

Improvements to the Locks

Crank Gate Gear Moving the miter gates was originally done using cables. In 1934, gear drives were installed due to the cost of replacing cables and down time.

Made in Philadelphia, the crank gate gear was shipped to Seattle by boat in 1934. It was expected to work for just 50 years, but was still working after 60 years.

Casting the Part A wood wheel was made as a pattern for casting gear wheels using the following process:

- **Step 1 - Mold Production** The first stage in founding is to produce a mold. Moist silica (sand) is packed tightly around the wood pattern to create the mold, then an opening is made so metal can be poured into the cavity.
- **Step 2 - Melting and Casting** Metal is heated to a temperature of between 1700 and 2200 degrees Fahrenheit, then quickly poured into the mold.
- **Step 3 - Finishing** After the metal has solidified and cooled, the mold is taken apart, and the metal part is cleaned, ground, drilled, and smoothed.

Saltwater Barrier

In 1966, the Corps improved this system by adding a saltwater barrier just downstream of the basin. The 20-foot-tall hinged, hollow barrier is filled with air to keep it upright. It is flooded to make it sink when deep draft vessels pass through.

Fish Ladder

In 1976, a new ladder was built, replacing the original built in 1917, to reflect modern fish ladder standards. The amount of attraction water was increased. This ladder has 21 steps, or weirs, which allow the fish to swim upstream on a gradual incline.

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