

HOT WORKING OF METALS

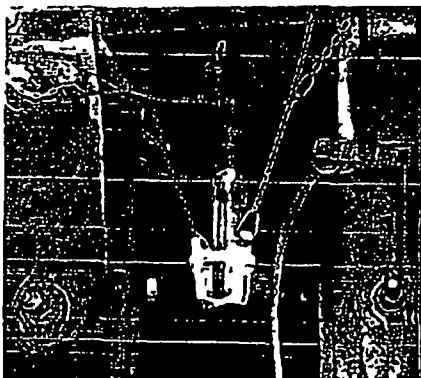


Fig. 27-16. Safety basket, made of 2 by ½ in. welded steel, holds the piston rod of a forging hammer when the steam is shut off for cleaning ram bore. The ends of the bars are bent around the chain eyes.

Courtesy Tractor Works, International Harvester Co.

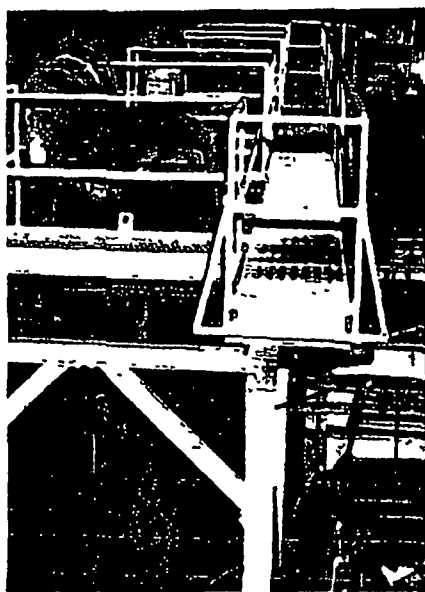


Fig. 27-17. Permanent catwalk installed along row of board drop hammers makes repair and servicing of hammers easy and safe.

pounds. They commonly produce forgings ranging from a few ounces to above 500 pounds, and sometimes up to 2,000 pounds.

Steam and air operated hammers are manufactured with many built-in safety features. Some of the most outstanding are:

- 1 Hammers are designed so that the distance between the floor and the die seat is approximately 36 in.
- 2 Safety latches prevent the ram from dropping when a job is being set up or when work is being done on the die. However, for complete protection, the steam or air should be shut off from the press and the ram should be blocked up.
- 3 A safety cylinder head protects against piston overtravel.
- 4 Many of the working parts are safely enclosed.
- 5 Operating levers are placed in a safe position.

Hammer hazards

For the most part, all types of forging hammers have identical hazards. The most frequent causes of injury are:

1. Being struck by flying drift and key fragments or by flash or slugs.
2. Using feeler gauges to check guide wear or the matching of dies.
3. Using materials handling equipment improperly, such as tong lifts.
4. Crushing fingers, hands, or arms between the dies.
5. Crushing fingers between tong reins.
6. Receiving kickbacks from tongs.
7. Using swabs or scale blowing pipes with short handles.
8. Being burned by hot scale.
9. Dropping stock on the feet.

Injury may be incurred on a steam drop hammer when the ram pulls off a new piston rod (Fig. 27-16). Sometimes the rod must be set in the ram several times before it holds. If the piston rod breaks, the ram will fall. This common hazard emphasizes the importance of the operator's using a safety prop to support the ram before he reaches under it.

Operating a hammer with a worn cylinder sleeve is hazardous. When the sleeve is so worn that the swing of the ram cannot be