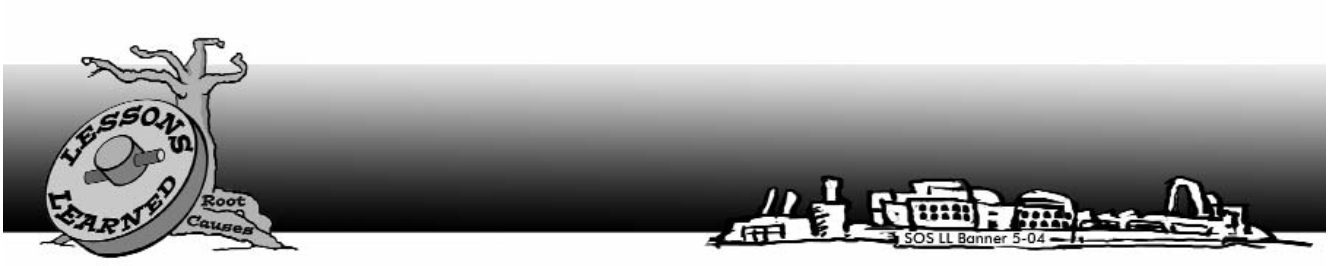

Blade Holder Amputates Part of Worker's Finger

Purpose

To share "lessons learned" gained from incident investigations through a small group discussion method format.

To understand "lessons learned" through a Systems of Safety viewpoint.

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FOR HEALTH, SAFETY AND ENVIRONMENTAL EDUCATION
A PROJECT OF THE UNITED STEELWORKERS AND THE LABOR INSTITUTE

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Lessons Learned

Volume 09, Issue 07

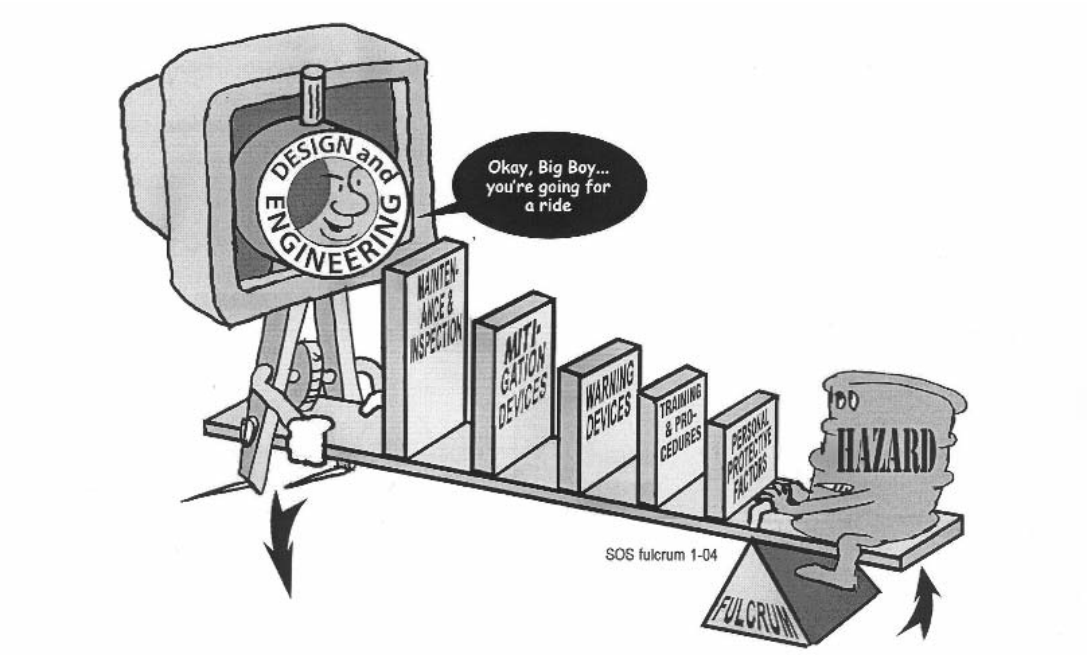
Background Information

Before beginning this Lessons Learned, please review this and the next page which contain information that will introduce the concepts of Lessons Learned and Systems of Safety.

Creating a safe and healthy workplace requires a never ending search for hazards that sometimes are not obvious to us. These hazards exist in every workplace and can be found by using various methods. Lessons Learned are just as the name suggests: learning from incidents to prevent the same or similar incidents from happening again.

Systems Are Not Created Equal: Not equal in protection and not equal in prevention.

Using our Systems Focus to uncover system flaws or root causes is only one part of controlling hazards. We also need to look at the systems involved to decide on the best way to deal with the problem. The most effective way to control a hazard is close to its source. The least effective is usually at the level of the person being exposed. The system of safety in which the flaw is identified is not necessarily the system in which you would attempt to correct the flaw.



Major Safety System	Design & Engineering	Maintenance & Inspection	Mitigation Devices	Warning Devices	Training & Procedures	Personal Protective Factors
Level of Prevention	**Highest—the first line of defense**	**Middle—the second line of defense**				**Lowest—the last line of defense**
Effectiveness	**Most Effective**	←			→	**Least Effective**
Goal	*To eliminate hazards*	*To further minimize and control hazards*				*To protect when higher level systems fail*
EXAMPLES OF SAFETY SUB-SYSTEMS**	**Technical** Design and Engineering of Equipment, Processes and Software Management of Change (MOC)** Chemical Selection and Substitution Safe Siting Work Environment HF **Organizational *(must address a root cause)*** Staffing HF Skills and Qualifications HF Management of Personnel Change (MOPC) Work Organization and Scheduling HF Work Load Allocation of Resources Buddy System Codes, Standards, and Policies**	Inspection and Testing Maintenance Quality Control Turnarounds and Overhauls Mechanical Integrity	Enclosures, Barriers Dikes and Containment Relief and Check Valves Shutdown and Isolation Devices Fire and Chemical Suppression Devices Machine Guarding	Monitors Process Alarms Facility Alarms Community Alarms Emergency Notification Systems	Operating Manuals and Procedures Process Safety Information Process, Job and Other Types of Hazard Assessment and Analysis Permit Programs Emergency Preparedness and Response Training Refresher Training Information Resources Communications Investigations and Lessons Learned Maintenance Procedures Pre-Startup Safety Review	Personal Decision-making and Actions HF Personal Protective Equipment and Devices HF Stop Work Authority

HF - Indicates that this subsystem is often included in a category called Human Factors.
* There may be additional subsystems that are not included in this chart. Also, in the workplace many subsystems are interrelated. It may not always be clear that an issue belongs to one subsystem rather than another.
** The Codes, Standards and Policies and Management of Change subsystems listed here are related to Design and Engineering. These subsystems may also be relevant to other systems; for example, Mitigation Devices. When these subsystems relate to systems other than Design and Engineering, they should be considered as part of those other systems, not Design and Engineering.

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Title: Blade Holder Amputates Part of Worker's Finger

Identifier: Volume 09, Issue 7

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Lessons Learned Statement:

While changing doctor blades on a paper machine, a worker lost part of his pinky finger. ***Systems of Safety*** are designed to prevent this type of incident.

Amputations are some of the most serious and debilitating workplace injuries. Whenever workers are performing work in and around machinery, the equipment needs to be secured in a locked position to incapacitate stored energy to help prevent injuries.

The use of a "come-along," with the lack of an eye bolt to secure the blade holder in an open position, is not a sufficient mechanical means of locking and securing it in place while workers are performing work in and around the machinery.

Other paper machines in the mill, with a similar setup, use a mechanical or pneumatic means to open and close blade holders. The **Design and Engineering** of a mechanical or pneumatic means of opening and closing the blade holder will ensure the safety of workers.

The use of a **Mitigation Device** to isolate the blade holder in the open position would have prevented this serious injury.

Discussion:

Two maintenance workers were in the process of changing a doctor blade (Fig. 21-1) in the third press section of the No. 8 paper machine. The workers were using a rigging device called a "come-along" to open the blade holder and keep it open. No eye bolt was available to hook up and secure the blade holder in the open position. The hook was attached where it could potentially slip off of the blade holder. It is impossible to open this blade holder without mechanical means. There is no mechanical or automated type of mechanism to open it and keep it open.

The "come-along" was attached around a metal post (Fig. 21-2), which is in close proximity and at an angle to the blade holder. While the workers were installing the doctor blade, the hook slipped off of the blade holder. The blade holder slammed shut and amputated part of the worker's left pinky finger. Similar setups on other paper machines in the mill use a pneumatic valve (Fig. 21-3) or mechanical handle (Fig. 21-4) to open and close the blade holder.

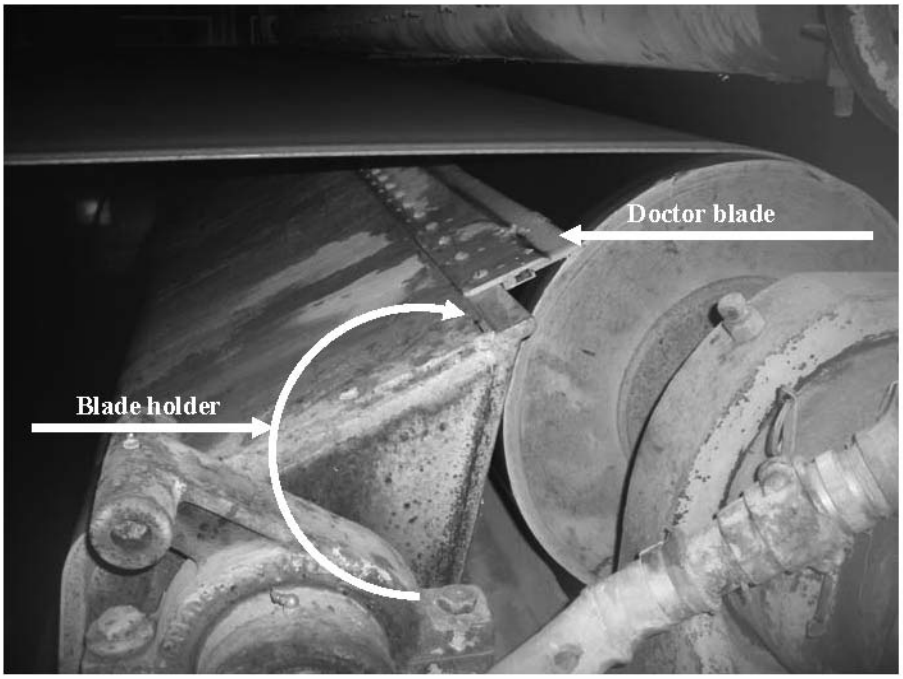


Fig. 21-1. Blade holder

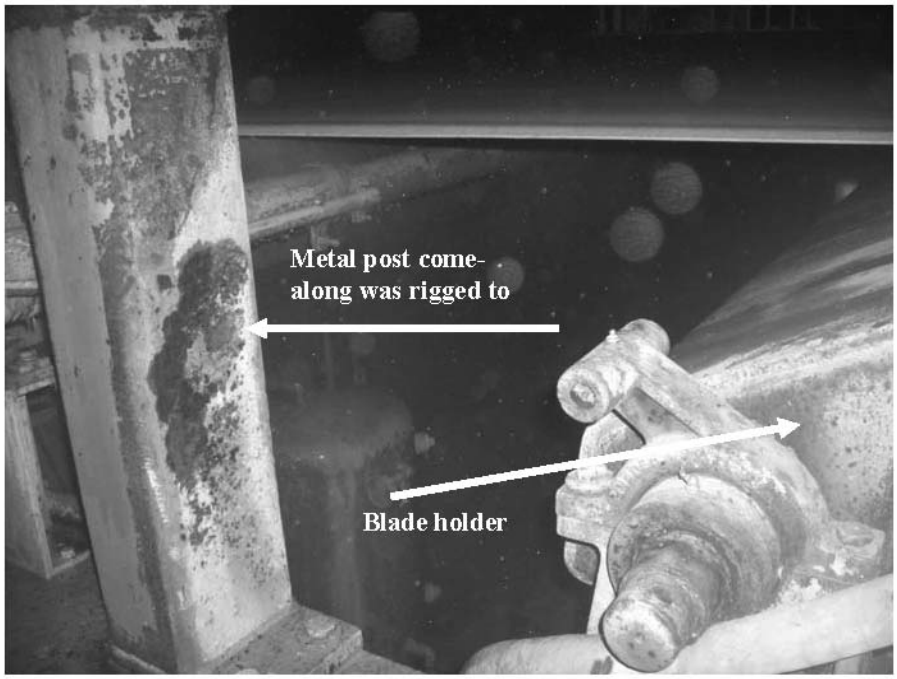


Fig. 21-2.

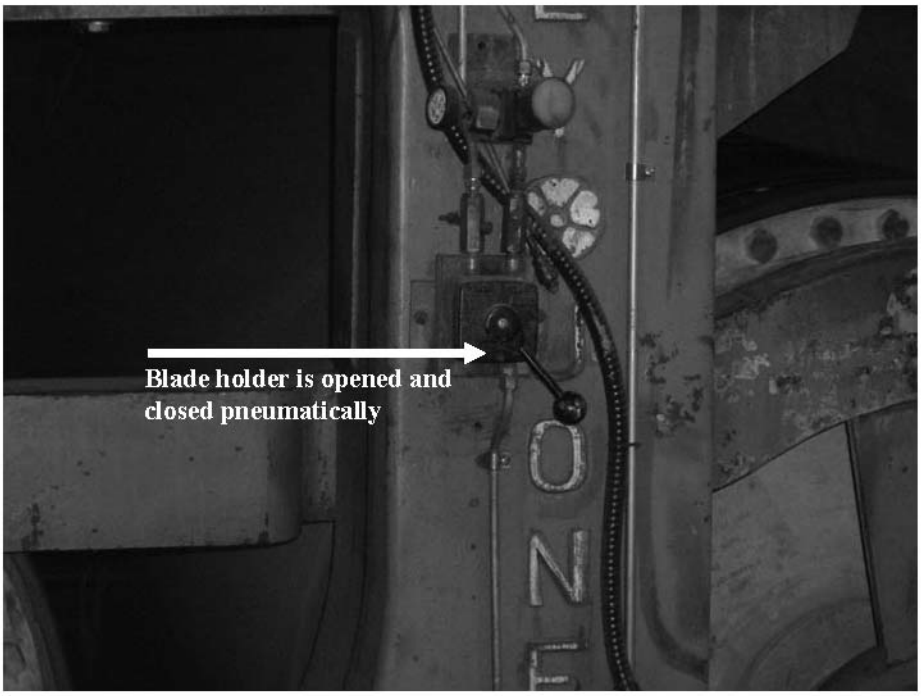


Fig. 21-3. Pneumatic blade holder.

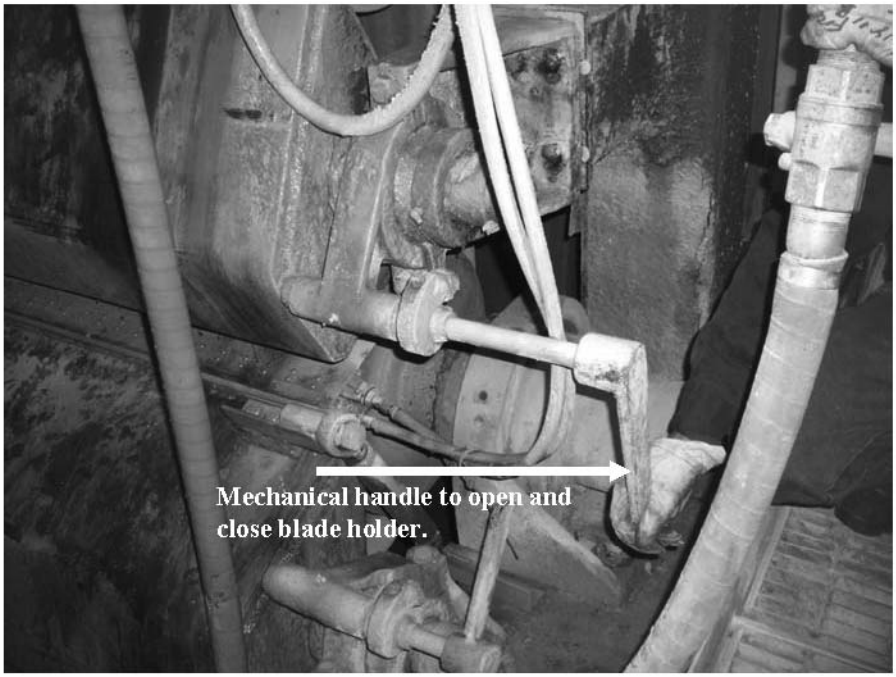
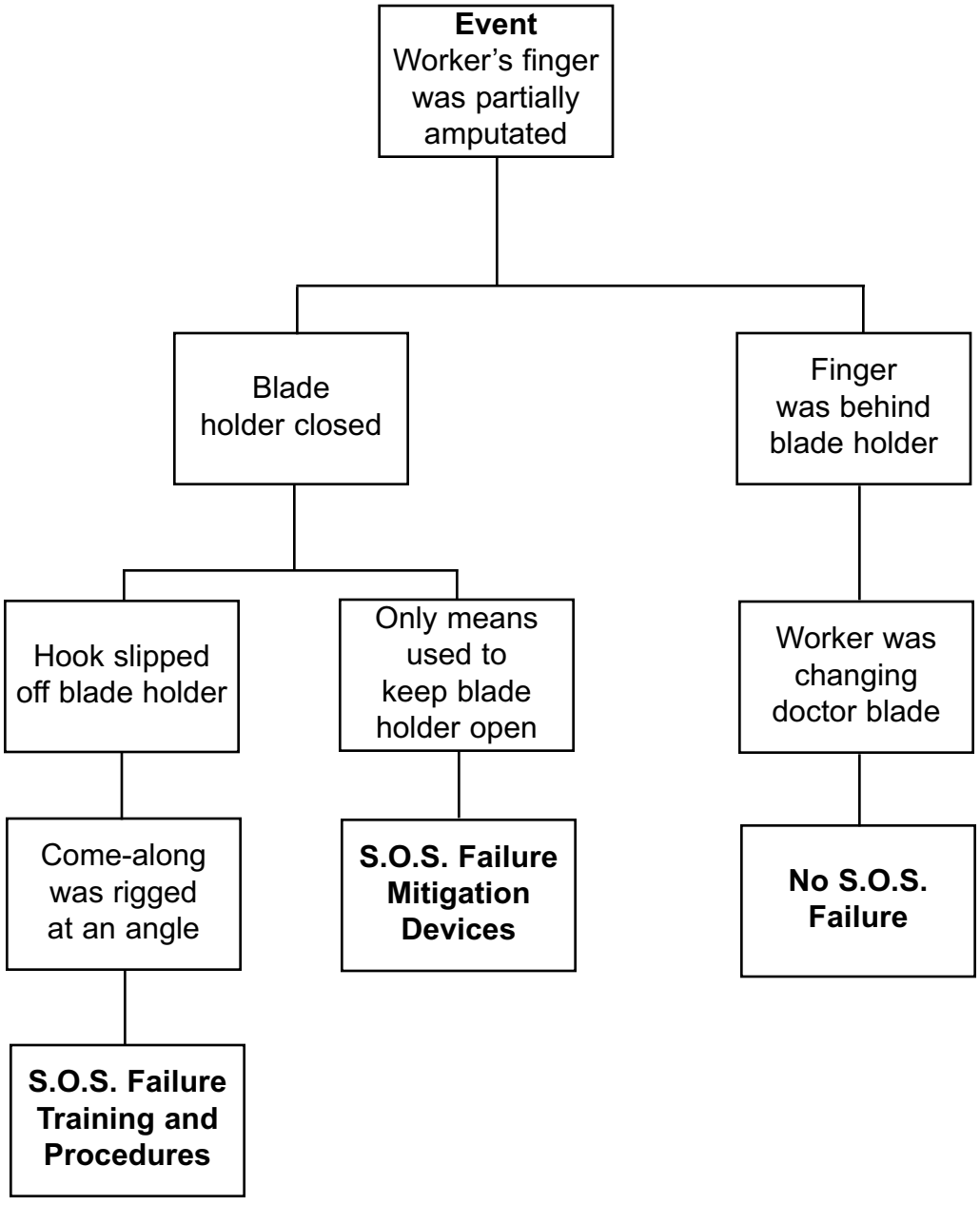


Fig. 21-4. Mechanical blade holder.

Analysis

The Logic Tree is a pictorial representation of a logical process that maps an incident from its occurrence, "the event," to facts of the incident and the incident's root causes.



Recommended Actions

1. Design a pneumatic or mechanical means to open and close the blade holder.
2. Design a locking mechanism to prevent the blade holder from closing when the doctor blade is being changed.
3. Provide refresher training on rigging.

Education Exercise

Working in your groups and using the Lessons Learned Statement, Discussion, Analysis and Recommended Actions, answer the two questions below. Your facilitator will give each group an opportunity to share answers with the large group.

1. Give examples of ways to apply the Lessons Learned Statement at your workplace.

2. Of the examples you generated from Question 1, which will you pursue in your workplace? (**Note:** When we say something you may pursue, we mean a joint labor-management activity or a union activity rather than an activity carried out by you as an individual.)

Trainer's Lessons Learned Success Inventory

Following a Lessons Learned (LL) session, **the trainer who led the LL** should complete this form. This information will: 1) Help you reflect on the successes and challenges of the session; 2) Help USW with new curriculum development; and 3) Help USW as a whole better understand how the LL Program is supporting their workers.

By reviewing LL from different sites or from other areas of their workplaces, workers are able to analyze the information and apply these lessons to their own workplaces in order to make their workplaces healthier and safer.

1. Site name (if there are participants from more than one site, please list all).

   _____

2. Date of LL training _____
3. LL number used in today's Training_____
4. Your name_____
5. **Summary of Education Question 1:** Please summarize participants' examples of ways to apply this LL Statement to their workplace.

Please continue on reverse side.

6. **Summary of Education Question 2:** Please summarize actions or recommendations participants discussed pursuing at their workplace(s).

Thank you for completing this form.

EVALUATION

Lessons Learned: Blade Holder Amputates Part of Worker's Finger

Please answer the two questions below:

1. **How important is this lessons learned to you and your workplace? (Circle one.) Rate on a scale of 1 to 5, with 5 being the most important.**

1	2	3	4	5

2. **What suggestions would you make to improve this Lessons Learned?**

End of Training Trainer's Instructions

Please complete the information below.

Trainer's Name _____
(Please Print)

Date of training: _____

No. of Participants: Total _____ Hourly _____ Management _____

Location of Training: _____

USW Local # _____

Send:

1. This page;
2. The Education Exercise (page 10);
3. The Trainer's LL Success Inventory Form (pages 11 and 12);
4. The evaluation for each participant (page 13); and
5. The Sign-in Sheet (page 15) to:

If you are a TOP Site (excluding DOE TOP Sites)	**Send to: Steve Cable 2915 Gradient Drive St. Louis, MO 63125**
All other sites (including DOE TOP Sites)	**Send to: Doug Stephens United Steelworkers 3340 Perimeter Hill Drive Nashville, TN 37211**

Thank you for facilitating the sharing of this Lesson Learned with your coworkers.

SIGN-IN SHEET

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(Please print clearly.)

Class Title: _____ **Class Completion Date:** _____

Location (City, State)/Facility: _____

Grant Program: _____ **Dist. & LU #:** _____

Instructors: 1) _____ **2)** _____

3) _____ **4)** _____ **5)** _____

Name (Print first and last.) **Check one:**

		Hourly	Management
1			
2			
3			
4			
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