also increase the efficiency of grooved drums For smooth-faced drums, proper direction of lay of rope for specified winding conditions further helps ensure uniform winding

The head sheave groove should be checked for poor alignment, worn bearings, broken flanges, and size and shape of the groove at intervals of two or three months, depending on the amount of usage Proper groove size and shape are especially necessary when a new rope is installed

Excessive sheave wear and its bad effects on the life of a rope often result from use of sheave or liner material unsuitable for the pressure of the rope If the radial pressure of a 6 x 19 rope exceeds 900 psi, a harder material than cast steel, such as manganese steel, is more suitable

Lubrication

Regular application of a suitable lubricant to wire hoisting rope prevents corrosion, wear from friction, and drying out of the core Thin lubricants, which are fluid at normal temperatures and are fortified with polar additives and rust inhibitors, can penetrate the rope and also afford good protection even under wet operating conditions Ropes should be dry, when lubricant is applied, so that moisture will not be entrapped by the lubricant Thin lubricants can be applied by hand, but the best arrangement is to provide some means of dripping them on the rope, or using a spray device to apply the proper quantity automatically

Periodic monthly cleaning, done in mine shafts, eliminates dirt, abrasive particles, and corrosion-producing moisture Cleaning fluids should not be used because of their detrimental effect on the core lubricant Light oils are sometimes used to loosen the coating of lubricant and harmful materials A compressed air or steam jet (or other mechanical method) cleans a rope effectively and thoroughly

Overloading

Overloading may occur in the operation of most types of hoisting equipment For example, it is difficult to estimate the load within 25 percent when making a lift with a crane, and in many instances a load is under-

TABLE 26–H

NUMBER AND SPACING OF CLIPS FOR ROPES OF VARIOUS SIZES

Diameter of rope (in)	*Number of clips*	*Center-to-center space between clips (in)*	*Length of rope turned back exclusive of eye (in)*	*Length of wrench (in)*
1/2	3	3	9	12
5/8	3	3 3/4	12	12
3/4	4	4 1/2	18	18
7/8	4	5 1/4	21	18
1	4	6	24	24
1 1/8	5	6 3/4	34	24
1 1/4	5	7 1/2	38	24
1 3/8	6	8 1/4	50	24
1 1/2	6	9	54	24
1 5/8	6	9 3/4	60	30
1 3/4	7	10 1/2	74	30
1 7/8	8	11 1/4	90	30
2	8	12	96	30
2 1/8	8	13	104	30
2 1/4	8	14	112	30