

the body and a pivotal connection with the forward uprights of the guard rails, and a clamp, engaged by a locking device, held to slide on the forward end of the body. The improvement forms a portable platform which can be held firmly to a window frame, without injuring the casing, and extends beyond the frame, while it may be compactly folded when not in use.

COOKING STOVE.—Miguel N. Piedra, Lagos, Mexico. The ovens extend from the front to the rear of this stove, and the fire chamber, consisting of a central grate portion and lateral extensions, is formed at the rear of the oven, combustion flues from the chamber extending about the ends, tops and bottoms of the ovens. The fire chamber is designed to take in large sizes of wood, while its location at the rear of the ovens is intended to promote the comfort of the attendant during the work of cooking. The draught is easily regulated, and the products of combustion are caused to pass around the ovens in a manner designed to utilize all the heat produced.

PITCHER NOSE.—Augustus M. Herring, New York City. This invention provides a novel shaped nose for pitchers, to prevent dripping. An angular notch is formed in the downwardly turned portion of the nose, the notch being central and extending toward the body of the pitcher, the extremities of the nose at opposite sides of the notch being turned outwardly. When a liquid is poured from a pitcher having this improvement, the last drops will have a tendency to follow the edges of the angular notch to the apex of the angle, and thence flow back into the pitcher.

ORANGE SPOON.—Austin F. Jackson, Taunton, Mass. The bowl of this spoon has at its end a small lip or projection sharpened to a chisel edge, to facilitate dividing the fruit transversely to its axis, previous to scooping out the juice and pulp from the several cells or compartments. One or more grooves or channels also run down into the bowl of the spoon from this sharpened front edge portion, directing the juice from the ruptured cells into the bowl, instead of permitting it to overflow and drip.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

SCIENTIFIC AMERICAN BUILDING EDITION.
AUGUST NUMBER.—(No. 70.)

TABLE OF CONTENTS.

- 1. Handsome plate in colors of a row of wooden houses designed by Munn & Co., architects, and erected for Mr. J. H. Shafer at Newark, N. J. Perspective and floor plans. Cost of four houses from \$16,000 to \$18,000.
- 2. Colored plate of the beautiful and substantial stone residence of S. Clark, Esq., on Riverside Park, New York. Mr. Henry Kilburn, architect. Two perspective elevations and floor plans.
- 3. A cottage recently erected at Upsal Station, Pa., at a cost of \$6,500 complete. Floor plans and perspective elevation.
- 4. A picturesque cottage erected at Newark, N. J., at a cost of \$4,963.72 complete. Perspective and floor plans.
- 5. A round end house after the style of old English homes, erected at Wayne, Pa. Cost \$5,463 complete. Plans and perspective view.
- 6. Designs for circular stables.
- 7. View of an iron earthquake church at San Sebastian, Philippine Islands.
- 8. An attractive residence erected at Brookline, Mass. Cost \$10,518 complete. Plans and perspective elevation.
- 9. Design for the thirteen story Fabst Building at Milwaukee, Wis. The probable cost of the building is \$500,000.
- 10. The collapse of the Y. M. C. A. building at Montreal.
- 11. Illustration of an easily made piazza.
- 12. The St. Jerome Chapel, Hotel Des Invalides, Paris.
- 13. A \$1,500 cottage erected at New Dorp, Staten Island. Perspective view and floor plans.
- 14. St. John's M. E. Church, recently erected at New Rochelle, N. Y., at a total cost of \$63,500. Plans and perspective.
- 15. A cottage erected at Roseville, N. J. Cost \$2,900 complete. Floor plans and perspective view.
- 16. A very convenient and attractive cottage recently erected at New Dorp, Staten Island. Cost \$4,950 complete. Perspective and floor plans.
- 17. A very attractive block of five new dwellings on Seventy-seventh Street, New York City. Plans and perspective elevation.
- 18. Miscellaneous contents: A millionaire's residence.—An improved hot air furnace, illustrated.—Iron and steel roofing.—Improved woodworking machinery, illustrated.—Architect of the Woman's Building at the Columbian Exhibition, Chicago.—The plain design is the best.—Inside sliding blinds.—An improved tenoning machine, illustrated.—The Cudell trap.—Lightning rods.—Properly anchoring beams in walls.—A proposed universal building law.—Windmills to supply water for houses, etc.—Graphite grease.

The Scientific American Architects and Builders Edition is issued monthly. \$2.50 a year. Single copies, 25 cents. Forty large quarto pages, equal to about two hundred ordinary book pages; forming, practically, a large and splendid MAGAZINE OF ARCHITECTURE, richly adorned with elegant plates in colors and with fine engravings, illustrating the most interesting examples of Modern Architectural Construction and allied subjects.

The Fullness, Richness, Cheapness, and Convenience of this work have won for it the LARGEST CIRCULATION of any Architectural publication in the world. Sold by all newsdealers.

MUNN & CO., PUBLISHERS,
361 Broadway, New York.

Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

For Sale—New and second hand lathes, planers, drills, shapers, engines, and boilers, belting, pulleys, and shafting. List sent free. W. P. Davis, Rochester, N. Y.

Barrel, Keg and Hogshead Machinery. See adv., p. 38.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

For best hoisting engine. J. S. Mundy, Newark, N. J.

Wanted—Pantograph engraving machine, in good order. Address J. W. Queen & Co., Philadelphia.

Best Ice and Refrigerating Machines made by David Boyle, Chicago, Ill. 170 machines in satisfactory use.

The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

"How to Keep Boilers Clean." Send your address for free 96 p. book. Jas. C. Hotchkiss, 112 Liberty St., N. Y.

Screw machines, milling machines, and drill presses. The Garvin Mach. Co., Laight and Canal Sts., New York.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv., p. 300.

Wanted—A first class draughtsman and machine designer with experience. Address C. N. J., box 773, New York.

Billings' Double-acting Ratchet Drills, Drop Forgings, Bronze Forgings. Billings & Spencer Co., Hartford, Conn.

For Sale—Patent on wrench, illustrated on page 130 of this issue. For particulars address Samuel Stock, Pontiac, Erie County, N. Y.

Rubber Belting, all sizes, 77% per cent from regular list. All kinds of rubber goods at low prices. John W. Buckley, 156 South Street, New York.

Guild & Garrison, Brooklyn, N. Y., manufacture steam pumps, vacuum pumps, vacuum apparatus, air pumps, acid blowers, filter press pumps, etc.

Split Pulleys at Low Prices, and of same strength and appearance as Whole Pulleys. Yocum & Son's Shafting Works, Drinker St., Philadelphia, Pa.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4; Munn & Co., publishers, 361 Broadway, N. Y.

A well equipped Boston factory undertakes the manufacture of metallic novelties, stamped metal goods, sheet steel springs, etc. Address F. C. W., care of Scientific American, New York.

Wanted—A first class engineer, who is also a first class machinist, to take charge of electric lighting and steam plant. Must be fully capable of doing his own repair work, and must have had experience in this line. Wages, \$18 per week. Apply in person or by letter, with references, to John P. Conling, Lyon Mountain, N. Y.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.



HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication.

References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and though we endeavor to reply to all either by letter or in this department, each must take his turn.

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(3294) F. H. M. asks: Does a permanent magnet part with any of its force (or power) each time its armature is removed? I would like the addresses of some of the leading electrical goods dealers. According to Thompson, it is not the removal of the armature that injures the magnet, but replacing it. To avoid injury the armature must be replaced without shock. It would be best to place it at the neutral point and move it to the poles. You will find addresses of dealers in electrical goods in our advertising columns.

(3295) G. A. H. asks: Do you know of any way by which I may locate and discover hidden treasures, money consisting of gold and silver? Is there any way to apply an instrument to discover when known to exist in the radius of small area? A. We know of no royal road leading to the hiding place of the precious or other metals. The reported use of instruments are legends of no truth or value. No treasures have yet been found by their pointing. Iron, magnetic iron ores, some varieties of pyrites, etc., only are susceptible of placement by the magnetic needle.

(3296) J. G. B. asks for a receipt for making curacao. A. Slice the outside peel very thin from 60 bitter oranges, infuse for 15 days with 4 drachms bruised cinnamon and 2 drachms bruised mace in 5 gallons 95 per cent French spirit, stirring every day. Add 25 pounds white sugar dissolved in 2 gallons of water, color with burned sugar (caramel), stir and filter.

(3297) H. W. D. says: There is a difference of opinion as to whether we can think of two, or more than one thing, at the same time. Would like to see an explanation in your paper. A. Yes; it is apparent to thinkers that many things can crowd the memory at the same instant, but the power of expression or articulation is single, and therefore but one at

a time can be delivered. The brain is a vast network of inscribed tablets ever ready, singly or en masse, for expression, but must wait for the organ of selection and expression to grind them out in rotation.

(3298) A. O. T. writes: I have been noticing, from time to time, various accounts given in the SCIENTIFIC AMERICAN in regard to some of those pneumatic dynamite guns, and the question has arisen in reference to the explosive force of fifty pounds of dynamite, the charge that some of them are supposed to take. Is there any way by which you can give us an idea in regard to this? A. Dynamite varies in explosive power. It may have 72 per cent of the power of pure nitroglycerine, or nearly ten times the power of gunpowder. No exact scale of the relative power of explosives can be given, as they vary in quality of explosion as well as in intensity, and the explosion varies according to the circumstances under which it is detonated.

(3299) B. G. asks if copper could not be used instead of carbon in a common bichromate battery. If not, why? And if so, what would be the difference in current, and what is the E. M. F. and amperage of a single cell of bichromate battery plates 3x4 inches and three inches in the solution on short circuit? A. You can use copper in a bichromate battery for temporary purposes, but for continued use it is of no value, because it is soon attacked. The current and E. M. F. is at first about the same as with carbon plates, i. e., 2 volts and from 3 or 4 amperes upward.

(3300) W. F. M. asks: An engine pushes a car along a track at a given rate of speed; on a parallel track another engine pushes two cars at the same rate. If the engines stopped at the same moment, which would go the furthest, the one or the two cars? A. On account of atmospheric resistance, the two cars would go the further.

(3301) P. B. asks: Does the Edison-Lalande cell evolve any gases or create any odor, while in operation? A. No.

(3302) H. C. D. asks (1) how to make a transparent cement that will be waterproof and stand fire. Such has been sold here by agents that claimed it water and fireproof? A. The requirements are almost impossible to fulfill, and the representations of the agents are to be doubted. Casein cement made by following process comes about the nearest to your requirements. Fresh cheese is boiled in water until it softens to a mass which will draw into threads. To 100 parts of the original cheese, 200 parts of water, 25 of slaked lime and 20 of finely sifted wood ashes are taken. The whole is intimately mixed. It is not transparent. Or try dissolving 5 to 10 parts white glue in 90 parts of nearly boiling water. In a separate vessel dissolve 1 to 2 parts bichromate of potassium in 10 parts of water. Mix and use at once. On exposure to light the glue becomes almost insoluble. 2. How silver soap for polishing plated ware, etc., is made. A. Mix infusorial earth or ground pumice stone or other polishing agent with soap in the process of manufacture. Or remelt good quality tallow soap with water and make the mixture then. Use 10 parts silica to 1 part soap.

(3303) F. H. asks: 1. If a bird is in rapid flight, should the hunter aim directly at it? A. This is a mooted point. In taking snap shots at a bird just flushed or flying among brush it is often a necessity to trust to firing in advance of the bird, estimating the allowance as well as possible, from its distance and rate of flight. In duck and other open shooting where the gun can be moved along with the bird, it is sufficient to fire very slightly in advance. 2. How far south do our migratory birds go to spend the winter? A. Many go to South America and across the equator. 3. Could not the sky lark and nightingale be introduced in this country and successfully bred here? If not, why not? A. Such naturalization has been tried, without any success. Occasionally a nightingale is reported, but very seldom. 4. How do you account for the electricity found in cats? Is it found equally in all? A. There is none in cats more than in other things. Rubbing the fur, which is well insulated by its own nature, generates the charge. The dryness of the fur favors the action. 5. Of what establishments can I get the best stereographic views? Give addresses. A. Consult our advertising columns or apply to any first class dealer in photographs.

(3304) O. S. asks (1) how to make a mat dip for brass and copper. A. Mix 1 volume saturated solution of potassium bichromate and 2 volumes of strong hydrochloric acid. Leave immersed for a few hours. To brighten the color dip afterward into following mixture: Nitric acid (36° B.) 200 parts, sulphuric acid 100 parts, salt 1 part, zinc sulphate 1 to 5 parts. All parts are by weight. 2. Please inform me how the "oxidize" that is put on by electricity is made. A. The silver is first dipped in nitric acid until brightened. It is then immersed in ammonium sulphide, and in contact with it a piece of platinum is placed in the same solution. 3. How the black preparation that is put on fireplace utensils is made? A. In "The Metal Worker's Handy Book," \$2.50 by mail, a number of receipts are given for darkening iron and steel. Crane's "Japon" dead black enameloid can be applied with excellent effect where the articles are not heated in the fire.

(3305) W. W. D. asks: What substance is put on the back of an electric push button that makes it shine in the dark? A. Balmain's luminous paint, described in our SUPPLEMENT, Nos. 229, 249. 2. For list of good paying inventions. A. Their name is legion. Every kind of manufacture has its unsatisfied wants. The trouble in successfully inventing is more in seeing the want, and appreciating just what will fill it, than in the act of invention proper. The discarding of approximate solutions of the problem requires even a degree of moral courage, but is necessary.

(3306) C. H. Y. writes: How can I make gas such as is used in small India rubber balloons? I have bought some balloons and filled them with such gas as they use in making soda water, but somehow they failed to go up. A. Pump them full of coal gas, not water gas. As the gas used in making soda water (carbonic acid gas) is much heavier than air, you decreased

their buoyancy by so filling them. Hydrogen made by acting on zinc or iron scrap with dilute sulphuric acid may be used. It should be washed by bubbling through water and then dried by passing over chloride of calcium before use.

(3307) C. B. C. T. asks a receipt for a cement that will not be affected by gasoline, to be used in fastening glass to tin. A. Cement to resist benzene and petroleum.—Gelatine mixed with glycerin yields a compound liquid when hot, but solidifies when cold and forms a tough, elastic substance having much the appearance of India rubber. The two substances united form a mixture insoluble in petroleum or benzene, for printer's rollers and buffers of stamps, as benzene or petroleum will clean them when dirty in a perfect manner. Water must not be used with this compound.

(3308) A. D. Y. asks for an easy method of applying the gold lettering on lead pencils. A. Use hot type, dust the surface with powdered resin or book-binder's glair, apply leaf and stamp with the hot type.

(3309) N. H. M. writes: How can I make a stove polish (paste) that will not dry up? A. To prevent stone polish drying, add a little glycerin to your mixture.

(3310) P. A. A. asks how rubber can be melted so as to be moulded. A. Vulcanized rubber cannot be thus treated. It can be slightly softened and moulded by pressure. We recommend you "Rubber Hand Stamps and the Manipulation of India Rubber," \$1 by mail.

(3311) A. H. B. writes: Can you give me a recipe for a good cheap glue or paste, for cementing patches on or mending coarse burlap bags, such as feed is shipped in? I have a great deal of mending on my feed bags, as they come home sometimes with three or four holes in them. I have seen bags with the patches stuck on, and seems to do very well. If you know where such a paste can be got, or give me the name of the articles and how to mix them, I will be greatly obliged. A. Use the leaf gutta percha such as tailors employ for cementing cloth. A sheet of the percha is placed between the fabric and the patch and a hot pressing iron applied. The heat melts the gutta percha and cements the patch, waterproof.

(3312) L. H. asks if kerosene oil is injurious to mathematical instruments and fine steel tools that are nickel plated. I have been using it on them to prevent them from rusting, and am told that it will damage them beyond repair if I do not stop its use. A. Good kerosene will not be injurious to your instruments. Vaseline is probably a better application.

(3313) G. B. asks what to use to coat a nickel plated bicycle with to prevent it from rusting, as I wish to take it to Santa Barbara, Cal., for the winter, and fear the salt air will rust it. I want a substance I can get off again without difficulty. A. Vaseline is universally used by bicyclists. You will also find anti-rust applications advertised in sporting papers. Insect-sant vigilance and putz pomade are to be recommended.

TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled 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 Broadway, New York.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

August 18, 1891,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Agricultural implement, A. Caldwell.....	457,769
Air superheater, F. C. Peteler.....	458,037
Alcohol, producing, A. Springer.....	457,759
Axle box, T. Clements.....	458,146
Axle for cars, adjustable, H. Law.....	457,796
Axle, hollow, J. James.....	458,056
Baby jumper, F. E. Wilder.....	458,136
Baking pan, M. F. Harley.....	457,775
Bale tie, J. J. Yeates, Jr.....	458,137
Baling press, J. F. Ashley.....	458,043
Banjo, V. Kraske.....	457,986
Battery plate, secondary, A. F. Madden.....	457,880
Bearing, anti-friction roller, W. C. Vanneman.....	458,006
Bed bottom, spring, A. F. Purefoy.....	458,067
Bed, cabinet folding, A. A. Zimmerman.....	458,069
Bed, folding, J. G. Sextro.....	457,796
Bed lounge, J. B. Beattie.....	457,831
Belt stretcher, C. Darst.....	458,829
Bending and straightening, electric, E. Thomson.....	458,115
Bending machine, J. R. McNabb.....	457,789
Bicycle saddle, F. H. Bolte.....	457,835
Bicycle seat spring, J. C. Rage.....	458,113
Billiard register, Waterbury & Rankin.....	457,859
Bit. See Expansion bit.	
Blackening spreading device, liquid, G. E. Meeker.....	457,826
Blind stop, J. F. Roll.....	457,863
Boiler. See Steam boiler.	
Boiler front, C. R. Smith.....	458,077
Boiler furnace, steam, J. Thurell.....	458,042
Bolt. See Flour bolt.	
Boutonnere holder, A. H. Overman.....	457,973
Box. See Axle box. Letter box.	
Bracket. See Scaffold bracket.	
Brake. See Pressure brake.	
Brick, R. Bohme.....	457,962
Brush, E. P. Chumard.....	457,872
Buckle, G. E. Adams.....	457,895
Building material, fireproof, J. Eastman.....	457,984
Buildings, floor arch for fireproof, J. Eastman.....	457,865
Burner. See Vapor burner.	
Button, J. D. B. Alnard.....	458,094
Button, J. Mathison.....	457,970
Button fastening device, M. A. Northrup.....	458,110
Cabinet, suspended rotary, D. F. & P. A. Saum.....	458,071
Cable power, J. Rourk.....	457,842
Camera. See Photographic camera.	
Can, G. B. Hopper.....	458,053
Can bodies of irregular shape, machine for forming and fanging, J. H. Clapp.....	457,909
Cans, machine for crimping and double seaming, J. H. Clapp.....	457,903
Car coupling, J. H. Brown.....	458,144
Car coupling, H. J. Cole.....	457,848
Car coupling, T. Ellick.....	457,868
Car coupling, C. F. Johnson.....	457,980
Car coupling, D. Touby.....	458,080
Car coupling and buffer, C. Z. Hubbell.....	457,996