

will not slip from his grasp. If this is not practical, he could use a rope sling or other device that will give him a positive grip.

Most strains and back injuries occur when lifting and setting down objects by hand. It is important that those who do this work be trained in the proper lifting techniques if these injuries are to be reduced. (See Fig 19-1, a model for use in training is shown in Chapter 10.)

- 1 Consider the size, weight, and shape of the object to be carried. Do not lift more than can be handled comfortably. If necessary, get help.
- 2 Set feet solidly. One foot can be slightly ahead of the other for increased effectiveness. Feet should be far enough apart to give good balance and stability (approximately the width of the shoulders).
- 3 Get as close to the load as possible. Bend legs about 90 degrees at the knees. Crouch, do not squat. It takes about twice as much effort to get up from a squat.
- 4 Keep the back as straight as possible. It may be far from being vertical, but it should not be arched. Bend at the hips, not the middle of the back.
- 5 Grip the object firmly. Maintain that grip while lifting and carrying. Before changing or adjusting this grip, set the object down again.
- 6 Straighten the legs to lift the object, and at the same time bring the back to a vertical position. Tucking your chin in helps keep your spine straight and firm.
- 7 Never carry a load that you cannot see over or around. Make sure the path of travel is clear. Carry the object close to the body.
- 8 Never turn at the waist to change direction or to put an object down. Turn the whole body and crouch down to lower the object. Grip the object firmly, keep it close, and keep the back straight (not arched). To keep hands from being pinched against the floor, put one corner of a box or similar object down first, so that the fingers can be removed from under the sides.

Here are some techniques for specific situations.

- 1 If the object is too heavy to be handled by

one person, he should get help.

- 2 Before lifting a load to be carried, the worker should consider the distance to be traveled and the length of time he will have to maintain the grip. He should recognize the fact that his gripping power may tire if he has to carry the load a long distance, especially if he has to climb stairs or ramps.
- 3 *To place an object on a bench or table*, first set it on edge and push it far enough onto the support to be sure it will not fall. Release it gradually as you set it down. Move it in place by pushing with the hands and body from in front of the object. This method prevents fingers from getting pinched.
- 4 It is especially important that an object placed on a bench or other support be securely set so that it will not fall, tip over, or roll off. Supports should be correctly placed and strong enough to carry the load. Heavy objects, like lathe chucks, dies, and other jigs and fixtures, should be stored at approximately waist height.
- 5 *To raise an object above shoulder height*, lift it first to waist height. Rest the edge of the object on a ledge, stand, or hip. Shift hand position so object can be boosted after knees are bent. Straighten out knees as object is lifted or shifted to the shoulders.
- 6 *To change direction*, lift the object to carrying position, and turn the entire body, including the feet. Do not twist your body. In repetitive work, the person and the material should both be positioned so that the person will not have to twist his body when moving the material.
- 7 To deposit an object manually in a tight space, it is safest to slide it into place with the hands in the clear, rather than to lift it.

Team lifting and carrying

When two or more men must carry a single object, they should adjust the load so that it rides level and so that each carries an equal part of the load. Test lifts can be made before proceeding.

When two men carry long sections of pipe or lumber, they should carry on the same shoulder and walk in step. Shoulder pads will prevent cutting of the shoulders and help to reduce fatigue.