

not necessary to raise the inclines for short moves.

Two steel water tanks are placed between the trucks under the lower deck. These tanks are side by side with a space between for the propelling sprocket chains to lead to the axles near the center. They are connected with a pipe so as to maintain a common water level. Additional water tanks are placed on an extended platform at the rear of the upper deck.

The engines on the Universal vary in style according to the particular type of machine. The skidding engine on the Universal for operating two skidding lines and skidding on the ground is equipped with two skidding drums. If for cable outhaul two additional high speed outhaul drums are mounted in front of and geared to the skidding engine in the same manner as the standard ground skidders.

The Universal for cableway skidding is equipped with the Clyde cableway engine with intergeared skidding and outhaul drums. The skidding engine also carries two drums for trolley tightener and guy tightener cables, and the Clyde standard slack pulling drum the same as on regular cableway skidders.

The loading is done with a separate engine located in front of

the skidding engine on the upper platform of the machine.

The loading engine on each style of Universal machine carries a loading drum and a drum for spotting cars. On the machine equipped for cable outhaul operating two lines skidding on the ground, the loading engine also carries two drums for setting lines, and on the cableway type one drum for the setting line.

The side guy lines for the boom are carried on two auxiliary drums driven by the loading engine.

Each drum on engines of all types and sizes is independent of all others, and all gears are steel with machine cut teeth.

The propelling is done with the loading engine by steel sprockets and sprocket chains leading from an extension of the drum shaft and engaging with a steel jaw clutch. The loading engine is link motion reversing so that machine may be propelled in either direction. Shoe brakes are applied to the wheels of both trucks.

The boiler on these machines is vertical full length tube for 150 pounds working pressure and for burning wood or coal. It is mounted on the back of the upper platform at the rear of the skidding engine.

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