possible to divert jet fuel from the aircraft's fuel tanks to deflect approaching birds, and because it was also known from the prior art to use ground-based water cannons for the same purpose, it would have been obvious to use the aircraft's fresh water supplies for that purpose, namely, by diverting fresh water from the aircraft's water supply, pressurizing that water, and firing the pressurized water through nozzles mounted on the wings or fuselage at approaching birds to divert them.

**Mr. Firma:** That was your opinion when you wrote those words?

**Professor Duckworth:** Yes.

**Mr. Firma:** And it remains your opinion today?

**Professor Duckworth:** Yes.

**Mr. Firma:** Now, professor, let's return to Chapter 7, Section 2 of your book on vaporizing birds.

(Professor Duckworth returns to book)

**Mr. Firma:** I'd like you to turn to page 347.

**Professor Duckworth:** (thumbs through book) I'm there.

**Mr. Firma:** Please read the paragraph starting with the heading "Water Based Systems." To help the jury, let's show it on the screen.

**(Show Side #8)**

**Professor Duckworth:** (Reading from treatise)

**347**

***Water Based Systems***

Prior attempts to prevent bird strikes included using ground based water cannon. But ground based systems are useless at

higher altitudes, such as 3,000 feet AGL (above ground level), as water cannon cannot reach such heights. Also, water based systems are prone to failure in colder temperatures and higher altitudes because of the risk of freezing. And water based systems onboard aircraft would add weight to the aircraft in the form of heavy water tanks. Of course, water based systems cannot vaporize birds. For these reasons, water based systems are of little practical use in preventing bird strikes.

**Mr. Firma:** The double triple zero patent uses small quantities of water at high pressure and prevents freezing by heating the water with waste heat from the jet's engines, isn't that true?

**Professor Duckworth:** So they claim.

**Mr. Firma:** And so the patent actually solves the problems with water based systems described in your textbook, doesn't it?

**Professor Duckworth:** No, as I say in the book, one of the main problems is that a water system can't vaporize or even carbonize the target.

**Mr. Firma:** But you would agree that the double triple zero patent solves the problem of water freezing at high altitude or low temperature?

**Professor Duckworth:** So they claim.

**Mr. Firma:** And you would agree that the double triple zero patent solves the weight problem of added water tanks by using water already on board the aircraft, such as that stored for making coffee and flushing toilets?

**Professor Duckworth:** So they claim. But my textbook talks about diverting fuel to spray at birds. So it would be obvious to divert water to spray at them as well.

**Mr. Firma:** (retrieves and holds up textbook) But you don't mention diverting water onboard the aircraft anywhere in your 800-page textbook, do you?

**Professor Duckworth:** I think it's implied.

**Mr. Firma:** *Implied?*

**Professor Duckworth:** Yes.

**Mr. Firma:** (Pauses, looks at jury for emphasis) You would agree that this passage on the screen tends to deter one from attempting a water based bird strike deflector wouldn't it?

**Professor Duckworth:** It might. (a bit irritated) Then again, it didn't deter ACME.

**Mr. Firma:** But you would agree that the passage tends to teach against the concepts of employing water based systems doesn't it?

**Professor Duckworth:** It could. After all, as I said before, they can't vaporize the target.

**Mr. Firma:** Regardless, your very own textbook, (holds up textbook) the one that you say makes the double triple zero patent obvious, in this very paragraph, actually teaches away from the concepts of the double triple zero patent, doesn't it?

**Professor Duckworth:** (Sees he's been trapped, hesitates, re-reads the paragraph, points to screen) Actually, I didn't write this paragraph.

**Mr. Firma:** No? Then who did?

**Professor Duckworth:** I'm pretty sure that was Dr. Starr's paragraph.

**Mr. Firma:** But you said you wrote all of Chapter 7, one of the key chapters in the book?

**Professor Duckworth:** I did. But as I recall, I used this paragraph that Dr. Starr wrote since she felt it should go in.

**Mr. Firma:** So you really didn't write all of Chapter 7?

**Professor Duckworth:** All but one paragraph.

**Mr. Firma:** But there's no footnote attributing this paragraph to Dr. Starr is there?

**Professor Duckworth:** No.

**Mr. Firma:** No mention of Dr. Starr contributing this paragraph in the acknowledgements section?

**Professor Duckworth:** No.

**Mr. Firma:** So what makes you so sure that Dr. Starr wrote this paragraph?

**Professor Duckworth:** She was doing some work with water based systems as part of her doctoral dissertation. This was my way of plugging her dissertation.

**Mr. Firma:** But you agree with everything stated in that paragraph don't you?

**Professor Duckworth:** I agree that water based systems can't vaporize birds. I don't necessarily agree that the problems of water freezing or adding weight were significant problems, and I think the solution to solving them was fairly obvious.

**Mr. Firma:** Let's go back to the acknowledgments. (hands witness the book) I'd like you to read what you had to say about Dr. Starr.

**Professor Duckworth:** (turns to back of book) The author wishes to particularly thank Jennifer Starr . . . .

**Mr. Firma:** Please continue.

**Professor Duckworth:** I'd rather not.

**Mr. Firma:** Why is that?

**Professor Duckworth:** No reason. I just don't want to.

**Mr. Firma:** Your Honor?

**The Court:** Professor Duckworth, did you write what Mr. Firma wants you to read?

**Professor Duckworth:** Yes.

**The Court:** Then you will read it to the Court.

**Professor Duckworth:** (somewhat miffed, reads from book) The author wishes to particularly thank Jennifer Starr, whose thoughts and ideas align so closely with mine that were she a man, I'd think she was my clone.

**Mr. Firma:** Did you agree with that statement when you wrote it?

**Professor Duckworth:** I don't recall.

**Mr. Firma:** But you did write it?

**Professor Duckworth:** I must have.

**Mr. Firma:** So by implication, you agree with it?

**Professor Duckworth:** Perhaps at one time I did.

**Mr. Firma:** But not anymore?

**Professor Duckworth:** Dr. Starr and I don't see eye-to-eye on things so much anymore.

**Mr. Firma:** But when you wrote this, you and Dr. Starr saw things eye-to-eye?

**Professor Duckworth:** I suppose.

**Mr. Firma:** And there's no footnote, no parenthetical to that statement, nothing that says Jennifer Starr's thoughts align so closely with mine that we could be clones except for that one isolated paragraph on page 347?

**Professor Duckworth:** That would be silly.

**Mr. Firma:** Indeed. Nothing further.

**Narrator:** So Mr. Firma has done an excellent job impeaching the Professor with his own works, always powerful. Another issue we're touching on is that the Professor continues to give equivocal answers. When asked whether the prior art discloses certain things, he would just say "so they claim." And recall earlier, when asked about his own finances and tax returns, he would say: I believe you. It is often a tough call whether to press for an unequivocal admission or accept a more equivocal statement as an admission. A related point is sometimes you may want to impeach the witness on a matter that is not critical to show you know the record so the witness better hew to the facts. But you risk

appearing to badger the witness. A balancing act you will have to think about.

• • •

**(Narrator)**: So now Defendant rested its case, and Plaintiff rebutted by calling Dr. Jennifer Starr to the stand.

**Mr. Firma**: Plaintiff calls Dr. Jennifer Starr to the stand.

(Jennifer Starr takes stand)

**Mr. Firma**: Please state your name for the record.

**Jennifer Starr**: Dr. Jennifer Starr.

**Mr. Firma**: And what is your occupation?

**Jennifer Starr**: I am Vice President of R&D for BirdBusters, Inc.

**Mr. Firma**: The plaintiff in this case?

**Jennifer Starr**: Yes.

**Mr. Firma**: You have heard Professor Duckworth's testimony in this court?

**Jennifer Starr**: I have.

**Mr. Firma**: Is there anything about that testimony with which you disagree?

**Jennifer Starr:** I disagree with more of it than I agree with.

**Mr. Firma:** Well, let's start with the professor's claim that he wrote most of Chapter 7 of the textbook except for this one paragraph. (Show Slide #7) Is that true?

**Jennifer Starr:** It is not true. In fact, *I* wrote most of Chapter 7, except for that paragraph. The professor insisted that we insert that paragraph about the supposed problems with water based systems.

**Mr. Firma:** Why did he insist on that?

**Jennifer Starr:** Because at the time, Professor Duckworth knew that BirdBusters was competing with him for a contract with ACME, and he wanted to include something in his treatise that might deter the industry from using water based systems.

**Mr. Firma:** So Professor Duckworth was lying when he said you wrote this paragraph?

**Jennifer Starr:** Through his false teeth.

**Ms. Solaris:** Object.

**The Court:** Please just answer the question asked, without hyperbole.

**Jennifer Starr:** Yes, he was lying.

**Mr. Firma:** And you say you wrote most of Chapter 7 of the book?

**Jennifer Starr:** Yes. It was the basis for my doctoral dissertation.

**Mr. Firma:** Did Professor Duckworth ever explain to you why he failed to give you attribution for that chapter?

**Jennifer Starr:** No.

**Mr. Firma:** What did you do when you saw that Professor Duckworth was taking credit for your work?

**Jennifer Starr:** I sued him for copyright infringement soon after the book was published.

**Mr. Firma:** And is that suit pending now?

**Jennifer Starr:** Yes.

**Mr. Firma:** Nothing further.

(Ms. Solaris approaches witness)

**Ms. Solaris:** Dr. Starr, when did you file your lawsuit against Professor Duckworth?

**Jennifer Starr:** As I said, soon after the book was published.

**Ms. Solaris:** But you had seen the galley proofs before it was published, hadn't you?

**Jennifer Starr:** Yes.

**Ms. Solaris:** In fact, part of your role in assisting Professor Duckworth was to proofread the galleys, wasn't it?

**Jennifer Starr:** Yes.

**Ms. Solaris:** Did you make corrections to the galleys?

**Jennifer Starr:** I made suggested corrections. Professor Duckworth and the editor had final say.

**Ms. Solaris:** But of all the suggested corrections you made, none of them ever suggested the need to give you credit for writing Chapter 7 did they?

**Jennifer Starr:** I was a graduate assistant. I needed Professor Duckworth to approve my dissertation.

**Ms. Solaris:** So you didn't want to make waves at that time?

**Jennifer Starr:** No.

**Ms. Solaris:** But you have no problem making waves now?

**Mr. Firma:** Object.

**The Court:** Overruled.

**Ms. Solaris:** Please answer the question.

**Jennifer Starr:** I've earned my Ph.D. and I'm employed now, so I can be more candid now than when I was a lowly graduate assistant working with Professor Duckworth. I had heard he could be brutal on grad students.

**Ms. Solaris:** But you never reported being mistreated in any way by Professor Duckworth, did you?

**Jennifer Starr:** No.

**Ms. Solaris:** Professor Duckworth was never brutal towards you, was he?

**Jennifer Starr:** No.

**Ms. Solaris:** And you never saw anything out of the way in the conduct of the lab generally?

**Jennifer Starr:** Not sure what you mean, but I don't think so.

**Ms. Solaris:** In short, you never found Professor Duckworth's lab a brutal place to work?

**Jennifer Starr:** No, I did not.

**NARRATOR:** Another commandment of cross is: only ask questions you know the answer to, or more accurately, that you know the answer to and have the material, be it a deposition, affidavit, treatise, etc., to impeach the witness if the witness departs from her prior answer. But you cannot always follow this rule. The court may allow an undisclosed witness to testify. Or, more common, the witness may talk about a topic that she was not asked about in deposition. The witness may blurt out hearsay testimony, as here where Ms. Starr said she "heard" Duckworth could be brutal with grad students. You can and sometimes have to object, but sometimes all that does is allow the jury to hear the harmful statement again. One technique when a witness goes into new territory and says something that is potentially damaging, like Ms. Starr's hearing the Professor was "brutal", is to take a step by step approach to see if you can back the witness off the statement. In your materials is the actual direct and cross-examination of a key witness from the Lizzie Borden murder trial from the late 1800s. The witness, called by the prosecutor, implied there was friction in the Borden household. The attorney defending Ms. Borden from the charges she gave her mom and dad 40 whacks had to dispel that implication. I recommend you that as an excellent cross.

**Ms. Solaris:** You're now employed by BirdBusters, Inc., a company that competes with technologies developed by Professor Duckworth?

**Jennifer Starr:** Yes.

**Ms. Solaris:** Now you say you filed your lawsuit against Professor Duckworth soon after the book was published, correct?

**Jennifer Starr:** Yes.

**Ms. Solaris:** But you had already gotten your Ph.D. and were already employed by BirdBusters, Inc. for nearly a year before the book was published, weren't you?

**Jennifer Starr:** Yes.

**Ms. Solaris:** So you could, in your words, have been more candid with Professor Duckworth long before the book was published, couldn't you?

**Jennifer Starr:** I was busy with other things.

**Ms. Solaris:** I see. And you filed your complaint against Professor Duckworth just last week, correct?

**Jennifer Starr:** Yes.

**Ms. Solaris:** Right before this case went to trial, correct?

**Jennifer Starr:** Yes.

**Ms. Solaris:** And who's paying for your lawsuit?

**Mr. Firma:** Object. Irrelevant.

**Ms. Solaris:** Goes to bias.

**The Court:** Overruled. Please answer the question.

**Jennifer Starr:** My employer is paying for it.

**Ms. Solaris:** The plaintiff, BirdBusters, Inc.?

**Jennifer Starr:** Yes.

**Ms. Solaris:** Isn't it true that BirdBusters is funding your lawsuit against Professor Duckworth to make it harder for him to continue his work on competing technology?

**Jennifer Starr:** I don't think so. It was my idea to file the lawsuit, not my employer's.

**Ms. Solaris:** And you decided to file that lawsuit last week?

**Jennifer Starr:** My attorneys did that.

**Ms. Solaris:** And the timing of that lawsuit just happens to be over a year after you might have filed it, but right after Steven Spielberg optioned the movie rights, and right before this case went to trial?

**Jennifer Starr:** Yes.

**Ms. Solaris:** Now, doctor, you are experienced in the art of bird strike deterrence systems, correct?

**Jennifer Starr:** Correct.

**Ms. Solaris:** Would you agree you have at least ordinary skill in that art?

**Mr. Firma:** Object. Dr. Starr has been called as a fact witness, not an expert.

**Ms. Solaris:** I won't be asking for her opinions.

**The Court:** I'll give you some latitude, since it's cross.

**Ms. Solaris:** Please answer the question.

**Jennifer Starr:** Yes, I am at least one of ordinary skill in that art.

[NOTE to narrator: Is Slide 8 still up?]

**Ms. Solaris:** Let's return to the paragraph on the screen for a moment. Was that something you wanted included in the textbook?

**Jennifer Starr:** No.

**Ms. Solaris:** Because you didn't agree with it did you?

**Jennifer Starr:** I didn't agree with some of it.

**Ms. Solaris:** For example, you didn't agree that the so-called problems of water freezing or

water adding weight to the aircraft were substantial problems?

**Jennifer Starr:** No.

**Ms. Solaris:** So as far as you were concerned, this paragraph, which you say was intended to deter ACME Aerospace from using a water based system, was really raising a red herring about supposed problems with such systems?

**Jennifer Starr:** Yes.

**Ms. Solaris:** And so, as someone of skill in the art of bird strike deterrence, you knew that the problems of water based systems could be overcome?

**Jennifer Starr:** Yes.

**Ms. Solaris:** And in fact, before this book was published, you went to work for BirdBusters, Inc. to develop a water-based bird strike deflector system, didn't you?

**Jennifer Starr:** Yes.

**Ms. Solaris:** So this paragraph didn't in fact deter either you or your employer from pursuing such a solution did it?

**Jennifer Starr:** No.

**Ms. Solaris:** Nothing further.

**Narrator:** So now, in crossing Dr. Starr about her motives, Defendant's counsel has undercut her credibility and perhaps rehabilitated Professor Duckworth

**Narrator:** Now, let's give plaintiff's counsel an opportunity for redirect of Dr. Starr.

(Mr. Firma approaches witness)

**Mr. Firma:** Dr. Starr, during your cross examination, Ms. Solaris referred to technologies of Professor Duckworth that compete with water based systems, do you recall that?

**Jennifer Starr:** Yes.

**Mr. Firma:** What technologies of Professor Duckworth compete with water based bird strike deterrence systems?

**Jennifer Starr:** Well, in addition to the napalm concept that the FAA and NTSB killed, Professor Duckworth has another failed concept involving lasers.

**Ms. Solaris:** Object.

**The Court:** Overruled.

**Mr. Firma:** Please put up Defendant's Exhibit 2.

**(Show Slide #5)**

**Mr. Firma:** Is this the failed laser concept?

**Jennifer Starr:** Yes.

**Mr. Firma:** Why do you say it failed, because the government killed the contract?

**Jennifer Starr:** No, the government killed the contract because of the failure. The reason the concept failed is because Professor Duckworth failed to consider a very important technical problem.

**Mr. Firma:** What was that?

**Jennifer Starr:** Space junk and aircraft tend to be metallic.

**Mr. Firma:** And why is that a problem?

**Jennifer Starr:** Because metal reflects light.

**Mr. Firma:** Including lasers?

**Jennifer Starr:** Yes.

**Mr. Firma:** But Professor Duckworth claimed that this photograph shows his laser vaporizing space junk.

**Jennifer Starr** (Shaking head): It shows his laser vaporizing itself. He shot the laser at a space junk target, which reflected the beam back to the satellite holding the laser, and the beam destroyed the entire satellite. Cost the

government untold millions of dollars. Epic fail.

**Mr. Firma:** So that epic failure would tend to make Professor Duckworth's efforts to use a laser based system mounted to airplanes to prevent bird strikes . . .

**Jennifer Starr:** Dead on arrival.

**Mr. Firma:** Finally, Dr. Starr, you heard the professor bragging about the accolades for his book, correct?

**Jennifer Starr:** Yes.

**Mr. Firma:** Did you happen to see the article in today's *Wall Street Journal* about the professor's failed laser concept?

**Jennifer Starr:** Yes. The headline read, "Duckworth's Goose Is Cooked."

**Mr. Firma:** Nothing further.

**(Narrator):** [Final comments; NOTE, hit depositions and use of the cross exams in closing, etc.]

So are there any questions?

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# Atlanta IP Inn of Court

The Cross Examination of Professor Duckworth



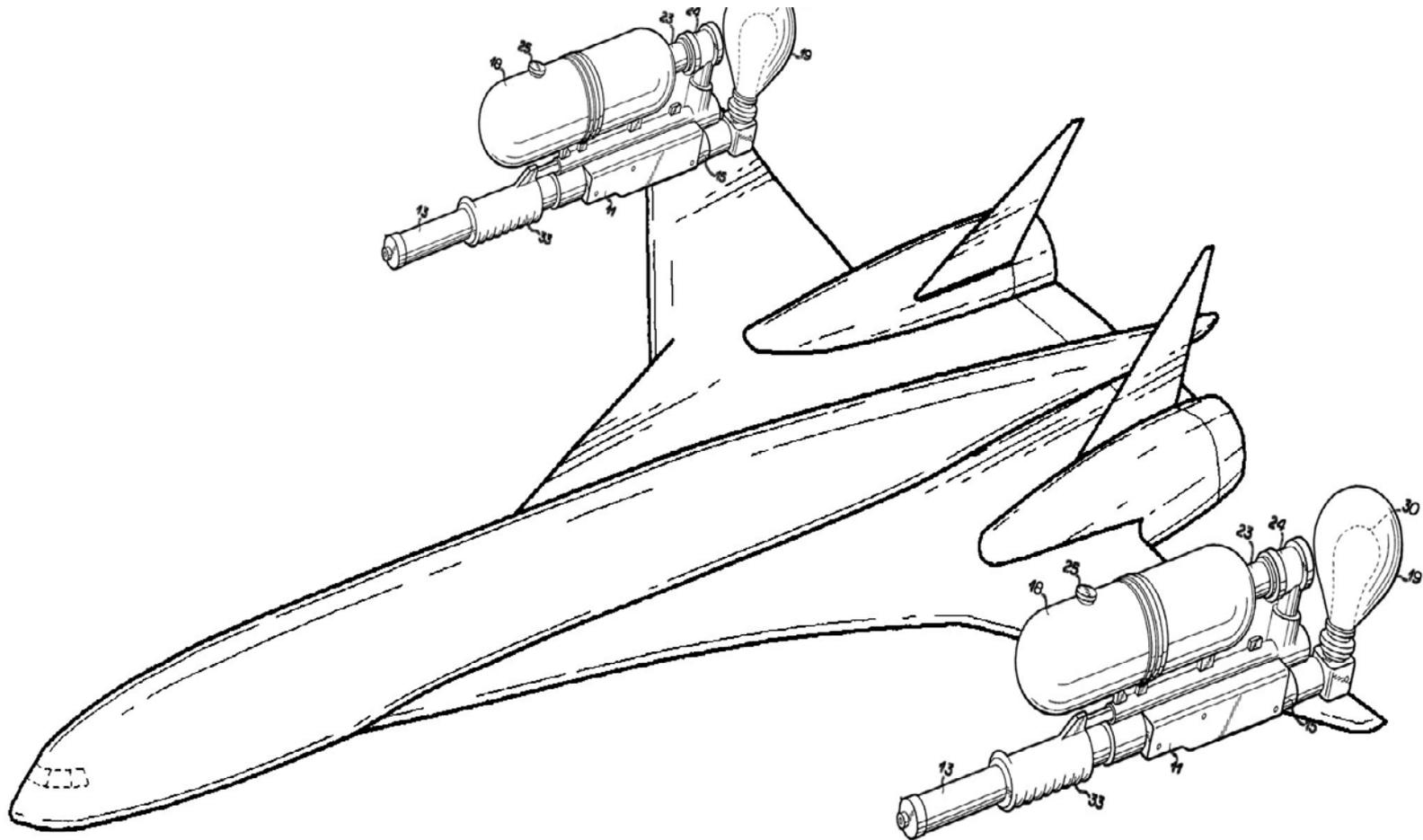


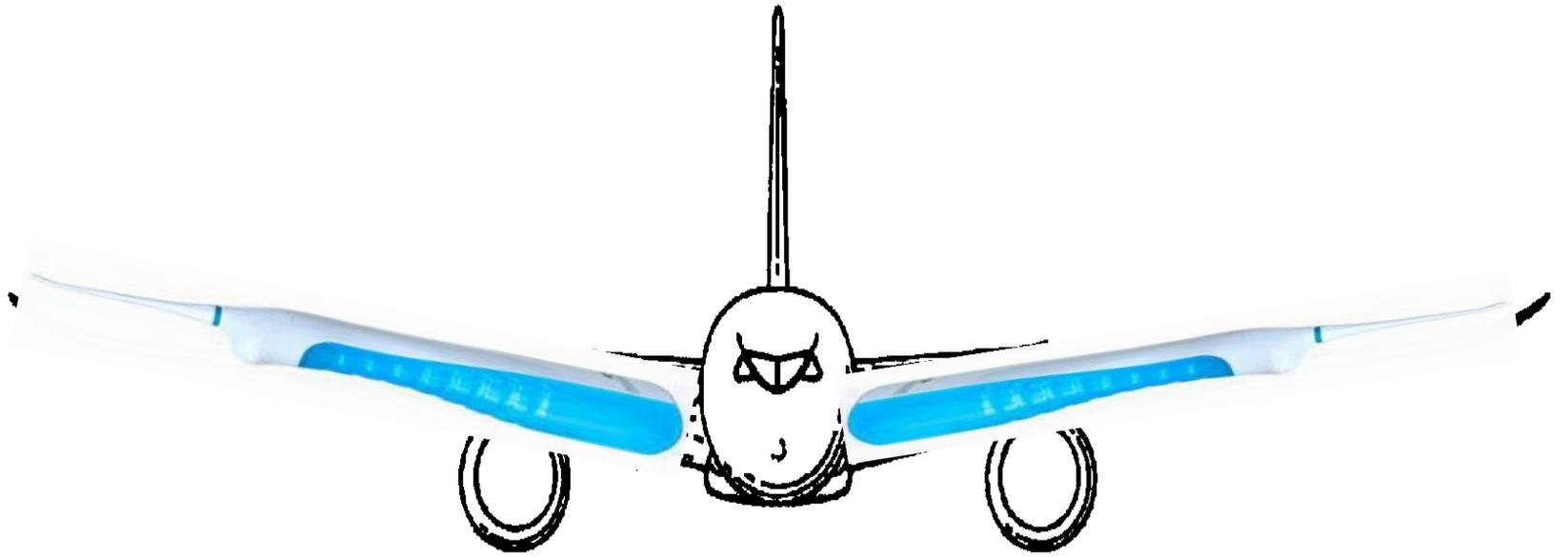
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**PLAINTIFF EXHIBIT 2**

**CAUTION**

**DO NOT ATTEMPT AT HOME**







**DEFENDANT EXHIBIT 2**

# Atlanta IP Inn of Court

The Cross Examination of Professor Duckworth



**DEFENDANT EXHIBIT 2**



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**PLAINTIFF EXHIBIT 2**

## **Excerpt from Prof. Duckworth's Report**

Because it was known, by virtue of my treatise, that it is possible to divert jet fuel from the aircraft's fuel tanks to deflect approaching birds, and because it was also known from the prior art to use ground-based water cannons for the same purpose, it would have been obvious to use the aircraft's fresh water supply for the same purpose, namely, by diverting fresh water from the aircraft's water supply, pressurizing that water, and firing the pressurized water through nozzles mounted on the wings and/or fuselage at approaching birds to divert them.

## **Duckworth On Geese, p. 347: Water Based Systems**

There have been attempts to prevent bird strikes using ground-based water cannon. But ground-based systems are of little use at higher altitudes, such as 3,000 feet AGL (above ground level), as the cannon cannot reach such altitudes. Moreover, water based systems are prone to failure in colder temperatures and higher altitudes because of the risk of freezing. Any attempt to employ water based systems onboard aircraft would suffer from the possibility of freezing, as well as the problems associated with adding weight to the aircraft in the form of large water tanks and the water itself. And of course, water based systems cannot vaporize birds. For these reasons, water based systems are of little practical use in preventing bird strikes.

# Atlanta IP Inn of Court

The Cross Examination of Professor Duckworth



**DEFENDANT EXHIBIT 2**