the art of congelation. Concerning methods of producing cold, there are three of which we shall here speak. The first is the well known one of imparting cold to water by dissolving in it certain substances, of which there are none which in our estimation can vie with nitrate of ammonia for general efficiency and undoubted convenience. In addition to this, it is also the most economical of all saline bodies, as it is not wasted during use, but may be employed over and over again. If a thermometer is placed in a tumbler of water, at say 50° Fah., and some crushed crystals of the nitrate of ammonia are then thrown into the water, the column of mercury will be found to descend with singular rapidity until it reaches 26° to 27° below the freezing point, or about 5° Fahr. There are several mixtures which can be made by which a much greater degree of cold can be obtained, but these when once used cannot be used again. But with the ammonium nitrate it merely suffices to pour the solution out into an evaporating dish after being done with, and having driven the water off by heat, or otherwise, place the crystals into a bottle, when they are ready for future use in a similar way.

We here give an illustration of one way by which the knowledge of the above mentioned fact may be serviceable. We had once some gelatine plates to develop in a semi-tropical country at a time when the heat was intense and the water so warm as to endanger the film during development. We placed the developing solution in a japanned tin developing tray, and placed that tray inside of another slightly larger, and in the bottom of which we scattered a few crystals of nitrate of ammonia, afterward pouring in a little water. This reduced the previously high temperature of the developer to one that could not possibly affect the too soluble gelatine of which the film was composed. A second system for the production of cold consists in the compression of air. Thus compressed, and forced into a reservoir, it becomes heated, as every one knows who is familiar with the working of an air gun. But when cooled down again, before it is suffered to escape, its expansion is attended by great cold. "If when compressed it is allowed to cool down to the ordinary temperature and then to escape, it will be cooled below that temperature just as much as it was heated by compression. Thus, if in being compressed it had been heated 100°, say from 60° to 160°, and then allowed to cool to 60°, on escaping it will be cooled 100° below 60°, or to 40° below zero, which is the temperature at which mercury freezes."

This is the principle of the cold air chambers now so extensively employed on shipboard for the transport of frozen provisions from Australia and New Zealand. The ingenious photographer who dreads the preparation of gelatine plates in hot weather will in this discover the means by which he may be enabled to keep his coating room at fifty degrees or sixty degrees during the most sultry months of the summer, aided by a small gas or petroleum engine. We have devised a most perfect means of effecting this, by manual power if desired, and that only applied at occasional intervals, but a detailed description of it would be out of place in this article. It is well known, by some at any rate, that the condensation of certain vapours is attended by extreme cold. On the principles actuating this phenomenon we do not here enter, but confine ourselves to giving a brief description of one of the machines—if machine it may be called—by which the principle has obtained its latest outcome. This