

wide and must be over 150 feet long running in some places at an angle of 25 degrees. It is giving splendid satisfaction.

The Scraper Conveyor. This conveyor consists of one or two strands of sprocket or coil chain with steel flights spaced at regular intervals such as 18 inches or 2 feet and is used to scrape such material as coal, etc., through a steel trough.

When one strand of chain is used the scraper is fastened in the centre while with two strands the scraper is attached at each end. Scraper conveyors are used for handling large capacities of coal especially at slow speeds. Where a double strand of chain is used it is usual to supply a roller chain, the rollers being larger than the chain link thus enabling the chain to run along a flat iron track which overcomes friction and prevents wear.

The Hamilton Steel & Iron Co. have a Scraper Conveyor at work, about 200 feet centres. The scrapers are 26 inches wide running in a steel trough and are attached to the chain at the ends. The chain is 8 inch pitch with $3\frac{1}{2}$ inch rollers, and the whole equipment will handle run of mine coal where the lumps run from dust up to 18 or 20 cubic inches.

Scraper Conveyors are generally used for unloading coal from railroad cars and conveying to storage piles, etc. The unloading of coal from railroad cars generally presents an economical handling proposition where the number of cars per day is considerable and one of the points which demands attention is how to get the coal from the car onto the conveyor without an excess of human labor.

This is accomplished automatically. When the coal is shipped in hopper bottom cars; the coal being discharged through the bottom of the cars into a large hopper under the track and with a scraper or belt conveyor running under the hopper the coal is fed thereon by means of a plate feeder and carried away to the storage bins.

It is possible in this way with properly designed machinery for one man to look after the unloading of coal at the rate of 100 tons per hour.

Where coal is shipped in flat bottom coal cars it would be necessary to unload them by means of a grab bucket. A one ton grab bucket of the Clam Shell Type is capable of unloading a 50 ton car in about 45 minutes, the only human labor necessary being a man to clean out the corners of the car.

The apron conveyor, (see Fig. 3) is another style used to handle such products as boxes and barrels, etc. It consists of two strands of chain, usually roller chain, in matched sections running on a flat or angle iron track with slats attached at each end to the chain. The slats being attached at every link or at intervals as the case may be.

This style of conveyor can be made to run level with the