## becently patented inventions.

 mechanical.Spring Motor. - Ludwig Melchior and George Haas, Wilmington, Del. In a sultable framing is a gear train having a power ehaft, spring arms being secared at one end to the framing and ex tended down on opposite sides of the gear train, while
there are cords or connections between the free ende there are corde or connections between the free ende
of the spring arms and the power shaft, and gaides for the cords, the spring arms being maltiplied as desired to increase the power.
Motor. - Evander B. Newcomb, Parsons, Kankas. In a siitably constracted frame is a ransererse shaft, to which is secured one end of a coiled barrel moonted to rotate loosely on the shaft, the devic being simple and darable, and especially designed to operate light machinery, snc
jewelers'
lathes, charns etc.
Circular Knitting Machine. Charles E. Bean, scranton, Pa. Mirs livemion cover a machine for controlling a plarality of threade or
yarne of differentcolors, and constracted to antomati yarns of different colors, and constracted to antomati cally sapply the different yarns to the needies in a manner to form any desired pattern, in stripes or othe
styles, in the knitted web, the machine involving novel constraction, combination, and arrangement of
parts.
Plumbers' Saw.-Robert and Charles Mcalpine, Trenton, N. J. This is a saw in which reciprocating saw blade is held to the stock by an ad
jastable stop for regulating the extent of movement of the blade beyond the stock, with other special features, whereby pipe connections may be severed quickly and accurately within the narrow space usually available for such work in a plumber's trade.

## Electrical.

Poblic Clock.-Alfred Speer, Passaic, N. J. This is a clock with large dial and mechanism fordriving the hands by power applied to their outer extremities, to overcome the resistance of wind, ice,
snow, etc., the mechanism being electrically operated snow, etc., the mechanism being electrically operated
by a step by step movement through pawl and ratchet derices acting upon pinions meshing into stationary círcular racks.

## Agricultural.

Corn or Sorghum Harvester. Joseph J. Singley, El Dorado, Kansas. This is a ma chine to be drawn along the groand when the stalk are gaided by adjustable fingers to be cut by the knif and rall apon the bed of the machine, the knife being the stalks being conveniently delivered to the groand a any time when the desired quantity has been cat.

## Miscellaneous.

Pipe Coupling.-William M. Brown Ir., Sucramento, Cal. This conpling is formed with hollow sections secared to the main steam sapply pipes, preferably by a shouldered end projecting into the
main pipe, and held by ring clamps having their ends main pipe, and held by ring clamps having their ends
riveted together, being intended mainly for use with railway passenger cars, being adapted for automatic coupling and ready uncoupling.
Can Filling Machine.-Francis M. Nichols, Chillicothe, Ohio. This machine has a measure carrier with disks, each having tabes or
cylinders open at both ends, the tabes of one disk cylinders open at both ends, the tabes of one disk
sliding within those of the other, the apparatas prosliding within those of the other, the apparatus pro
viding means for flling cans with measared quantities of coru, tomatoes, etc.. the cans being automatically fed orward to receive their intended contents.
Testing Device for Counting Mechanisms.-Paal C. Illgen, Leipsic, Saxony, Ger
many. Nambered counting disks are operated by rotating shaft, in connection with a supplementary disk, whereby, the accuracy of the namber shown on the coonting disks may be determined, when, if the fifures
do not agree, the coonting mechanism is proved to be out of order.'
Refusie Ejector.-John S. Wallace, Nelsonvilte, Ohio. This device is specially designed to remove refuse from ocean steamers, coal mines, etc.,
and consists of a discharge pipe into which projects a steam pipe carrying superheated steam, a refuse feed pipe discharging into the discharge pipe, and a gas pipe also opening therein, by means of which the
emoke and gases from the furnace combine with the perheated steam.
Purifying Iron.-Nathaniel Booth, Hollidaysburg, Pa. This invention covers a compound for parifyingiron in blast and puddling farnaces, the
compound consisting of red prussiate of potash, bi. componad consisting of red prassiate of potash, bi-
chromate of potash, bicarbonate of soda, black oxide of manganese, etc., in stated proportions, heing designed to eliminate phosphoras, silicon, sulphar, etc., from the dacing its crystalline character to a fibrous condition.
Double Sulphate of Antimony.Carl J. E. De Haeu, List, near Hanover, Prussia, Germalt of fluoride of antimony, consisting in mixing flaoride of antimony and salphate of ammonia and then evaporating the mixture, for the industrial appli-
cation of the compound in the dyeing art in liea of the cation of the compound in the dyeing art in lien of the
Cracker Cutting Die. - Carl Herr mann, New York City. This is a die provided with face bailt up of removable sections which may be easily renewed when broken by an ordinary workman, and should it be broken by contact with hard substances in
the dough or otherwise.
Bicycle.-Louis A. Hill, Philadelphia, Pa. This invention relates to spring forks to be used
in connection with the wheels of a bicacle or similar
machine, and provides means whereby the jolting
motion of the wheels when passing over obstructions or a rough road will not be commanicated to the rider or to the steering arms or handles.
Cover for Milk Cans. - Joseph C. Vail, Maple's Mill, IIl. This cover is made of an apper plate and an under apertured plate separated from the upper plate by spacing strips, the space be-
tween the two plates being ventilated, thus providing tween the two plates being ventilated, thas providing
for the ventilation of the vessel while exclading dust, for the ventilat
insects, etc.
Kaleidoscope.-Joseph W. Lovibund, salisbary, Wilts County, England. In this device, instead of the usual irregularly shaped and variously colored pieces of glass, disks are employed, independ atly movable by a rolling motion in the field of view variety, which may be inflitely varied and repeated or reproduced at will.
Toy Race Track. - William N. Mcannes, New York City. In this toy track a real race is
imulated by a number of miniature figures carried mulated by a namber of miniature figures carried times round the figares are projected forward by an impulse to the flish line, the invention being an improvemen
inventor.
Necetie. - Miner W. Bruce, Knox Center, Neb. This tie has two retaining tapes extend ng from opposite ends of the shield partly encircling to the shield and the other detachable, both tapes carry ing hooks adapted to engage apertures arranged in the

Hose Supporter.-Miner W. Bruce, Knox Center, Neb. This supporter consists of an
elastic divided band having hooks attached to its ends, clasp for attachment to the hose also having a hook, while an endless cord is passed around all the hooks and slides freely thereon, any slack in the elastic band clasp-carrying cord.
Garter. - Jacob Katzenberg, New York City. This garter consists of an elastic tape having its ends anited by a metal clasp applied to the tape a short distance from its extremities, the ends
being left free to form the bow pieces which cover the clasp at the front.
Stringe.- Jay W. Kirkwood, Silver Mountain, Idaho. This is a medical syringe having or near their rear ends and both having openings through the forward end of the syringe, a piston working within the inner chamber, whereby the syringe operates simultaneonsly to discharge a medicated fluid and to remove by snction foreign matter.

## NEW BOORS AND PUBLICATIONS

Incandescent Wiring Hand Book. ing Company, Chicago, Ill. 1889. Pp. 66. Price $\$ 1$.
The practical side of electric wiring, with the electri cal arithmetic necessary for "honse engineering" is
reated of by the anthor in a clear and succinct style. Numerons illinetrations are embodied in the text and the manual is one that will, we donbt not, be well received by the profession generally. It is a hand book, a code to be always at hand, as well as in the library,
The need for a practical discussion of electrical problems is a growing one, and all worthy acceessories to he literature of the sobject are to be whemed
Academy Architecture and Archi-
TECTURAL REVIEW. Quarto pam-
phlet. Pp. 102. Edited and pub-
lished by Alex. Koch and C. W.
English, Chancery Lane, W. C, Lon-
don, England. Wm. Mueller, New
T
We are informed that the Earopean edition met with so mach saccess that the London pablishers decided to
issue an American edition. Every page contains one or issue an American edition. Every page contains one or
more plates of baildinga, bits of detail or architectural ketches from an English point of view without any escriptive text. The work is arranged in two parts, the first containing miniature reproductions of designs,
stadies and sketches of architectural work that were exstudies and sketches of architectural work that were exhibited at this year's academy exhibition, and the second part, designs of notable buildin2s execated within the
last five years, confined however to Earopean work. The most notable work at the Academy is reproduced, particularly an interior view of M. E. R. Robson' theater in Cambridge Circas by T. E. Colcutt, the amous Hotel Metropole at Brighton, in Mr. Waterhouses best style, also a chapel in Duke Street. Mayair, by him, interesting from the massive yet gracefal treatment of the spire. The most charming bit in the whole work is a water color sketch of a Norman gate way and library at Windsor Castle, by Phene Spiers, the amons teacher of drawing. The frontispiece is the
chef d'œavre of the English work, viz., the Brownlow chef d'œuvre of the English work, viz., the Brownlow
Street front of University College, Liverpool, by Mr. Wreet front of University College, Liverpool, by Mr
Waterhonse. Sir Arthur Blomfield contribates a Waterhonse. Sir Arthar Blomfield contribates a
teantiful sketch of a reredos for new Charch of St Mary, Portsea. The chief works of interest in the second part are the several drawings of the Hofburg Theater, Vienna. A stady of the varions featares of the design is fall of interest. It marks the monumental feeling beter than any other design exhibited. The point of view taken for the perspective does not do the noble fron justice. The horizon line is too high. The elevations
are mach more satisfactory to one accustomed to interpret them. The pablishers announce their intention to confinue this work by an annaal number. We wish them every possible success. The plates are excellent More than that, there is not a poorly drawn eketch in the collection, and for one who desires to carefally
stady English work, no better opportunity conid be stady English work, no better opportanity could be
found. The only regret we have to record is the eviden ack of space for more sketches of plans, bitsof detail,
beantiful work shown by Messre Blomfeld and Phene tions and English plans coald have American elevaing for contrasts coald have English planning, moder architecture would be worthy of the closest study and highest praire.

## Art d'Empatllir lizs Petits Animaux. By Panl Combes. Librairie de la Science en Famille. No. 118 Rae d'Askes, Paris, France. This is a lititle pamphlet of 32 pages on the methods of mounting animals.

 Photographie et ges Aprication. I. La Ferro.trpie. Obtention directe dea positifs a la chambre noire. By F. Dronin, Librairle de da Science e
Famille. Paris, France. Pamphlet of 36 pages.
 appareils de secrete, etc. Par Drouin et Huche
Pamphlet of 46 pares. Librarie de la science en
Famille. Paris, France. Qu'on Peut Faire avec lies Ozurs. Collection
complete et variee des esperience faciles et amus antes pouvant etre executee par tont le monde avec
des oufs. Par Prof. Abe Cepak. Ch. Mendel.
Parik, France. Thisis an illuatrated paper.covered
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## AUGUST NUMEER.-(NO. 46.)

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. Elegant plate in colors of a cottage for twelve hui dred dollars. Persp
2. Plate in colors showing perspective elevation and floor plans for a small frame cottage
thoasand dollars. Page of details, etc.
3. Page engraving of the new and elegant Trinity
charch at Tiffin, Ohio, designed by F. K. Hewitt, charch at Tiffn, Ohio, designed by F. K. Hewitt,

A New England mansion. W. B. Tubby, New York,
plans.
. Elevation in perspective and floor plans of a co tage at Jersey City Heights. Cost twelve thou sand dollars.
B. A cottage recently erected at Bridgeport, Conn., at a cost of two thonsand th
Floor plans and perspective.

A handsome country residence at Belle Haven
Park, Greenwicb, Conn. Cost eleven thousand dollars. Perspective and floor plans.
8. A house for eight thousand dollars, recently erected plans.
9. The New United States court hoase and post office, Charleeton, S. C. Cost three
dollars. Perspective and plans.
10. A cottage at Bedford Park, New York. Cost three thonsand five handred dollars. Plans and per-

Hoase for three thousand six hundred dollars, recently erected on Armory Hill, Springfield, Mase
Perspective elevation and floor plans.

Page of designs of ornamental well carbs
3. Brick dwellings recently erected in Jersey City, N. J., at a cost of three thonsand eight handred
4. A corner residence on Jersey City Heights, N. J spective.
15. The great chapel, cathedral of Toledo, Spain drawn by Antonio Hebert. Fall page engraving
16. Engraving of the Lessing theater in Berlin. University at La Fayette, Indiana.
18. View of the street front of the handsome Brooklyn N. Y., library.
9. Miscellaneons Contents : Hints to architects. Iron bricks.-Hard woods.- Prevention of diph theria. Overthrowing a chimney.-The mana-
facture of Roman bricks.-Woods for inside finish.-Jim Fisk's monament.-Experiments on mortar and concrete, with illustrations.-Clamp for palling street piling, illastrated.-The Eiffel tower.-Sixteen stories the limit.-A singular
fireplace explosion. - An ornamental stairway, freplace explosion. - An ornamental stairway,
illastrated. - The Hess syatem of ventilating and warming.-Hints aboat lawns.-Hot water heating, illastrated.-The "Timby" antomatic sa8h lock, illustrated.-A solid guaranty for roofing
plates.-High speed antomatic engines.-Metallic shingles and rooflug tiles.-Electrical appliances for houses, illustrated.
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The charge for Insertion under thes head is Ons Dollar a line for each insertion: about eight words to a line. as early as Thursday morning to appear in next issue.

The man or woman who is proftably employed is eenerally happy. If you are not happy, it may be be.
cause you have not found your proper work. We earnestly urge all such persons to write to be B. F. Johnson CO., 1009 Main St., Richmond, Va., and they can show employed.
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E1 Dorado, K as.
Model steam engine. Cir free. Edgar Side, Phila, Pa For Sale-A valuable metallic roofing patent. No crews or nails neceessary; unequaled for lightness and
urability. Address Julius Klehe, Mauch Chunk, Pa. For Sale or Royalty-Baling press. patent No. 406,680, reat compressing power; ligh seets a long felt want of farmers, broom corn, cotton, and wool growers. Manafacturers on royalty can have

The Lowrie toilet stand, illustrated in this paper, May . 1888 (no movable bowl or pitcher required), is now on ale in eiesantly finished quartered oak, with movable For Sale.-Buckle $\sim$ patent No. 407.919, July 30, 1889. or description see pake 98.
Guild \& Garrison, Brooklyn, N. Y., manufacture steam pumps, vacuam pumps, vacuum apparatas, air
pumps, acid blowers, fliterpress pumps, etc.
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Working Machinery. C. B. Rogers \& Co.. Norwich, Conn. Packer Ratchet Drills are drop forged from Norway Rubber Belting, all sives, $771 / 2$ per cent from regular Buckley, 156 South Street. New York.
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polishers, scourers, glossing apparatus, milling and eaberry machines: also rice and macaroni machinery N. $\mathbf{Y}$.

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Pes. I. E. Merritt Co., Lockport. N. Y. Pattern makers' lathe. Back knife gange jathe for
urning chair stock. Rollstone Machine Co., Fit chbarg

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be repeated; correspondents will bear in mind that some answers require not a little research,
though we endeavor to reply to all, either by le
or in this department, each mast take his turn.
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expected withort reman general interest cannot be
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to may be had at the office. Price 10 cents each
Bookse referred to promply supplied on receipt of price.
wineraln sent for examination should be distinctly
marked or labeled. (1141) A. G. D.-The outside of a galvanzed iron roof has a zinc surface which, being In centac a light white powder which sticks to the hand as you brash it over the surface. Rains wash the oxide into the tank and the water absorbs it to a large degree. Thi vanized pipe. The first water that is drawn after th pipe has been closed over night tastes strongly of zinc Hence honsekeepers are cautioned to always waste as The oxide of zinc is poisonons. The oxide of iron is not poisonons. For this resson we recomment the painting of zinc or galvanized roofs with oxide of iron paint or paint made Even a coat of boiled lineeed oil will protect the roo rom oxidizing. A physician or draggist shoald be ble to advise you as to the effect of using the water
rom a galvanized roof. Any person using spring water rom a galvanized roof. Any person asing spring water
hould be able to detect the zinc taste in the water from should be a
(1142) J. S.-The rule of your council in regara to kinc of pipe and futiogs is very aheard The universal practice in the United States for gas fit-
ting is to ase black iron pipe, malleable iron attling,
tees, and elbows. Bending and offsetting of the pipe
is a matter of economy or taste with the pipe fitters. Offeets are generally bent if not too large to insert conveniently. Bends made on ends of small
pipes $\frac{1}{4}$ inch, $\%$ inch, and $1 / 2$ inch, for terminals for chandelier and bracket connections, are properly used plastering. These bent pieces have a piece of flat iron for solid support to the chandeliers and brackets Th licensing and registration of gas fitters and plumbers a subject of municipal regulation in all large cities.
(1143) O. E. Z. asks: 1. Is not an ampere the current produced by one volt through the resistance of one ohm? If so, how can a dynamo have a
capacity of 130 amperes and 100 volts?
A. Yes. The capacity of a dynamo in amperes is calculated by dividing the electromotive force by the resistance. 2. What
does E. M. F. indicate? A. E. M. F. stands for electrodoes E. M. F. indicate? A. E. M. F. stands for electro-
motive force. Electromotive force is the power of the current to overcome resistance. 3. Watt? A. A watt is the unit of electrical power. It is equal to a volt mutiplied into an
trical horse power
(1144) G. B. asks (1) information on refer you for blue printing, etc., to Scientific American Supplement, No. 584. In other numbers you will tind much information on this line of subjects, for MENT. 2. For a good recipe for waterproof drawing ink. A. For waterproof drawing ink rub up the pigment with a solution of shellac in hot borax solution. This will be nearly waterproof
(1145) J. M. D. asks : 1. What is the n electric telephone? A. For an acoustic telephic or used a diaphragm made of wood,pasteboard, sheet iron, or strained parchment. For an electric telephone use an iron diaphragm. 2. Does the material of which a telephone box (or case) is composed have an effect on
the sound? A. Probably the box acts to some extent as a resonator, but it has no great effect upon the sound. 3. If so, what is the best material for such use? Such wood assounding boards are made of, spruce for example.
(1146) S. J. asks for a chewing gum, having some cereal in its composition. A. Take of
balsam tolu 4 ounces white resin 16 ounces, sheep's suet 11/2 ounces, more or less of the latter according to the season. Of this preparation take 2 ounces, soften in a ounces oatmeal. Roll portions of proper size in sugar or floir and form insticks to suit.
(1147) E. B. asks a good recipe for compressed yeast and the length of time it will keep.
A. Vienna yeast is said to be thus made: Indian corn, barley, aud rye (all sprouting) are powdered
and mixed ind macerated in water at a temperature and mixed :nd macerated in water at a temperature
from $149^{\circ}$ to $167^{\circ}$ Fah. Saccharification soon takes place, when the liquid is drawn off so as to be clear, nd a very little yeast is adick. The yeast forms pressed in a hydraulic press. It may be removed sevpressed in a hydraulic press. It may be re
eral times. It will keep frum 8 to 15 days.
(1148) E. N. B. asks : 1. Which city furnishes the greatest yearly output of steel rails, St. Louis
or Pittsburg? A. Pittsburg. 2. What is the best anthority in chess for amateur players? A. The new edition of chess, by G. H. Gossip, which we can mail for $\$ 3$. We also refer to numerous Scientific Ameri-
can Supplements. 3. The address of Herr Steinitz chess monthly. A. International Chess Magazine New York city
(1149) L. M. P. asks (1) why several seeds, mostly beans and corn, when they are being grub eaten, become notably hot. A. Because the corn is fer fermentation develops sensible heat. 2. A recipe or restore clean and transparent glassware made dim have tried many actds, muriatic among them, have tried many aclds, muriatic among them, and A. Nothing better than scraping or other mechanical polishing will produce the desired effect. Some pol polishing will produce the desired effect. fome powders, such as flour of emery, followed by rouge rubb
scraping.
(1150) J. H. K. asks : 1. How can cloth and duck lining be made waterproof, not affecting colo or original finish? A. Paraffin melted in with a hot
rron is verv effectual, and while somewhat changing the appearance, is on the whole about the best application 2. What is the smallest space in which heat can be generated, not using fire? A. For very intense hea the voltaic arc, where the temperature can be further
intensified by the concentration of the sun's rays there on by a concave mirror or convex lens. The secondary extremely small and represents a certain degree of heat

## (1151) F. D. M. asks how to clean out

 hree-quamaniron waterpipe. My pipeis 800 feel, water barely runs through it. A. The pipe cannot be cleaned out without taking it aparì and cleaning each piece with a rod. It is not profitable to lay small wrought iron pipe that is not galvanized. It soon ruets and stops up. Gavanized pipe does notrust, and if the free from contamination from the zinc coating.(1152) G. E. H. asks the best method of soldering automatic sprinklers, the solder being applied oo brass or phosphor bronze, and the desire being to will only be affected by such a degree of heat as indi cates the proximity of fire. A. A solder made 1 part each of tin and lead and 2 parts bismuth, melting it $200^{\circ}$ Fah., is usually used for sprinklers. Use soft or white resin or Venice turpentine for flux in soldering. A blow pipe is better than a copper, as the copper is
slightly absorbed by the solder, which may change its slightly absorbed by the solder, which may change its
melting point.
(1153) T. S.-For a description of the new government cruiser Baltimore, see Scientific pound engine, see Scientific American Supplement,
(1154) R. writes: The purpose of the chip inclosed is to color small articles and especially hot water until the color is extracted from chip. Then
the article is allowed to remsin in this water for a few the article is allowed to remain in this water for a few
moments. I have seen the following colors prepared in moments. Mave seen the following colors prepared
this way: Red, purple, blue, and yellow. How is this composition prepared? A. Dissolve aniline colors of the gelatine. Dip the chips into this and allow them to dry. You may, while they are still moist, dip them in the dry colors so as to cause some to adhere. You nay also substitute gum arabic for gelatine.
(1155) J. H. P. asks: What paper gives SUPPLEMENT, Nos. 284, 260, 323, 330, 331, 343, 172, 173, ${ }^{(1156)}$ F. N. asks the price of tin per pound, also if there are any mines in the United State8 prodacing tin. A It is about 20 cents per pound. It
has been found in Dakota, in the Black Hills, but as yet in comparatively small quantities.
(1157) C. H. G. writes: 1. What is a where hydrophobia has been prevente madstone to the wound caused by the bite of a mad
dog? A. The madstone is a porous stone that acts dog? A. The madstone is a porous stone that acts by
capillary attraction to withdraw the venom from a newly capillary attraction to withdraw the venom from a newly
made wound. It is doubtless of some effect in such cases. A carbonized deer's horn has been recom nended for the purpose.
(1158) L. L. P. asks how sulphur acts o free tin from zinc when sprinkled on the melted alloyy A. The sulphur combines with the zinc, formfloat upon the melted tin
(1159) J. K. asks a formula for erasing the white stains that occur in some of the bricks
in newly constructed buildings? A. Wash with dilute in newly const
muriatic acid.
(1160) H. A. Z. asks: Can cast iron be made stronger, and suitable for a small cannon, by the addition of aluminum in ladle, and what proportion would be best? Also, could copper, aluminum, and iron aluminum mixed with cast iron by placing the required quantity in the ladle before tapping largely increases its strength and solidity; 5 to 10 per cent aluminum with copper makes aluminum bronze, which is nearly as stroug as steel. One-tenth of one per cent of tin in cast
iron also increases its strength and solidity. Copper is iron also increases its strength and solidity.
of doubtful effect when mixed with cast iron.
(1161) C. F. R. asks: How many feet fall of water is necessary to obtain a pressure of 25
pounds per square inch? A. $571 / 2$ feet is the hydrostatic column of water equal to 25 pounds pressure.
(1162) Amateur writes: Is there any formula or receipe for a mixture into which cardboard, used for outdoor signs, can be immersed, and made
superficially, or better still thoroughly, waterproof? superficially, or better still thoroughly, waterproof?
A. Heat the cardboard in melted paraffin, as hot as A. Heat the cardboa
(1163) M. R. asks : 1. What does the word feathering mean as applied to the wheels of the
new steamer Puritan? A. A feathering wheel has its new steamer Puritan? A. A feathering wheel has its
buckets piuioned to be movable by an armand connected with an eccentric, so that the buckets dip and leave the
water vertically. 2. Is the Redeman-Tiford steal pro cess used in the manufacture of steel plates for steam boat boilers, and if so, where? A. We have no information as to the localities of steel works using the Redeman-Tilford process. Steel plate for boilers is known in the market as Bessemer or open hearth steel.
Its individual quality is quoted under certain stamps Its individual quality is quoted under certain stamps
or the makers' names. 3. Does the United States maor the makers' names. 3. Does the United States ma-
rine law confine steamboat builders to certain established forms of steam boilers, and so forbid or make impossible novelties or improvements? A. United States marine inspectors have not established special and strength of material. The inspection of boilers covers also the elements of safety in form. 4. I want
to build an arch in a furnace; fire brick and fire clay morto build an arch in a furnace: fire brick and fire clay mortar will not withstand the heat for any time. What
material must I use? A. Fire brick and fire clay are used in our hottest furnaces. Use only No. 1 extra brick nd fire mortar made with the same kind of brick pulverized mixed with best flre clay. There is great
ence in the quality of fire brick on the market.
(1164) W. M. L. asks how much of a resistance coil would be required to reduce a 500 volt current (of the Thomson-Houston) to the right strength for simple electric motor. A. No general rule can be
given; try it on a shunt circuit from main line. House connections often act as resistance coils. If the current is of the alternating type, the motor will not work. 2. Would an amalgamated zinc interfere with the current, if a solution of rock salt be used as a solution, with copper as the other pole? A. It will by its resistance, and according to the order of the plates will
increase or decrease the electromotive force. 3. Has lightning ever been measured with regard to volts and volts potential. We do not understand your fourth uery.
(1165) J. M. asks (1) how to make the cakes of paint, black and colors, used in stenciling. A. See answer to query No. 1006. 2. How to make a plas-
ter cast of a hand or foot. A. Oil the hand. Provide a soft pillow, and cover it with a towel, and over that a newspaper. The hand is pressed down into this alum water is poured over it and backed up by a stiffer portion. The hand must be kept perfectly still, of course; in a few minutes the plaster will have set. It
is now removed from the hand, the faces smoothed and rubbed with lard, the hind replaced, and a second cast
ing taken of the other side. Owing to the use of the lete mould for casting an image in. Oil the mould before using it. It may be made in several pieces. If man's hand with hair upon it is the object, it should irst be shaved. Instead of a pillow, sand may be used
for the embedding material. Care must be taken to or the embedding material. Care must be taken to avoid undercutting." The foot is an easier object,
(1166) E. B. writes: 1. I want to disolve or disintegrate a composition in nature like glass or porcelain which is subjected when fused to great eat-white heat at least; can it be done? A. This can done by fusing the fiuely powdered material with hydrofluoric acid in a platinum dish. 2. Is there any acid which will attack glass or porcelain? A. Hydro luoric acid. 3. Can feldspar, after being fused as de cribed, be dissolved? A. By the fusion method or reatment with hydrofluoric acid. 4. What acids will destroy platiium? A. It dissolves in the presence of
chlorine. A mixture of 3 parts hydrochloric and 1 part chlorine. A mixture of 3 parts hydroch
itric acids is often used for its solution.
(1167) C. E. G. asks : 1. What acid will dissolve platinum? A. See answer to preceding query.
2. What acid will separate platinum from lead? A. To will precipitate the lead as sulphate, leaving the platiwill precipitate the
(1168) Courier.-The plant sent for identification is the common plantain,
(1169) R. J. P. asks : At what height do the clouds generally float? $A$. The height varies from he level of the ground, when they constitute fog or in winter end 3,300 to 4,000 yards in 1,300 to 1,000 yard in winter and 3,300 to 4,000 yards in summer are given. earth.
(1170) M. O. K. asks : What process is best to extract the strength from sage leaf to get it
strong and preserve it? A. Distill off the oil by boiling with water and collecting the distillate, separating by decantation the oil from the water.
(1171) J. W: asks for a good receipt for ementing rubber to eartheuware or chinaware so that it
will stand ordinary rinsing or washing in tepid water. A. Soak strong shellac in ten times its weight of strong mmonia for three or four weeks. This makes a liquid cement, which, however, will not stand much heat. Or try a mixture of 1 part gutta percha with 10 part phalt melted together.
(1172) D. L. B. asks for a good formula for aromatic toilet vinegar. A. A number of formula re given, such as the following


## Gruyter.............................................................. 407 Bobbin, D. Boiler. See Sectional boiler. Steam boiler Water tube boller. 

 Bracket. See Desk bracket.Braid roll and small
Braid roll and small spool feeder, J. H. Morrison. 408,187 Brake. See Wagon brake.
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 Brushes, manufacture of, J. A. Read. Buckle, W. Blum..
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Burklar alarm, T. J. Gordon
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Burial casket, T. McGovern
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Car coupling, D. L. Barnes.
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