RECENTIY 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 of gold, silver, sulphur, arsenic, and other
elements usually carried up the smelter-flues elements usually carried

## Engineering Improvements

BALANCED SLIDE-VALVE.-G. L. Wack
Row, Mellette, S. D. In this patent the in vention has reference to side-valves in general
While more or less novelty resides in the 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 slidealves, but adapted to any similar type of

DUPLEX STEAM-PUMP.-F. Weise, Halle
on-the-Salle, Germany. The objects of this on-the-Salle, Germany. The objects of this
improvement are, first, to place the ports in improvement are, first, to place the ports in
the slide-valve seat for the steam distribution of the two cylinders in one and the same center ders; second, to lengthen the slide-valve seat in the longitudinal direction of the cylinders; and, third, to provide two long rectangular
slide-valves with inclined distributing-ribs mov slide-valves with inclined distributing-ribs mov-
ing side by side for controlling the steamIng side by
distribution.
METHOD OF FLOWING LIQUIDS FROM 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 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 ffording but little submergence to the mechanism used in carrying out the method.
WATER-TUBE BOILER.-H. Lawson, Jer sey City, N. J. The main purpose in this case
is to provide means for securing an improved circulation of water and the products of com-
bustion. The water circulates through two bustion. The water circulates through two
nests of tubes and a series of drums or shells in a way to be heated in one nest of tubes by
the escaping products of combustion; but the the escaping products of combustion; but the
other nest of tubes form a heating-surface other nest of tubes form a heating-surface
which arches the grate-chamber, so as to ex pose the nest of tubes to the intense heat, and rapidly generate steam from the previously
heated water supplied by the first-named nest heated wa
of tubes.

Hireard and S. Hibeard, Sandyhill, N. Y Che invention refers to two-cycle explosive
engines; and the object of the inventors is to engines; and the object of the inventors is to
provide improvements in explosive-engine whereby the explosive mixture drives a charge
of fresf air into the working cylinder. to scour of frest air into the working cylinder. to scour
or clean it of all products of combunstion left by a former explosion, at the same time ex-
tinguishing any possible tlame which may be tinguishing any possible flame which
contained in the working chamber.
ENGINE-VALVE MECHANISM.-
ENGINE-VALVE MECHANISM.--R.
Dutcher, Stites, Idaho. In this invention Dutcher, Stites, Idaho. In this invention a
slide-valve is used in connection with a re-slide-valve is used in connection with a re-
versing-valve, so as to shift the general path vertible for use as a double engine, a compound engine, etc. The slide-valve is an improvement upon the well-known Giddings valve, and al
lows both the fresh and exhaust steam to divide and pass through a number of con centric channels.

## Heating and Lighting

GAS-CONSUMER.-T. V. Elliotr, Colum-
bia, Pa. Mr. Elliott's invention is an improvebia, Pa. Mr. Elliott's invention is an improve
ment in gas-consuming furnaces, and particu larly in steam boiler furnaces, and has for an object to provide a novel construction whereby
the gases escaping from the furnace may be re the gases escaping from the furnace may be re-
turned directly to the fire and be consumed turned directly to the fire and be consumed
thereby avoiding the loss of the gas, and economizing the heat $u$
eration of the furnace.
GLOBE OR MANTLE PROTECTOR.-J. L Cavanajgh, Canton, Ohio. Mr. Cavanaugh' for lamp globes or chimneys and incandescent mantles, an object being to provide a devic for this purpose which will be simple and in expensive in construction and by means of
which a chimney, globe, or mantle when the which a chimney, globe, or mantle when the
lamp is not in use will be fully protected from dust and dirt.

## Household Utilities.

## CONVERTIBLE CHAIR AND COUCH.-

 F. S. Bown, 229 Pearl Street, New York,N. Y. In this case the invention has reference to a chair and couch in which provision is made for changing the positions of the severa
parts, so that the structure may be used as an parts, so that the structure may be used as an
easy or reclining chair or as a couch on which a person may recline, the several adjustments being secured without disconnecting either of the several components of the structure.
GUIDE AND REGULATING DEVICE FOR The purpose of the inventor is to provide a de Vice adapted to be placed by hand over an egg
when in an egg-cup, the device being so con
structed that it defines the extent to which the of the egg and provides a guard to receive the cutting implement after the cutting is con pleted. The guard prevents the stroke acci-
dentally injuring the operator, while the endentally injuring the operator, while the en-
tire body of the device serves as a guide for tire body of the device serves as a guide fo
the cutting implement during the operation. waffle-iron.-Q. Crane, San Diego, al. In carrying out the present invention on Mr. Crane's main objects is to provide saving of fuel and labor and one which will 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 featur
and simplicity.

DRILLING - MACHINE.---W
ACher, Jr, Johnstown, Pa. The inventio 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 and other places without removing the work
from its fixed position. More definitely stated, from its fixed position. More definitely stated,
the invention involves peculiar and novel means for securing the machine and drilling gace board GAGE-BOARD ATTACHMINNT FOR SAW-
ING-MACHINES. - J. T. MARSH, Farmer City, III. The present invention relates to an imIII. The present invention relates to an im-
proved attachment for the tables or tops of sawing machines for the purpose of supporting lumber at different angles to the saw. A por
tion of this invention is shown and describe in an application previously allowed Mr. Marsh. The improvement is embodied in means
whereby a gage-board is adapted to be adjusted 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 indevice, entering which from one end of th device is a pipe, which may lead to a pump
or the like. By mounting the suction device or the like. By mounting the suction device
so that the upper surface of an apron will come beneath the traveling felt, by which the wet pulp is carried, the superfluous wet may be rapidly withdrawn from such pulp on producing a suction in the chamber through the pipe. and pulp are not drawn into the suction rotary Cutter.-C. T. Headley, Bruns wick, Ga. In this instance the invention is an
improvement in wood-working machines improvement in. wood-working machines
of the class provided with rotary heads having cutters adapted to form grooves or slots for various purposes. It is more particu-
larly an attachment for such rotary heads, the larly an attachment for such rotary heads, the
same comprising a bracket and a series of grooving cutters, which are applied an
to the bracket in an improved manner
FEED-FINGER FOR SAW-SHAIPPENERS -J. E. McCauley and W. C. Renie, Hoquiam, Wash. The object of the inventors in this of the finger that it will engage a tooth at it point or swaged portion and thus feed the saw the proper distance to cause the grinding-wheel
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. Gilibertson, 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 simple passage across the field. It conducts
these operations in a continuous way, and presses down and rolls the stub ends of the cut stalks to a level surface with the ground
facilitate subsequent cultivation of the groun 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 feeder so arranged as to feed evenly from the
top of the bundles. With an automatic feedtop of the bundles. With an automatic feed-
ing mechanism embodying this improvement the ing mechanism embodying this improvement the
grain, as above mentioned, will be evenly fed grain, as above mentioned, will be evenly fed
in layers to the threshing-cylinder, and therein layers to the threshing-cylinder, and there-
fore there will be but very little, if any, jar to the machinery, as is the case when whole bundles are fed to the cylinder.
Binder attachment.--W. Umbece, Cape operation of self-binders for grain that in the grain falls on the platform-canvas in a condition and stops at the elevator. The in vention seeks to overcome this objection; and it consists in means for permitting the movement of the platform to be stopped at will, thus allowing the grain to pile up on the plat-form-can
binder.
COMBINED CORN AND POTATO PLANT-Fr.-D. J. Sigfrinsnn. Isanti. Minn. The pur-
pose of the invention is to furnish an agripose of the invention is to furnish an agriand small seed, especially notatoes and corn the dropping mechanism being operated either through the medium of the check-row chain or ing to whether the seed is to be planted in hills or in drills.
INSECT-DESTROYING MACHINE.-M. C.
arrangement of machine for removing insects from plants and absolutely destroying them by
fire without injury to the plants. It is appli cable to and intended to be used for destroying especially designed for the destruction of the oll-weevil of the cotton-plant
SHOCKER ATTACHMENT FOR GRAIN BINDERS-C. J. Dowling, Detroit, Kan. The structure and organization of the invention are plied to any ordinary binder. As the sheave are discharged from the binder-de sheav thrown into a shocking-basket arranged to turn and swing and connected with suitable
mechanism for manually or automatically oper ating it, so that when a proper number of
sheaves is accumulated the basket may be thrown into open position and the sheaves stood apright, closely nested together in the form of shock.

Pertaining to Vehicles
BUGGY-TOP SUPPORT.-W. H. TUlly Wilbur, Wash. In this patent the invention asops which are provided with a spring-support for the bows of a vehicle-top when the op is lowered and folded, whereby the top is adapted
roads.
ATTACHMENT FOR LOG-CARS OR ROAD Toy's invent. D. Toy, 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 disen gagement 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 ent over the tie and hooked under the edges the base plate. Flanges on this plate are plates are slipped in between the rail and the antispreading device.
NOISELESS CROSSING.-P. J. LASSEN, assen will allow The crossing the same with out noise or shock. The inventor claims in a
railway crossing the combination of a plurality ailway-crossing the combination of a plurality rails intersecting each other, each rail being
provided with a thread-surface and with a groove parallel with the thread-surface, the roove having a bottom integral with the rail DEVICE FOR DELIVERING ARTICLES ville, Pa The device is designed to be employed for holding and delivering articles, messages, documents, parcels, and packages, and any trains. The inventor provides a holder which shall securely retain such parcels and which
may be extended in a manner to be received may be extended in a manner to be received
or taken by the engineer, conductor, or other or taken by the engineer, conductor,
official while the train is in motion.

## Miscellaneous

BAKE-OVEN.-H. J. Wade, Pocatello, Idaho It is the object of this invention to improve applied more directly and effectively and fuel thereby economized, also whereby the cost of
construction is materially reduced provement includes apparatus for the The im cal heating of water for the production of steam in the baking-chamber.
ADJUSTABLE SOLDERING-BLOCK.-A. R. Webster, Milford, N. H. The purpose in thi
case is to provide details of construction for device which afford a soldering-block that mbodies readily adjustable clamping means for or support of separated portions of eyeglass
or spectacle frames to be soldered onnection, the improvement being also avail able for reliably supporting separated portions with solder.
COMBINED CALENDAR AND PEN-RACK. -'T. Von der Luthe and W. H. Bartholomew,
New York, N. Y. One or New York, N. Y. One of the principal objects
of the invention is to provide a calendar-stand which may be folded or collapsed for distribut ing or mailing the same; but when in its opera combined that the stand will be provided with relatively wide base portion, so that the possibility of the stand containing the pen-
rack being upset will be reduced to a minimum. COMBINATION MUFFLER AND CHEST-PROTECTOR.-L. E. Schoch and E. J.
Schafer, Chicago, Ill. In this instance the object is to provide a muffler and chest-pro tector which is neat and attractive, easily considerable warmth and special to afford the neck, throat, and chest of the weare rom the inclemency of the weather. The gar ment being knitted it is su
readily conform to the body
COMBINED REIN HOLDER AND GUIDE.-
I. STAMPER, Meade, Kan. The main feature
the two spaced rollers. Ther whould be spaced apart, adapted to permit it it of a rein and at the same with both sides removed from rubbing contact with the guide. The elongated eyes at the free ends of the frame members simply adapt the guide for use with spread straps.
The free ends of the frame members may be The free ends of the frame members may be
bent and perforated, adapting the guide for direct connection to the hames by a suitable direct connect
securing-bolt.

QUILL-TIP FINISH.-J. J. Robinson, New York, N. Y. In this patent the invention re-
lates to improvements in fintshing devices for the quills of feathers or plumes employed in the trimming of women's headware, and the object being to provide a device for this purpose that will not only hide the quill from ance.
Curtain-Exhibitor.-D. J. Haviland and C. S. Sicklesteel, Boulder, Col. One obview is the provision the inventors have in which a series of two or a core curtains may be suspended in a way to overcome strain curtains to be adjusted individually, to the end that a portion of each of a series of curtains 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, particufasteners for the fronts of corsets, and the which the fronts of a garment may be quickly drawn together and secured with very little sertion
SUSPENSORY BANDAGE.-E. R. Draki, De Land, Fla. The inventor's claim in this band and the scrotal bag having a ring atpart formed of two elastic tapes sewedtra gether 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 top portions of the shoe to be widely
for putting on the shoe with freedom.
fish-spear.-A. J. Camprell, Luray, Va. The staff or pole has stlpporting means at one end for two pivoted hooks, which are held 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 them thereCORE FOR USE IN WALL-MOLDS.-A. T. Boise, Boyne, Mich.-The invention resides 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 and having its ends overlapped or otherwise
engaged, the frame having means for holding it in proper connection with the frame.
JEWEL-SETTER.-W. F. Boast, Colby, Kan. In this patent the invention refers to
watchmakers' tools; and its object is to prowatchmakers' tools; and its object is to pro-
vide a jewel-setter very effective in operation, and arranged to permit a jeweler to accurately and quickly set the roller-jewel in correct pos ISOCHROMATIC PHOTOGRAPHIC PLATG AND FIIM.-L. Smith, 14 West Hill, Highgate, London, England. The advantages ob-
tained by this invention as compared with the ordinary single layer of isochromatic emulsion is the absence of all halation and false tonerendering due to imperfect interception of light rays and as compared with a double or
triple layer of ordinary emulsion the wider and more perfect tone-rendering due to the color sersitiveness of each layer of emulsion of window-fastener.-E. a. Klages, Crafton, Pa. One of the primary objects of this hall be composed of two main members laning member and a ma members, a member's being adapted to be fastened on adjacent meeting-rails and securely hold the two rails in alinement, so that one of the sashes can be moved relatively to the other only when from its keeper
NECKTIE-FASTENER.-C. Wood, Victoria, Canada. The object in this improvement is to provide a device having details of construction the center and rear side of a necktie, and also for a secure but readily detachable engagement with the front stud or button on the neckband of the shirt, so as to hold the the in correct osition thereon with r
breast and pole strap bastener.
-E. Z. Smithperir, Bogard, Mo. The usual Conduit for hose, cables, ELECTRIC
means for yoke of a ac. agon is a breast-strap which Superior, Wis. The invention pertains to im-
passes through a"ring on the yoke, its ends provements to be placed across a street passes through a ring on the yoke, its ends provements to be placed across a street below
being attached to the collar hames, the strap 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 tran 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 wear and ease and
unhitching the team.
polishing compound.--G. Shambeck, Salt $i$, ke $\mathrm{C} 1 \mathbf{y}$, Utah. The object of this invention is to provide a polish for use on any
article of furniture, vehicles, and woodwork 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 compoun
acts the same either on a wet or dry surface. hose-coupling.-H. E. Smith, Roslyn, Wash. The purpose of this improvement is to provide details of construction or hor
lings which are simple and practical, affording means for
coupling in the sections to be maniable manner and peced with the sections to be manually dsconnected 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, provements in case the invention refirs in pads, the object being to provide a pad adapted
to the various constructions of hernia-trusses to the various constructions of hernia-trusse
for the requisite mechanical support, and de signed more especially for use in the me chanical treatment of inguinal hernia as lo
cated 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 i cleaner. It has extending centrally upward from the ash-receiving well a tapered spike ng or removing burned particles of tobac 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 instanc 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 to one of the players, so that should such
player shoot or send a marble through one of the apertures he will recelve credit for placed over or adjacent to the apertures. GARMENT-SUPPORTER.-Frances C. Mc Donald, P. O. Box 399, Chicago,
present invention is in the nature provement upon the device forming the sub ject matter of a former patent granted to thi inventor. The purpose of the present improve ment-is to devise a supporter particularly de signed for use in retaining and securing hosier. and the like, which will embody the feature of durability, simplicity, and convenience
Means are so adjusted that a stud or simila Means are so adjusted that a stud or simila article may be locked by the supporter, th of clothing.
HORSESHOEING-STOCK. - M. M. MAY Rulo, Neb. Among other things this invention which may be readily opened for the introduction of the animal and easily foot in a raised position convenient for the operator, and to provide means for sustaining on three of its feet during the shoeing opera tion.
PROTECTING HEAD-GEAR OR HAT.anva Mieroslawski, New York, N. Y. The protector, more especially designed for protecting ladies' hats and other head-gear agains 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 w
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 are divided into groups of eight, all of one
group being alike in name of stock and its assumed money value per share, also in th amount of the capital stock. A telegram-car
is used on occasions. Cards are dealt equally and players attempt to fill their broken groups by trading with neighbors a number of cards manner of playing illustrate the transaction of the world's great stock-exchanges.
Cesspool.-H. D. Gardner, New York N. Y. This cesspool is constructed of cement
or the like, and is adapted for draining sur face water. Its shape is the frustum of a
cone. The sides are provided with a series of slots wider at the outer than inner end por tions, so that solid dirt packed against th cesspool's exterior will enter the outer por-
tions of the openings, so as to prevent mud being driven into openings from the interior while means are provided to prevent the earth
around the cesspool falling into it, yet per mitting drainage of wat
the cesspool's interior.

##  <br> Notes and Queries. <br> \section*{hints to correspondentis.}

 may be carried across the waterFISH-HOOK.-W. E. Косн, Whitehall, N. Y improvements in fish-hooks, an object being provide a hook with a sliding weight whereby the weight will not only serve as a sinker, but will serve to hold live b
-that is, with back up.
bottle-closure.-J. f. Perry, Dec'd, Chicago, Ill. In this patent the invention cosures in which a seal of some form en gages a fillet or shoulder of a bottle-neck, so
that its dislodgement is prevented, save by hat its dislodgement is prevented, save by

Note.-Copies of any of these patents will bel urnished by Munn \& Co for ten cents ea lease state the name of the patertee, title he invention, and date of this paper

## Business and Personal せuants.

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ing the information. lne every case is is neces
sary to give the number of the inquiry.

Inquiry No. 4925. - For parties to manufa

Inguiry No. 4926.-For parties engaged in raisin
Autos,-Duryea Power Co, Reading, Pa
Inquiry No. 4927.- For manufacturers of small Handle \& Spoke Mchy. Ober Mfg. Co., 10 Bell St.,
Chagrin Falls, o. Inquiry No. 4928. - For manufacturers of chain Sawmill machinery and outfits manufactured by the
 American inventions negotiated in Europe, Felix Inquiry No. 4930.- For marufacturers of a mov-
able frag saw operated bv horse po wer. with hollow
shaft, made in several sections and telescopes. so that


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stit ching or stapling machines.
me company to make a place on the marten. Wm Eick, Franklin, Neb.
Iuquiry No. 4932.-For makers of machines for
making shot. Edmonds- Met el Mfg. Co., Chicago. Contract manu-

Inquiry No. 4933.-For a machine for making
Send for new and complete catalogue of Scientifte nd otber Books for sale by Munn $\&$ Co., 361 Broadway
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Inguiry No. 4934.-For makers of drop forgings
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ounds, shooting galleries and hand organs. For prices

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cles, metal stamping, dies, screw mach. work, etc, etal Novelty Works, 43 Canal Street, Chicago. Inquiry No. 4936.- For makers of 2,3 and 4 inch
Ierra cotta drain and water pipe and fiting and
iso plunibers' tools, books and material. Empire Brass Works, 106 E. 129th Street, New York. N. Y., have exceptional facilities formanufacuring
article requiring machine shop and plating room.

Iuquiry
machinery.
The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is buitt by the De La Vergne Refrigerating Ma-
hine Company. Foot of East $138 t h$ Street, New York Inquiry. No. 4938.-For manufacturers of watch Manufacturers of patent articles, dies. metal stamp ery and toois. Quadriga Manufacturing Company, outh Canal Street, Chicazo.
Inquiry No. 4939.-For makers of steam log $\$ 12.000$ will buy controlling interest in foundry and machine business in Los Angeles. Cal. Payme, and can
be worked up witbout limit. About $\$ 35,000$ per year business. Foundry, Box 773 , New York.
Inguiry No. 4040.-For.
etal souvenirs of soft metal.
Inguivy No. 494
nd dairy machinery.
Infuirr No.
cast iron pipe ittings.

Yunuiv. No. 4944.-For ma
 Inquiry No. 4946. - For manufacturers of pain
ing and witewashiug machinery.

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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 some answers require not a little research, and,
though we endeavor treply to all either by
letter or in this department, each must take letter or in this department, each must take
his turn.
ayers wishing to purchase any article not adver-
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addresses of houses manufacturing or carrying
the same.
ecial Written Information on matters of personal
rather than general interest cannot be expected cial Written Informat
rather than general
without remuneration.

## 

Minerals. sent for exami
marked or labeled.
(9259) A. S. says: Kindly inform me of the best place to take a mechanical engineer ing course in the city of New, York; and also
where the State University is situated, and whetier they have a course like the above
The course in mechanical engineerin The course in mechanical engineering a
Columbia University, New York city, is one the best in the country. The requirements for admission to this course are high. The Prat Institute, of Brooklyn, N. Y., has a two years'
course in steam and machine design, which is an excellent mechanical course, with lower re
quirements for admission than the one referred to above. The State University of New Yor is Cornell University, situated at Ithaca, N. Y., In the central part of the State. This is on
of the best engineering schools in the country (9260) G. E. P. says: Is Manhattan Island sinking? A and B both claim that it is. I claim that it is not. A says it is sinksays 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 as nothing in comparison with the weight of
the earth on which the buildings stand. These buildings have their foundat os the earth itself. The sinking is due to motions in the crust of exist in many parts of the earth.
a sal-ammoniac battery, the carbon of which I burnt the carbon, and then paraffined the top and put it back. In a little while the crystals below the parafine How can I fix it? I also noticed a thick layer of carbon in it? 1 als of the jar. A. When the liquid in a sal-am moniac cell becomes too strong, a crystal forms It is not sal-ammoniac, but a more complicate ficulty in water, and this has made the trouble for you. The burning which you gave the car bon caused some of the carbon to become pow
dery and fall off in the water. It should not have been done. The carbons are not as good for it. 3. Please send directions for making gravity battery a star-shaped arrangement of of the glass jar. In the top of the jar is hung a star, or crowfoot-shaped piece of zinc, weigh from some dealer. Put in copper sulphate enough nearly to cover the copper. Then fill
the jar with water to cover the ainc the wire from the copper to the zinc, and le the cell stand for several hours till the liquid is then ready for use.
(9261) M. \& M. say: We are in need of a paper, white preferably, which will after fluid, turn color when an electric current is passed through it. Any information that you
for and appreciated $A$ be glady paid ways to prepare a paper which changes color The simplest is to make a solution of potas sium iodide in water and boil some starch in this solution. With the liquid wet some paper When the wet paper comes into an electric cir-
cult the paper turns dark blue around the posicult the paper turns dark blue around the posi-
tive pole. Another mode of preparing paper is to make two solutions, one of sodium sul ohate in water and of phenolphthalein in
alcohol. The latter solution may be very weak. alcohol. The latter solution may be very weak.
Mix them together and wet paper with the liquid. In this case the negative pole turns

## the paper pink.

(9262) T. C. R. says: This town (Russell) of 1,200 inhabitants is situated high (Smoky Hill and Saline), each of which is about 200 to 250 feet listant, and the town 4 miles, at nearest point. Water is not ac cessible in wells in towns nearer than about
250 to 400 feet in depth, except surface wells
in some parts at 20 to 30 feet, which will not ted domestic usough supply for any but lim cally useless, because of the great amount No salt and other minerals in the water. the subject, and least of all the workmen who make cisterns. Are there back numbers of the Scientific American or Sup tions that would be useful in give any sugges lic 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 sugges-
tions along the lines first indicated above? ome persons haves first indicated above? to $\$ 50,000$ would be necessary to install a a. with sufficient capacity for this town. the water supply of the town of Russell, we would say that good quality sand, of a suf icient depth, makes a most satisfactory filter would be useful in this matter to one not technically versed in the subject. The question of ater supply is a most vital and important ne. At the same time, it is an extremely dif-
cult one, and without having thorough investigations made by a competent water-supply engineer, we are unwilling to make any suggestions. If your town has not a satisfacory supply, it would probably be the best investment it could make to get expert advice s to the best method of improving its supply, and then to follow this advice. If you wish us
hould be glad to do so.
(9263) W. H. says: I want to make square glass fish aquarium. Will you please tight and stick to the glass? A 1 Dissur part finely shredded India rubber in 64 parts of chloroform; then add 14 to 24 parts of powdered mastic and digest with frequent shaking until dissolved. 2. Melt together 2 parts of shellac and 1 part of Venice turpentine. Use warm.
(9264) J. E. D. says: To what height ill a siphon pull water? Please answer this and put several hundred people at ease in our eight A. A siphon would lift water column xerting the same pressure as the atmospheric pressure (which would be for the standard ressure of the atmosphere 33.9 feet), if it wre not for the fact that water contains ome air in solution, and at ordinary temperatures gives oul enough vapor to make a perfect mount that this action will decrease the beight mount that this action dift water will depend pon the temperature of the water If the ater is at 212 deg. F., the siphon will not ift it at all; if it is at 700 deg. F., it will lift t 33 feet.
(9265) W. G. asks: Would you kindy inform me how many cubic feet of air one plete combustion? A. One pound of kerosene oil requires for its combustion about 17 pounds f air, or approximately 225 cubic feet of air. The specific gravity of kerosene is about 0.75 ; herefore one cubic foot of kerosene would re uire approximately 10,500 cubic feet for its perfect combustion. From 30 per cent to 50 (9266) C. K. T. says: I desire to learn how carmine is manufactured. A. The preparation of carmine is little understoon,
but success in its manufacture depends less n any mystery connected with the process than on the employment of the purest water and the best materials, and the exercise of following formula will produce carmine of the ichest 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 altpeter (bruised), 3 ounces, is added to the minutes longer: oxalic acid, 4 ounces, is ext added, and the boiling again renewed for 10 or 12 minutes; the heat is now removed, hours, after which time it is decanted with ours, aft chow pland set aside for three weeks. At the end of this time the film of mold which has formed on the surface is dexterously and carefully removed, without breaking it or disturbing the liquid beneath it. The remaining fluid is next very carefully removed with a siphon, and the adhering moisture, as far as possible, drained off, or sucked up with a pipette. The resi-
duum, which is the carmine, is dried in the shade, and possesses extraordinary luster and beauty.
(9267) A. H. F. says: 1. I would like to know the height of a locomotive from rails there is a great deal of difference in the difknow is of the average locomotive bult at know is of the average locomotive bull at
present. A. The height of locomotive cab present. A. The height of locomotive cab 10 and 12 feet. 2. I would also like to know to the other while at its full working capacity

