the holding-on member G. Pressure of the foot on the tread H releases the brass.

The mould forms are made hollow, as just mentioned, in order that water-cooling of the poured babbitt may be obtained. From under the table there is a pipe connection to each cylinder through which cooling water flows, passing out through the top pipe indicated, the flow in each case being independently regulated by a valve.

When in operation, the water connection is turned on the desired amount. The brass, already heated in a fire to somewhere around the babbitt melting point, is placed in position on the stand, and the intervening space filled with molten babbitt, which almost instantly sets, being chilled by the water-cooled surface of the mould. The brass can then be taken out at once, no time being lost waiting for the cooling, as required in most methods.

Canadian Pacific Railway Coal Handling Plant at Fort William.

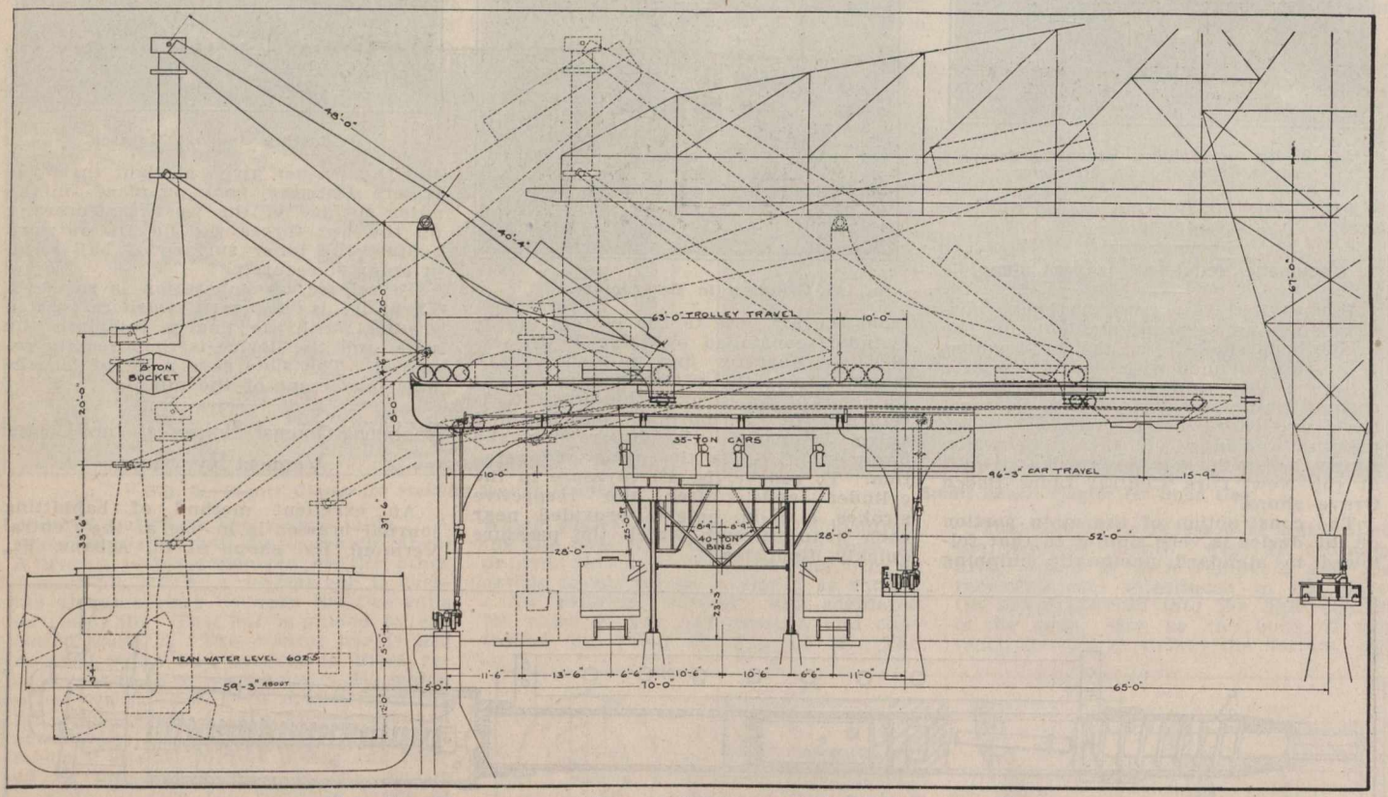
The Canadian Pacific Ry.'s coal handling equipment for its new dock at Fort William, Ont., will consist of two Hulett patented, electrically operated, 8-ton coal unloading machines, one 9-ton rehandling bridge, three 35-ton scale larries, and about 3,000 ft. of bin and trestle system, as well as Christy box car loaders.

The plan of operation of this plant will be as indicated on the accompanying illustration. Coal will be taken out of the boats with the unloaders and deposited at the front of the dock in a so-called bucket car. The unloader will then immediately go back into the boat for another load. While the unloader is securing this load, the bucket car will be drawn back over the bin and trestle system, and the coal deposited in scale larries for distribution into the various bins. Or, if coal is not wanted for immediate shipment, it will be hauled out side through the supporting posts of the trestle, so that they can start at one end of the bin system and work down through, loading all the cars on one side. While these cars are being hauled away and replaced by empties, the box car loaders will be working back, loading the cars on the other side of the trestle, in this manner giving continuous operation. As the contents of each bin will be weighed in to correspond with the capacity of the car, the car, when released, will be at once ready for main line service without further trimming. This weighing feature is a new departure on coal docks, but has been used extensively on lower lake ore docks for the past two or three years and is considered very successful.

The transfer cars, as well as all other machines on the dock, are to be operated by electricity, 220 volts direct current. The same cars will also be used in rehandling coal for storage, running out on the trestle and receiving their load opposite the rehandling bridge, wherever stationed. The trestle will be a double-track system with suitable cross-overs so that cars can be kept in continuous operation. The coal going into the permanent storage will be rehandled out of the temporary storage pile under the rear of the unloaders by the rehandling bridge. The rehandling bridge carrying a 9-ton bucket will have a cantilever covering this storage pile, as well as extending out over the trestle system. The coal will be taken out of the temporary pile, carried back and deposited in the main storage by this bucket. A still further storage will be provided by an extended cantilever on the rear of the bridge. The bridge will be 520 ft. over all and will carry the largest coal bucket ever constructed, the one bridge being ample to take care of all the coal that the two unloaders can remove from the boats. This dock is intended to handle railway coal only, and no attempt is being made to separate grades; in other words, a screening plant will not be required. The unloaders, bridge and transfer cars will all be protected against the breaking of coal, and it is expected that this new dock will be one of the fastest ever constructed, the unloader being of the same general type as the machines now in use on the majority of lower lake ports, for handling ore and having fully demonstrated their high speed and economical operation.

The important feature of this new design is the separation of the unloading from the shipping and rehandling machine. The unloaders, the bin system and the bridge will be all absolutely independent of each other in their operation. The bridge can be shipping out coal from one end of the dock while the unloaders are receiving coal on another portion. The bridge, being of such large capacity, has an opportunity, when there is no boat at the dock to clear the temporary storage and prepare it for incoming boats.

The power for operation will be furnished first as high tension alternating current and be transformed at the dock into a direct current which enables the use of dynamic braking on the machines. These large machines will be



Unloading Mechanism and General Arrangement of C.P.R. Coaling Plant.

further on to the cantilever of the unloader and put into a temporary storage pile, this temporary storage pile having the same capacity as a boat, so that the boat can be unloaded and the coal disposed of independently of the operation of the rest of the plant.

Coal which is wanted for immediate shipment and deposited in the bins will be weighed into the bins by the scale larries. There will be 30 bins, 15 on each side of the trestle, each capable of holding a carload of coal. A drag of cars will be brought in on each side of the trestle as shown on the drawing and broken up and spotted at each of the bins. The box car loaders, which are not shown on this drawing, will travel beneath the bins and will be of special design, working out on either