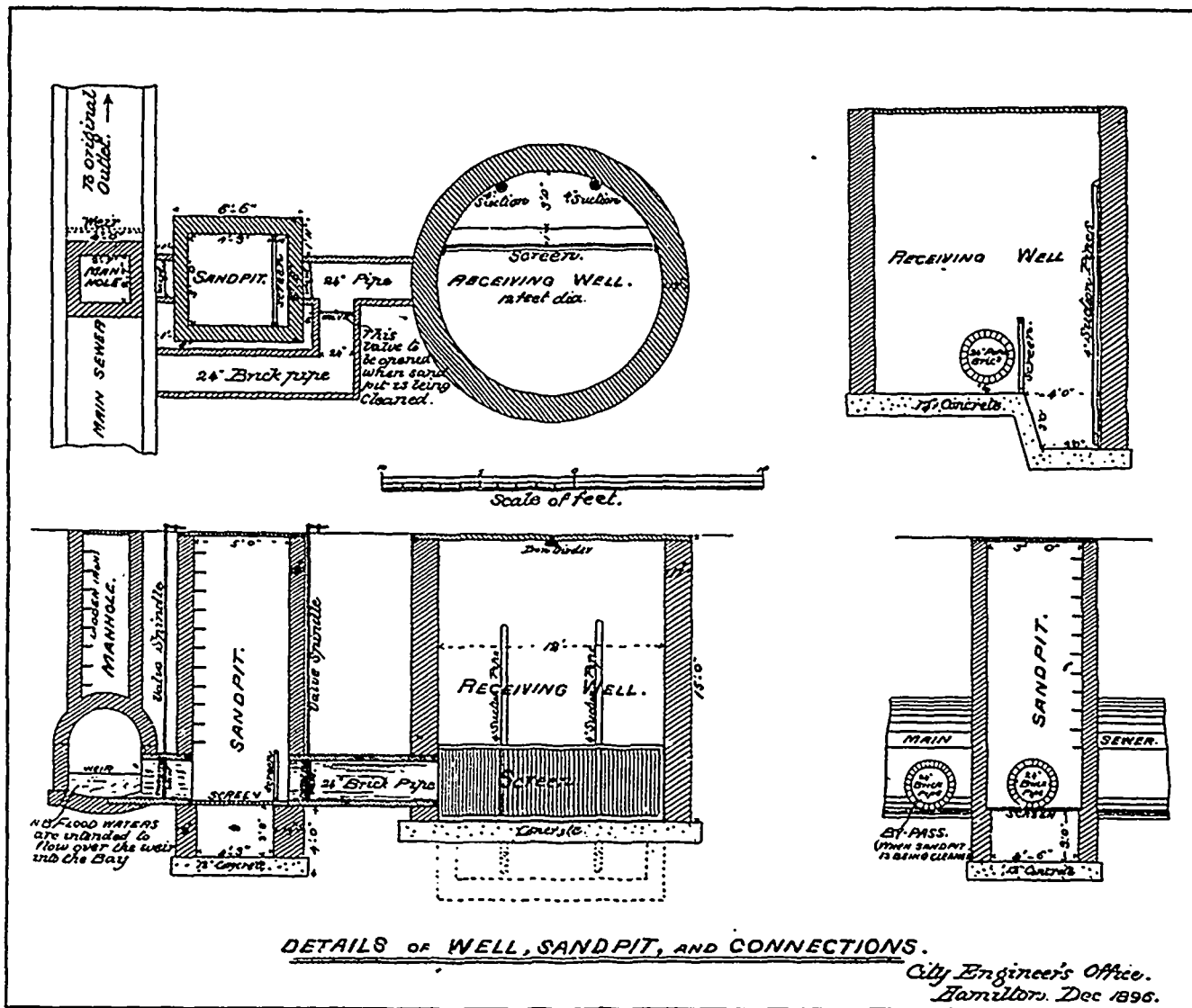


when it will flow down the main sewer through its old outlet into the bay. In the receiving well the sewage is mixed with lime and sulphate of alumina in the proportion of about 4 grains of lime and 1 grain of alumina per gallon, and it is then raised by two centrifugal pumps into the channel. The chemicals are added in the receiving well in order to be thoroughly mixed by the churning action of the pumps. The sewage is conducted along the channel to the precipitation tanks over the weirs, the proper ones being closed to conduct the sewage to any particular tank. While slowly passing through the tank the black sludge is precipitated to the bottom, and the clear water re-enters the channel and is conducted down steps to arate it, and thence into an 18-

directly to the pumps. The sludge is raised by two duplex sludge pumps, having dimensions  $7\frac{1}{2} \times 5 \times 10$  and  $6 \times 4 \times 7$ , capable of raising the sludge through 15 feet of suction, and discharging it into the filter press under pressure of a maximum of 140 lbs. per square inch, the steam pressure being 70 lbs. The suction pipe is 4 inches in diameter, and the discharge pipe 3 inches in diameter.

The filter press contains 50 chambers, each having a drip cock, and being capable of making a cake 28 inches in diameter by one-half inch thick. The tightening screw is 4 inches in diameter with a longitudinal motion of 18 inches, and has a hand wheel 45 inches in diameter. The entrance head of the press is pro-



inch pipe, whence it is conducted to the bay. When any of the tanks require cleaning the weirs in connection are shut down, and the water is let off by means of the skimmer pipe. The sludge is then drawn off through an 18-inch pipe into an open brick drain running along the floor of the archway, and conducted to the sludge well. This well is 19 feet diameter and the bottom is 6 feet below the pipe conveying the sludge. The sludge is then pumped into a press, situated over the channel in order that the surplus water may fall back after pressing, and the sludge is forced out at the ends in the form of cakes, whence it is conveyed by a small railway outside the building.

The centrifugal pumps are capable of raising 1,000,000 gallons per 24 hours through a lift of 18 feet, 14 feet of which are below the pumps and 4 feet above them. They are driven by a vertical engine attached

vided with an air chamber 10 inches in diameter by 24 inches high, having a pressure gauge on top graduated to 150 lbs. The press is supported 3 feet above the floor on 6 legs, and the sludge is admitted to the press by a  $2\frac{1}{2}$ -inch wrought iron pipe. The press is sufficiently strong to stand the pressure being raised from 0 to 150 lbs. in 10 minutes. The sludge car running beneath the press is 32 x 12 inches x 6 feet.

The mixers, one of which is made of wrought iron, and the other of wood, are 5 feet in diameter by 6 feet high; the sides and bottom of the iron one being one-quarter inch thick. Each mixer is provided with a  $2\frac{1}{2}$  inch diameter steel shaft, carrying beaters, and resting on a removable cast iron shoe, and passing through a cast iron box on a level with the top of the mixers. The pipes conveying the chemicals to the sewage are  $2\frac{1}{2}$  inch diameter.