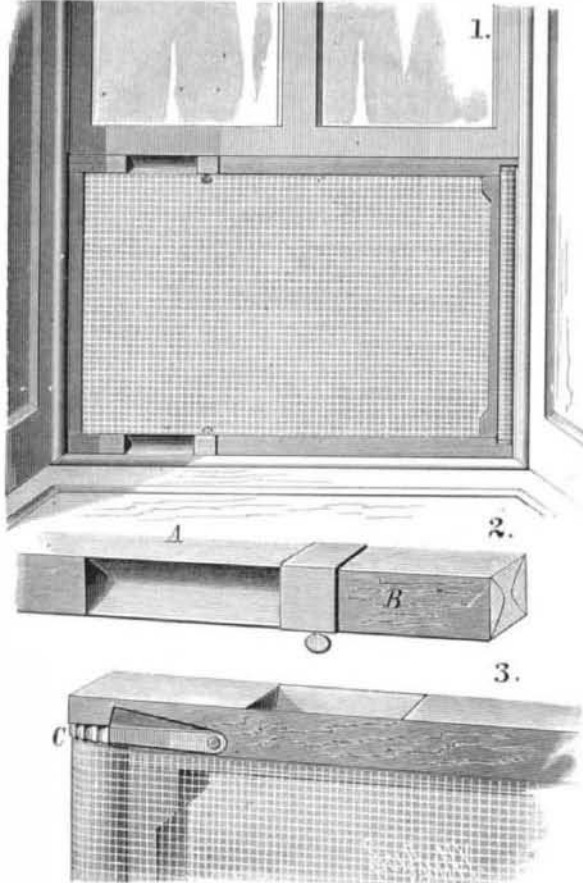


ric acid, and the sugar determined after inversion; finally, the dextrine is determined in a third portion by precipitation with alcohol. The difference in the quantity of sugar found before and after inversion is so great as to furnish a certain method for distinguishing natural and artificial honey. He says that the quantity of dextrine will be proportional to the difference in sugar found before and after inversion, but this is not always true, as some glucose contains no dextrine, and the composition of glucose depends on the method of its manufacture.—*Industrie Blaetter.*

NOVEL WINDOW SCREEN.

The engraving shows an extensible window screen that can be readily adapted to any window, and at the same time



JOSEPH'S WINDOW SCREEN.

is little if any more expensive than screens of the ordinary kind. It is as strong when extended as when closed. The frame of the screen consists of end bars and side bars, the latter being made in two pieces, A B, which are tongued and grooved together, as shown in Fig. 2.

A metal band surrounds the two bars, being attached to the bar, B. A screw passes through this band and enters one of several holes in the bar, A. At one end of the screen frame a roller is journaled in the side bars, B. The netting is attached to the end of the frame opposite the roller and wound on the roller, so that the frame is covered and the surplus wound on the roller.

On the ends of the roller are fixed ratchet wheels, C, which are engaged by spring pawls attached to the bars, B, hold the roller, and the frame prevented from collapsing by the strain of the netting. By this construction a strong and durable extensible screen frame is produced. The side bars are made of uniform size and equally strong throughout. They offer no obstruction to the light and are applicable to all windows.

For further information apply to Mr. John Joseph, 162 Broadway, New York city.

A NOVEL BLIND.

An entirely novel article in the way of window blinds is shown in the annexed engraving. The movable slats consist entirely of glass, either plain pure white or colored in any desired tint and cut. The slats have no staples or rods to operate them or interfere with the entrance of light. Each slat has formed on it at one end a small pulley, around which a cord passes which operates all of the slats simultaneously.

For inside shutters these slats are exceedingly well adapted, as they may be of glass, colored to match the carpets and upholstery.

Of course curtains and shades are wholly unnecessary where this blind is used, and it admits of having any desired color of light in the room. It affords good ventilation and prevents the entrance of mosquitoes and flies. It never needs painting, it is always fresh and new, and is ornamental rather than otherwise. Considering its durability and elegance this blind is not expensive. The slats may be cut and engraved, increasing its beauty to any desired extent, and it affords an efficient protection against burglars.

It effectually excludes vision from the outside, while it offers no impediment to the entrance of light, and the light which enters is so softened and diffused as to be incapable of injuring the eyes, or of fading delicate colors

in carpets and furniture. The engraving shows the face of a portion of a blind having glass slats in Fig. 1, and Fig. 2 is a vertical transverse section showing the form of the slats and the relative size of the glass pulleys.

This novelty is manufactured by the Corning Glass Blind Company, Corning, N. Y., who should be addressed for further information.

Liquefaction of Ozone.

At a recent meeting of the French Academy, MM. Hautefeuille and Chappuis announced that they had liquefied ozone. These chemists have been able to ozonize oxygen to a greater extent than has hitherto been done, by passing the silent discharge through the oxygen at a low temperature. The tube containing oxygen was immersed in liquid methylic chloride, which boils at -23° . After being submitted to the electric discharge for fifteen minutes at this temperature, the oxygen was conducted into the capillary tube of a Cailletet's apparatus, the temperature of which was maintained at -23° .

After a few strokes of the pump the gas in the tube appeared azure blue; as pressure increased the depth of color likewise increased, until under a pressure of several atmospheres the ozonized oxygen appeared dark indigo blue. The pressure was increased to ninety-five atmospheres, and was then suddenly removed, whereupon a mist, indicating liquefaction, appeared in the capillary tube.

The stability of a mixture of oxygen and ozone rich in ozone appears to be chiefly dependent on the temperature. If such a mixture be rapidly compressed at ordinary temperatures, a considerable amount of heat is evolved and the gas explodes.

Ozone, say MM. Hautefeuille and Chappuis, is, therefore, to be placed in the category of explosive gases.

Berthelot has shown that the transformation of oxygen into ozone is attended with absorption of heat; the stability of products of endothermic reactions is, as a rule, increased by decreasing temperature.

Ozone is much more easily liquefied than oxygen; the latter must be compressed under 300 atmospheres at about the temperature of -29° before sudden removal of pressure succeeds in producing liquefaction.

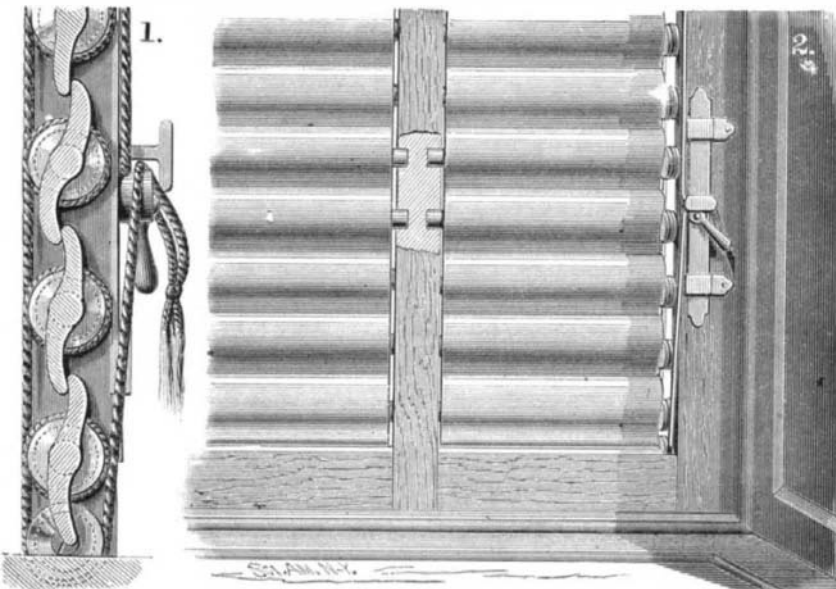
We have thus the existence through a large range of temperature and pressure of two allotropic forms of the same element, each with distinctly marked chemical and physical properties. We know that the molecule of oxygen has a simpler structure than that of ozone; the substance of simpler molecular structure is capable of existing through a much more extended range of temperature and pressure than that of more complex structure. Under special physical conditions it seems possible that new allotropic modifications of various elements might be produced.

The marked differences in color, and in temperature of liquefaction, between oxygen and ozone, furnish another illustration of the close connection which exists between the "chemical structure" and physical properties of substances; a different "linking," even of similar atoms, being evidently associated with distinctly different physical properties.

MM. Hautefeuille and Chappuis will doubtless soon be able to furnish more details of the properties of this most interesting substance, liquid ozone.—*M. M. P. M., in Nature.*

Crystals of Chromium Sesquichloride.

M. A. Mengeot allows hydrochloric acid to act upon potassium bichromate dissolved in water. If the solution is allowed to evaporate for about ten months the bottom of the vessel is found lined with deep violet crystals of chromium sesquichloride, but among these large violet crystals are some small green crystals of a salt of chromium. According to all authorities the green salts are only formed at 100° ; they are not crystalline, and they gradually pass into the violet condition. But the production of these green crystals takes place at common temperatures, and they have remained green for more than two years.



GOFF'S GLASS BLIND.

AN IMPROVED CHURN.

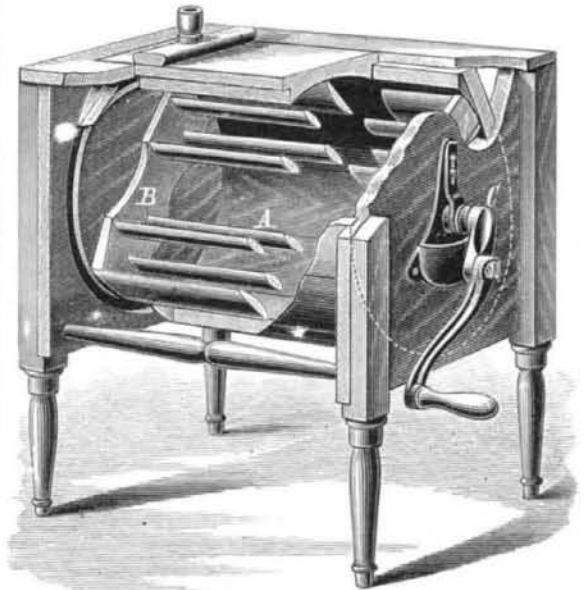
The engraving represents an improved rotary churn having a cylindrical body, whose inner surface is made continuous and unbroken, so that the dasher may revolve in contact with it and clear it of adhering cream. The dasher, A, is of peculiar construction, having blades set in the end pieces, B, so that they alternate in position, and when in motion give an undulatory movement to the cream, which thoroughly agitates it without breaking the globules.

With this construction the entire body of the cream is uniformly acted upon and converted into butter without loss, and the butter produced will be of a uniform quality.

Besides the features already described the dasher has a bearing at each end provided with a cup for catching any cream that may find its way through it around the shaft.

The crank is held in place by a plate, C, which enters a groove in the shaft, and is held in place by set screws.

The cylindrical body of the churn is held together by metal straps drawn together at the bottom of the churn by tangent screws.



MURCH'S CHURN.

This churn is easily taken care of, and is said to be thoroughly efficient. It is the result of a number of years' study on the part of the inventor, and it possesses points of novelty and usefulness that will be understood and appreciated by those familiar with the subject.

Further information may be obtained by addressing the patentee, Mr. Lewis W. Murch, of Kennedy, N. Y.

MISCELLANEOUS INVENTIONS.

An improved grain register has been patented by Mr. William B. Richardson, of Wolf's Mill, Texas. The object of this invention is to furnish registers for recording the quantity of grain measured and sacked. It is simple in construction and accurate in operation.

An improved hame hook has been patented by Mr. Moses C. Hargrave, of Wilmington, N. C. This invention relates to certain improvements in hame hooks designed to permit the worn end of the hook to be renewed and replaced by another without trouble or delay, and it consists in a peculiar hook formed in detachable parts.

An improvement in breech-loading firearms has been patented by Mr. Theodore D. Bartley, of Dresden Center, N. Y. The invention consists in a novel construction and arrangement of the breech-block and the hammer, whereby provision is made for depressing the breech-block by means of a spring and for elevating it by the motion of the hammer.

An improvement in the manufacture of artificial birds has been patented by Mr. Charles H. Bodurtha, of Delaware, Ohio. The object of this invention is to produce birds in relief covered with natural feathers, and thereby obtain a more natural and ornamental appearance than by any method heretofore practiced; and the invention consists in first forming the body from plastic material upon the prepared sheet and covering it with feathers.

Mr. Caleb W. Mitchell, of Saratoga Springs, N. Y., has patented an improved table for dispensing liquors, which is simple and convenient. It consists in combining a peculiarly constructed bottle rack with an ice box.

Messrs. Jacob S. Lowe and John H. Leiter, of Shelby, Ohio, have patented a combination ruler for facilitating mechanical drawing. The invention is especially designed for schools, and is also useful to the mechanical draughtsman and others. It consists of a series of rulers having uniform scales of inches and fractions of inches adjustably suspended on a horizontal rod, which is fixed in a headboard on the top of a blackboard or on a desk, said rulers being arranged in such a manner that by their use geometrically correct drawings of all kinds can be made.

Mr. Sewell S. Hepbron, of Fairlee, Md.,