

feet radius, and are made up from 4-inch lengths. The use of the fiber ducts and the concrete trenches was necessary on account of the very limited space available. The trenches are covered with iron plates flush with the engine room basement floor.

The 1,000,000 c. m. copper feeders are carried up and across the cable house roof, then out through separate ducts in the cable house wall to cradles on two steel poles outside. From the cradles 500,000 c. m. copper feeders branch to the overhead feeder system.

The plans for the building were drawn by Messrs. Marchand and Haskell of Montreal; the construction and

mechanical engineering features were carried through by the Canadian White Company, under the supervision of Mr. N. H. Rybitzki; the switchboard was designed by Mr. A. S. Byrd, Supt. of Power Plants of the Montreal Street Railway, and built by the Street Railway Company's staff. All matters pertaining to the engines, condensers and the complete electrical equipment were handled throughout by Mr. Ralph D. Mershon, Consulting Engineer for the Montreal Street Railway, the installation of the same being carried on under the supervision of the writer, who represented Mr. Mershon on the work.

of the chain, as in Fig. 6. The releasing teeth b and d are then the working teeth, and the chain can set at a and c quietly and take the load gradually as the wheel revolves.

The Correct Way to Apply Detachable Link Belt

BY STAUNTON B. PECK, VICE-PRESIDENT OF THE LINK-BELT COMPANY IN THE IRON AGE

When considering the relative merits of different methods of running chain-drives, the drive should be considered as a whole, and the action noted

4, the wheel pitch being smaller than the chain pitch, the entering tooth does all the work. In Fig. 5 the conditions are reversed; the wheel pitch is the

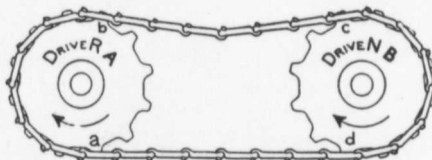


Fig. 1.—A Properly Applied Driving Chain.

at the four points indicated in Fig. 1—(a) the entering point on the driver, (b) the releasing point on the driver, (c) the entering point on the driver sprocket, (d) the releasing point on the driver sprocket. In this discussion the action at a point is said to be good when all the articulation or bending takes place in the joint of the chain, Fig. 2. The action is said to be bad when, in bending, the link rubs on the sprocket, producing wear on the sprocket and outside or external wear on the hook, Fig. 3.

Another fact is also to be remembered—there is never more than one tooth in action at any one time. No matter how carefully the chain and sprocket may be made, as soon as the load comes on, there is a change caused

larger and the releasing tooth does the work. On the driven sprocket the same thing holds, except that here conditions are reversed. When the wheel pitch

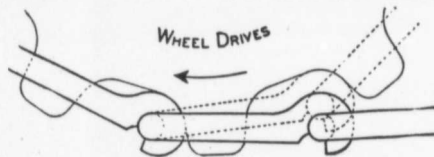


Fig. 2.—Good Action—Bar Working in Hook.

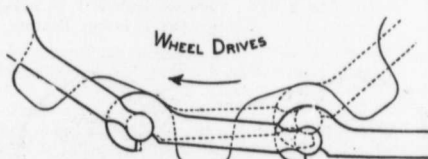


Fig. 3.—Bad Action—Hook Working on Bar.

by stretch and wear. It can be predetermined which tooth shall be in action by making the pitch of the wheel either larger or smaller than the pitch of the chain. Thus, on the driver, Fig.

all the work, Fig. 7. For the best work the pitch of the driver should be larger than the pitch of the chain, see Fig. 5, and the pitch of the driven sprocket should be smaller than that

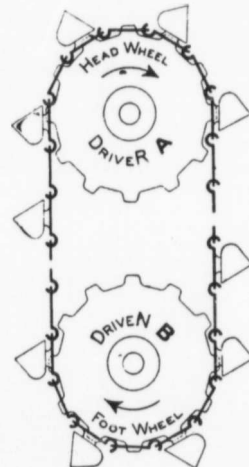


Fig. 12.—An Elevator Chain, with the Links Running Bar First.

Next to be considered is the drive as a whole to determine whether the chain links shall be run bar first or hook first.

In Fig. 8 the pitch of the driver is larger and that of the driven sprocket smaller than the pitch of the chain, hence b and d are the teeth in action. The chain runs with the bar of each link leading; the action at a is good, at b bad, at c good and at d bad. In Fig. 9 the sprockets are the same as in Fig. 8, but the chain links run hook first. Here the action at a is bad, but the fact that the hook is not in contact

with a tooth face at this point makes the consequent wear of little extent. The action at b is good. The action at c is bad, but this is on the slack side of the chain and this bad action causes no wear. The action at d is good. It is thus seen that there are two very bad points, b and d, where the links run bar first, and only one serious trouble, a, when running hook first.

As usually furnished the sprockets are ground to fit the new chain; when the latter stretches both the driver and the driven sprocket are smaller in pitch than the chain and teeth a and d are now in action. In Fig. 10 is shown a pair of wheels with the chain links running bar first. The action at a is good, at b it is bad, but as there is no tension on the chain at this point this is not objectionable. At c the