RECENTLY PATENTED INVENTIONS. Apparatus for Special Purposes.

SMOKE AND FUME CONDENSER.-F. A PASCOE, Salt Lake City, Utah. The invention is an improvement in fume arresters, being in the nature of a smoke and fume condenser especially designed for use on smelters, by which to avoid the injury to vegetation and other matter by the discharge of smoke and fumes from the smelter, as well as to effect a saving of gold, silver, sulphur, arsenic, and other elements usually carried up the smelter-flues and lost to the smelters.

Engineering Improvements.

BALANCED SLIDE-VALVE.-G. L. WACK-EROW. Mellette, S. D. In this patent the invention has reference to side-valves in general. While more or less novelty resides in the minor details of this invention, its chief feature is the peculiarly improved exhausting means specially intended for balanced slidevalves, but adapted to any similar type of valve.

DUPLEX STEAM-PUMP.-F. WEISE, Halleon-the-Salle, Germany. The objects of this improvement are, first, to place the ports in the slide-valve seat for the steam distribution holes regardless of the angle of position thereof. of the two cylinders in one and the same center line at right angles to the axis of the cylinders; second, to lengthen the slide-valve seat in the longitudinal direction of the cylinders; and, third, to provide two long rectangular sawing machines for the purpose of supporting slide-valves with inclined distributing-ribs moving side by side for controlling the steamdistribution.

METHOD OF FLOWING LIQUIDS FROM Marsh. The improvement is embodied in means WELLS.-T. F. MORAN, De Young, Pa., and F. J. MOSER, Kane, Pa. The invention relates to a method for raising liquids from wells, and more particularly to raising oil and water from exceedingly deep wells in which the liquid naturally elevates but slightly, if any, higher than the level at which it enters the well, thus affording but little submergence to the mechanism used in carrying out the method.

WATER-TUBE BOILER .- H. LAWSON, Jeris to provide means for securing an improved rapidly withdrawn from such pulp on producing circulation of water and the products of com- a suction in the chamber through the pipe. bustion. nests of tubes and a series of drums or shells chamber, no matter how powerful the suction. in a way to be heated in one nest of tubes by the escaping products of combustion; but the other nest of tubes form a heating-surface improvement in, wood-working machines which arches the grate-chamber, so as to expose the nest of tubes to the intense heat, and ing cutters adapted to form grooves or rapidly generate steam from the previously- slots for various purposes. It is more particuheated water supplied by the first-named nest of tubes.

EXPLOSIVE-ENGINE.-W. HIBBARD, C. HIBBARD and S. HIBBARD, Sandyhill, N. Y. The invention refers to two-cycle explosiveengines; and the object of the inventors is to provide improvements in explosive-engines whereby the explosive mixture drives a charge of fresh air into the working cylinder to scour of the finger that it will engage a tooth at its or clean it of all products of combustion left by a former explosion, at the same time excontained in the working chamber.

ENGINE-VALVE MECHANISM .-- R. L. DUTCHER, Stites, Idaho. In this invention a slide-valve is used in connection with a reversing-valve, so as to shift the general path of the stream and thus render the engine convertible for use as a double engine, a compound engine, etc. The slide-valve is an improvement upon the well-known Giddings valve, and allows both the fresh and exhaust steam to divide and pass through a number of concentric channels.

Heating and Lighting.

GAS-CONSUMER .- T. V. ELLIOTT, Columbia, Pa. Mr. Elliott's invention is an improvement in gas-consuming furnaces, and particularly in steam boiler furnaces, and has for an object to provide a novel construction whereby the gases escaping from the furnace may be re turned directly to the fire and be consumed, thereby avoiding the loss of the gas, and economizing the heat units secured in the operation of the furnace.

GLOBE OR MANTLE PROTECTOR .- J. L. fore there will be but very little, if any, jar CAVANAUGH, Canton, Ohio. Mr. Cavanaugh's to the machinery, as is the case when whole invention relates to improvements in protectors bundles are fed to the cylinder. for lamp globes or chimneys and incandescent mantles, an object being to provide a device

structed that it defines the extent to which the end portions shall be severed from the body of the egg and provides a guard to receive the cutting implement after the cutting is completed. The guard prevents the stroke accidentally injuring the operator, while the en-tire body of the device serves as a guide for the cutting implement during the operation.

WAFFLE-IRON .--- Q. CRANE, San Diego, Cal. In carrying out the present invention one of Mr. Crane's main objects is to provide a baking iron or utensil which will effect a great saving of fuel and labor and one which will occupy but comparatively little space, while at the same time it will embody the essential and desirable features of cleanliness, convenience, and simplicity.

Machines and Mechanical Devices.

DRILLING - MACHINE .--- W. A. KAGEL MACHER, JR., Johnstown, Pa. The invention consists of a peculiar machine of that charac ter involving novel and improved details of construction for drilling holes in shafting-rods and other places without removing the work

from its fixed position. More definitely stated, the invention involves peculiar and novel means for securing the machine and drilling GAGE-BOARD ATTACHMENT FOR SAW ING-MACHINES. J. T. MARSH, Farmer City, Ill. The present invention relates to an improved attachment for the tables or tops of lumber at different angles to the saw. A portion of this invention is shown and described in an application previously allowed Mr. whereby a gage-board is adapted to be adjusted and supported at the various angles required.

SUCTION DEVICE FOR PULP-MACHINES. -J. L. YOUNGS, Chateaugay, N. Y. An in terior suction-chamber is provided in this device, entering which from one end of the device is a pipe, which may lead to a pump or the like. By mounting the suction device, so that the upper surface of an apron will come WATER-TUBE BOILER.-H. LAWSON, Jer-sey City, N. J. The main purpose in this case pulp is carried, the superfluous wet may be The water circulates through two Felt and pulp are not drawn into the suction-ROTARY CUTTER .-- C. T. HEADLEY, Bruns-

wick, Ga. In this instance the invention is an of the class provided with rotary heads havlarly an attachment for such rotary heads, the same comprising a bracket and a series of grooving cutters, which are applied and secured to the bracket in an improved manner.

FEED-FINGER FOR SAW-SHARPENERS. -J. E. MCCAULEY and W. C. RENIE, Hoquiam, Wash. The object of the inventors in this case is to so arrange the tooth-engaging head point or swaged portion and thus feed the saw the proper distance to cause the grinding-wheel tinguishing any possible flame which may be to first strike a tooth at the point, and by its downward movement remove all projections and make an even surface.

Of Interest to Farmers.

CORN HARVESTER AND HUSKER .-- O. O GILBERTSON, Kasson, Minn. This apparatus is designed to cut the stalks of corn in the field, to pull the ears of corn from the stalks, and remove the husks from the ears by its simple passage across the field. It conducts presses down and rolls the stub ends of the cut stalks to a level surface with the ground to facilitate subsequent cultivation of the ground. The construction enables the machine to turn in the smallest possible space.

THRESHING-MACHINE FEEDER.-I. WOOD, JR., Elberfeld, Ind. In this instance the invention has for an object the provision of a feeder so arranged as to feed evenly from the

BINDER ATTACHMENT --- W. UMBECK, Cape

arrangement of machine for removing insects the two spaced rollers. They should be spaced from plants and absolutely destroying them by apart, adapted to permit y of a rein fire without injury to the plants. It is appli-and at the same time support it in flat condicable to and intended to be used for destroying tion with both sides removed from rubbing insects on all sorts and sizes of plants, but is contact with the guide. The elongated eyes at especially designed for the destruction of the the free ends of the frame members simply boll-weevil of the cotton-plant.

SHOCKER ATTACHMENT FOR GRAIN-BINDERS.-C. J. DOWLING, Detroit, Kan. The structure and organization of the invention are such that the attachment may be readily ap-plied to any ordinary binder. As the sheaves are discharged from the binder-deck they are thrown into a shocking-basket arranged to lates to improvements in finishing devices for turn and swing and connected with suitable the quills of feathers or plumes employed in mechanism for manually or automatically operupright, closely nested together in the form of ance. a shock.

Pertaining to Vehicles.

Wilbur, Wash. In this patent the invention has reference to attachments for vehicle-top port for the bows of a vehicle-top when the curtains to be adjusted individually, to the end top is lowered and folded, whereby the top is adapted to ride in cofets of a vehicle top is adapted to ride in safety on rough or uneven roads.

ATTACHMENT FOR LOG-CARS OR ROAD-WAGONS.--T. D. Tor, Cherryvale, Kan. Mr. Toy's invention is embodied in improved means or devices for holding logs or other timber on railway-cars or road-wagons, which devices may be quickly released, leaving the logs free to be unloaded. When the load has been completed the means provided effectually prevent disengagement while the load is in transit.

Railways and Their Accessories,

RAILROAD-TIE AND ANTISPREADING DEVICE.-F. D. BLINE, Vanatta, Ohio. The tie is composed of an inverted channel, the open bottom of which is closed by a base-plate. The tie may be filled with concrete if desired. The antispreading device consists of a plate bent over the tie and hooked under the edges of the base plate. Flanges on this plate are bent back over the flanges of the rail. Wedge plates are slipped in between the rail and the shoe-lacings in which the buttons secured to antispreading device.

NOISELESS CROSSING .- P. J. LASSEN, New York, N. Y. The crossing invented by Mr. Lassen will allow cars to pass the same without noise or shock. The inventor claims in a railway-crossing the combination of a plurality of rails intersecting each other, each rail being provided with a thread-surface and with a groove parallel with the thread-surface, the groove having a bottom integral with the rail and raised at points where the rails intersect.

DEVICE FOR DELIVERING ARTICLES TO MOVING TRAINS .- A. L. IRVIN, Meadville, Pa. The device is designed to be employed for holding and delivering articles, messages, documents, parcels, and packages, and any small articles in general to moving vehicles or trains. The inventor provides a holder which shall securely retain such parcels and which may be extended in a manner to be received or taken by the engineer, conductor, or other official while the train is in motion.

Miscellaneous.

BAKE-OVEN.-H. J. WADE, Pocatello, Idaho. It is the object of this invention to improve and having its ends overlapped or otherwise the construction of bake-ovens whereby heat is engaged, the frame having means for holding applied more directly and effectively and fuel it in proper connection with the frame. these operations in a continuous way, and thereby economized, also whereby the cost of construction is materially reduced. The im- Kan. In this patent the invention refers to provement includes apparatus for the economi- watchmakers' tools; and its object is to pro-cal heating of water for the production of vide a jewel-setter very effective in operation, steam in the baking-chamber.

WEBSTER, Milford, N. H. The purpose in this tion in the roller-table of the watch-balance. case is to provide details of construction for a device which afford a soldering-block that AND FILM.—L. SMITH, 14 West Hill, High-embodies readily adjustable clamping means for gate, London, England. The advantages obtop of the bundles. With an automatic feed ing mechanism embodying this improvement the or spectacle frames to be soldered for their ordinary single layer of isochromatic emulsion grain, as above mentioned, will be evenly fed connection, the improvement being also avail- is the absence of all halation and false tonein layers to the threshing-cylinder, and there- able for reliably supporting separated portions rendering due to imperfect interception of of articles of jewelry that are to be united light rays and as compared with a double or with solder.

BINDER ATTACHMENT.--W. UMBECK, Cape Girardeau, Mo. It is commonly found in the New York, N. Y. One of the principal objects which the film of this invention is composed.

vy of a rein

adapt the guide for use with spread straps. The free ends of the frame members may be bent and perforated, adapting the guide for direct connection to the hames by a suitable securing-bolt.

QUILL-TIP FINISH .- J. J. ROBINSON, New York, N. Y. In this patent the invention rethe trimming of women's headware, and the ating it, so that when a proper number of object being to provide a device for this pur-sheaves is accumulated the basket may be pose that will not only hide the quill from thrown into open position and the sheaves stood sight, but will have a neat, attractive appear-

CURTAIN-EXHIBITOR.-D. J. HAVILAND and C. S. SICKLESTEEL, Boulder, Col. One object of the invention the inventors have in BUGGY-TOP SUPPORT.-W. H. TULLY, view is the provision of a construction by which a series of two or more curtains may be suspended in a way to overcome strain thereon and tearing thereof and to allow the may be displayed to view and comparison of different patterns of curtains may be made to good advantage by a customer.

GARMENT-FASTENER.-M. F. EISNER, New York, N. Y. This invention has reference to improvements in garment-fasteners, particularly fasteners for the fronts of corsets, and the object is to provide a fastener by means of which the fronts of a garment may be quickly drawn together and secured with very little exertion on the part of the wearer.

SUSPENSORY BANDAGE .- E. R. DRAKE, De Land, Fla. The inventor's claim in this instance is: The combination, with the bodyband and the scrotal bag having a ring attached, of the leg-band composed of a central part formed of two elastic tapes sewed together and sliding in the ring, and two inelastic end portions which are connected with the body-band.

SHOE-LACING ATTACHMENT.-A. A. DE LOACH, Atlanta, Ga. Mr. De Loach in this invention makes an improvement in that class of the shoe along the edge of the slit therein are provided with rollers to relieve friction of the lacing-cord in drawing and tightening the string. The upper portions of the lacing are provided with an elastic core, to permit the top portions of the shoe to be widely distended for putting on the shoe with freedom.

FISH-SPEAR.-A. J. CAMPBELL, LURAY, VA. The staff or pole has supporting means at one end for two pivoted hooks, which are held closed under tension, and peculiar trigger means whereby the pivoted hooks are held open adapted for use and which operates to release them. The invention relates to spears specially intended for catching fish, but equally adapted for catching animals by impaling thom therewith.

CORE FOR USE IN WALL-MOLDS .- A. T. BOISE, Boyne, Mich.—The invention resides particularly in an improved collapsible core around which the plastic material is molded, so as to form cavities in the walls when the cores are removed. These cores comprise, briefly stated, a relatively rigid frame and a contractible shell formed of an integral sheet of flexible material curved around the frame

JEWEL-SETTER.-W. F. BOAST, Colby, and arranged to permit a jeweler to accurately ADJUSTABLE SOLDERING-BLOCK.-A. R. and quickly set the roller-jewel in correct posi-

ISOCHROMATIC PHOTOGRAPHIC PLATE triple layer of ordinary emulsion the wider and COMBINED CALENDAR AND PEN-RACK. more perfect tone-rendering due to the color

expensive in construction and by means of grain falls on the platform-canvas in a tangled which may be folded or collapsed for distribut- ton, Pa. One of the primary objects of this which will be simple and in-operation of self-binders for grain that the thin of the invention is to provide a calendar-stand WINDOW-FASTENER.—E. A. KLAGES, Crafwhich a chimney, globe, or mantle when the condition and stops at the elevator. The in- ing or mailing the same; but when in its opera invention is the provision of a fastener which lamp is not in use will be fully protected from vention seeks to overcome this objection; and tive position the parts will be so correlated and shall be composed of two main members, a

it consists in means for permitting the move- combined that the stand will be provided with locking member and a keeper therefor, such ment of the platform to be stopped at will, a relatively wide base portion, so that the members being adapted to be fastened on ad-Household Utilities. thus allowing the grain to pile up on the plat- possibility of the stand containing the pen- jacent meeting-rails and securely hold the two CONVERTIBLE CHAIR AND COUCH.form-canvas sufficiently to force it through the rack being upset will be reduced to a minimum. rails in alinement, so that one of the sashes F. S. BOWN, 229 Pearl Street, New York, binder. COMBINATION MUFFLER AND CHEST- can be moved relatively to the other only when N. Y. In this case the invention has reference COMBINED CORN AND POTATO PLANT-PROTECTOR.-L. E. SCHOCH and E. J. the locking member is detached or released SCHAFER, Chicago, Ill. In this instance the from its keeper. to a chair and couch in which provision is ER.-D. J. SIGFRIDSON, Isanti, Minn. The pur made for changing the positions of the several pose of the invention is to furnish an agriobject is to provide a muffler and chest-pro-NECKTIE-FASTENER.-C. WOOD, Victoria, parts, so that the structure may be used as an cultural implement adapted for planting large tector which is neat and attractive, easily Canada. The object in this improvement is to easy or reclining chair or as a couch on which and small seed, especially potatoes and corn. applied or removed, and arranged to afford provide a device having details of construction a person may recline, the several adjustments the dropping mechanism being operated either considerable warmth and special protection that adapt it for a clasping attachment upon being secured without disconnecting either of through the medium of the check-row chain or to the neck, throat, and chest of the wearer the center and rear side of a necktie, and also the several components of the structure. wire or from the axle of the machine, accordfrom the inclemency of the weather. The gar- for a secure but readily detachable engagement GUIDE AND REGULATING DEVICE FOR ing to whether the seed is to be planted in hills ment being knitted it is sufficiently elastic to with the front stud or button on the neckband EGG-CUTTERS.-G. J. HASLAM, Fremont, Neb. or in drills. readily conform to the body. of the shirt, so as to hold the tie in correct The purpose of the inventor is to provide a de-INSECT-DESTROYING MACHINE.-M. C. COMBINED REIN HOLDER AND GUIDE position thereon with regard to a permanent when in an egg-cup, the device being so con- invention is in the nature of a construction and of novelty residing in Mr. Stamper's guide is BREAST AND POLE STRAP FASTENER.

-E. Z. SMITHPETER, Bogard, Mo. The usual means for of yoke of a 'ter., 'agon is a breast-strap which Superior, Wis. The invention pertains to impasses through a 'ring on the yoke, its ends provements to be placed across a street below being attached to the collar hames, the strap the surface, so that fire-hose may be passed being thus bent at an acute angle where it through it and not interfere with traffic and passes through the Joke ring, so that it is not be damaged by vehicles. The conduit may subject to great strain and rapid wear at that also be placed on the bed of a body of water, point. Advantages are obtained in respect to through which electric wires or other devices wear and ease and rapidity of hitching and may be carried across the water. unhitching the team.

POLISHING COMPOUND .--- G. SHAMBECK, Salt Lake Ci y, Utah. The object of this invention is to provide a polish for use on any article of furniture, vehicles, and woodwork in general, whether previously varnished or not, the polish imparting a bright and fresh appearance, so that the article treated will look as though it had recently been renovated or was entirely a new article. The compound acts the same either on a wet or dry surface.

HOSE-COUPLING .- H. E. SMITH, Roslyn, provide details of construction for hose-couplings which are simple and practical, affording means for connecting two sections of the hosecoupling in a reliable manner and permitting the sections to be manually disconnected with ease, and which may be employed to couple onto a fire-hydrant as well as an ordinary hose

TRUSS-PAD.-I. B. SEELEY, New York, N. Y. In this case the invention refers to improvements in support and retention hernial pads, the object being to provide a pad adapted to the various constructions of hernia-trusses for the requisite mechanical support, and designed more especially for use in the mechanical treatment of inguinal hernia as located at the lower abdominal body-section.

COMBINED ASH-RECEIVER AND PAPER WEIGHT.-P. A. ROBSON, Westminster, S. W. London, England. This article serves both as an ash-receiver and as a paper-weight, and is so constructed that it may be used as a pipecleaner. It has extending centrally upward from the ash-receiving well a tapered spike, which may be used as a means for cleaning or removing burned particles of tobacco or ashes which cling to the interior wall of the bowl of the pipe.

GAME-BOARD .- H. A. ROAT, JR., Harris burg, Pa. The principal object in this instance is to provide a board which may be readily manipulated by one person, acting as a scorer to present certain apertures or orifices therein to one of the players, so that should such player shoot or send a marble through one of the apertures he will receive credit for a certain number of points, indicated by numerals placed over or adjacent to the apertures.

GARMENT-SUPPORTER.-FRANCES C. MC DONALD, P. O. Box 399, Chicago, Ill. The present invention is in the nature of an improvement upon the device forming the subject matter of a former patent granted to this inventor. The purpose of the present improvement-is to devise a supporter particularly designed for use in retaining and securing hosiery and the like, which will embody the features of durability, simplicity, and convenience. Means are so adjusted that a stud or similar article may be locked by the supporter, the button being adapted to engage with articles of clothing.

HORSESHOEING-STOCK. - M. MAY, Rulo, Neb. Among other things this invention has for its object the provision of a stock which may be readily opened for the introduction of the animal and easily and securely closed, to provide means for securing either foot in a raised position convenient for the operator, and to provide means for sustaining a part of the animal's weight when standing on three of its feet during the shoeing operation.

PROTECTING HEAD-GEAR OR HAT.-ANNA MIEROSLAWSKI, New York, N. Y. The object of the invention is to provide a head-gear protector, more especially designed for protecting ladies' hats and other head-gear against rain, dust, and the like, to prevent the hat from being injured, the protector being very simple in construction, and easily applied to properly fit the hat without danger of injuring the trimmings thereof.

CARD GAME.-H. E. GAVITT, Topeka, Kan. The cards used in this game bear indicia of different money values. The cards of a pack chine Company. Foct of East 138th Street, New York. are divided into groups of eight, all of one

CONDUIT FOR HOSE, CABLES, ELECTRIC ting harness with the neck- WIRES, OR THE LIKE .- J. BURNSEN, West

> FISH-HOOK .- W. E. KOCH, Whitehall, N. Y. In this patent the invention has reference to improvements in fish-hooks, an object being to provide a hook with a sliding weight whereby the weight will not only serve as a sinker, but will serve to hold live bait in natural position -that is, with back up.

BOTTLE-CLOSURE.-J. F. PERRY, Dec'd, Chicago, Ill. In this patent the invention is an improvement in that class of bottleclosures in which a seal of some form engages a fillet or shoulder of a bottle-neck, so Wash. The purpose of this improvement is to that its dislodgement is prevented, save by the use of a tool suitable for the purpose.

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

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AUTOS.-Duryea Power Co., Reading, Pa.

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Handle & Spoke Mchy. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.

Inquiry No. 4928.-For manufacturers of chain adders.

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Juguiry No. 4929.—Wanted, obce and bassoon gouging machines and tools for making the reeds for same. Also for makers of brass stuples for the obce. American inventions negotiated in Europe, Felix

Hamburger, Equitable Building, Berlin, Germany.

Inquiry No. 4930.—For manufacturers of a mov-able drag faw operated by horse power, with holiow shaft, made in several sections and telescopes, so that the saw can make several outs from a tree or log at one setting.

Gear Cutting of every description accurately done. The Garvin Machine Co., 149 Varick, cor. Spring Sts., N.Y. Inquiry No. 4931.—For makers of gage wire stitching or stapling machines.

I would like to furnish new and interesting games some company to make a place on the market. Wm Eick, Franklin, Neb.

Inquiry No. 4932.—For makers of machines for making shot.

Edmonds-Met el Mfg. Co., Chicago. Contract manufacturers of hardware specialties, dies, stampings, patented devices, etc.

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metal stamping, dies, screw mach. work, etc., les, Metal Novelty Works, 43 Canal Street, Chicago,

Inquiry No. 4936.—For makers of 2, 3 and 4 inch terra cotta drain and water pipe and fittings for same, also plunibers' tools, books and material.

Empire Brass Works, 106 E. 129th Street, New York. N. Y., have exceptional facilities formanufacuring any article requiring machine shop and plating room.

Inquiry No. 4937.-For manufacturers of laundry machinery.

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Ma. Inquiry No. 4938.-For manufacturers of watch



HINTS TO CORRESPONDENTS

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

yers wishing to purchase any article not adver-tised in our columns will be furnished with addresses of houses manufacturing or carrying addres the sa same

without remuneration.

Minerals sent for examination should be distinctly marked or labeled.

(9259) A. S. says: Kindly inform me one. At the same time, it is an extremely dif-of the best place to take a mechanical engineer-ficult one, and without having thorough ining course in the city of New, York; and also where the State University is situated, and ply engineer, we are unwilling to make any whether they have a course like the above. A. The course in mechanical engineering at tory supply, it would probably be the best in-Columbia University, New York city, is one of vestment it could make to get expert advice the best in the country. The requirements for as to the best method of improving its supply, admission to this course are high. The Pratt Institute, of Brooklyn, N. Y., has a two years' to recommend an expert for this purpose, we course in steam and machine design, which is an excellent mechanical course, with lower requirements for admission than the one referred

Island sinking? A and B both claim that it shaking until dissolved. 2. Melt together 2 ing from the great weight of buildings, etc. B tine. Use warm. says it is because it is being undermined by the sea, East River and North River. A. Geologists think the seashore in the vicinity of New York city and along the New Jersey coast is sinking slowly. The rate is believed to be a few feet in a century. The weight of buildings in the city has no influence in the matter, as that is as nothing in comparison with the weight of the earth on which the buildings stand. These buildings have their foundations upon the solid rock below, and are as firm as the earth itself. The sinking is due to motions in the crust of the earth itself. Such motions are known to exist in many parts of the earth. 2. I have a sal-ammoniac battery, the carbon of which became covered with crystals of sal-ammoniac. I burnt the carbon, and then paraffined the top and put it back. In a little while the crystals came on top, but did not collect on the carbon below the paraffine. How can I fix it? 1 also noticed a thick layer of carbon in the bottom ly inform me how many cubic feet of air one of the jar. A. When the liquid in a sal-am- cubic foot of kerosene oil requires for commoniac cell becomes too strong, a crystal forms. plete combustion? A. One pound of kerosene It is not sal-ammoniac, but a more complicated oil requires for its combustion about 17 pounds substance, which can be dissolved with difficulty in water, and this has made the trouble The specific gravity of kerosene is about 0.75; for you. The burning which you gave the car- therefore one cubic foot of kerosene would rebon caused some of the carbon to become powdery and fall off in the water. It should not perfect combustion. From 30 per cent to 50 have been done. The carbons are not as good per cent excess air is usually allowed, however. for it. 3. Please send directions for making blue vitriol battery. A. You require for a gravity battery a star-shaped arrangement of thin sheet copper to be placed in the bottom of the glass jar. In the top of the jar is hung a star, or crowfoot-shaped piece of zinc, weighing 3 to 4 pounds. These you should buy from some dealer. Put in copper sulphate enough nearly to cover the copper. Then fill the jar with water to cover the zinc. Connect the wire from the copper to the zinc, and let the cell stand for several hours till the liquid at the top becomes clear like water. The cell is then ready for use.

(9261) M. & M. say: We are in need of a paper, white preferably, which will after being dampened with water or some other minutes longer: oxalic acid, 4 ounces, is fluid, turn color when an electric current is next added, and the boiling again renewed for passed through it. Any information that you 10 or 12 minutes; the heat is now removed, can give us on this subject will be gladly paid and the liquid allowed to settle for about 4 for and appreciated. A. There are several hours, after which time it is decanted with

in some parts at 20 to 30 feet, which will not furnish large enough supply for any but limited domestic use. The deep wells are practically useless, because of the great amount of salt and other minerals in the water. No one here seems to be informed on the subject, and least of all the workmen who make cisterns. Are there back numbers of the SCIENTIFIC AMERICAN OF SUP-Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication. tions that would be useful in establishing pubtions that would be useful in establishing public municipal water supply for this town? Any literature to help; or any makers of machinery who would make useful suggestions, or any engineers who can be appealed to for preliminary ideas. Can you make any suggestions along the lines first indicated above? Some persons have made guesses that \$35,000 to \$50,000 would be necessary to install a plant with sufficient capacity for this town. A. In reply to your recent inquiry about the water supply of the town of Russell, Scientific American Supplements referred to may be we would say that good quality sand, of a suf-ficient denth makes a most costation to the sector of the ficient depth, makes a most satisfactory filter. Books referred to promptly supplied on receipt of We cannot recommend any literature which would be useful in this matter to one not technically versed in the subject. The question of water supply is a most vital and important vestigations made by a competent water-supsuggestions. If your town has not a satisfacand then to follow this advice. If you wish us should be glad to do so.

(9263) W. H. says: I want to make a square glass fish aquarium. Will you please to above. The State University of New York tell me how to make a cement to be wateris Cornell University, situated at Ithaca, N. Y., tight and stick to the glass? A. 1. Dissolve in the central part of the State. This is one 1 part finely shredded India rubber in 64 of the best engineering schools in the country. parts of chloroform; then add 14 to 24 parts (9260) G. E. P. says: Is Manhattan of powdered mastic and digest with frequent I claim that it is not. A says it is sink-parts of shellac and 1 part of Venice turpen-

> (9264) J. E. D. says: To what height will a siphon pull water? Please answer this and put several hundred people at ease in our town. A. A siphon would lift water to a height equal to the height of a water column exerting the same pressure as the atmospheric pressure (which would be for the standard pressure of the atmosphere 33.9 feet). if it were not for the fact that water contains some air in solution, and at ordinary temperature's gives off enough vapor to make a perfect vacuum above a water column impossible. The amount that this action will decrease the height to which a siphon can lift water will depend upon the temperature of the water. If the water is at 212 deg. F., the siphon will not lift it at all; if it is at 700 deg. F., it will lift it 33 feet.

> (9265) W. G. asks: Would you kindof air, or approximately 225 cubic feet of air. quire approximately 10,500 cubic feet for its (9266) C. K. T. says: I desire to learn how carmine is manufactured. A. The preparation of carmine is little understood, but success in its manufacture depends less on any mystery connected with the process than on the employment of the purest water and the best materials, and the exercise of moderate care, dexterity, and patience. The following formula will produce carmine of the richest hues down to ordinary and common, according to the skill possessed by the manipulator: Madame Cenette's process. Cochineal (in powder), 2 pounds, is boiled in pure river water, 15 gallons, for 2 hours, when refined saltpeter (bruised), 3 ounces, is added to the decoction, and the whole boiled for 3 or 4

group being alike in name of stock and its as-	man clocks.		a siphon into shallow plate-like vessels, and
sumed money value per share, also in the	Manufacturers of patent articles, dies, metal stamp-	when an electric current is passed through it.	set aside for three weeks. At the end of this
amount of the capital stock. A telegram-card	ing, screw machine work, hardware specialties, machin-	The simplest is to make a solution of potas-	time the film of mold which has formed on
	ery and toois. Quadriga Manufacturing Company, 18	sium iodide in water and boil some starch in	the surface is dexterously and carefully re-
and players attempt to fill their broken groups	South Canal Street, Chicago.	this solution. With the liquid wet some paper.	moved, without breaking it or disturbing the
by trading with neighbors a number of cards			liquid beneath it. The remaining fluid is next
exchanged for a like number. The cards and		cult the paper turns dark blue around the posi-	very carefully removed with a siphon, and the
manner of playing illustrate the transactions	\$12.000 will buy controlling interest in foundry and	tive pole. Another mode of preparing paper	adhering moisture, as far as possible, drained
of the world's great stock-exchanges.	machine business in Los Angeles, Cal. Paying, and can	is to make two solutions, one of sodium sul-	off, or sucked up with a pipette. The resi-
OFSEDOOL II D. CARDNER New York	be worked up without limit. About \$35,000 per year	phate in water and of phenolphthalein in	duum, which is the carmine, is dried in the
CESSPOOL.—H. D. GARDNER, New York,		alcohol. The latter solution may be very weak.	shade, and possesses extraordinary luster and
N. Y. This cesspool is constructed of cement,	A	Mix them together and wet paper with the	beauty.
of the fixe, and is adapted for draming sur	Inquiry No. 4941For manufacturers of farm	liquid. In this case the negative pole turns	(9267) A. H. F. says: 1. I would like
face water. Its shape is the frustum of a	and duiry machinery	the paper pink.	to know the height of a locomotive from rails
cone. The sides are provided with a series	Inquiry No. 4942For machines for threading	(9262) T. C. R. says: This town	to top of cab roof. Of course I know that
of slots wider at the outer than inner end por-	cast iron pipe fittings.		there is a great deal of difference in the dif-
tions, so that solid dirt packed against the	Induiry No. 4943. —For machines for cutting	and dry on the watershed between two rivers	
cesspool's exterior will enter the outer por-	sheet iron washers of special dimensions of No. 12 gage iron and lighter.		know is of the average locomotive built at
tions of the openings, so as to prevent mud	Inquiry No. 4944For makers of novelties suit-	about 200 to 250 feet lower than the town.	0
being driven into openings from the interior,	able for the mail order business.		roofs varies with the size of wheels, between
while means are provided to prevent the earth	Inquiry No. 4945For machinery for making	· · · · · ·	
around the cesspool falling into it, yet per-	lead pipe for plumbers' use, from % in size upward.	, i	10 and 12 feet. 2. I would also like to know
mitting drainage of water from the earth into	Induiry No. 4940 For manufacturers of paint-	cessible in wells in towns nearer than about	
the cesspool's interior.	ing and whitewashing machinery.	250 to 400 feet in depth, except surface wells	to the other while at its 101 working capacity