

will destroy the colors of several stains; but those whose business it is to clean colored fabrics, do not use it for such purposes. Sour milk contains lactic acid, and it was once extensively used in the bleaching of linen. It is a very safe recommendation. Oily substances cannot be expelled from carpets by holding a flat-iron near them, as stated in the concluding part of the above receipt. Strong cold soap suds will remove oil from carpets, and those who make a business of cleaning them use nothing else.

PREMIUMS OF THE AMERICAN INSTITUTE.

The American Institute holds no fair this year, but they will award fifty premiums, consisting of gold and silver medals. One half of the subjects have been referred to the Farmer's Club, and one half to the Polytechnic Association. The articles and essays must be presented by the first of December next.

The following is the list of subjects referred to the Polytechnic Association:—

- 1.—For the best Machinery for Spinning and Weaving Flax. Gold Medal.
- 2.—For the best Lifting and Force Pump—by hand power. Silver Medal.
- 3.—For the best novelty in Building Materials, and Machinery for preparing the same. Silver Medal.
- 4.—For the best novelty of practical value extracted or manufactured from Coal Oil, Coal Tar or Petroleum. Silver Medal.
- 5.—For the best samples of Steel or Semi-Steel made direct from Cast Iron, with the process of manufacture, and the cost of producing the same. Gold Medal.
- 6.—For the best novelty in the Construction of Railroads. Silver Medal.
- 7.—For the best novelty in Warming and Ventilating Buildings, having especial regard to health, safety and economy. Silver Medal.
- 8.—For the best Essay on the Measure of Power. Silver Medal.
- 9.—For the best original Researches or Monographs on any subject pertaining to the science of chemistry or mechanics, or their practical applications. Gold Medal.
- 10.—For the best samples of American Manufactured Flax Fabrics, with the cost of manufacture. Silver Medal.
- 11.—For a cheap and easy test of the true value of Lubricating Oils. Silver Medal.
- 12.—For an essay and economical method of procuring the pure fatty Acids from crude materials. Silver Medal.
- 13.—For an important discovery or invention in Photography. Silver Medal.
- 14.—For the best original Research upon the artificial formation of Saltpeter. Silver Medal.
- 15.—For an easy test of the detergent strength of Soaps. Silver Medal.
- 16.—For the best specimens of Silver or Gold Plating on Glass. Silver Medal.
- 17.—For a cheap preparation of Aniline Colors. Silver Medal.
- 18.—For a cheap preparation of Metallic Calcium. Silver Medal.
- 19.—For a cheap preparation of Silicon. Silver Medal.
- 20.—For a cheap preparation of Magnesium. Silver Medal.
- 21.—For the best mode of constructing Fireproof Buildings. Silver Medal.
- 22.—For a simple method of crystallizing Sugar from Sorghum. Silver Medal.
- 23.—For the best Water Meter. Silver Medal.
- 24.—For the best Lamp to burn Kerosene Oil, producing perfect combustion. Silver Medal.
- 25.—For the best plan for burning Kerosene Oil for heating purposes. Silver Medal.

Three Discretionary Premiums (Gold or Silver Medals)—to be determined by the Board of Managers.
The Polytechnic Association meets at the rooms of the Institute in the Cooper Union, every Thursday at 7½ o'clock. The articles and Essays must be presented previous to the 1st of December next. Circulars containing full particulars may be had at the rooms of the Institute, No. 22 Cooper Union. Communications should be addressed to PROF. RENWICK, Corresponding Secretary of the American Institute.

RECENT FOREIGN INVENTIONS.

Manufacturing and Coating Zinc Tubes.—A patent has been taken out by John Weems, of Johnstone, Scotland, for manufacturing cheap metallic tubes, to be substitutes for tubes of brass. The patentee states that he forms tubes of zinc, by passing the metal strips through dies or rollers; and the overlappings or contiguous edges of the metal are brazed or soldered with the aid of the blow pipe. The tube is then passed through a die, in order to impart a smooth finish thereto. It is then to be coated with copper, either by a galvanic battery, or by immersion in cold or heated solutions of the salts of copper, suitable for precipitating the metallic base upon the surface of the tube. These tubes may also be coated or plated with compound solutions of metals, or their surface may be coated with tin, bronzed, or lacquered.

Gas Apparatus.—Magnus Ohren, of Sydenham, Kent, England, an associate of the Institution of Civil Engineers, in describing an improvement which he has made in mechanism, connected with the manufacture of gas, says, "It is a known fact, that, although a gas exhauster, working at level gage, draws off a considerable portion of the gas produced in a retort, still a pressure is maintained in the retort, and consequently, a large portion of gas is thereby destroyed in the retort." To remove this pressure from the retorts, he claims the use of a movable disk, whereby the water in the hydraulic main is kept at one uniform level—just sufficient to seal the pipe when the retort is at work. The movable disk can be raised or lowered effectually by the use of a screw and wheel, with a pointer attached, to show the lineal opening. On the movable disk being lowered, the water from the hydraulic main will flow away, and the pressure will be removed from the retort to

such an extent, that the whole of the gas evolved can be drawn off by the exhauster at level gage.

Soldering Type Letters for Compositors.—To facilitate the work of compositors, L. George, of Paris, has taken out a patent for an easy method of soldering two or more of those letters together which most frequently occur in the English language. He takes an amalgam prepared with two parts of mercury and one of tin, and rubs a little of this on the surface of a thin plate of lead, then presses the broadside of the two type letters upon it, and they are thus kept for about half an hour, when they will be found adhering together firmly.

Manufacture of Soda.—The common method of manufacturing carbonate of soda, is by roasting with coal the sulphate of soda, produced in retorts in the manufacture of hydrochloric acid. I. P. Gillard, of Paris, has applied for a patent for a process of producing carbonate of soda direct from common salt, as follows:—A certain quantity of salt amounting to a proper charge for the size of retort used, is placed in the retort, then a current of superheated steam, hydrogen and carbonic oxide is passed over it at a high temperature. Under such treatment, he states, the hydrochloric acid is evolved and carried off by the outlet tube, and a mass of carbonate of soda mixed with caustic soda is left in the retort. Common salt is composed of chlorine and sodium. This may be the germ of a great improvement in the manufacturing of soda.

New Reefing Devices.—Several methods have been proposed and tried for reefing and furling topsails, and other square sails from deck, instead of mounting the yards for the purpose. The following method has been patented by I. Medhurst, of London. The yard used for the application of the invention is tubular iron, with a slot or opening in the forside, somewhat exceeding the breadth of the sail at the close reef. A tube or roller is fitted in the center of the hollow part of the yard, which revolves on bearings at the ends. On this roller the sail is laced, and when the yard is lowered the sail is wound up on it. A chain from the deck passes through sheave in the topmast over the yard, and then round a chain wheel fixed to and above the yard at the slings. The chain then passes over a second sheave on the mast and returns to the deck, so that when the yard is lowered by slacking off one end of the chain, the whole weight of the yard and sail being pendent on the chain, will cause the chain wheel to revolve. This chain wheel puts in motion two axes. These have pinions at their ends, which gear with cog wheels at the ends of the roller to which the sail is attached. As a security against the roller being bent or otherwise damaged by heavy squalls of wind, a broad hook, made of iron, is placed so as to support the middle of the roller. This hook is covered with leather to prevent its damaging the sail, and is connected with a purchase, so that, after the sail has been reefed or when it is set, this hook may be made to take the weight of the center of the roller. Any amount of rotation may be given to the roller which takes up the sail.

Coal-Tar Colors.—The benzole which is obtained by the distillation of the naphtha, obtained from coal tar, is converted into nitro-benzole, by mixing it with nitric acid (aqua fortis). It is then impregnated with hydrogen in a nascent state, by adding iron or zinc chips to the nitro-benzole, and pouring into it some sulphuric acid. In this manner aniline is formed, which is the base of those beautiful colors, mauve, magenta and solferino. A patent has been taken out by Francois Laurent and John Casthelaz, of Paris, for an improved method of obtaining such colors. They take twelve parts by weight of nitro-benzole, and add twenty-four parts of fine iron filings, and six parts of concentrated commercial hydrochloric (muriatic) acid. This mixture after being stirred, is allowed to stand for about twenty-four hours without artificial heat being applied. The mass then assumes a resinous appearance and becomes solid, and contains iron, chloride of iron, and what the inventors call erythro-benzine. This is then broken in pieces, and crushed in a mortar, after which it is dissolved in water, and the coloring matter contained in it is precipitated by adding to it common salt. The color thus obtained is again dissolved and precipitated in the same manner, and is ready to be used for dyeing and printing.

RECENT AMERICAN INVENTIONS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week. The claims may be found in the official list:—

Machine for Seaming Sheet Metal.—This invention consists in arranging the bearings of the burring rollers in transversely adjustable slides, in such a manner that said rollers can be readily separated and the machine drawn back without lifting it off the seam; it consists further in the employment of squeezing rollers in combination with the burring, folding and seaming rollers, in such a manner that the working rollers can be released from the seam, while the squeezers hold the machine firmly in its place; it consists further in combining with said squeezing rollers, a yielding bearing and an eccentric cam, in such a manner that by the action of the cam the squeezing rollers can be readily separated and the seam released. It consists, finally, in arranging the wheels which support the machine on eccentric bearings, in such a manner that by turning the axles of the wheels the machine can be adjusted higher or lower as may be desired. C. H. Dowd and W. G. Dowd, of Scranton, Pa., are the inventors of this device.

Cutting Button Holes.—The object of this invention is to obtain a device by which button holes may be very expeditiously cut in tents and in garments and the places also marked where buttons are to be attached. The invention consists in the employment or use of a frame and a series of cutters or awls arranged in such a manner as to effect the desired end. Daniel W. Whitney, of New York city, is the inventor of this device.

Relieving Slide Valves of Pressure.—This invention relates to transferring a desirable portion of the pressure produced by the steam on the back of the valve, to a series of rollers arranged to run upon tracks within the valve chest. It consists in a certain construction and arrangement of means for adjusting the tracks upon which such rollers run, also in certain means of combining the rollers with the valve and adjusting them relatively thereto. Andrew Buchanan, of Jersey City, N. J., is the inventor of this improvement.

Wagon Axle.—This invention consists in surrounding the axle of a wagon or other vehicle with a case of Babbitt's metal or other suitable composition, said case being provided with a shoulder thick enough to afford room for an oil cup, from which a channel extends through the case on the top of the axle in such a manner, that a self-lubricating axle is produced, the body of which is protected from wear by the surrounding case which, together with the oil cup can be renewed with little trouble, whenever it may be desirable. R. P. Gillett, of Viroqua, Wis., is the inventor of this improvement.

Seaweed in Place of Hair.

It is becoming quite a common practice in this city to use seaweed in place of curled hair for upholstery, cheap furniture and the filling of mattresses. Quite an extensive business is carried on from Long Island in the seaweed line, and vessels often leave the wharves bound for New York freighted with this article of merchandise, where it is sold to upholsters and others, bringing a higher market price than a like quantity of the very best hay. On the shore where this seaweed is gathered, the seaweed is spread out and dried, and then pressed and baled the same as hay. In this condition it is sent to the metropolis, where it is at once converted into hair mattresses, used for sofas, chairs, &c. The best articles of this kind are stuffed with seaweed, hair sufficient being used to conceal the former and avoid detection. This branch of business is now carried on extensively, and the profits accruing therefrom are of no inconsiderable amount.

WHAT IT COSTS TO "READ" THE LONDON "TIMES."—No fewer than twelve individuals are daily employed in what is technically termed "reading" the London Times. The chief "proof reader," a gentleman of finished education, receives an editorial salary—but has to forfeit one guinea for every typographical error, even to a turned letter, in a day's impression, but if he has marked the error on the proof, the compositor, who neglected to correct it, pays the forfeit.