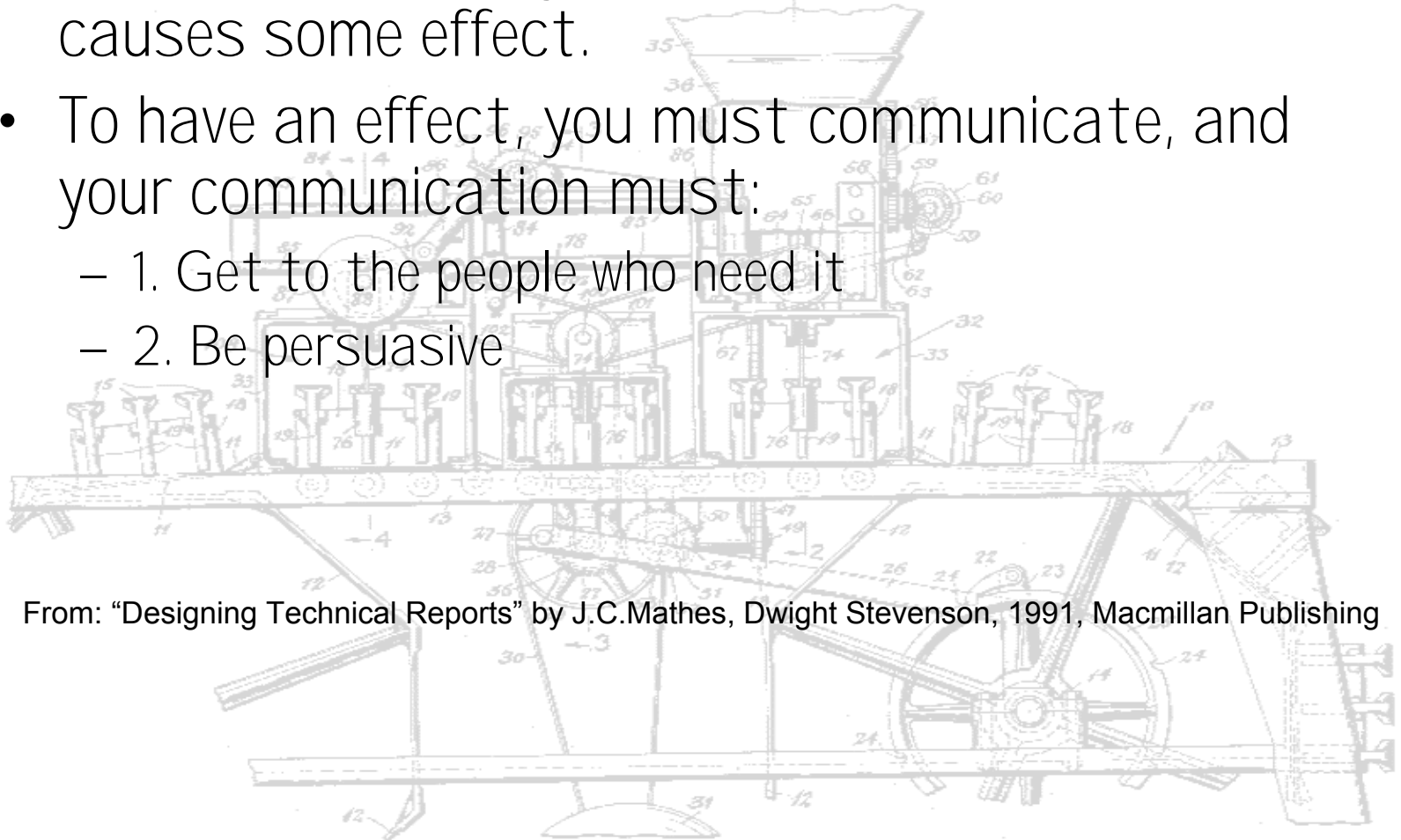


# Designing Technical Reports

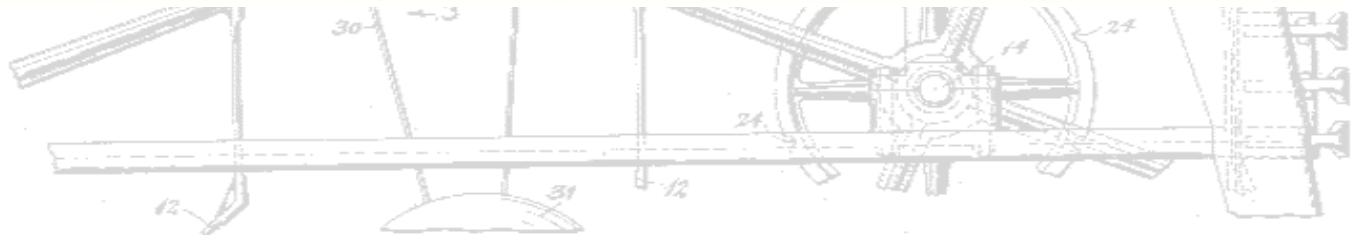
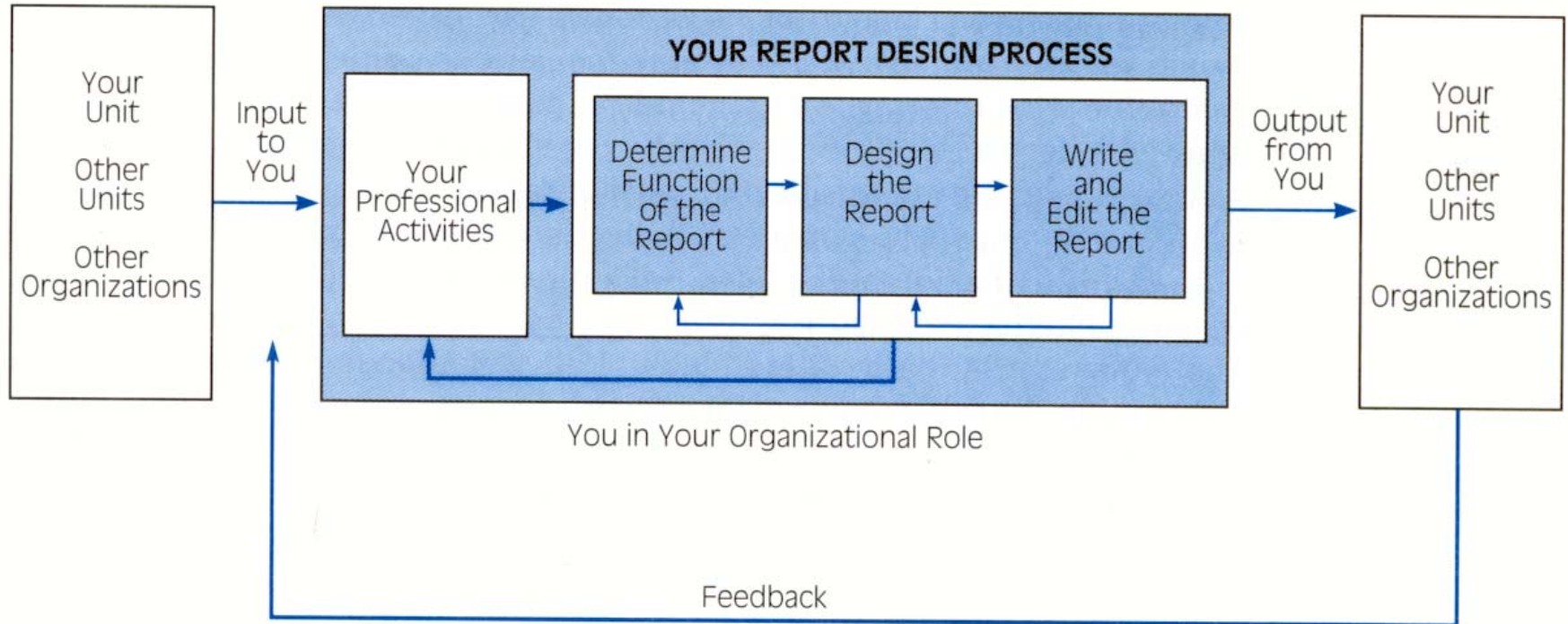
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- Your work in an organization is USELESS unless it causes some effect.
- To have an effect, you must communicate, and your communication must:
  - 1. Get to the people who need it
  - 2. Be persuasive

From: "Designing Technical Reports" by J.C.Mathes, Dwight Stevenson, 1991, Macmillan Publishing

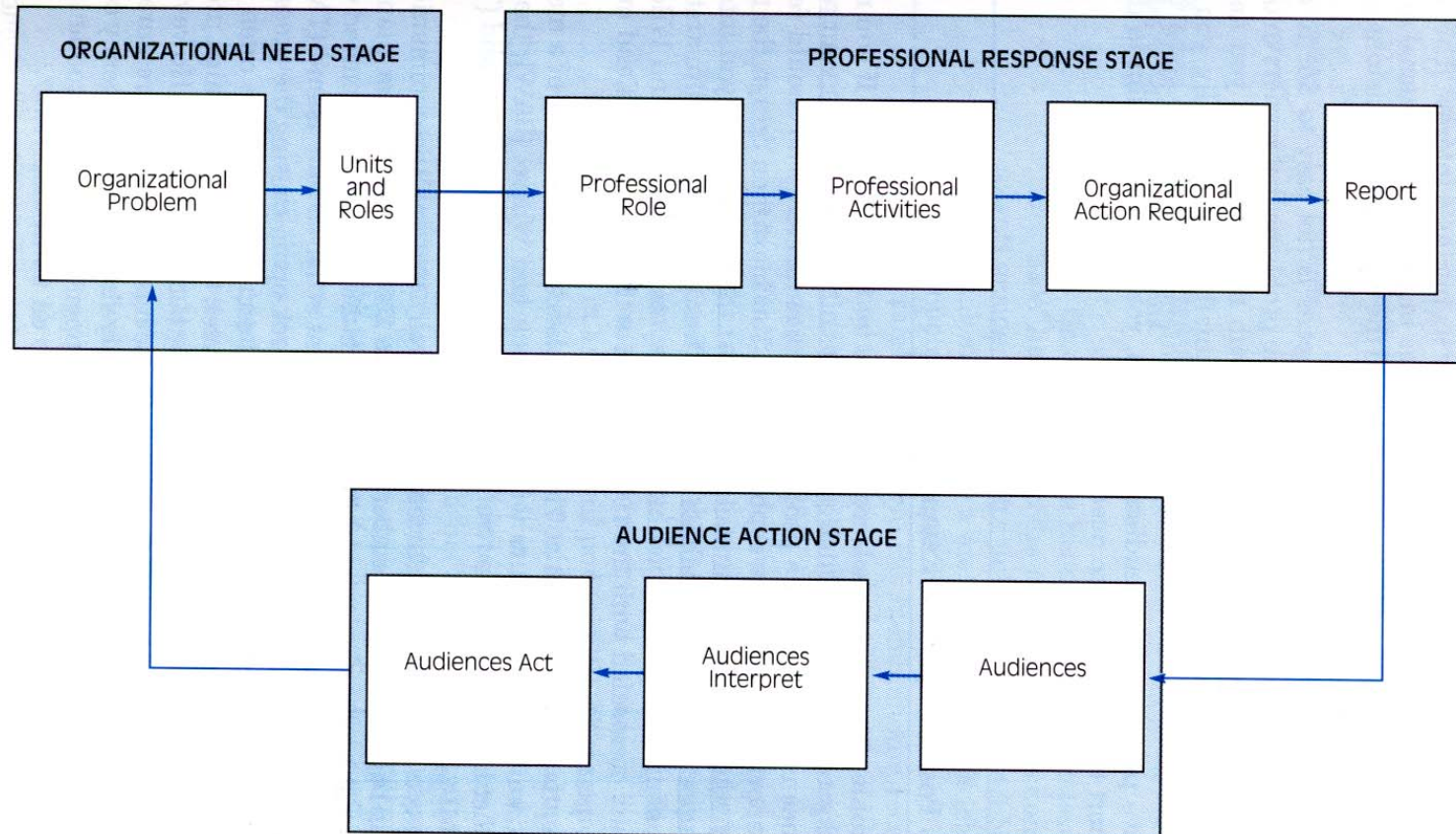


# Designing Technical Reports



# Designing Technical Reports

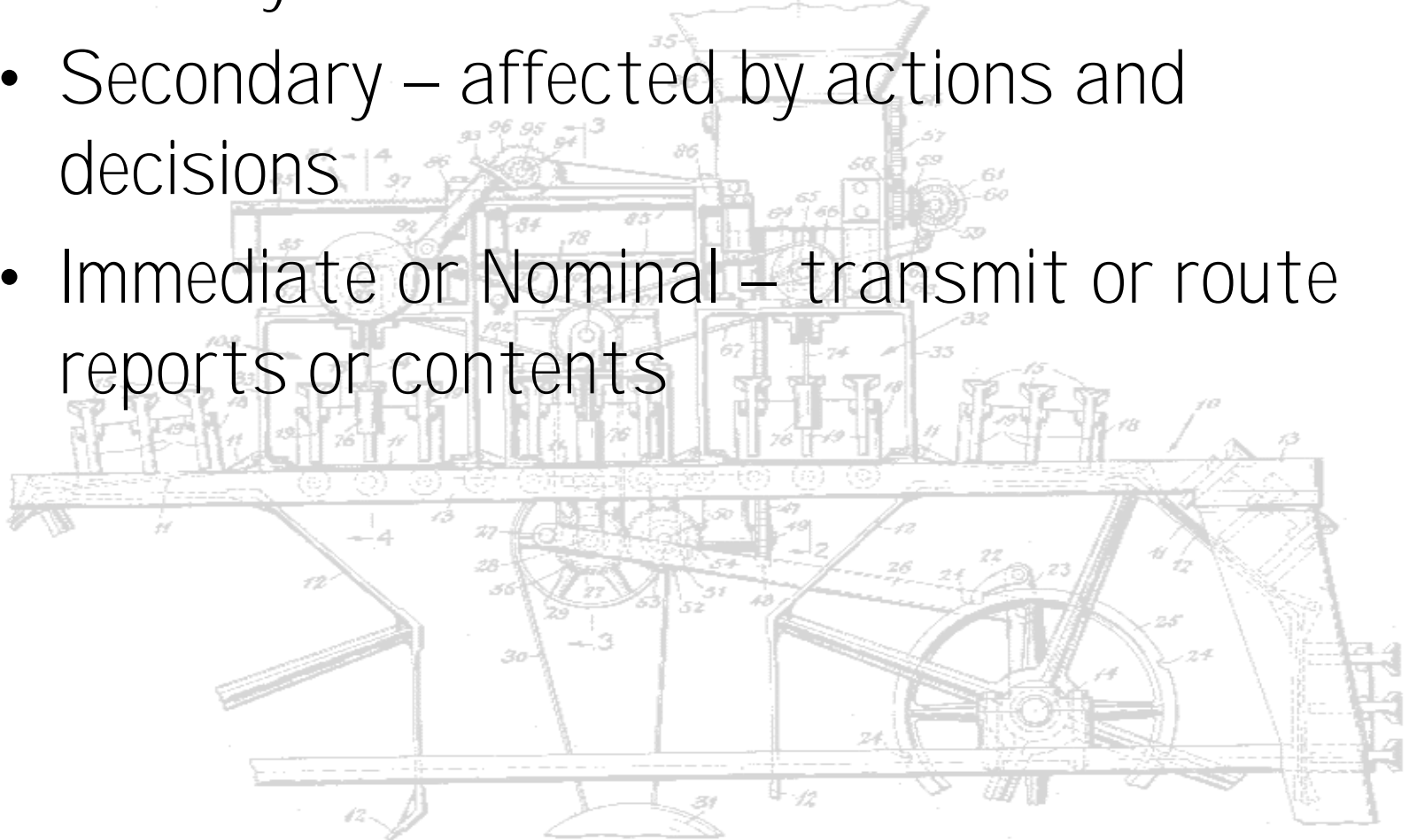
- Who needs your report? Identify your audience.



# Types of Audiences

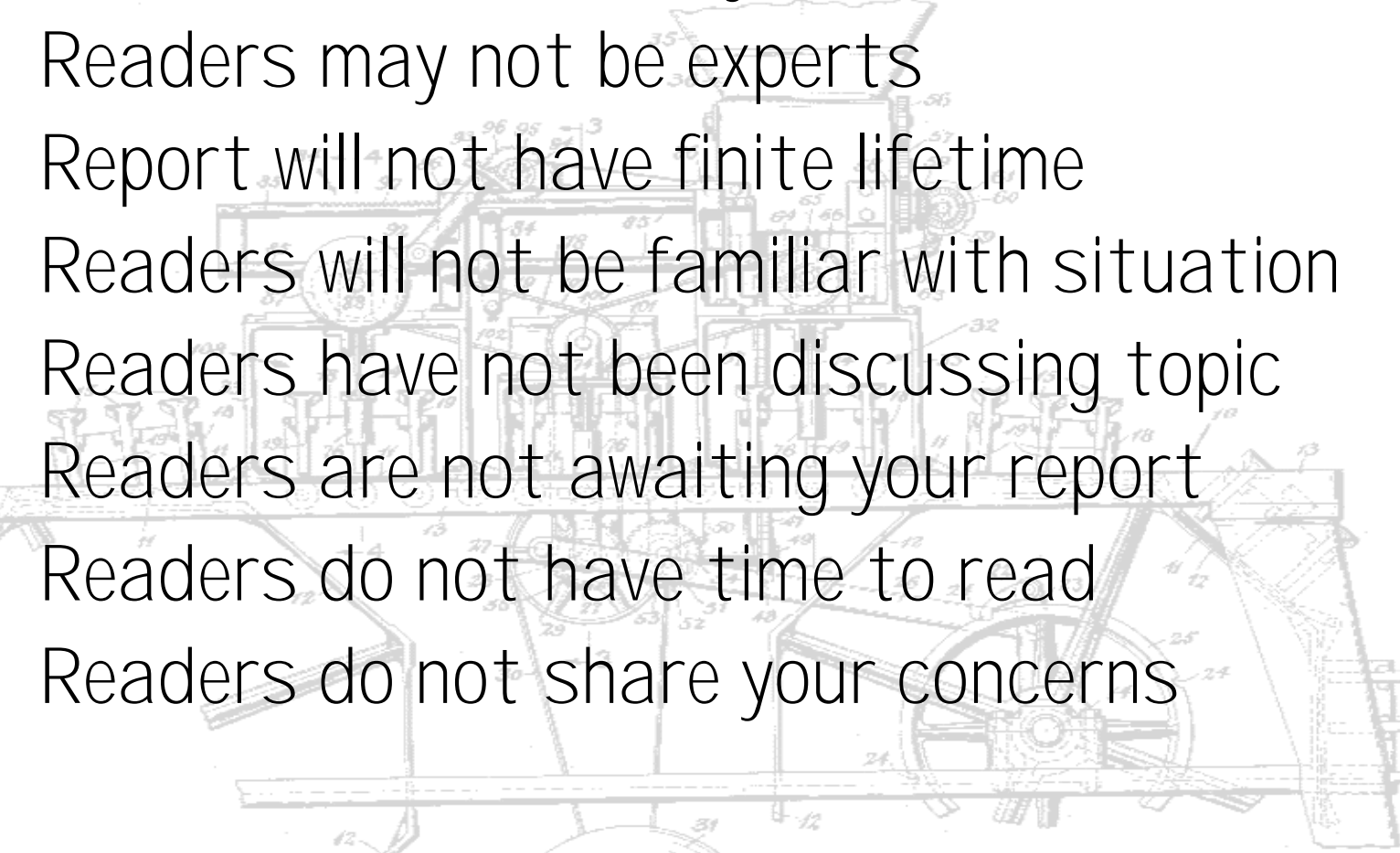
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- Primary – act or make decisions
- Secondary – affected by actions and decisions
- Immediate or Nominal – transmit or route reports or contents



# How Readers Behave

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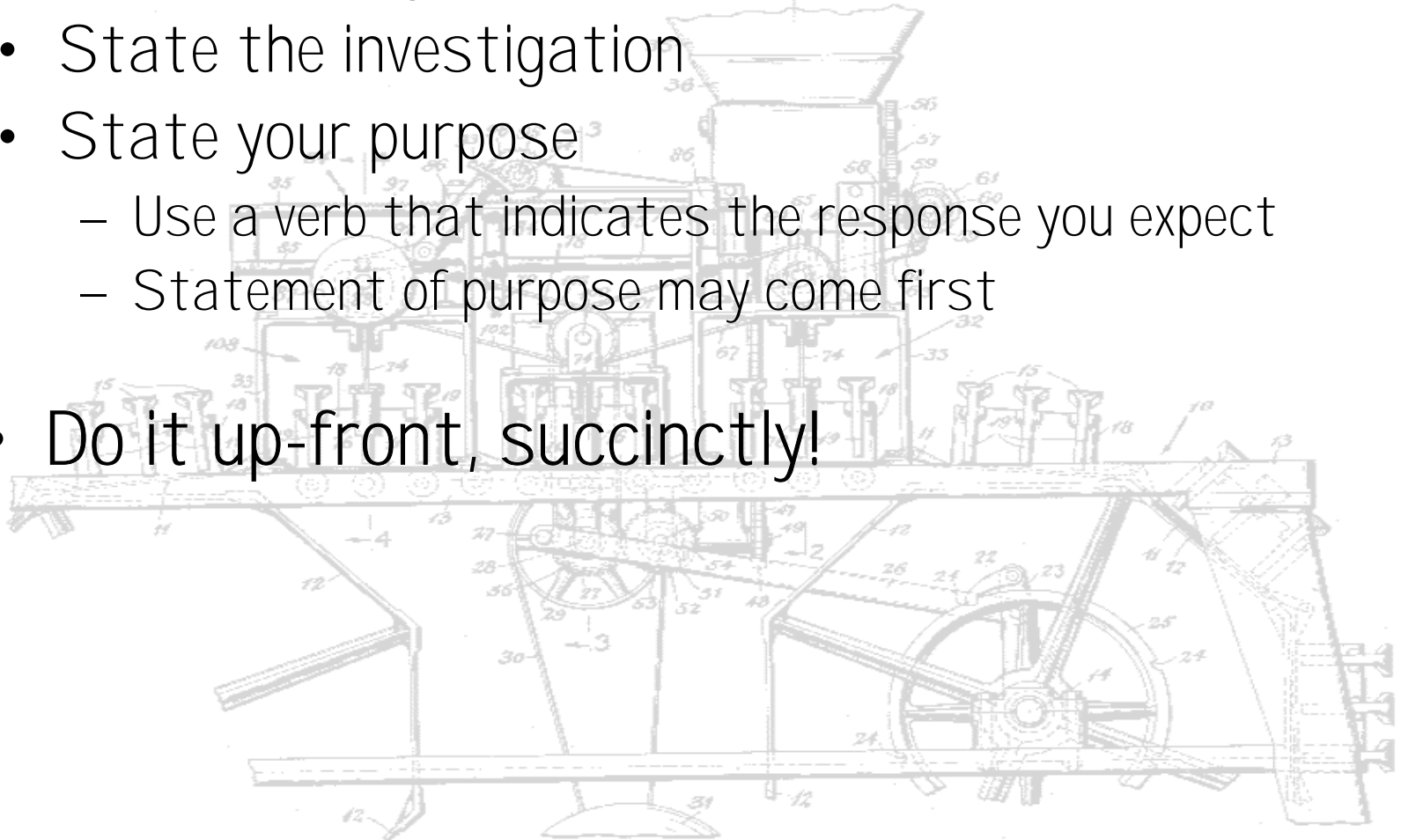
- Person addressed may not be real audience
  - Readers may not be experts
  - Report will not have finite lifetime
  - Readers will not be familiar with situation
  - Readers have not been discussing topic
  - Readers are not awaiting your report
  - Readers do not have time to read
  - Readers do not share your concerns
- 



# Defining Communication Purpose

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- State the organizational problem
- State the investigation
- State your purpose
  - Use a verb that indicates the response you expect
  - Statement of purpose may come first
- Do it up-front, succinctly!



# Organizational Need or Problem

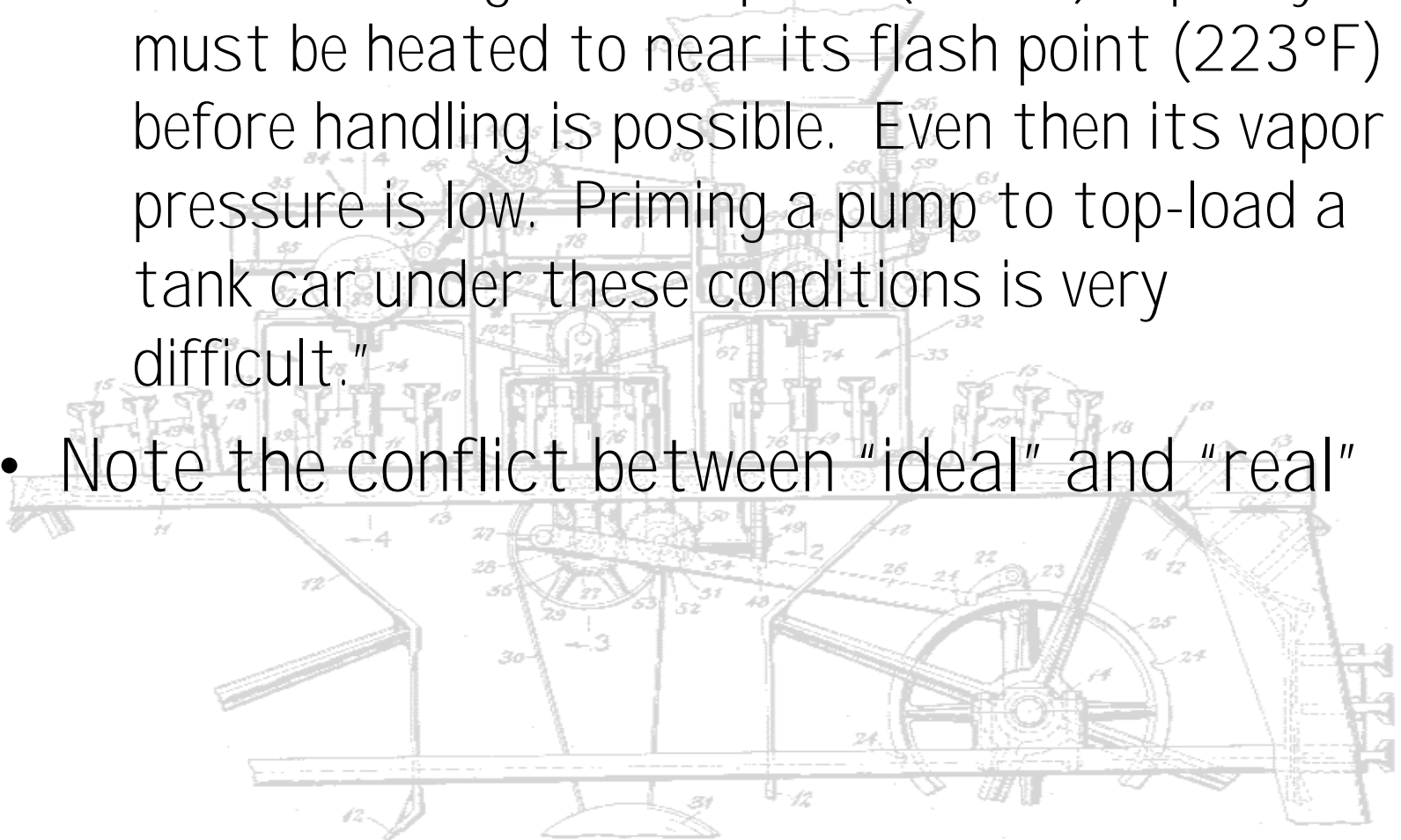
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- A problem is a gap or conflict between "ideal" and "real"
- Examples:
  - "Underwriters Laboratories has published a standard concerning hook-up of AC power to chassis mounted connectors. However, this standard differs from our present wiring standard and creates a potential safety problem for users of instruments we fabricate."

# Organizational Need or Problem

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- “Due to its high freeze point (158°F), biphenyl must be heated to near its flash point (223°F) before handling is possible. Even then its vapor pressure is low. Priming a pump to top-load a tank car under these conditions is very difficult.”
- Note the conflict between “ideal” and “real”





# Organizational Need or Problem

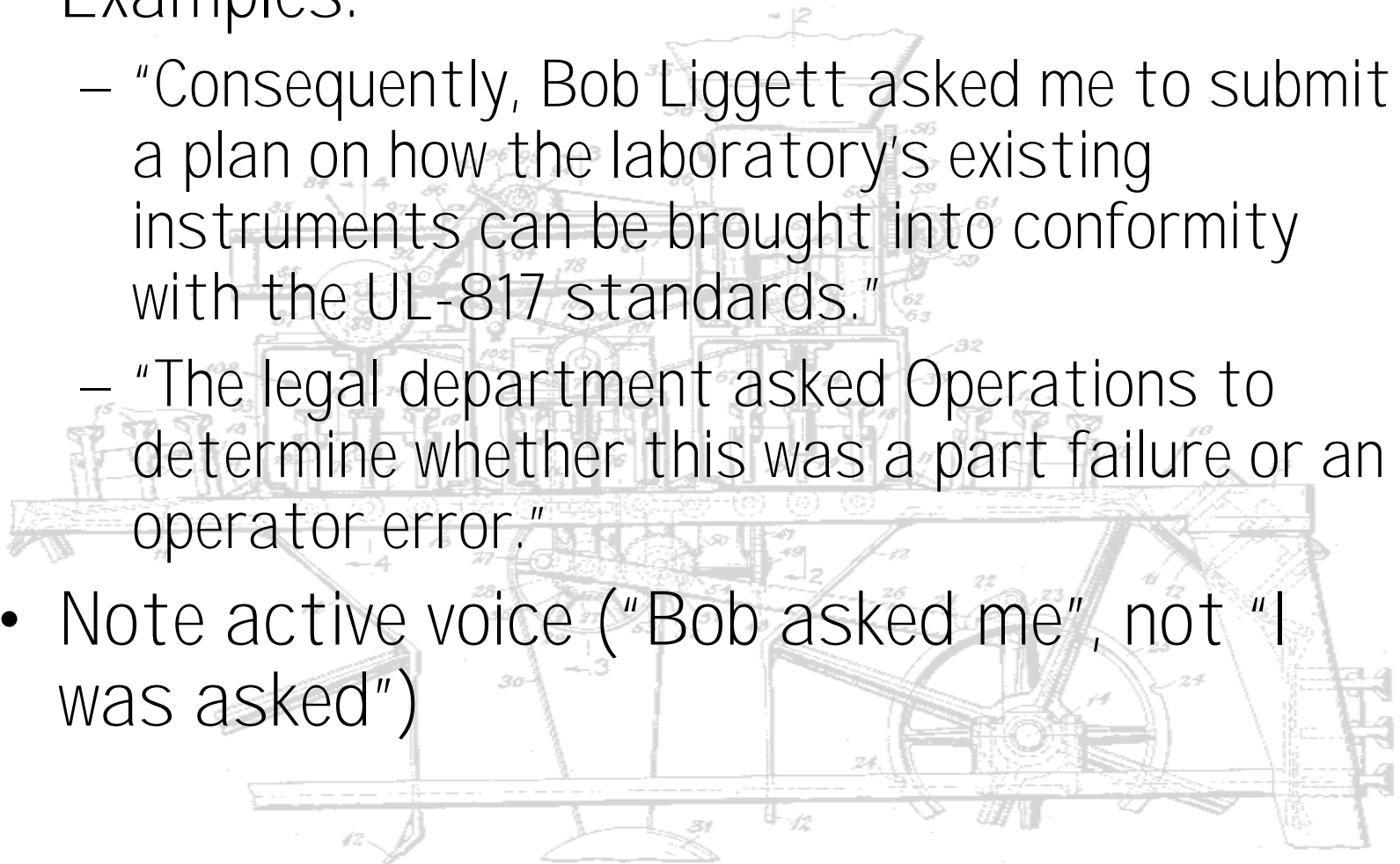
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- Improved statements of problem:
  - “We must follow the new UL specification. However, if we follow the new specification, we will create a potential safety problem for users of our instruments.”
  - “We are required to top-unload tank cars carrying biphenyl. However, we can do so only if we heat the biphenyl to dangerously near its flash point, and even then the pressure is too low for effective unloading.”

# Investigation

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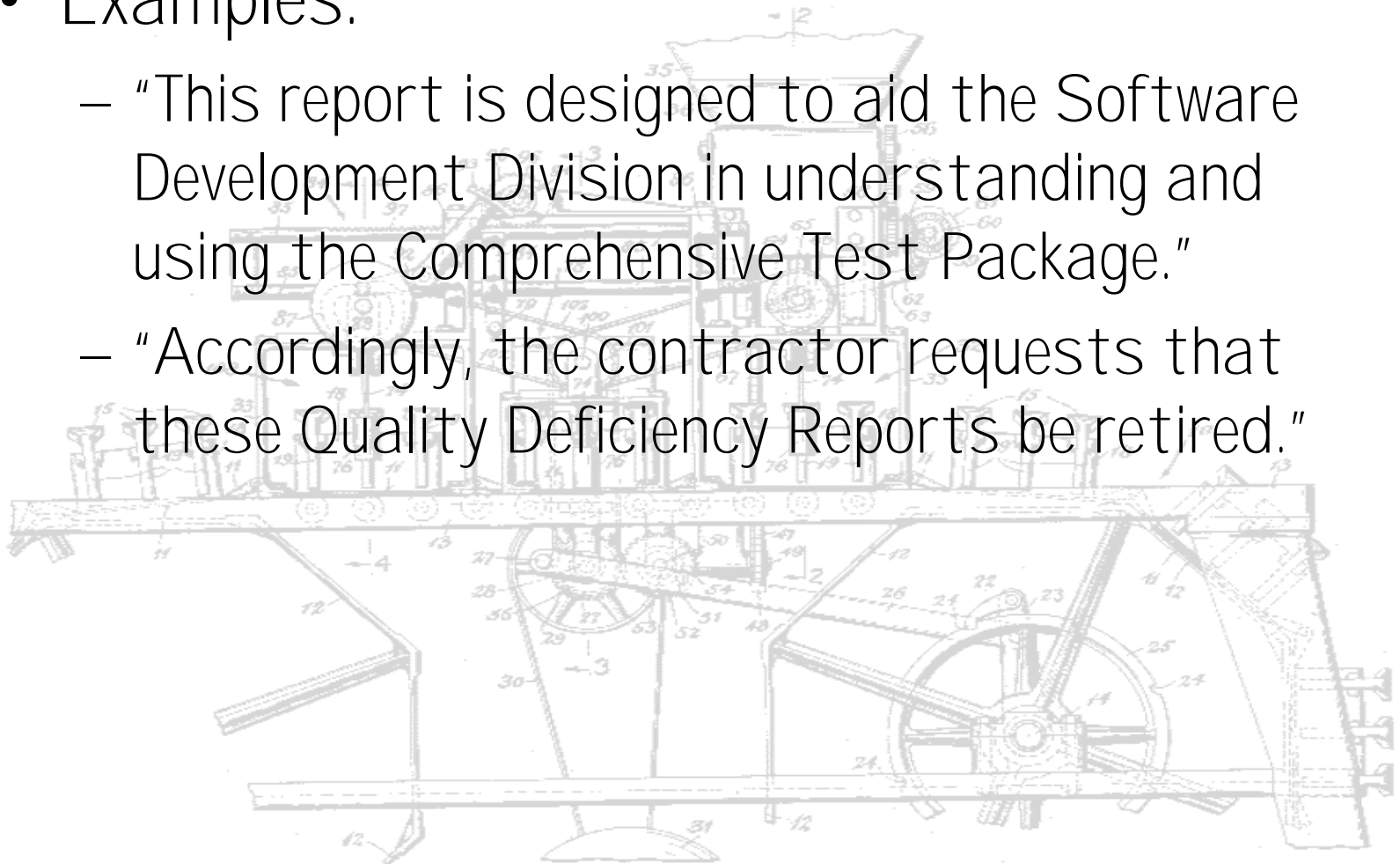
- Examples:
  - “Consequently, Bob Liggett asked me to submit a plan on how the laboratory’s existing instruments can be brought into conformity with the UL-817 standards.”
  - “The legal department asked Operations to determine whether this was a part failure or an operator error.”
- Note active voice (“Bob asked me”, not “I was asked”)



# Communication Purpose

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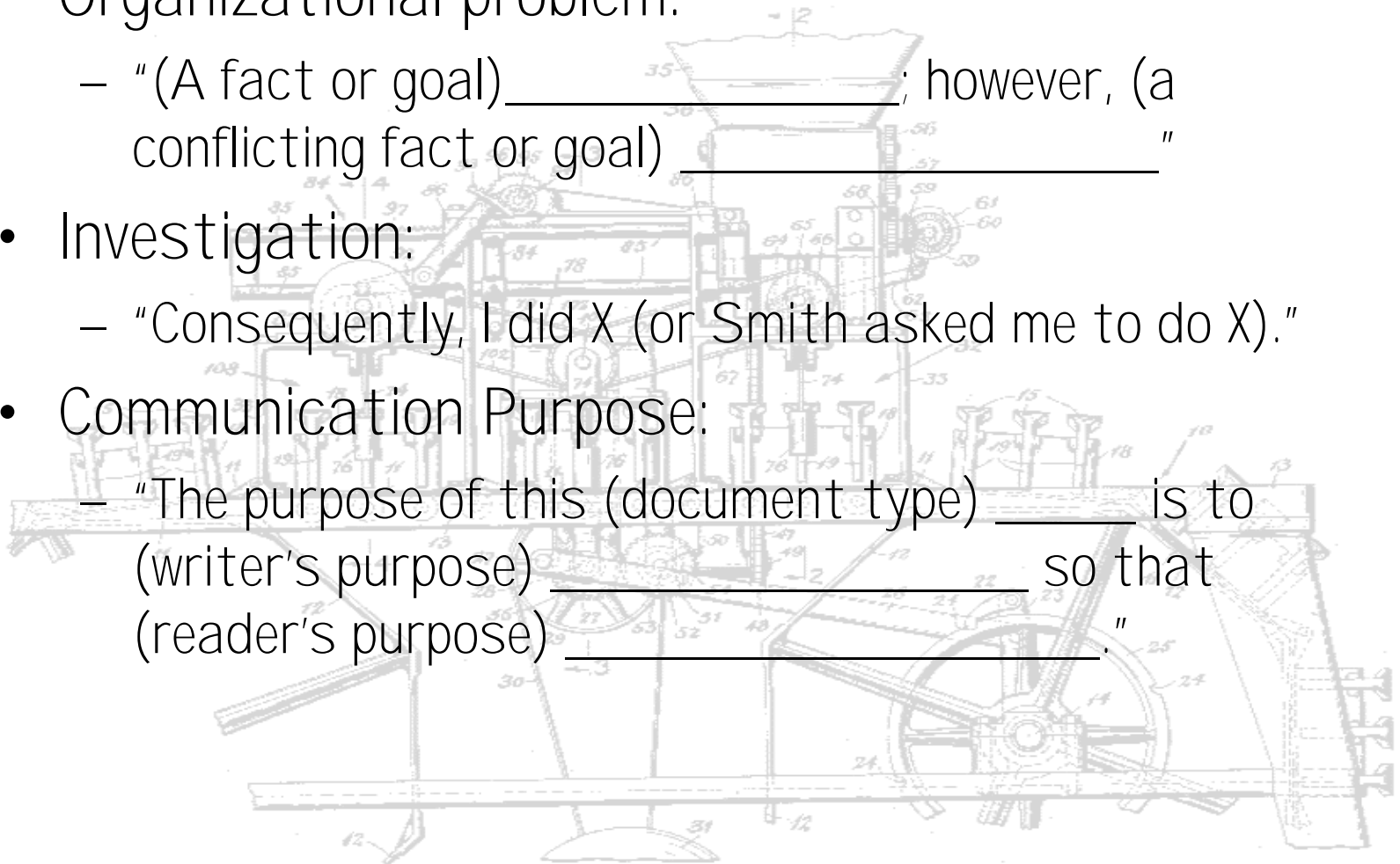
- Examples:
  - “This report is designed to aid the Software Development Division in understanding and using the Comprehensive Test Package.”
  - “Accordingly, the contractor requests that these Quality Deficiency Reports be retired.”



# A Simple “Schematic” for Reports

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- Organizational problem:
  - “(A fact or goal) \_\_\_\_\_; however, (a conflicting fact or goal) \_\_\_\_\_”
- Investigation:
  - “Consequently, I did X (or Smith asked me to do X).”
- Communication Purpose:
  - “The purpose of this (document type) \_\_\_\_\_ is to (writer’s purpose) \_\_\_\_\_ so that (reader’s purpose) \_\_\_\_\_.”



# Bad Example

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- Three-Mile Island nuclear incident:
  - 1977 Sept 14, Davis-Besse nuclear plant in Ohio had a core coolant valve stick open. Pressure dropped, water boiled. Emergency high-pressure injection automatically activated. Pressure went back up, so operators shut off emergency coolant, even though valve was still stuck open.
  - 1977 Oct 23 it happened again.
  - 1977 Nov 1, engineer J.J.Kelly investigated and wrote memo recommending operator instruction changes
  - 1978 Feb 9, B.M.Dunn, Emergency Coolant System Analysis Department manager wrote memo



# TMI

- 1978 Aug 3, D.F.Hallman, Plant Performance Services manager responded to Dunn memo with another memo.
- 1979 Mar 28, Three Mile Island nuclear plant in Pennsylvania had the same problem as Davis-Besse, only when running at full power.
- 1979 Apr 4, new operator instructions were issued.

