and hydraulic presses at minimum platen travel consistent with efficiency If the nearest pinch point between the platen and the bottom die can be limited to ¼ in , guarding is unnecessary Platen travel can be limited by means of a cylinder designed for short travel, by die or jig and fixture design, or by auxiliary stops

Fixed barrier guards are also applicable on hydraulic presses

Movable barrier guards on hydraulic presses are operated by single or dual switches or valves This guard actuates the controls in the last ½ in of travel, to completely enclose the point of operation

Dual or multiple control may be obtained by means of air or hydraulic valves or by direct manual operation of valves The valves should be so designed that pressure cannot be built up between them and should be self-closing

Switches should be positioned or guarded so that the operator must use his hand and cannot use his elbow, knee, or any other part of his body to trip the press

Controls. One method recommended for prevention of accidents in case of power failure, which would allow the platen to drop, is to connect an electrically controlled solenoid valve to all sources of electrical power supplied to the press In case of power failure, the normally closed springloaded solenoid valve opens Air then travels through and instantly actuates the platen hold-back cylinder, which holds the platen in an up position

If the coil on the solenoid valve should burn out and air pressure should open the control, the circuit is so interlocked that the main pump drive motor will shut off to prevent damage to the pump

Valve controls for hydraulic or air presses should be located within easy reach of the operator where he has a clear and unobstructed view of the press Otherwise, mirrors should be so placed that the operator can see the point-of-operation area

Residual pressure hazards

Where air or hydraulic power is used either alone or in combination, there is the hazard of residual or back pressure Even though the control valve be turned off and locked in place, some pressure may be locked in the system past the valve point

This residual pressure has produced accidental cycling of equipment even though persons involved had thought all the necessary precautions had been taken by shutting off the power source valve As a result, when the tripping device for the machine was next touched or when the power source valve was again turned on, the equipment accidentally cycled, producing a dangerous situation Figs 25-35 and -36 show methods used to prevent this

Foot (kick) and hand presses

Foot press operations are most effectively safeguarded by some type of interlocking tripping mechanism which requires the simultaneous use of both hands of the operator to release the slide head before the pedal can be used At all other times, the slide head should be positively locked in the top position

One such device using a steel plate with ratchet teeth cut into the back side, next to both vertical edges, is securely fastened to the front of the slide head Two hand levers,

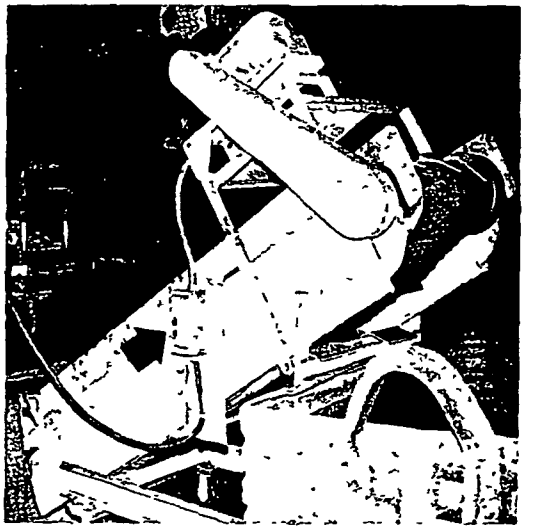

FIG 25-34 —Mobile belt conveyor receives parts stripped from die at left and transfers them to parts container at right Arrow indicates "on-off" controls

Courtesy International Harvester Co , Tractor Works