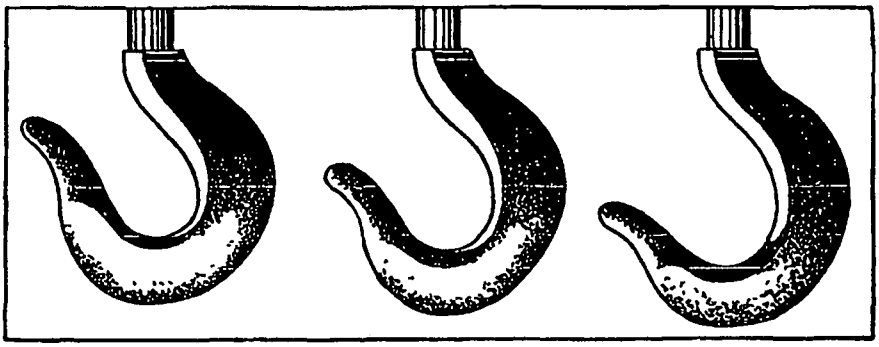


Fig. 18-4 From left to right progressive permanent set in a hook caused by overloading or by loading on the point Hook in this condition should be replaced

overloaded, becomes distorted long before it spreads enough to let the sling slip off and drop the load If other parts are weaker, the crane might fail without warning This principle is justified only if riggers and hook-on men (workmen who arrange the load and attach it to the hook) are trained and supervised to watch for signs of failure, especially spreading of the hook (Fig 18-4)

2 Hoisting cables, gears, and other parts subject to wear should have a safety factor not less than 8

3 The safety factor for all other parts, including the structural steel, should be not less than 5.

4 On hot metal cranes, all safety factors should be not less than 8

5 Slings should have a safety factor of 5.*

It is recommended that hooks with safety latches be used wherever practicable

Outside cranes should be designed to resist wind pressure at 30 pounds per square foot of projected surface

Structural members of cranes should never be made of cast iron or other frangible metal In the fabrication and assembly of structural work, such as girders, end frames, operators' cages, booms, and brackets, hot-driven rivets or welding should be used instead of bolts Where bolts must be used, they should be of the "through" type, with locknuts or conventional nuts and lockwashers.

Each crane should have two independent brakes on the hoist motion, a solenoid-released, spring-operated brake and a mechanical load brake, each capable of holding 1½ times the full safe load on the hoist A cage-operated crane mounted on the bridge girders should have a foot brake to retard and stop the motion of the bridge

Each crane should have its safe load capacity painted on both its sides in conspicuous figures, readable from the floor or ground If a crane has two hoist blocks, each block should have its safe load capacity painted on both its sides

Each controller and operating lever should be marked with the motion it controls and its direction These levers should have spring returns so that they will move automatically into the "off" position and latch themselves there if the operator releases the handle

Cranes—guards and limit devices

Gears and other moving parts should be totally enclosed, covered by screen guards, or out of reach

No overhung gears should be used unless means are provided to prevent their falling if they should break or work loose

*See Chapter 21, "Ropes, Chains, and Slings," for other data on slings