(Text continued from page 23-17)

Pull-back devices, also called pull-out or pull-away devices, have the advantage that, properly used and supervised, they always remove the hands from the point-of-operation zone as the slide descends This type of device is usually limited to secondary operations and jobs where the operator can remain at the feeding position Pull-back devices should be attached to the slide or upper shoe to attain maximum safety *It is very important that the pull-back device be adjusted to fit each operator and after each die change*

One manufacturer reports that "the length of the arm is not a factor The length of the hand from the crutch of the thumb and forefinger to the tip of the middle finger is the critical measurement. The wrist band is fastened around the wrist with the strap looped around the thumb, therefore the finger length is really the measurement to he considered "

Where more than one operator is required on a press, pull-back devices should be provided for each operator

Automatic electrical safety devices Regardless of the energy source, all electrical or electronic devices sold for use on punch presses perform the same end function, when energized, they act to interrupt the electric current to the press, which has the same effect as if the "stop" button had been pushed

To be effective, this type of device should be operated from a closed electric circuit so that interruption of the current will automatically prevent the press from cycling

One advantage claimed for this device is the absence of mechanism in front of the operator It is particularly applicable on large presses The photoelectric cell or electric eye device should be installed far enough from the point-of-operation area that it will stop the ram before the operator's hand can get under it, and enough light beams must be used to cover the open area with a curtain of light

This device should not be used on presses with positive clutches but rather on presses having "friction," air, or other clutches which can be at any position of the stroke (cycle), and with adequate brakes for stopping the press at any point of slide travel. Automatic electrical control devices are not effective on punch presses with positive clutches because once the operating cycle of a power press starts, no device can prevent completion of the cycle

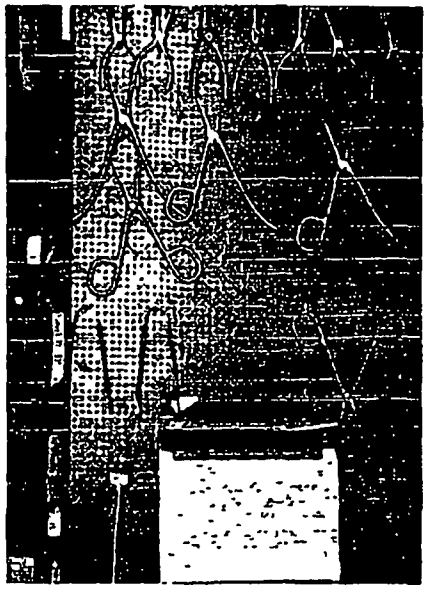

Fig. 23-22. Convenient and economical method of storing a variety of hand-feeding tools Sign (on lower portion of board) reads "Please put these safety tools back when finished Help the other guy save his fingers!" The board is attached to end of storage shelving.

This device should always be supplemented by hand tools or feeding and ejection devices so that the operator need not place his hands in the point-of-operation zone

Auxiliary devices

Feeding tools A variety of special feeding tools has been developed for use with automatic feeds or enclosure guards These tools are made of soft metal, aluminum or magnesium (some are magnetized) and include pushers, pickers, pliers, tweezers of various types, forks, and suction disks (Figs 23-21 and -22)

Tools provide protection only if they are