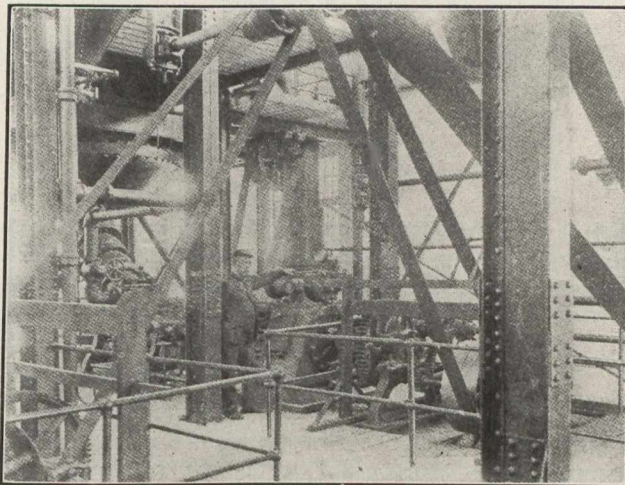


For 100,000 inhabitants, the cost of a Wheelwright process plant complete should not exceed \$65,000 in the east, above the foundation, with building of the design of either cut, which would be of fire proof construction.

Figure 3 shows the internal elevation and the installation of the apparatus for a sixty-ton plant by our intermittent process, which means charging, cooking and discharging. Cooking requires four to five hours; the other operations are governed by the capacity of digester, or at the rate of five tons per hour for charging and eight tons per hour for discharging, adding two hours for blowing down. Total sixteen hours for a digester of thirty tons capacity, when tankage is intended to produce good fertilizer. For the extraction of grease only, the time will be much shortened.

The operation of the process commences from the de-



Machinery of New Bedford Garbage Reducing Plant.

livery of the garbage from the vault to the conveyer, which feeds it to the digester through an air-tight draft tube so connected with the charging hole of the digester as to prevent the escape of any odor or vapor, only through the exhaust fan, which discharges into a special water condenser, its duct leading to the generating boiler furnace to insure against the escape of any gases.

Before the charging is put in operation, garbage liquor that has been drained from the garbage at the racks in the vault and delivered to the hot water tank adjacent to the digester, is furnished to fill the cone; steam is admitted at the bottom side of the cone to bring the liquor to 212 degrees, charging is then commenced and the contents allowed to boil throughout the time of charging, which is stopped only when digester is full to charging hole; then it is sealed. The object of this treatment is to insure a perfect cook, which would be impossible if charged with cold garbage. When sealed and further charged with garbage liquor from the hot water tank, more steam is turned on to digester to raise the pressure to twenty-five pounds as quickly as possible. An iron grating just above the charging hole prevents any of the solid matter from passing upward to the receiver on top of the digester. The said receiver is so connected that an 8-inch stand-pipe is arranged to extend up inside to prevent the flow back of the grease and liquor that discharges through it by pumping up of garbage liquor from the hot water tank, or the condensation from cooking. Test glasses and gauge cocks are so arranged that the tender can readily see the line of water and grease, so that he may keep that line below the top of the stand-pipe, be-

fore described, by drawing off the grease and water, the grease going to the separator tank with some water, the water to the hot water tank. This continues during cooking, as well as the continuous blowing off of gases into same tank, until ready to "blow down," then the steam is shut off at the bottom of the digester and the blow-off pipe is opened to the hot water tank or to another digester ready to be cooked, enough always to be turned into the tank to keep the water hot. The vapors and odors created in tank are exhausted through the water condenser.

The pressure having been reduced in the digester, the 16-inch gate valve at the bottom, connecting with extractor, is opened and the machine started, delivering the tankage through its automatic discharge at the end with not over 50 per cent. of moisture, which can be reduced where conditions require it, and about 3 to 4 per cent. of grease to the dry tankage, which is about 15 per cent. of garbage treated. The balance of the liquor and grease pass to the filter plate of the extractor as the matter is expressed, until the digester is emptied.

The water and grease so extracted go to the traps to be separated, and the tankage for further treatment.

The above is an outline of our intermittent process. From the knowledge gained by our experience in handling city waste for the past six years, it has become evident that in certain localities, and, perhaps, from a municipal ownership standpoint, it would not be feasible to utilize tankage as a fertilizer, which led Mr. Wheelwright to take out his patent of June 22, 1909, for the treatment of garbage for the extraction of grease by a continuous process, charging and discharging a digester while under steam pressure, extracting the grease and delivering the tankage continuously in regular quantities to a furnace or incinerator to be destroyed with other wastes or with coal, that its value may be recovered by being utilized to generate power.

This method will extract more of the grease from the garbage and of better quality than that obtained by solvents, and at the same time with less spent liquor, as it shortens the time that the garbage is exposed to steam pressure, thereby making a great saving in water of condensation, allowing a regular supply of moisture from said spent liquor to be utilized in regulating the furnace where combustion takes place.

We are aware that exhaustive experiments have been made during the past two years that show value in the power generated in destroying city waste by incineration, which gives reason to believe that a portion of the expense of incineration can be partially eliminated. Tankage has a value as fuel, after the grease has been extracted, equal to green garbage in connection with rubbish and ashes when utilized to generate power, part of which can be readily used in the reduction, the remainder to be sold in the form of electric power, giving a credit against the cost of incineration, in addition to the value of the grease, which can be safely placed at not less than \$2.25 per ton of green garbage at a cost of not over \$1.25 per ton by our method of reduction. This combination must show an advantage to both methods, i.e.: The incinerator as a power plant, and reduction as a producer of revenue, each helping the other in the cost of construction and operation. The spent liquors from reduction, from which the ammonia has been extracted, to protect the incinerators from destruction in regulating the temperature.

To husband our resources is in the mind of every thoughtful person. To destroy anything of value is wrong, and in this connection the treatment of sludge from sewage