ENGINEERING INVENTIONS.

A car coupling has been patented by Mr. Fred Tiedt. Sr., of Euclid, Minn. It is a double coupler designed to automatically couple with an opposing coupler of like pattern, and with provision for coupling with the ordinary link drawhead without changing the links or interfering with the arrangement

A lubricator has been patented by Mr. Patrick Brownley, of St. John, New Brunswick, Canada It is adapted for use in connection with the steam chests of locomotive, hoisting, and other engines, and is made not to depend upon suction or the formation of a vacuum for the proper operation of the lubricator

A car coupling attachment has been patented by Mr. Stephen D. Smith, of Spotswood, N. J. It consists of a folding frame carrying a lever, a nose being pivotally mounted within the frame, and arranged to support the free end of the outer coupling link and be held in position by the lever, making a "three link coupling," which may be coupled without trainmengoing between the cars.

AGRICULTURAL INVENTION,

A planter and drill has been patented by Mr. Russell Brock, of Gladstone, Ohio. This invention relates to a corn planter designed to open a furrow, clear the soil of weeds in advance of the shovel, provide means for dropping the seed at regular intervals, and cover the seed when dropped.

"MISCELLANEOUS INVENTIONS.

A faucet has been patented by Mr. George W. Aldrich, of Brooklyn, N. Y. It has a loose removable and revoluble valve support or seat, of spider like or open work construction, within the adjustable nozzle section of the faucet, and a soft or flexible and elastic ball valve, preferably of rubber.

A key hole guard has been patented by Mr. Alfred J. Urlin, of Missoula, Montana Ter. This invention provides a slide block preventing persons seeing through the keyhole, or the admission of cold air, etc., and also preventing the key from being turned from the outside, or from falling out of the lock.

An explosive compound has been patented by Mr. Lucien G. Heusschen, of Paris, France. It is made with coal oil or naphthaline and glycerine mixed with nitrate of potash or soda, suphuric acid and sulphate of iron, together with carbonaceous matter, as carbonized tan or sawdust, and also sulphur.

A reel has been patented Mr. Fred erick Eitapenc, of Oneonta, N. Y. It is intended more particularly for holding lead pipe in coiled condition, and safe from injury during transportation or shipment the invention covering certain novel features of construction and combinations of parts.

A jail window has been patented by Donald McDonald, of Louisville, Ky. Combined with gratings set in grooved stones is a hinged or swinging sash, with connecting rod and operating cord, to prevent tools and other things being handed in to prisoners while providing for the admission of light and air.

A tablet binder has been patented by Mr. William B. Pearson, of Jacksonville, Ill. Com bined with covers and a flexible back is a metallic strip connected to the back and formed with a lug or ear, a folding clip and side clips, it being feasible to use a single binder for a number of tablets in succession.

An oven door has been patented by Mr. John R. Conrad, of Long Pine, Neb. It has a T-12. Perspective view and floor plans of a Cottage shaped opening covered with graduated transparent. shaped opening covered with graduated transparent material, a securing plate and a socket in which is a thermometer, for accurately indicating the heat of the oven, and for inspecting its contents without opening

A pegging jack has been patented by Mr. Nathaniel Kinney, of Amity, Democracy P. O., Ohio. It is made in sections so connected that the upper section carrying the shoe clamp may be raised and sowered to adapt it to different heights, the invention covering various novel featuresof constructionand arrangement of parts

A longitudinally expanding roller has been patented by Mr. Arnold W. Schlichte, of New York City. It has sheathing plates arranged to be moved backward and forward upon the face of the roller, the plates being gradually drawn outward as the roller moves forward, and rapidly forced inward as they arrive at a certain predetermined point.

An elevator gate has been patented by Mr. Eugene F. Hardin, of Lincoln, Neb. It is fitted to slide in vertical guides fixed to the side posts at the shaft opening, these posts being hollow to receive weights, making a simple and effective safety gate which will be opened automatically by the rising car riage, and closed automatically as the carriage farther ascends or descends.

A gate has been patented by Mr. Gus H. Ingersoll, of Franktown, Col. It is adapted to be opened and closed by the wheels of passing vehicles, or may be opened from the vehicle while horses are traveling either way toward the gate, and may be automatically closed behind the vehicle, the invention covering various novel features for the making of a simple and

An egg beater and mixer combined has been patented by Mr. Louis Rosenkranz, of Rhinebeck, N. Y. It is so made that as a crank shaft is revolved beaters are carried around a central shaft to cut and agitate the material in the body of the receptacle, elevating it also from the bottom toward the top, the action of the apparatus being such that it not only beats the material, but thoroughly mixes it at the same time.

A numbering head for printing presses has been patented by Mr. John G. Sauer, of New York City. It is made with a main casing and inner frame carrying the numbering disks, arranged to receive an

out and in movement in the main casing from contact with the platen of the press, thus turning the numbering disks for consecutively numbering the sheets as they are printed.

A shutter fastener has been patented by Mr. James B. Kelly, of Canton, Miss. It is an effective fastening both for the blinds and the window, which cannot be tampered with from the outside, and when the blinds are thrown open the device swings with the blinds out of the way, while by it the blinds may be held closed in a convenient manner, both when the window is raised and when closed.

A mouthpiece for speaking tubes has been patented by Mr. Patrick McGunnigle, of New York City. It is composed of two main parts connected together back of the bell by a lap joint, in such way that the shaft and whistle have their axis at the diameter of the mouthpiece, and thus avoid hinges and other details of construction of the ordinary form of mouthpiece.

A machine for sharpening and gumming saws has been patented by Mr. George P. Saltenberer, of Hamburg, Ark. It is for use with gin saws, and has reciprocating files which operate simulta-neously and are drawn back out of contact with the saw teeth at the moment when the saws are being turned, the device being readily changed from a saw sharpener to a saw gummer, and being very rapid and efficient in operation.

A wagon brake lever has been patented by Mr. George J. Riblet, Sr., of Shinnston, West Va. A lever is fulcrumed on the brake hand lever, engaging with one end a fixed segment, a spring lever fulcrumed on the brake hand lever, provided with a segmental gear wheel arm, meshing into a segmental gear wheel arm formed on the other lever, making a lock for the lever of a wagon brake in which the lever is firmly held in place when the brakes are applied.

SCIENTIFIC AMERICAN BUILDING EDITION.

DECEMBER NUMBER.

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Special.

A NEW MINISTERIAL EXPERIENCE. One year ago last December the pastor of a church in Philadelphia was forced to surrender his pulpit, and acting on his physician's advice with his young wife sought the warmer climate of Florida. Both were consumptive, and when it became evident that the young minister must relinquish a future that promised so much he was broken (in spirit. Together these two afflicted persons traveled toward the milder latitudes. It seemed a journey to death. Nothing more pathetic has been seen since Charles and Mary Lamb set out hand in hand, and with tearful eyes, toward the madhouse to which they had self-condemned themselves. The parting from their friends and parishioners at the railroad station was affecting in the highest degree. Several long, weary months followed, in which the hoped-for improvement was awaited. It came not. Both man and wife gradually grew weaker. The little cottage they had taken at Jacksonville finally began to lack necessary comforts. A small negro servant had to be discharged because she could no longer be paid. Then the despairing young wife took to her bed, and rapidly grew worse. One good lady assumed that death was inevitable, and hoped only to make the end as painless as possible. In her mission of kindness she encountered a hale old gentleman who after he had given her a ten dollar note, added: "I will do more. I will send that unfortunate woman my Compound Oxygen. I always take it with me to cure sudden colds or throat affections; but 1 know what it can do even in desperate cases." In a few minutes he was ready, and accompanied the noble hearted lady to the house of suffering. Hot water was readily procurable, and in a brief time the consumptivewas inhaling the Compound Oxyen, evolved from one of Drs. Starkey & Palen's Home Treatments. At the end of a week notable improvement in the woman's condition set in. The end of another week's treatment found her seated in a chair on the porch, and she was soon after able to walk about. Meanwhile full advice had been received from Dr. Starkey as to the Compound Oxygen, two Home Treatments had arrived, and the minister began to give some attention to his own case. Friends gathered around them amid the Land of Oranges, and now they are both in a

A valuable and interesting pamphlet on the methods of manufacture and of treatment by Compound Oxygen is sent free to all who desire it, by Drs. Starkey & Palen, 1529 Arch Street, Philadelphia.

degree of health that enables the pastor to resume his

pulpit and his good wife the care of her own home.

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Forge No. 8, as per circular appended, was the one chosen for trial, it being best suited for purposes under. the cognizance of the Bureau of Steam Engineering, for use on board of vessels.

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Very respectfully.

JOHN L. D. BOTHWICK,

F. C. BOWERS.

Ass't Engineer, U. S. N. screen.

To Commodore

Bancroft Gherardi, U. S. Navy Commanding W. S. Navy Yard, New York.

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The Sturtevant Mill (a rock crusher and pulverizer combined) is specially adapted to grinding phosphate rock, cement, ores, and all kinds of refractory material, and is meeting with ready sale in this country and in Europe. Full information, with circulars, etc., can be

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HINTS TO CORRESPONDENTS.

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References to former articles or answers should give date of paper and page or number of question.

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Minerals sent for examination should be distinctly marked or labeled.

(1) A. L. J. asks: 1. What will take rust from finely polished steel, such as drawing instruments, etc., without scratching them? A. Mix 10 parts of tin pntty, 8 of prepared buck's horn, and 25 of alcohol to a paste. Cleanse the article with this, and finally rub with soft blotting paper. 2. What will prevent their rusting? A. You can preserve them by a coat of colorless lacquer. 3. How to clean gun barrels of rust and keep them so? A. The gun can be cleaned by stopping the opening and pouring in mercury, which, on shaking, will clean up the barrel. Thencoat with paraffine. 4. A good cement for leather for patching shoes? A. Make a rubber cement. See Scientific American SUPPLEMENT, No. 158, under " Cements."

(2) W. H. H. asks: 1. Are pumpkins a good milk-producing food for cows, and have pumpkin seed a tendency to dry up milch cows? A. Pumpkins make a rich food for cows, producing good milk, but not so much as with other kinds of food. They have a drying tendency, and should not be made an exclusive diet under any circumstances. Plenty of hay, a little bran or meal, and a little pumpkin is a good receipt for late fall and winter fodder. 2. What is the best plant for stopping the washing of the banks of a stream where the soil is light and sandy? A. Willow, and plentyof it. 3. Is there any good grass for pasture that will thrive on sandy and gravelly bottom land, where native blue grass will burn out in August? A. Try timothy and clover mixed.

(3) J. E. desires a receipt for making a ood blue black copying ink. Take of Aleppo galls, bruised, 9 ounces, bruised cloves 2 drachms, cold water 80 ounces, sulphate of iron 3 ounces, sulphuric acid 70 minims, sulphate of indigo, thin paste, 4 drachms. Place the gall with the cloves in a gallon bottle, pour upon them the water and digest, shaking often, for a fortnight. Press and filter through paper into another gallon bottte. Next put in the sulphate of iron, dissolve it, add the acid, and shake briskly. Lastly add the indigo, mix well, and filter again through paper. The ink is to be kept in well corked bottles.

(4) J. A. P.-We are not acquainted with the special variety of cough drops mentioned by you, but we would suggest the following as an excellent article: Tincture of squills 2 ounces, camphorated tincture of opium and tincture of tolu, of each 1/4 ounce, wine of ipecac 1/2 ounce, oil of wintergreen 4 drops, sassa-Planing and Matching Machines. All kinds Wood fras 3 drops, and of anise seed oil, 2 drops. The above mixture is to be put into 5 pounds of candy which is just ready to take from the fire, and continue the boiling a little longer.

(5) S. O. H. asks whether the killing of alligators is an industry, if the hides are tanned and used to any great extent, and what per cent of so-called alligator hides are genuine. A. It is an irregular occupation of quite a number, in many places along our southern coast, and, although the supply of skins varies much, a great many thousand are tanned every year. Imitation skins are, however, much more numerous being made largely of sheepskins and limitedly of split cow hides. A great deal of tough paper stock is made in imitation of alligator leather

(6) T. M. S. asks: 1. What can I put on my watch face to make it luminous, so that the time can be read in the dark? A. Coat it with luminous paint. See the articles on the paint in SCIENTIFIC AND EACH BEARING THAT DATE. AMERICAN SUPPLEMENT, Nos. 249 and 497. 2. What so lution will remove ink stains from carpets and blots entirely alone in English literature. It is the first treatise from paper? A. Use a solution of oxalic or citric acid. followed, in the case of the carpet, with copious washings with cold water. 3. How can I make a good, hard walk at small cost, in the country? A. See the article on "Foot Walk Pavements," in Scientific American SUPPLEMENT, No. 82.

(7) J. H. D. asks for a receipt to remove say, never done a better service than by the publica-paint from a wood carving without damaging the wood, tion of this treatise. The great work of Dr. Karl as burning or scraping would ruin it. A. Mix 1 part by paint from a wood carving without damaging the wood, weight of pearlash with 3 parts quick stone lime by slaking the lime in water and then adding the pearlplete and reliable book on fixed oils, animal, vegetable, ash, making the mixture about the consistence of paint. and mineral, published in Europe; but Mr. Brannt, the Lay the above over the whole of the work required to be cleaned, with an old brush; let it remain 14 or 16

(8) E. P. M. asks: What amount of oxygen, hydrogen, and carbon is there in steel? A. Steel contains no oxygen, save in the rust there cially cotton seed, lard, peppermint, sassafras, birch, may be upon the outside, and only a possibility of a minute portion of hydrogen. The elements of ntente, but we would advice our readers that steel vary much to meet its special qualities. It contains carbon to the amount of from 0.1 of 1 per cent in soft or Bessemer to 2 per cent in high grade steels. In addition to the variations in carbon, it may have silicon and sulphur to the extent of one-tenth of 1 per cent, also phosphorus five one-hundredths of 1 per cent. A grade called manganese steel may have about 11/4 per cent of manganese. All iron and steel is subject to rust from exposure to snow and rain. unless especially protected

> (9) W. C. P. asks: 1. Does paint or black japan injure the sound of a whistle or gong? A. It would probably change the tone. 2. What can I use to thoroughly remove paint or black japan on a whistle or gong which cannot be taken down, and can only be reached by means of a ladder? A. If you can get at the whistle to clean it, you certainly can take off the bell by unscrewing the nut on top, which will enable you also to unscrew the bell from the stud. Boil the bell in caustic soda or potash, which will disinte grate the varnish and allow it to be rubbed off.

> (10) R. R. W. writes: I wish to move a large building over ice which freezes from 2 to 316 Will it be safe? A. Ice 8 inches thick will support heavy wagons and artillery. The crushing strength of ice varies from 327 to 1,000 pounds per square inch. At the lowest figures this is 23 tons to a square foot This does not represent the bearing power of the ice covering water, in which case it becomes elastic under pressure, and may give way without crushing. A building of moderate weight may readily be moved over ice 3 feet thick, if properly set on runners of large bearing, and moved along at a fair pace. The only difficulty in such work arises from suspension of the work, when the weight might press the ice down in the vicinity of the building, and cause cracks which would flood the depressed surface, and possibly cause disaster.

> (11) H. R. E. writes: I have a fine Arkansas oil stone which refuses to work properly after several years of constant use without being sharpened. How can I make it cut? A. Soak the stone in turpentine or naphtha for a few days, when it will cut as new.

> (12) C. H. S. asks (1) how to make a strong joint with glue. A. Use new glue, and in applying first fill the pores of the wood, with thin glue and let it dry; then clean off, and glue it at the joint with strong glue. 2. How to make a good hard oil finish. A. Take of linseed oil 1 pint, rectified spirits 4 ounces, oil of turpentine 1/4 pint, powdered resin 11/4 ounces, rose pink 1/2 ounce; mix. 3. A good cheap wood filler? A. Boiled linseed oil 1 quart, turpentine 3 quarts, corn starch 5 pounds, japan 1 quart, calcined magnesia 2 ounces; mix thoroughly. You can buy better prepared fillers than you can make.

(13) C. A. D., Virginius, Col., writes: I would like to know the relative speed of an air compressor in high and low altitudes. Take, for example, a Rand drill compressor, running at the rate of 30 revolutions per minnte at sea level. Would it have to run faster at this altitude, it being 12,600 feet above sea level? A. At above elevation the atmosphere is but two-thirds the density of the air at the sea level. Pumps

should run, at a speed of 45 revolutions per m. for Coal elevator, T. G. Goodfellow...... the volume of compressed air as computed for the sea level.

(14) G. H. W. asks in what way he can make a battery to run a single bell 21/2 inches diameter, by using a cast iron box 51/2 inches wide, 83/4 inches deep, and 17% inches long. A. Place a layer of black oxide of copper at the bottom of the iron vessel, fill with strong caustic potash solution, and suspend in it horizontally a good sized zinc, preferably a thick plate 4 inches by 14 inches or thereabouts in size. Connect one wire to the zinc, the other to the iron.

TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for pa tents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequaled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices. which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office Scientific American, 361 Broad-

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