surface with a mixture of 1 part highly calcined umber and 2 parts of borax ground to a fine powder, and then heating the glass in an oven until the coating becomes vitrified. Consult "A Treatise on the Origin, Progressive Improvement, and Present State of the Manufacture of Porcelain and Glass." Address the bookdealers who advertise in this paper.

- (20) S. A. H. writes: I have for some time been using a gasoline gas machine which I have made, but I find it rather unsatisfactory, as the gas when burning in a close room gives an unpleasant odor causing headache. A. The cause of the bad odor is doubtless due to the supersaturation of the air with the vapor of gasoline, so that the combustion is imperfect, certain hydrocarbons mixed with much carbonic oxide escaping unconsumed. 2. I cannot get from a gallon of gasoline 88°, more than 100 feet of gas, or the equivalent in light of 100 feet of good coal gas. How much should I get from a gallou? A. About 118 feet under favorable circumstances. 3. My blower is of peculiar construction, and the air when entering it has to pass through a fine spray of water, and thus become saturated with watery vapor. May the odor not be caused by a partial decomposition of this vapor while passing through the flame? I am led to think so from the fact that during intense cold the gas burns without odor, in which case I think the watery vapor is retained in the pipes by freezing. A. The odor is not due to the water. See article on gas machines, page 1, vol. xliii.
- (21) "Subscriber" asks: Can you tell of anything that can be worn or used to destroy body odors that daily bathing will not accomplish? Also a deodorizer for bedrooms and bedding? A. Add a little soda to the water used for bathing, and bathe frequently. Frequent changes of bed linen and plenty of airing are the most practical means.
- (22) W. S. asks for a method of hard soldering solid gold set rings such as amethyst, cameo, garnet, etc., which will not crack or change the color. Please let me know what mixture, or what would be best. A. Jeweler's solder with gold of a somewhat lower title than article to be soldered-borax, flux, and blow pipe, enveloping the other parts with tissue paper and whitening or plaster of Paris.
- (23) A. M. G. asks for a receipt for making a blue colored fire, same as used in fireworks. I have tried receipts with only sulphur, nitrate of potassa, and antimony, but they are not satisfactory. I think that realgar (red arsenic) or orpiment (yellow arsenic) are used, but what proportions of each I do not know. Please give me some receipts which you may know to be good and not be very expensive. A. 1. (For theatrical fires, etc.)-Sulphur, sulphate of potassa and ammonio-sulphate of copper, each 15 parts; niter, 27; chlorate of potassa. 28. 2. Sulphate of copper, 7 parts; sulphur, 24; chlorate of potassa, 69. 3. (For pyrotechnic mixtures)-Chloride of potash, 9 parts; sulphur and carbonate of copper, each 3 parts 4. (For lances)-Chlorate of potassa, 6 parts; Chertier's copper 1; calomel, 5; sugar, 4.
- (24) E. F. H. asks for information as to curing, removal of fat, and the fishy odor of bird skins, especially salt water birds. I do a great deal of gunning, and should like to prepare some good skins. A. Scrape off as much of the flesh and fat as possible with a blunt knife, and immerse them for 48 hours or more in the following solution: Salt, 4 lb.; alum, 1 lb.; water, just sufficient to dissolve. On removing wash in a weak solution of soda and water.
- (25) H. M. P. asks: 1. How much power is required to drive the dynamo-electric machine described in No. 161 of the Scientific American Supple-MENT? A. About one-sixth of a horse power. One man power will drive it. 2. Will a piece iron pipe 8 inches in diameter do for the shell of a small boiler? What pressure would it stand? A. Yes; it would probably stand 200 lb. per square inch safely, but should be tested to 400 lb. before being put in use.
- (26) E. E. T. asks: 1. Could I obtain good results by constructing a dynamo-electric machine with electro-magnets consisting of a piece of gas pipe (wrought iron) of extra thickness, split lengthwise so as to form the two poles, and wound circumferentially with wire ? Also, would the armature made of a crossshaped section be any better than if made according to Dr. Siemens' plan? I constructed a machine, as described in Scientific American Supplement, No. 161. and am much pleased with it A. A dynamo machine constructed according to your plan would prove a failure. 2. I am working in a sugar house with a view of learning the business. Do you consider the analysis of sugar a special branch of chemistry, and how long would it take a man of average intelligence to learn it? A. Yes. To become expert in the use of the saccharometer under favorable circumstances does not require many weeks' study. To become thoroughly acquainted with sugar chemistry may require a year of application. 3. Will sponge platinum become luminous in ordinary coal gas? A. Yes, when freshly prepared. 4. In making phosphorescent sulphides, as described in Scientific Ameri-CAN of February 5, 1881, is it necessary to heat red hot?
- (27) W. T. asks: 1. What is meant by electroplaters' machines, and is any apparatus necessary for silver plating besides Bunsen's battery? A. Dynamo-machines, used in large electroplating establishments in place of batteries. 2. Can I obtain any publication with the latest methods for electroplating? A. See pp. 81, 116, 3, and 33 current volume, and 153. vol. xliii., Scientific American. 3. How is aqua-ammoma, as sold in the drug stores, prepared, and can 1 Cars, lighting railway, R. De Lan...... 237,095 prepare it for my own use and how? A. Usually by decomposing the ammonia salts such as the chloride (salammoniac) by means of lime, with the aid of heat, and passing the ammonia (gas) evolved into water which absorbs it and becomes aqua-ammonia (ammonia
- (28) W. C. asks for a receipt for a good black polish for leather suitable for cartridge boxes and I want a polish that will not wash off, and make a good appearance at inspection. A. Shellac, 12 parts; white turpentine, 5; gum sandarac, 2; lampblack, 1,

covered vessel until solution is complete. 2. What is the cause of center punches and cold chisels becoming magnetized when used for a short time? I think it is caused from the friction of the center punch on the iron. A. The magnetism is derived by induction from the earth. Articles of steel when held in certain positions and repeatedly struck become magnetic.

- (29) D. A. S. asks: Is there any known substance that, if placed between a magnet and steel, will prevent attraction? A. No.
- (30) C. M. E. asks: 1. To what height will an ordinary steam suction pump lift (not force) water and work successfully? A. About 26 feet. 2. In ascertaining such height in the winter, when the river is frozen over, would you measure from the top or unde side of the ice? A. Underside.
- (31) J. R. K. writes: In your January number of Scientific American, in answer to J. R. S No. 35, you give following receipt for making those pads, etc.: "Water, 130 parts; sulphate of baryta, 7 parts; sugar, 30 parts; gelatine, 30 parts; glycerine. 18 parts." Wanting one of the articles badly, I took you paper to a chemist in this city, to have the articles pre pared, and he informed me that sulphate of baryta wa insoluble in water, and he advised me to send East (ther being none of the article in this town) for a pound of sulphide of barium. Will you in next issue of you paper let me know about correctness of the above, also whether sulphide of barium will answer for sulphate o baryta, as stated in receipt? A. The sulphate of baryta is simply mixed, not dissolved; it gives consistence and color to the composition. The sulphide cannot be used
- (32) G. A. N. asks: What is the best way to remove white paint from the surface of white pin house stair steps? A. Moisten the paint well with naphtha or good benzole, repeating as often as neces sary. As soon as the paint becomes soft remove by means of a rag, aided by a scratch knife and stiff brush moistened with the naphtha or benzole. A strong aque ous solution of caustic potash is sometimes used to de stroy such paint, but it is apt to stain the wood or unfi its surface for receiving a fresh coat at once.

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Ore grinding mill, G. Johnston		Carpet, T. J. Stearns12,146 to	12,148
	237,119 237,288	Chair seat, R. L. Bent	12,144
Ore separator, Woodman & Siefken	237,119 237,288 237,226		12,144
	237,119 237,288 237,226 237,183 237,351	Chair seat, R. L. Bent	12,144

## English Patents Issued to Americans. From January 25 to February 1. 1881, inclusive.

Carbon black, Carbon Black Company...... 8,155

Berth, sleeping, The Brunswick Berth Co., Boston, Mass. Bottle stopper. N. Thompson. Brooklyn, N. Y Chains, driving, J. M. Dodge, Chicago, U. S. Gas burner, pressure regulator for, J. N. Chamberlain t al., Hampdon, Mass.
7,212 Hides, fleshing, A. W. Reid et al., Schenectedy, N. Y. (243 Loom, W. Talbot et al., Philadelphia, Pa. Ore crusher, C. Forster, Pittsburg, Pa.

Sewing machine, J. H. Morley, Holyoke, Mass. Starch, manufacture of, T. A. & W. T. Jebb. Buffalo, N. Y. Wheat smutting machine, W. Lauhoff. Detroit. Mich.