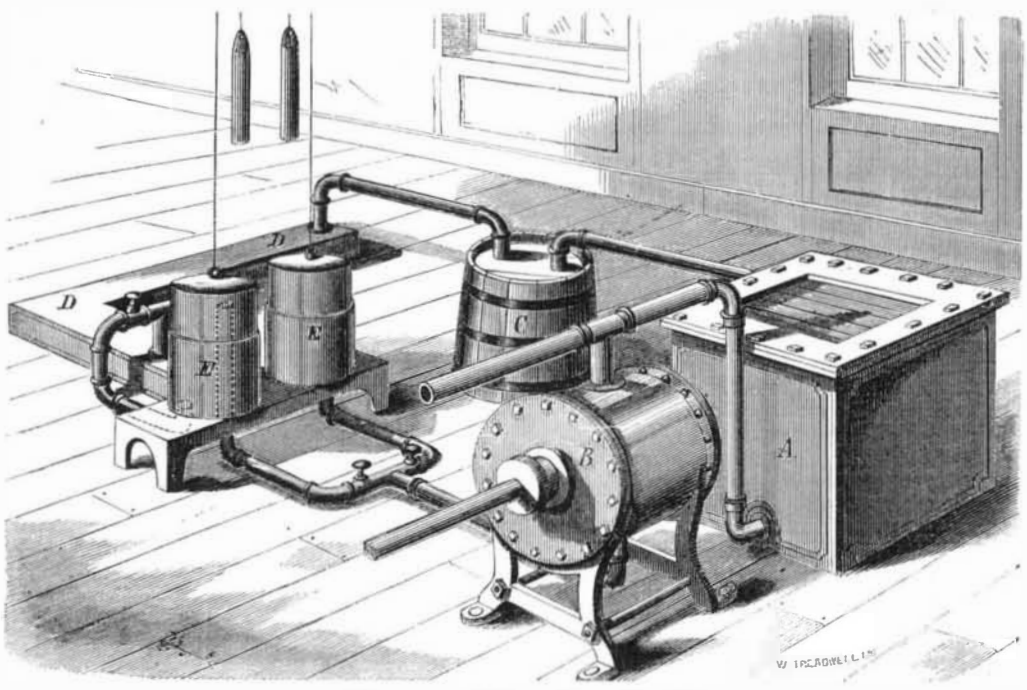
Improved Ice Machine.

The invention we illustrate consists of improvements in the method of, and machinery for, making ice by artificial means. At A is shown a tank, which is constructed of an outer chamber in which the freezing material is placed, and of an inner chamber to contain the water to be frozen. B is an air pump connected by a pipe with the freezing chamber in the tank; C is a vessel filled with oil or other hydrocarbon, into which the air from the freezing chamber is conveyed by a pipe from the upper part of the tank; D is a second oil vessel, which is connected by a pipe with the first; E E are two vessels having weighted covers; they are connected by pipes with the oil vessel, D, and also with the air pump, B, as shown in the engraving.

The freezing substance considered preferable is bisulphide of carbon, although ether, rhigoline, or chloroform, may be employed. The operation is as follows: The air is forced by the pump, B, into the freezing chamber in the tank, A. There it passes through the bisulphide of carbon and becomes surcharged with it, abstracting the requisite addition of heat from the water chamber. The heat and vapor of the bisulphide are then carried, with the air, into the oil vessels, C and D, where they are eliminated and the air purified. The purified air is thence conveyed to the vessels, E E, from which it is returned to the air pump by weighting their covers after closing the inlet cocks. The oil, when it has absorbed as much heat and bisulphide as is expedient, is drawn off and distilled, and the agent employed is re-obtained in its original quantity and purity. By the means described, the air is quite, or very nearly, restored to its original purity and temperature before it is carried back into the freezing liquid, and difficulties attending the use of other similar apparatus are thereby overcome. A further improvement in the process consists in depriving the air current of the aqueous vapor with which it is always more or less charged, and which forms frost and ice in the pipes; this is accomplished by passing the air over chloride of calcium placed in the bottom of the pipe leading from the pump to the freezing chamber. The invention was patented through the Scientific American Patent Agency by W. R. Johnston and W. Whitelaw, April 30, 1872. For further information, address the Whitelaw Ice Machine Company, Memphis, Tenn.

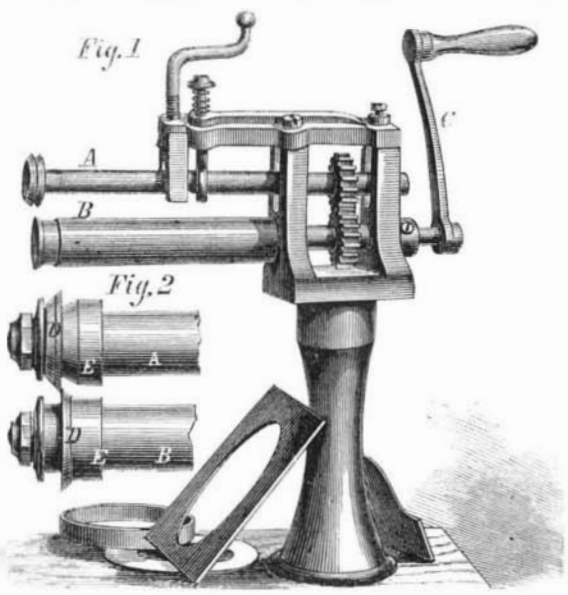


MACHINE FOR MAKING ICE.

BUNKER'S METAL CUTTER.

Our engraving illustrates a new machine for cutting metal with rotary knives, which is appropriate for tinners' use, and also for cutting iron that is too heavy for ordinary bench shears to act upon.

Fig. 1 shows the general arrangement, in which A and B



are two shafts which carry the cutters. The top one, A, is adjustable, by means of screws, to any required distance from the lower one. The two are geared together, as shown in the engraving, and turned by the handle, C. Fig. 2 shows enlarged views of the cutting and feeding apparatus attached to the ends of the shafts. The circular cutters, D D, overlap each other, so as to cut shear-fashion. Behind the cutters are rings or cylinders, E E, which press upon, and serve to feed, the metal to the cutters. The operation will be fully understood without further explanation. It is thought this machine will prove very useful for cutting off stovepipe, and for cutting out the holes for doors in stoves and furnaces. Several of the forms cut by it are shown at the foot of Fig. 1. Patented through the Scientific American Patent Agency, April 30, 1872. Further information can be obtained of the inventor, Mr. A. S. Bunker, 288 Common street, Lawrence, Mass.

Trial of Agricultural Implements.

The Ohio State Board of Agriculture have appointed a trial of agricultural implements and machines, to take place at Springfield, June 18, 1872. The following is a list of classes designated for competition, with the premium for the best of each description: Plow for general purposes, stubble plow, sod plow, double plow; premium in each case, a silver medal or $20. Subsoil plow, hill side plow, one horse plow, double shovel plow, a premium for each of a silver medal or $10. Steam plow, practical utility of operation to be fully demonstrated, $50; improvements in plows, diploma. Two horse grain drill, $40 and diploma; one horse grain drill, $10 and diploma; garden seed drill, $5; horse power corn planter, $20 and diploma; potato planter, $5; potato digger, $10; two horse corn cultivator, $20 and diploma; one horse corn cultivator, $10 and diploma; farm road scraper, $10; roller and crusher, $15; harrow, $10; mole or blind ditching machine, $20; post hole borer or digger, $5. In giving premiums on plows, the following points will be considered: Gross draft, weight, loss of power in overcoming friction, net power required to cut and turn the furrow slice, width of furrow slice, depth of furrow slice, comparative draft, simplicity of structure, materials, workmanship, durability, price, superiority of work. Competition is invited from all parts of the Union.

DURAND'S BURETTE.

This little appliance is the invention of M. Durand, of Saint Ouen, department of the Seine, France. Its operation will be readily understood on reference to the annexed illustration, in which *a* is the body of the can, *b* the long curved spout, and *c* c_1 a small tube in the form of a segment of a helical coil. This coil is affixed to the cover of the can and has one end, *c*, open to the air, and the other c_1, open to the inside of the can. In using the oil can when full of oil, all that is necessary is to cover the external aperture, *c*, with the thumb, which prevents any flow of oil from the spout, which is sufficiently small in diameter to prevent contrary currents. When it is desired to supply any lubricating reservoir, it suffices to uncover the aperture *c*, and thereupon the oil will flow in a small stream from the spout until the atmospheric pressure is again cut off from the interior of the oil can, after which no single drop will escape. This oil can is ingeniously simple and effective, and has been reported upon most favorably by a committee of the French Academy on Mechanical Arts.

Sea Weeds a Thousand Feet Long.

The Agassiz expedition, at the latest accounts, was off Sandy Point, Patagonia. Among the scientific curiosities noted by some members of the party were immense quantities of kelp, the *Macrocystis pyrifera*. This is the largest known *alga* or seaweed, and grows on these coasts in from six to twenty fathoms of water, in vast beds, warning the mariner to beware a near approach, unless he wishes to be entangled in an inextricable net work. It throws up from the oceanic depths stems of immense lengths, some of them from seven hundred to one thousand feet, the greatest development reached by any member of the vegetable race now in existence. Patches of this seaweed were passed in open sea, with large sea lions lying on its surface, who were apparently navigating in this novel manner with much satisfaction to themselves, and who afforded much amusement to their scientific observers.

False References.

A firm, hailing from Mississippi and purporting to be engaged in the business of selling patents under the style of Z. P. Dedrick & Co., are making unauthorized use of the name of Munn & Co. as a reference for their responsibility. Patentees will do well to keep clear of parties sailing under false colors.

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A Simple Plan of Polishing Photographs.

Certainly a great number of my colleagues who have essayed the collodion and gelatin process for finishing photographs have met with many difficulties and uncertainties inherent to the method, and have, consequently, thrown it up; it was so with myself, and I went back again to an older plan of enamelling, which I had previously employed.

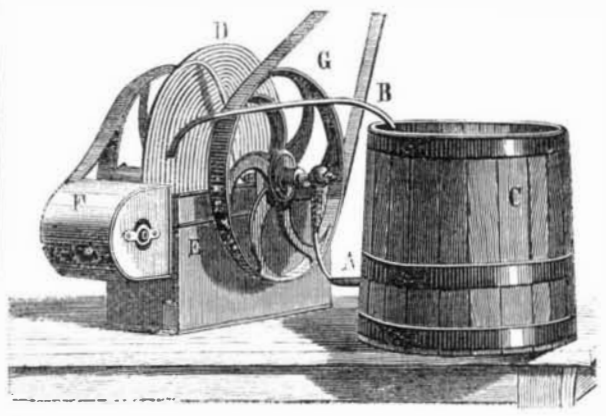
In the year 1865, I met with a photograph which had emanated from the studio of M. Dauthendey, of Wazburg, the picture being a bust with white oval margin upon a black ground. The photograph possessed a magnificent polish, and was of a very brilliant character; and experiments that I made with paper varnishes, etc., were all fruitless in giving the degree of finish possessed by the Dauthendey picture. Finally I came upon the following plan: I mounted about a dozen carte prints upon a card, covered them with a solution of gum—or, better still, gelatin—and when they had dried and been rolled and retouched, they were polished with a solution of white shellac in spirits of wine. This operation was conducted as if it was a question of furniture polishing, a rag being moistened with the liquid and rubbed to and fro over the prints for some time. The pictures, after standing the night, were again subjected to a second polishing.

Whenever the rag exhibited a tendency to stick to the surface, a minute quantity (say half a drop) of almond oil was applied to the photograph, and the operation of polishing continued. The photographs are subsequently cut out of the card. It is better to polish a number of small photographs at one time like this, as a large surface is more easily operated upon than a smaller one. The process is, probably, the same as that of M. Dauthendey, to be purchased for a honorarium of four florins.

The method, as already stated, is much to be preferred to the collodion and gelatin enameling process, so often recommended.—*C. Hoffman.*

DYNAMIC REFRIGERATOR.

Mr. J. B. Toselli, of Paris, France, has invented a cooling machine, which he calls the "Dynamic Refrigerator." It consists of a revolving disk, D, formed of a metallic tube bent into a complete spiral, having one end open, and with the other end communicating by a hollow shaft or axis of rotation with an external tube, A, communicating with a worm contained in a separate vessel, C, and terminating in a discharge pipe, B, with outlet into another vessel, E, containing the revolving disk, to which a slow movement of revolution is imparted by a driving pulley and belt, G, making, say, one turn in a second of time. The disk is half immersed in cold water, and as the exterior surface of the disk above water is continually wet, it exposes considerable evaporating surface. At the same time a continuous stream of water is forced through the hollow spiral, parting with some of its heat under the influence of the external evaporation and radiation, which is intensified by the addition of a ventilator, F.



The current being thus lowered in temperature, refrigerates in its turn the liquid to be cooled in the vessel, C. The lowering of temperature thus obtained varies according to the hygrometric condition of the atmosphere; the minimum effect obtained, under the most unfavorable circumstance, amounts only to a difference of 5° to 6° Fah., while the maximum difference obtained in sunlight is between 32° and 33° Fah.

This machine is obviously calculated to be of great service in many manufacturing processes—such as for brewing, distilling, and effervescent beverages—also in hydrotherapeutic establishments; and probably also on shipboard for the evaporation and distillation of sea water, and its conversion into a potable fluid.—*Mechanics' Magazine.*

ACOUSTIC EXPERIMENT.—Let a wide glass tube, open at both ends, be taken, and in this a piece of fine wire gauze be pushed up some little distance. If the gauze be now heated to redness, over an ordinary Bunsen burner, and then removed, it will shortly emit a shrill note, lasting from five to ten seconds. The experiment will be new to most of our readers, and has the merit of always going off.—*Journal of the Franklin Institute.*