bushel of barley in water, let it germinate, then dry it thoroughly. (See article on Lager Beer, page 192, current volume.) Mash this malt in about 8 gallons of water heated to 170° Fah., cover the vessel, and after an hour's standing pour off the liquid, and stir up the malt again with a like quantity of hot water. Let it soak as before, then draw off, mix the liquors, add ¾ lb. hops, and boil for an hour. Cool down to about 90° Fah., and stir in the decomposed dough thoroughly beaten up with tepid water. Keep in a warm place for a few hours, when active fermentation will take place, carbonic acid gas be disengaged, and when the action is complete and the liquid clear, a large quantity of yeast of excellent quality will be found at the bottom.

(27) T. H. C. writes: S. R. B. can remove his wart by using chloral hydrate. Get a little and rub it up with just enough water to make a thick sirup. Apply this to the wart with a match whittled to a wedge shape, carefully so as not to get the chloral on the well skin. It will burn without discoloring, and destroy the surface, which may be rubbed or scratched off and fresh chloral applied. This is infallible, and leaves no scar. If by accident a little gets on the well skin, no harm is done save a slight reddening and soreness.

(28) A. C. L. writes: I was told by one who professed to be a machinist, that a right hand thread could be cut in a lathe by running the carriage to the right. But I believe it to be impossible. A. It can be done. Reverse the motion of the lathe spindle and turn the cutting tool upside down, or place it behind the work.

(29) S. E. W. writes: I have heard that cold pressure upon a boiler, as when testing it with water, strains boiler more than having same number of pounds of steam. Is this so? A. Cold pressure does not strain the boiler more, if the pressure is increased gradually. If injury is done, it is by improper manipulation. The difference in strength, hot or cold, is so small as to be of no account.

(30) L. B. asks: 1. Will you please tell me, through the SCIENTIFIC AMERICAN, how to make a hole about three-quarters of an inch in diameter into the bottom of a glass bottle? A. A three-quarter brass or copper tube used as a drill and supplied with emery and water will cut the hole. You may guide your drill with a wooden guide. Great care should be taken as the work nears completion. 2. How is transparent paint for coloring the glass slides of a magic lantern prepared? A. Prussian blue, gamboge, carmine, verdigris, madder brown, indigo, crimson lake, ivory black, and the coal tar, or aniline dyes, are the principal pigments used. Raw sienna, burnt sienna, copper brown, and vandyke brown are also sometimes used. The coal tar or aniline dyes afford the richest colors, and tints are most transparent, but are unfortunately apt to fade on exposure to white light. The pigments may be ground in oil or water, but ordinary megilp (strong mastic varnish mixed with an equal quantity of pale drying oil) is preferred as the vehicle. Not a drop more than is necessary for properly working should be used, for if the colors are mixed too thin they will run into one another. A thin size of transparent gelatin in hot water may be laid on the glass when water colors are employed. The transparency of many of these colors is heightened by a thin coat of pure mastic varnish, after drying.

(31) H. E. asks (1) how to make the platinum point of a plated blowpipe remain on the instrument. A. It should be screwed on. 2. How can I make an aniline blue ink? A. Dissolve an ounce of good aniline blue in half a pint of hot water, cool and dilute with cold water until it flows properly from the pen. See Inks, SUPPLEMENT, No. 157.

(32) H. B. ask for a recipe for japanning tin covers, cheap. A. Give the ware a coat of good japan varnish and heat it in an oven at about 300° Fah. until properly hardened.

(33) H. J. N. L. asks how to supply himself with a calcium or magnesium light, or other very bright and strong light for a sign, to attract attention now and again, and the cheapest way of manufacturing the same A. For the lime or calcium light use the jet described in answer to A. M. B. (28), page 123, current volume. The jet is supplied with oxygen and hydrogen (or illuminating gas) from India-rubber gas bags. It is cheaper to purchase the apparatus and bags. See our advertising columns for addresses of dealers in such things. The oxygen is prepared by heating in a copper retort pure chlorate of potash mixed with about one-fourth its weight of powdered peroxide of manganese. The gas given off is washed by passing it through water in a bottle similar to D., in answer to C. M., page 123 (26), current volume, and collected, is then put in the bag. Use a smooth cylinder of good quicklime three-quarters of an inch in diameter and 2 inches long, perforated to fit tightly on the spindle, or shaped with a knife to fit the lime cap. In the magnesium light a thin ribbon of the metal magnesium is placed between slender rollers operated by clockwork, so that the ribbon, when ignited, is fed forward as rapidly as consumed.

(34) J. H. W. asks: 1. Is there any publication existing that gives the names of the different kinds of vegetable, animal, and mineral oils, their gravity, their process of manufacture, their illuminating and lubricating qualities, formulas for compounding, to refine or clarify? Or can you suggest a way I can obtain the above information? A. We know of no single book that will afford all the information required. Consult Wagner's "Chemical Technology," Muspratt's "Chemistry," Ure's "Dictionary of Arts and Manufactures," Knight's "New Mechanical Dictionary," and the encyclopedias.

(35) R. W. H. writes: 1. At a meeting of farmers in Westchester County, the writer stated that the length of rope used for draught made no other difference than its extra weight if the angle of draught were the same, and proved it by the ordinary steel yard and weight close to yard and three feet distant, the cord being balanced. Then arose a discussion on the most effective angle of draught. I was under the impression that it was 18°, but diligent search has failed to give me any information, and I think it a subject of such general interest that I trouble you for an answer through the SCIENTIFIC AMERICAN. A. Gregory says 18½°; a French author 14° to 15°. 2. The parties in charge of portable engines that are left out-of-doors paint boilers once or twice a month with gas tar (that is the tar obtained from the works for making illuminating gas). Is this deleterious, and is there not something better? A. It is not deleterious, but would be better if first heated sufficiently to drive off the more volatile matters. This heating should be done with caution or the vapors will take fire.

(36) F. P. asks: 1. What proportion does the electrical resistance of one copper wire bear to another of half its diameter? A. It is inversely in proportion to its sectional area; that is, the smaller wire would have four times the resistance of the larger. 2. What treatise on electricity can I get which takes up the theory and practical construction of the most approved dynamo-electric machine, and also the induction coil, fully explaining the construction of each? A. Back numbers of the SUPPLEMENT, Prescott's "Electricity and the Electric Telegraph," the "Electric Light," by Higgs, also recent text books on physics. 3. Is an electric light worked direct from the dynamo-electric machine, or is an induction coil inserted? If the latter, is there a circuit breaker in the primary circuit? A. The machine works direct. 4. How much does an induction coil increase the force? A. It does not increase the dynamic force. The electromotive force of a secondary current is very high. 5. What is a condenser as used with induction coil? A. A condenser is a series of sheets of tin foil insulated from each other and connected in alternation with opposite electrodes of the primary circuit, its office being to neutralize the extra current of the primary circuit.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

A. M. D.—It is a yellow ocher; ground and washed it will make a cheap red or brown pigment.—O. G. S.—An impure kaolin—used in making cheap pottery, tiles, drain pipes, etc.—G. J. H.—Crystallized quartz rock crystal.

COMMUNICATIONS RECEIVED.

On the Coming Treatment of Ores. By J. C. C.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending

April 19, 1881,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, will be furnished from this office for one dollar. In ordering please state the number and date of the patent desired and remit to Munn & Co., 37 Park Row, New York city. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications not being printed, must be copied by hand.

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