

The original survey was made by Capt. Augustus Canfield, Topographical Engineers, U. S. A.

The entire cost of the canal was \$999,802.46.

The last boat, the steam tug Annie Clark, Captain Edward Martin, was locked through Nov. 2, 1886.

CANAL IMPROVEMENTS AND NEW LOCK.

(1881.)

The first contract for the improvement of the canal, which resulted in its enlargement and the building of the lock of 1881, was dated October 20, 1870; the first stone of the lock (the largest ship canal lock in the world) was laid July 25, 1876, and the first boat, the steamer City of Cleveland (now City of Alpena), Captain Albert Stewart, locked through on September 1, 1881.

The length of the canal is 7,000 feet. Its width is variable. The least width is 108 feet, at the movable dam. The depth of water is 16 feet. Vessels are protected against injury from the rocky sides of the canal by a revetment of pier work, the general height of which is 4 feet above mean water level. The material is pine timber 1 foot square. There are 12,000 linear feet of wooden piers, and 3,100 linear feet of masonry connected with the canal.

LOCK.

The chamber of the lock is 515 feet long between the gates, 80 feet wide, narrowed to 60 feet at the gates; the depth is 39½ feet. Its capacity is 1,500,000 cubic feet. The depth of the water on the miter-sills is 17 feet; the lift of the lock is 18 feet. The volume of water in the lock chamber when filled to the level of the canal above, amounts to 9,888,000 gallons. The