

REMOVING THE HAZARD FROM THE JOB



Fig 4-3. As a tool is being built, toolmakers and designers discuss production and safety features

unsafe act and an unsafe condition contributed to about 97 per cent of the nonfatal manufacturing injuries reported

It must be remembered that an unsafe condition, in addition to being a direct cause of accidents in itself, often can lead people to perform unsafe acts. Many times, an unsafe act is the result of poor machine design, inadequately planned methods, and other engineering deficiencies. Thus, elimination of a hazard caused by an unsafe condition may also reduce the likelihood of injury from an unsafe act.

When an injury occurs, the unsafe condition is often not as glaringly evident as the unsafe act. Unless a careful study is made of the accident, the correctable physical hazard may escape notice.

Engineering for safety, therefore, should have as its objectives both the elimination of hazardous conditions and the reduction of unsafe acts.

Machine Design

Machinery ranks fourth as a source of disabling work injuries, accounting for about 10 per cent of all such injuries. Further pointing to the need for safe design of

machines is the fact that they rank second as a source of permanent partial injuries.*

The design of machinery and equipment is an evolutionary process. It is always changing and dynamic, because design engineers constantly acquire wider experiences in the course of their everyday work. These experiences give them a broader scope and more initiative at the drawing board. This initiative, however, will be disciplined by the practical consideration of designing the most effective means for controlling hazards in the operation of machines or equipment.

Basic considerations

Evidently, the design of machinery must be further improved if the number of injuries caused by machines is to be reduced. How hazards can be eliminated from machines in the planning stage is illustrated by much of the evolution in machine design that has thus far occurred (Fig 4-3). Behind this evolution has been the search for ever increased efficiency and safety in ma-

*National Safety Council, Chicago, Ill. *Accident Facts* 1963, p 31.