Class the second, 225.—These were not methodical in their work, had much to talk about, were generally late, but were willing to quit work early. They were always in a hurry when we overlooked them, but they did not do as much work in the same time as class the first, and often left little things unfinished, and if they were told of it, would make many trifling excuses, but highly extol their own abilities.

Class the third, 202.—These were negligent in personal appearance and in their work. They talked much about their own good qualities, and were better acquainted with the business and domestic habits of their neighbors than with their own. They always belonged to the temperance society when first set to work, but in a few days afterward their breath would smell more like an old rum cask, than that of human beings. These men were not steady at their work, were always short of money, and could not be relied on in regard to truth and honesty.

Class the fourth, 96.—These were careless in their manner of work, committed many errors, but when they were pointed out to them, would apologize most willingly; soon forgot particular small items; were tenacious of their own rights, but not very nice about the rights of others: still, there was something pleasant in their manners at first sight, but they did not improve on further acquaintance. They required much watching and often talked about what they had done and what they had been, what they could do and what they intended to do, but they seldom did any thing properly.

Class the fifth, 202.—These were of a strong, nervous temperament—always in a hurry—little order and method in their work, often met with accidents, and often got themselves into difficulties by their hasty proceedings: otherwise, they were kind and willing to oblige, but the promises they so hastily made were soon forgotten.

Class the sixth, 20.—These were better dressed than the others, but were not good workmen, as they had tried many things, but had not mastered any one in particular. Their politeness was artificial, and one day was often sufficient to expose their deception. Innocent and small impositions seemed to be their legitimate business. They were too ignorant to blush at their own folly, and too proud to acknowledge their own faults. They were vain in the extreme, and unreliable.

Remarks.—Whether these rules are applicable to all trades, professions and classes of men, I do not know, but I am thoroughly acquainted with the facts above stated, and also with the traits of character I have there described: therefore I leave the reader to make his own deductions.

James Quarterman.

New York City, January 5, 1867.

### Extraction of Oils with Petroleum Naphtha.

Messrs. Editors:—In an article on perfumery, which I wrote for your valuable paper last spring, I recommended the use of petroleum naphtha for the extraction of oils, showing its advantages over other solvents or other means of separating the oils.

Lately Dr. Vohl, in Cologne, has experimented in the same direction. As he came to similar conclusions with myself, I herewith give you his observations on this theme.

The usual method of extracting oils from vegetables, especially seeds, consists in a strong pressure after previous diminution by grinding. This mode extracts a number of substances from the seed, which produce rancidity of the oil or impart to it an unpleasant flavor, thereby impairing or completely destroying its utility for the table, while they by no means improve its value as a lubricator or for burning.

Among the first innovations upon this method was the attempt to extract oil with alcohol, ether, etc. These agents were soon laid aside on account of their limited solvent power and the faulty construction of the apparatus used in the experiments.

The introduction of bisulphuret of carbon into the market at a low price soon brought this substance into use for extracting oils from seeds, wool, etc., although its use is attended with many disadvantages, among which may be mentioned the decomposition of the bisulphuret by causes little studied as yet, producing a deposit of sulphur which imparts to the oil an unpleasant sulphurous odor and taste. The bisulphuret further dissolves, beside the oil, a resinous substance which on exposure to air soon produces rancidity and injures the quality of the oil for the purpose of lubrication.

During saponification such oil spreads an unpleasant odor, which it also imparts to the soap, together with the undesirable property of affecting the colors of metals which may be washed with it, as silver spoons, etc. Sometimes painted wood, doors, etc., are washed with such soap. If the paint contains lead, the change of its color to black will be no credit to the washing. The pressed seeds form moreover valuable feed for cattle, while seeds exhausted with bisulphuret of carbon are disagreeable to them from their offensive flavor.

The properties which a solvent for oils should possess, may then be said to be the following:—The solvent should be completely volatile and easily separable from the fat oil by distillation. It should not be decomposed during extraction of the oil or during distillation, or if decomposed it should not deposit any substance that dissolves in the oil and injures its quality. It should not dissolve any substance injurious to the quality of the oil. It should be cheap and procurable in large quantities.

My experiments have demonstrated that the Canadol, a volatile light hydrocarbon produced from Pennsylvanian and Canadian petroleum, possesses all the properties mentioned, and is therefore especially adapted for the extraction of oil.

A consideration of the first importance is the complete removal of sulphur from the hydrocarbon. For this purpose the treatment with sulphuric acid and bichromate of potash, or with sulphuric acid and peroxide of manganese, should not be omitted. Before using the canadol it should always be tested for sulphur.

Pure canadol has a specific gravity of 650 to 700 at 60° Fah. It boils at 127° Fah., evaporates completely, without leaving a residuum, is neutral and of a pleasant, ethereous odor. This substance behaves differently from other similar hydrocarbons toward fatty oils. Tar oils, benzole, etc., dissolve oils as well as resins produced by the oxidation of the former, and are therefore largely used for removing grease spots from clothes. The canadol, on the contrary, dissolves the unchanged fats and oils with facility and in large quantities, while it exerts very little or no influence upon dried or resinified oils, as well as resins and gum resins. Amygdaline and sinapine (sulpho-sinapisine or sulpho-cyanate of sinapine), contained in many oil-bearing seeds, especially the brassica varieties, are also insoluble in canadol. The yield of oil by this mode of extraction is 6 to 7 per cent greater than in the extraction by pressure, this amount remaining in the latter case in the residuum used as cattle feed.

The oil extracted by canadol is of a bright golden yellow, almost tasteless, and without odor. Its liability to become rancid is very slight, while its freezing point is as low as 18° below zero. It requires no further purification for table use. The canadol, charged with the oil, may be filtered through bone black before its distillation from the oil, when the latter will become almost colorless.

The manipulations on a large scale, in order to be successful, should secure a complete comminution of the seeds, which should then be treated with the extracting solution at its boiling point. The extracting medium should be separated completely from the oil as well as from the refuse seeds. The refuse yields, to boiling alcohol, resin, vegetable matter, and chlorophyll, beside minute quantities of oil. Sinapine may be prepared from it. Mixed with water to a thin mash and heated to 80—100° Fah., it develops ethereal oil of mustard. After treatment with alcohol, no such oil is developed, as the requisite sinapine is wanting.

The action of canadol upon oils is so energetic, that it may be employed for analysis, as it always extracts the oil almost completely, giving results which are at least accurate enough for practical purposes.

### The Construction of Wharves.

Messrs. Editors:—In your paper of Dec. 22, I notice that you advocate the construction of piers or wharves on cast-iron pillars, which will allow a free flow of the tides, deposit, etc. This, I think, will be found objectionable, and will have a tendency to cause the deposit to accumulate and fill up the slip or dock much faster than would be the case if constructed so that the tides could not flow under the pier.

Several years since, by an Act of the Legislature of this State, parties were allowed to extend their wharves into the Christiana Creek, provided the wharves were not made solid, but built on piles ten feet apart between the rows, the rows to be placed in the direction of the current. The result has been that the deposit has accumulated under and in front of these wharves, around the piles, so as to make it necessary to extend them into the creek for 80 to 100 feet. There is not now 12 feet of water 100 feet outside of where there was 18 feet thirty years ago. The building of all such wharves has been prohibited by law.

Geo. G. Lobdell.

Wilmington, Del., Dec. 29, 1866.

[The proposal of the New York Pier and Warehouse Company contemplated dredging between the piles.—Eds.

### A Singular Celestial Phenomenon.

Messrs. Editors:—On the night of January 1, 1867, at about 11.15 P. M., I noticed a strange appearance in the heavens. This remarkable phenomenon consisted in a bright bar of light, connecting two stars, which lasted several minutes. On consulting the atlas, I placed the position of the phenomenon in the constellation *Eridanus*. A star of the fourth magnitude, near *Theemim*, was connected with another of the same magnitude (about five degrees southwest), by a bright light resembling that of a comet. From the upper one of the two there was a bright light turned off a little more toward the northeast. The color of the light was about the same as that of the star *Aldebaran*. I wish you would inform me through your columns of the cause of this phenomenon.

J. Julius Chambers.

### In the Clouds.

The Polytechnic Institute appears to be rapidly going into the clouds, and unless it expels some of its superfluous gas it will soon be beyond the reach of the unassisted eye. The Institute as its name implies was established, or at least we so supposed, to furnish information upon the arts. It did very well for a while, but its members seem to be getting far too learned for the mass of mankind. In this number we present our readers with a conglomerate of a very sapient discussion of the nebular theory, solar segregation, cosmogony etc., which contains some atheistical speculations about the eternity of matter, which may do very well to stimulate the fancy but can afford no substantial good. We invite the gentlemen of the Institute to return to the bosom of mother earth, and to confine their investigations to things more practical. The Scientific American cannot be made the vehicle for ventilating such absurd nonsense.

Centals.—The Chicago Board of Trade have resolved that after the first of March, 1867, other Boards of Trade concurring, all transactions of grain shall be conducted by the cental or 100 lbs.: expressing a substantial instead of an apparent measure of food. It is expected the change will be general throughout the country.

### Importance of Illustrating Inventions.

Thousands of persons who have spent a little money in bringing their inventions prominently before the public, have realized rich harvests thereby. We believe, and have abundance of evidence in support of it, that greater results have been effected to the patentee oftentimes, by having his inventions illustrated in the Scientific American, at the expense of a few dollars, than by thousands spent in injudicious advertising. It is only subjects of merit or novelty that we will publish in these columns, and to the pages of the Scientific American the public refer for the latest improvements.

Patentees who have good inventions cannot over-estimate the importance of having them first illustrated and afterwards advertised in these columns. It will usually pay tenfold the cost, and has often paid a hundred-fold.

To patentees, and those who wish to have their inventions illustrated in this Journal, the following general directions will be a guide:—

In preparing engravings for publication in the Scientific American, the use of a model from which to make a design, is preferred. If it is inconvenient, however, to send a model, a well executed photograph, taken from a machine or model, will usually answer the purpose. The Letters Patent should be sent with a statement of the advantages claimed for the invention. After the order is received the engraving will be prepared and published, and the model, patent, and engraving returned by express. For further information address publishers of this paper.

### A Pretty Fish.

Mr. Lord, an English traveler, and a clever sensation writer, has just published in London a book on British Columbia and the Pacific Coast, in which among other traveler's tales he gives a lively description of the octopus, in "the Brobdignagian proportions he attains in the snug bays and long inland canals along the east side of Vancouver's Island." The creature is a huge flat disk, with eight long radiating snake-like arms, fringed with numberless suckers, and which it uses like oars in mid-water, like spider legs on the bottom, as climbers on the sides of rocks, as hangers on the rank aquatic vegetation, and collectively as a hand for grasping its prey. These arms are gifted with prodigious strength and lightning-like mobility. The Indians display great skill and daring in hunting the monster in their canoes with long spears.

Various Minerals.—We published lately a letter relative to the valuable manganese beds of Arkansas, discovered from geological indications, just before the civil war. To this may be added a more recent discovery of the same kind near Mission Dolores, Cal. Manganese is also mined on San Pablo bay. The rapidly increasing consumption of manganese in the manufacture of Bessemer steel adds greatly to the importance of these developments.—The Tennessee copper mines reopened since the war begin to turn out a large product; impeded however, by the want of sufficient facilities for transportation. Much attention is drawn to the iron veins of that state, by a geological report just published showing very extensive deposits.—The iron of North Carolina is of great value, particularly the mines of Lincoln Co., and the rich deposits on Deep river described by the late state geologist, Mr. Emmons. In the latter region are also found coal, gray and yellow copper, roofing slate, mill stones, and agalmatolite or image stone, a somewhat rare mineral.

Correction of Local Attraction.—We advise our friend, Captain Forbes, whose interesting communication on this subject we published on page 21 of this volume, to accredit his friend Capt. Martin to the Emperor of Russia. That enlightened potentate has just presented a gold pocket compass set with brilliants, to Mr. A. Smith Jr., of London, in recognition of the value of his mathematical researches into the deviation of the compass in iron ships. As the practical result of the researches of Mr. Smith and the rest of the transatlantic *savans*, according to Captain Forbes, is *nil*, the Emperor probably conceived a bauble to be the most appropriate reward. But as he is accumulating rapidly a great iron fleet, he would undoubtedly make it a very substantial object to a practical Yankee to cure his compasses, even if he could not so admirably diagnose the disease "in the language of the *savans*."

Flavoring of Candies and Pastry.—Chemical imitations of fruit and flower flavors have been carried to great perfection by the French of late years. Few persons suspect the poisonous ingredients which they roll as sweet morsels under the tongue, in mixed candies and flavored cakes. It is well to avoid all flavors that are not derived easily, cheaply and abundantly from nature. But even the oil of lemon, in consequence of the large demand for that flavor, was long ago adulterated or supplanted extensively with a vile imitation from turpentine. The fusel oils, which are very poisonous, give us the delicate and agreeable apple, pineapple and banana flavors now so common in candies. Gum drops and fig paste are not made from gum arabic or other valuable natural jellies, since a poisonous but cheap composition has been invented to supply the large demand for those confections. The cheaper candies for the wholesale trade are also colored with villainous stuff, of which arsenic and other poisons are essential ingredients.

Photographing Shot in Motion.—The feat has been accomplished of taking a photograph of a cannon ball in its passage from the gun when fired. The ball is shown just protruding from the muzzle of the gun. The front of the camera was covered with a revolving disk, with one or two holes so placed in it as to correspond with the line of the lenses when revolved to the proper point. A strong spiral spring

was attached and wound up so as to propel the disk when released. The trigger which released the spring was connected with an electro-magnet so as to be drawn by it on the passage of the same galvanic shock which fired the gun. Sufficient experiment enabled the operator to adjust the apparatus so as to bring the passage of the shot and of the orifice in the disk across the line of his lenses simultaneously, and thus the picture was obtained.

BURNING FUEL.—It is a mistaken idea that large results of heat can be obtained with a reduced combustion of fuel. To get heat there must be combustion, and consequently an adequate supply of fuel. But these statements are not in opposition to improvements in furnaces or stoves. The object of these improvements, when made in accordance with natural laws, is to utilize the results of combustion, and to insure a more perfect combustion of the fuel. In this direction, we think, will be found the most important discoveries to be made in realizing the full value of the fuel burned, either under the steam boiler or in the dwelling.

## Recent American and Foreign Patents.

*Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.*

SEEDING MACHINE.—Henry Barsalou, Saint Anne, Ill.—This invention consists in a novel construction and arrangement of parts, whereby a very desirable seeding machine is obtained.

CAR COUPLING.—C C. Cady, West Union, Iowa.—This invention relates to a car coupling of that class which are self-coupling, and it consists in having a fixed hook in each drawhead for the link or shackle to catch over, in connection with a link raiser, spring, and lever applied to each drawhead.

CULTIVATOR.—Henry Barsalou, Saint Anne, Ill.—This invention relates to a device for cultivating corn, cotton, and other plants grown in hills or drills, and it consists of a novel construction and arrangement of parts, whereby the device is placed under the complete control of the operator, and the parts rendered capable of being manipulated with the greatest facility.

BRICK MACHINE.—J. T. Carman, Springfield, Ill.—This invention relates to a machine for molding and pressing bricks from untempered or dry clay, and it consists in a novel means for receiving and discharging the molded clay or bricks, and in an improved means for regulating the feeding of the clay to the molds, and also for pulverizing and granulating the clay in order to insure it being properly fed to the molds; and, further, to an improved means for operating the plungers which compress the clay in the molds.

WATER WHEEL.—W. H. Elmer, Fair Water, Wis.—This invention relates to a horizontal water wheel, and it consists in a novel and improved manner of applying the water to the wheel, whereby several important advantages are obtained.

CULTIVATOR AND SULKY PLOW.—John H. Barringer, Hillsborough, Ala.—This invention relates to a combined cultivator and sulky plow, and consists in the arrangement of the parts in such a manner that they may be readily shifted for converting the machine into either a cultivator or a plow, so that the body and running gear of the implement shall serve for both purposes and thus save the farmer the cost of two machines.

PLOW.—J. and E. P. Miles, Bloomingdale, Ind.—This improvement relates to a device for preventing a plow from being choked and clogged with grass, weeds, etc., in front of the mold board.

STUMP EXTRACTOR.—David Stauffer, Spring Hills, Ohio.—This invention consists in a cheap and powerful machine for extracting stumps vertically from the ground by means of long and strong double-hand levers, with a very short adjustable purchase, the levers being so arranged as to loosen and raise the stump gradually both by depressing and lifting, with alternate changes of the fulcrum in two sets or rows of holes.

INVALID CHAIR.—James B. Wallace, Franklin, Ohio.—This invention relates to improvements in the construction of an extension chair for invalids, and consists in so forming the back of the chair that it shall exactly fit the small of the back and the loins of the patient when placed either in a recumbent or in a sitting position.

LOCK.—Lewis P. Decker, Williamsburg, N. Y.—The object of this invention is to furnish a lock of safe, cheap and simple construction. It consists in the combination of a female screw, male screw, and pivoted bolt with each other, and with the body of the lock.

HAND CORN PLANTER.—W. C. Lewman, Kansas, Ohio.—The object of this invention is to construct a hand corn planter, by means of which four or eight grains are placed in a hill, each grain or two planted three or four inches apart from the others, in a square.

GATE ATTACHMENT.—W. W. Sutliff, Town Line, Pa.—This invention consists in an arrangement for closing gates by a lever and weight, so that with a small weight upon the gate, it is operated with a lever of different powers, thus increasing or diminishing the force required to open it.

DISTILLING APPARATUS.—Lyman Pray, Charlestown, Mass.—This invention relates to a still, the fire chamber or arch of which is provided with two or more shelves, forming separate heating chambers one above the other, each of which connects by a suitable flue with a smoke stack, such flues being provided with dampers in such a manner that by means of said dampers and shelves the heat can be confined to the level of the liquid in the still, or nearly so, and the scorching of the vapors can be avoided without difficulty.

STEERING WHEEL.—Eben S. Coffin, Boston, Mass.—The object of this invention is to so improve the construction of the steering wheel as to overcome the tendency, especially in a rough sea, by its sudden thrusting motion, to take the tiller out of the helmsman's control, and make his labor exceedingly toilsome and dangerous.

COTTON-BALE TIE.—J. C. Lee, Gonzales, Texas.—This bale tie consists of a metallic band having one end bent in such a way that it will be firmly secured upon the bale by inserting the bent extremity between the bale and the encircling portion or main body of the metallic band.

PORTABLE FENCE.—Daniel Unthank, Spiceland, Ind.—This invention relates to a fence of that class which are commonly termed portable fences. It consists in constructing the fence in such a manner that it not only may be erected or put up with the greatest facility, but also be firmly secured in position when erected, and capable of being adjusted to suit the unevenness of the ground on which it may be placed, and also capable of having angles or corners formed without any difficulty whatever, and having any panel used as bars to allow wagons or carts to pass into and out from a field.

SELF-DUMPING MINE CAR.—Joseph W. Bancroft, Philadelphia, Pa.—This invention consists in an improvement in mine cars which are exclusively used in colliery slopes, underlying shafts on the dip of a coal seam, where the angle of descent exceeds twenty-five degrees.

DIES FOR IMITATION OF STRAW GOODS.—J. S. Kendall, New York City.—This invention relates to a method of procuring dies and counter dies for the purpose of embossing fabrics to imitate straw.

FLY TRAP.—Henry H. Potter, Carthage, N. Y.—This invention consists in an arrangement of pans and wires combined with springs, by which an effective trap for the destruction of house flies is made.

HAND SAWING MACHINE.—J. M. Marston and H. R. Huling, Roxbury, Mass.—This invention has for its object to furnish an improved hand sawing machine, by means of which sawing may be done easier, better, faster, and consequently cheaper than by other machines.

DITCHING MACHINE.—George Sullivan, West Liberty, Ohio.—This invention relates to the manner in which spades of a peculiar form are forced into the ground at any desired angle, and the spades being attached to a crane, the earth can be raised and deposited wherever desired.

FEED MECHANISM FOR SAWING MACHINES.—J. L. Beers, McAllisterville, Pa.—This invention relates to an improvement in the feed mechanism of sawing machines, and it consists in the employment of two pawls and gearing, arranged in such a manner that a continuous feed is obtained, and one which may be regulated to suit the speed of the cut of the saw as may be required.

CULTIVATOR.—R. B. Parks and J. R. Parks, Neponset, Ill.—This invention relates to a cultivator of that class designed for cultivating crops which are grown in hills or drills, and it consists in a novel construction and arrangement of parts, whereby the driver will have full control over the plows, so that the latter may be moved or adjusted in a lateral direction to conform to the sinuosities of the rows, and also raised and lowered to regulate the depth of their penetration into the earth.

SAW MILL.—Albert Buell, West Leyden, N. Y.—This invention relates to a saw mill, and consists in simple devices for holding the log in place, instead of dogs, and for adjusting the head-blocks against the log in such manner that it can be sawed bevelling, with one edge thick and the other thin, for siding.

LAMP.—Francis Burrows, Troy, N. Y.—This invention relates to a lamp, which is more especially designed for use in the laboratory, and in which highly combustible fluid is burned; the construction of the wick-tube and the provision of a water-chamber, serving to keep the heat from the oil and prevent explosion.

PACKING RINGS FOR BALANCED STEAM VALVES AND OTHER PURPOSES.—W. B. Robinson, Detroit, Mich.—This invention consists in so constructing the packing rings of balanced steam valves that the bearing surfaces shall be reduced so that a steam joint may be much more easily made when the valve is in motion than formerly.

AMERICAN TRIPOLI.—Thomas J. Platt, Newark, N. J.—This invention relates to certain substances which, when combined together in the manner specified form what is designated American tripoli, an article which has been thoroughly tested by many manufacturers of jewelry and others, and pronounced equal in all respects to the tripoli which has hitherto been imported from foreign countries.

FURNACE.—Virgil W. Blanchard, Bridport, Vt.—This invention relates to a furnace designed for general purposes, and has for its object economy in fuel, simplicity in construction, and an adaptation for the heating of a large volume of air for warming apartments other than that in which the furnace is placed, as well as an adaptation for general use in the arts, such as smelting, wasting, etc.

WATER WHEEL.—Jason Hemenway, Deerfield, Mich.—This invention relates to an improvement in horizontal water wheels, and it consists in a novel application of the buckets, and a mode of adjusting them, whereby the capacity of the issues between the buckets may be varied as desired, and the wheel adapted to work, under the same velocity, with varying degrees of power commensurate with the quantity of water used.

APPARATUS FOR TREATING PETROLEUM.—Alexis Thirault, Williamsburg, N. Y.—This invention relates to an apparatus for treating petroleum, which receives the oil as it leaves the still, and which is composed of a condensing oil from which the oil passes into one or more tanks. These tanks are closed, and they are provided with steam-pipes extending down to different depths so that by letting steam into the oil, an agitation is produced whereby the light parts are carried off and separated from the heavy parts, and at the same time the waste of a portion of the useful constituents of the oil is prevented.

SELF-RENDERING TALLOW CUP.—Thomas Fleetwood, St. Johns, N. B.—This invention is designed to obviate the well-known objection to the use of tallow for lubricating steam cylinders, on account of the gummy matter which accumulates and clogs the action of the piston.

BLACKING-BOX HOLDER.—Amos Wilder, Calais, Me.—This holder is of such a construction that it can be applied to and detached from the blacking box with the utmost facility; and when used prevents soiling the fingers of the hand with the blacking.

COAL SCUTTLE.—Benj. F. Conan (assignor to himself, J. D. Sherrell, and John Sumner), 244 Water street, New York City.—The object of this invention is to produce a coal scuttle or hod whose bottom, by a simple movement of a lever or handle, can be changed from a condition in which it forms a complete, unbroken surface so as to hold coal, ashes, cinders, or refuse matter, which may then be carried in the hod with safety from place to place to the open condition of a grate through which the finer part of the contents of the hod can pass out.

CARPET FOOTSTOOL.—John G. Flagg, Philadelphia, Pa.—This apparatus consists of a disk or plate which is operated by a screw and made to stuff or press the filling tightly into its carpet cover, and retain the same in its compressed state while the carpet is being sewed around it by hand.

STEAM GENERATOR.—Robert Fanes, Maroa, Ill.—This invention consists in constructing a steam generator of a series of pipes provided at each end with transverse openings or eyes, and so securing the whole together that the eyes of one pipe will correspond with the eyes of another pipe of the same kind and size, whereby a communication for water and steam is effected between and through the center series of pipes.

PUNCH.—Richard Hughes, Virginia City, Nevada.—This invention relates to a punch for the punching of sheet metal screens, such as are used in the separation of ores, etc., and the invention consists principally in a novel manner of securing the needles of the punch, in the holder.

NUTMEG GRATER.—L. V. Badger, Chicago, Ill.—This grater is both simple and cheap in construction, and by its use no waste of the nutmegs is occasioned.

SPRING HOLDER FOR WIPING CLOTHS.—Henry Johnson, Chicago, Ill.—This invention consists of an arrangement of spring fingers adapted to be furnished with a wet or dry cloth to be used in cleansing exterior or interior surfaces, dishes, bottles, lamp chimneys, and other hollow articles, especially those difficult to be reached by the hand, and of varying interior diameter.

## Answers to Correspondents.

*CORRESPONDENTS who expect to receive answers to their letters, must, in all cases, sign their names. We have a right to know those who seek information from us: besides, as sometimes happens, we may prefer to address the correspondent by mail.*

*SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at 50 cents a line, under the head of "Business and Personal."*

H. W. H., of N. H.—An enameled surface may be put on soapstone by the process used for enameling iron and copper and probably also by some of the soluable glass preparations. But there are many difficulties in the way of accomplishing all you desire.

G. P. H., of N. J.—For burning oil the ordinary refining process, distillation and treatment with acid and alkali, is very efficient and cheap: we do not expect to see the process supplanted. The natural lubricating oil is, however, materially injured by it, and something new in that line is very much in demand. Filtering through animal charcoal, bleaches this oil without injuring the lubricating quality, but the process is too slow and costs too much.

R. M., of N. Y.—We understand it to be generally conceded that meniscus lenses for spectacles are preferable to other forms.

W. C., of N. Y.—Cascarilla bark in powder is sometimes put into smoking tobacco. In the form of a fine powder it may be mixed, with most of the ordinary fumigating preparations. An infusion of the bark in water or alcohol may be used in the preparation of fumigating paper. . . . Shellac makes an excellent cement for glass, porcelain and earthen ware. The edges to be joined are heated sufficiently to melt the shellac, when it is applied in powder and the edges brought together and closely pressed till the joint is cold. For white or transparent ware, bleached lac should be used.

R. N. L., of Mass.—Plumber's solder is purified and made tougher by stirring into it while melted common sulphur. The foreign matter rises to the surface and may be skimmed off. Lead may be refined in the same way. The sulphur acts mainly by attacking iron and copper: at least that is our theory.

P. H., of N. J.—"If the earth in its orbit [is not passing through a perfect vacuum, why does not the air fall behind it like the tail of a comet? And if a perfect vacuum why does a comet become elongated to many millions of miles in length, as it is well known that all matter in a liquid or gaseous state tends to form itself into a globe by its own attraction?" We believe many of our readers will prefer to cypher out answers to such questions, without any assistance from us. They, the questions, are like conundrums or puzzles which lose their charm, unless there is a pause before the solution is given.

N. L. B., of Me.—There is more demand than ever for a good imitation of ivory. The production of natural ivory has been decreasing while its consumption is increasing, and the market price has been steadily advancing for many years.

S. L., of Wis.—Tin plate is not manufactured in America: we are dependent upon England for what we use. As soon, however, as we shall have found productive tin mines we shall change all that.

J. Q. B., of R. I.—Force, whether exerted as friction or percussion, is a prolific source of heat. Even the compression of gases will produce heat enough to ignite inflammable substances. This may be proved by fitting a piston in a tube having at the lower end a quantity of tinder or light cotton. The pressure of the air in the tube, when the piston is forced rapidly down, will ignite the tinder. So a blacksmith will by percussion heat a piece of nail rod on his anvil red hot and forge a nail from it

A. B. J., of Pa.—A warped casting may be straightened often by hammering. The convex or rounding side should rest firmly on an anvil, that portion to be struck in immediate contact with the block, and the "pene" of the hammer should be used. This makes a series of narrow indentations and stretches the skin of the iron. But if these indentations are removed by planing, grinding, or filing, the iron assumes its original curvature. Heating nearly red and springing by weights or other mechanical devices will often straighten a crooked casting.

J. H. L., of Mass.—The name copperas comes from copper and that from the island of Cyrus, where first discovered in large quantities by the Greeks. The sulphate of iron commonly known by the term copperas or green vitriol gets its name of copperas from the fact that a solution of it gives a copper color to iron and steel. It can be obtained by dissolving iron in dilute sulphuric acid and evaporating to crystalization.

C. F. B., of Minn., desires to know whether there is any method or mechanism known by which the piston of a steam engine, or any reciprocating device, can be made to have a uniform velocity throughout its stroke. We know of nothing of the sort. It is against the fundamental laws of mechanics. Even the shot in a gun, when it receives the impact of the exploded gases, requires time before its inertia is overcome. You cannot bring a body to rest when in motion without a gradual retardation of its velocity, and to give it a reciprocating motion back requires a gradual acceleration of velocity.

Sundry Answers.—W. W.—Stone Filters are very old. See back numbers of SCIENTIFIC AMERICAN for illustrations and notices of the best.—W. G. S.—Apply at the railroad office in your place.

## Business and Personal.

*The charge for insertion under this head is 50 cents a line.*

A. S. Rager, Jr., New Albany, Ind., asks where he can have metallic checks with numbers, manufactured.

P. Spawn & Co., 58 State street, Albany, N. Y., wish to hear from parties having improved machinery for making paper bags for sale.

"Where can I get the best machine for re-cutting a 60-inch circular saw?" A. N. Osgood, Hancock, N. H.

J. A. Wilshire & Co., Memphis, Tenn., desire to know where Griffin's Air Light can be obtained.

R. W. Shriver, Woodland, Barry county, Mich., wishes to communicate with parties who will make churn castings.

N. Spencer, Mound City, Ill., inquires where he can procure a teacher's clock which strikes every five minutes.

Makers of machines for producing straw rope for cores, please address Homer Hamilton & Co., Youngstown, Ohio.

We want a hand bolt cutter for blacksmith shop. Keen & McKay, Rock Island, Ill.

Where can a machine for sawing wood with a horizontal saw by horse-power be purchased? Wm. Brown, Jr., Lawrence, Ill.

T. C. T. address J. B. Aiken, Franklin, N. H., for stocking-knitting machines.

Manufacturer, Box 1440, Norwich, Conn., wants to obtain a paper-bag machine.

### NEW PUBLICATIONS.

MEMORANDA ON THE STRENGTH OF MATERIALS USED IN ENGINEERING CONSTRUCTION. Compiled and edited by J. K. Whildin, C.E. D. Van Nostrand, 192 Broadway, New York.

In this volume we have, conveniently arranged for reference and accompanied with explanatory plates, the results of authoritative experiments on the strength of materials used in the arts, under varying forms and conditions. Much of the knowledge of the properties of such substances has been the product of recent investigations and is scattered through books, periodicals, and treatises. Here it is all brought together in a form convenient for the practical man. Only five hundred copies have been printed, which is to be the extent of the issue. The book is sold at $2 per copy. Those who desire to secure it should apply at once.

MODERN MARINE ENGINEERING APPLIED TO PADDLE AND SCREW PROPULSION. By N. P. Burgh, Engineer. D. Van Nostrand, 192 Broadway, New York.

We have received from the American publisher twelve numbers of this work, each number a monthly part, containing two plates, tinted to represent the materials, and twenty pages of descriptions. Typographically the work is beautiful, the letter press clear and distinct, and the engravings *fac similes* of real engineering drawings properly colored. It is not a mere theoretical treatise, of value mainly as a curiosity, but a practical work by which the engineer and mechanic may correct their errors, or, at least, understand by the example of others the reasons of failure. Although from a slight examination of the work we may be compelled to differ with the author in some of his statements, we think his deductions from actual experiments and his illustrations of practice are mainly sound and eminently instructive. We consider the publication one of real value to the marine engineer, and of great use to the mechanic desirous of understanding the progress made of late years in the steam engine.

### EXTENSION NOTICES.

Thomas J. Sloan, of New York City, having petitioned for the extension of a patent granted to him the 26th day of April, 1853, for an improvement machine for pointing and threading screw blanks, for seven years from the expiration of said patent, which takes place on the 26th day of April, 1867, it is ordered that the said petition be heard at the Patent Office on Monday the 8th day of April next.

Christopher Duckworth, of Mount Carmel, Conn., having petitioned for the extension of a patent granted to him the 28th day of June, 1853, for an improvement in shuttle-box motion in looms, for seven years from the expiration of said patent, which takes place on the 28th day of June, 1867, it is ordered that the said petition be heard at the Patent Office on Monday the 3d day of June next, at 12 o'clock, M.