RECENTLY PATENTED INVENTIONS. Railway Appliances.
Car Coupling.-Daniel Kint, Alpena South Dakota. Two operating levers are pivotally con nected together at their inner ends, and there is con
nection between the levers and the coupling pin, raise and lower it, in connection with a latch and band the end of the car adapted to engage the latch. Th device may be couveniently coupled with the ordinary
link coupler, and opposing cars may be uncoupled link coupler, and opposing cars may be uncoupled
without the trainmen passing between them, while the coupling pin may be locked in elevated position if de

Rail Joint.-John N. Lewis, Coulee City, Wawhington. The chain is, by this invention,
formed with a base plate, a side plate, and a transverse portion within the hollow formed by the juncture of the plates, and provided with a seat for the fish plate and locking plater. The transverse portion and the
fieh plate sectious serve to hold the lock plates in position, and the lock plates operate to prevent the nuts from jarring loose, the whole forming a strong, secure

Railroad Gate.-David M. Dewitt, Bee Branch, Ark designed to jeopened and closed by an approaching and departing train or wagon. The construction is such that an approaching train passe from the fixed rails to rails on a hiuged platform, the depression of the latter operating through shafts and links to open the gate, which is afterward closed by connected weights and levers. The device is also ap-
plicable, with some moditications, to a wagon road, the gate being then opened by the
and afterward similarly closed.
Elevated Railroad.- Eliphalet L. Arnold, Georgetown, Texas. This invention provide absolutely safe, with which the cars will ride eacily and which can be readily adapted for hoth passenger and freight traffic. The railway is supported upon sec-
tional hollow posts, from whose upper ends extend ional hollow poste, from whose upper ends extend
lateral arme, which pivotally uphold a contunuous eteel rruse, the base plate of which forms a support for the through yokes, If desired, the cars may be brought near enough from the ground to be entered therefrom, or the entire mechanism may be light enough for the cars to be operated by horse power.

## Electrical

Arc Lamp. - Robert H. Thurston, Ithaca, N. Y. This invention provides a lamp having in approximately parallel lines, with the carbons ar ranged in planes intersecting at a small angle to prevent their slipping by each other, or jamming and welding together, thus extmguishing the lamps when shaken by the wind or other force. The angle in practice is not so large as to make any material difference
in the length of the arc formed between the center and in the length of the arc for
the ends of the carbons.

Mechanical
Wood Turning Machine.-Abraham Stoner, Stony Point, La., and Francis M. Pennebaker,
Pleasant Hill, Ky. This is a machine for turning solid taveless hulls or bodies of tubs, buckets, or simila vooden ware from a solid block, the invention being a the inventors. By the improvement increaeed simplicity and strength of parts is secured, greater accu-
racy of adjustment and reliability of operation, with racy of adjustment and reliability of operation, with manipulation and control of the machine by the operaCarpenter's Square.-Mark P. Paterson, New Rochelle, N. Y. This square is so con-
structed that one arm may be manipulated to strike a right angle or an angle more or less obtuse, as may be
desired, several alides containing scales being located if wished, in an arm of the square for use as needed. if wished, in an arm of the square for use as needed.
One of the slides may be removed from the arm and used in conjunction with and adjustable upon both
arms to form triangles as required, and the square has arms to form triangles as required, and the square has
scales for facilitating the calculation of the length, scales for facilitating the calculation of the length,
pitch, or angle of raftere, and for various other work
Wind Motor.-Hagbarth Winge, Miles City, Montana. This motor hus a frame with a central post carrying a pivot, on which turns a wheel having
masts on its rum carrying sails, a gear wheel ou the huh masts on its rim carrying sails, a eear wheel ou the huh
of the wheel meshing with a series of gears on a shaft of the wheel meshing with a series of gears on a shaft
connected with the machinery to be driven. The motor is simple and durable in construction, and is designed to actuate pumps and other machinery.
Mould for Electrotype Shells, erc.-Jacob C. Wolfe, New York City. This is a mould down or separated in sections, and disconnected from the block when cast, while its construction is such that it may be utilized for casting large or small backings
or blocke, as desired. The flask has a shoulder around or blocks, as desired. The flask has a shoulder around
its interior and within is a series of core blocks of less height, each block having an external shoulder and
having their lower adjacent faces inclined, core plates resting against the faces of each block and against the inner walls of the flask, and there being wedge-shaped spacing blocks or keys betwees the lower inclued faces of the blocks. This backing is very light and durable,
being braced in every direction, and the blocks are being braced in every direction, and the b
quickly, accurately, and economically made.
Fur Sewing Machine Device. Catharina Booss, New York City. This is an improved
guide attachment, for use in sewing fur, leather, and other goode, to bring the parts into the exact proper position, and provide means for brushing the fur away
from the seam, exposing the skin to the action of the needle and keeping the fur away from it. The device consists of an open-ended hood having a contral parti-
tion extending through it with brushes on its sides and
LUBRICATOR GLAND.-Fortunatus G. cellogg, Brainerd, Minn. This is a device designed to be conveniently applied to reciprocating shafte, such a piston rods, valve stems, etc., to be readily held on th barts and keep them well lu bricated. It consists of ing opposite their place of hinging a staple and hasp. while there is a peripheral funnel on each section, and lering semicircular openings forming the shatt passage

## Agricultural

Potato Digger.-William H. Van Voorhis, Spearville, Kansas. This is a machine of simnuts, etc., separating them from the dirt and weed and also separating the small and large sizes and passhe dige latter into a bag. A plow on the front end wardly to an elevator, the weeds being cut off by cutter or shears, and the potatoes being turned over and creened on the elevator slats until they are flally paseed on to a separating plate and thence to a hopper om which they are removed to a bag.
Tether.-William E. Bradley, Roscoe, . Y. This is a tether in which the rope is paid out when pulled upon by the animal, and the elack is auto matically taken up and wound in by suitable winding
devicee, the tether being cheap, durable, and compact, asily portable, and suitable for stalls as well as out oor use. The body or frame of the device has a vert ope, there being friction disks on the axle of the gravity wheel, and pins on the hub of the wheel engaging the rack. Means are provided for securing the Ther to a stall, or to a post, tree, or fence. [Address
Tether Mfg. Co. 325 North 8 t . North Middletown, N. Y.] Cottun Cleaner and Condenser.William B. Wherry and William F. Smith, Overton Tesas. This is a cheap and simple machine for uee in connection with a cotton gin, for rapidly separating he dirt from the cotton and condensing the latter to easily handled and baled. The case or frame has an
inlet at one end and an outlet at the other, between which an endless screen belt is held to move, a san the sides of the sand box to convey the dust and dir a way. The drums for the carryng belt are arranged
beneath the iniet and above the outlet, and a spring pressed corrugated hood is hinged to the case and e ends above the upper drum.
Scraper.-Benjamin F. Shuart, Billinge, Montana. This is a device which may be quickly
adjusted to scoop or scrape up any desired amount of earth, delivering it where wanted, or strewing it evenly in grading land preparatory to irrigation. The frame of the machine consiets of two parallel ranners, be-
ween which a scraper with beveled edge is held move verticaily, a pivoted lever affording meansfor raising and lowering the scraper. By manipulating the everthe dirt may be gradraily By mape and be spread evenly on the ground

Miscellaneous.
Typewriting Machine.-Allard E Benedict, Cuiro, Neb. This is a machine designed to be
easily manipulated, and arranged to print directly without the use of a ribbon eingle characters, such as letters of the alphabet, numerale, etc., and also word
of two, three, four, or more letters ench. Inking rollers are provided to ink the type, and the type holder conlains 120 different types, the type holder being mounted to travel longitudinally on the carriage. The arrange-
ment is such that no separate key or lever need be ment is such that no separate key ur lever need be
pressed to make space between two succeeding words. Typewriter Register. - Harry I. Cromer, Rapid City, South Dakota. This is a simple
device, adapted for attachment to any form of typedevice, adapted for attachment to any form of type-
writer, and, by the movement of the keys and space bars, will accurately count and register the number of to operate the register is arranged adjacent to the space bar, a spring on the slldiug bar having a lug to enter the recess and a lug on the space bar contacting with a
lag on the spring, while a stud on the sliding bar and a block on the spring are arranged in the path of the
Jeweler's Forceps.-David Mendelarticles, may be held at any desired angle by the nse of or clamping articles to be soldered the device being also suitable for use in other lines of manufacture. In a eupporting post, slotted at its upper end, is mounted to swing a bolt, to which arms are adjustably secured at their inner ends, being gradually curved upon themselves at their outer extremities, cweezers provided with eyebolts beng adapted to slide from the arms
around upon their curved extremities. The articles to areund upon their curved extremities. The articles to the latter are brought into thed

Watch Case Spring.-John E. Ketchem and Thomas C. Nixon, Morrillton, Ark. The
spring, according to this invention, is provided with a stiffly turning rivet or screw, having its head provided with a nick or other means for turning it, and having on each of its opposite sides a projecting lip, whose
outer portion is sharpened to a knife edge, to bury into the metal of the bezel and hold the spring in plac
Bellows.-John G. Gareis, Brooklyn, N. Y. This invention relates to rectangular bellowe,
such as used in accordions, photographic cameras, etc. providing therefor a simple and durable construction
with which the bellows will be perfectly air and ligh with which the bellows will be perfectly air and ligh
tight. The beilows are provided with corner strips each formed of a single picce of material and contain-
ing a series of ronnded-off corners arranged alongside
of one another, and adapted to be fastened by thei
legs to the folds of the sides and ends of Change Receiver and Transfer. Weet R. Uchtmann, New York City. This is a device o ange, ad it a adapted to be readily mal lo change, and it is adapted to be readily manipulated hand of the person for whom it is intended. The a rangement is such that when a person receiving the change places his hand and presses upon a hinged seceptable is tulted so that the change will slide into the and.
Roll Paper Holder and Cutter. Ed win E. Sentman, Philndelphia, Pa. The construc-
tion of this deviceis such that the knife, by means of which the paper is to be pevered into lengths, will fo!meter, and the knife will, through the medium of roller interposed between it and the roll of paper, exert constant tension upon the paper. The construction is very simple and inexpensive, and the frame of the de-
ice, with the knife and roll, may be carried upwar nd held ine knife and ron, may be carried insertio into the frame of a roll of paper.
Cooking UTENSIL.-Augusta R. saace, New York City. This is a veseel to be inserte ha pot of water, where its contents may be steame ing then removed to a platter in bulk withouts ine It consists of a perforated body preterably made sheet metal, with an open top and bottom, an opening n one side near the bottom and brackets on the insid below the opening, on which slides a perforated plate. Note.-In the description of Mr. C. N. Wall's feedin ffices, the for paper folders for use in newspaper The notice states that the feeder will place the paper in position to be folded with the aid of any grippis should read : without the aid of any grippicg mechan ism or any hand-operated machinery.
Noтr.-Copies of any of the above patents will send name of the patentee title of invention, and of this paper.

## SLIENTIFIC AMERICAN

BUILDING EDITION
JUNE NUMEEER.-(No. 80.)

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1. Handsome plate in colors of a residence recently rected at. Plainfleld, N. J. Perspective views,
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about $\$ 12,000$. An excellent devign.
 floor plane. Coes $\$ 3,450$ complete. P. F. Higge architect, New York.
Engravings and floor plans of the Crescent Bloc of six houses erected on Golden Hill, at Bridge
port, Conn. An excellent design. Total cosit port, Conn. An excellent design. Total cos
of six houses $\$ 55,000$ complete. Mesers. Loug staff \& Hurd, architecte, Bridgeport, Conn. handsome residence at Babylon, Long Island N. Y., recently erected for $F$. H. Kalbfleisch, Eeq. and floor plans. H. J. Hardenberg, New York architect.
2. A school house at Upper Montclair, N. J. Perepective view and ground plans. Cost $\$ 12,200$ com
plete, including heating and ventilating appara tus. Geo. W. Da Cunha, architect, New York. Perspective views of several ve
ings located near New York.
saburban residence of attractive design erected at Lowerre, N. Y. Cost $\$ 2,800$ complete. Floor
plans and perspective view.
3. The St. James' Episcopal Church at Upper Montcomplete. Messre. Lamb \& Rich, architects, New York. Perspective view and ground plan. A residence at Ludlow, N. Y. Perspective and floor plans. Cost $\$ 8,500$ complete. A comfortable eummer residence at Asbury Park,
N. J. Perspective and floor plans. Cost $\$ 6,250$ complete.
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bricks. -An excellent motor, illustrated.-A succeesful hot water heater, illustrated.-The lacquer tree.-A self-retaining dumb water, illustrated -Arcentic america Architectrated Edition is issued monthly. $\$ 2.50$ a year. Single copies ${ }_{25}$ cents. Forty large quarto pages, equal to about two handred ordinary book pages: forming, practically, a large and splendid Magazine of Architec wre, richly adorned with elegant plates in colors and
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Acme engine, 1 to 5 H . P. See adv. next issue.
Presses \& Dies. Ferracute Mach. Co., Bridgeton, N. J. 6 Spindle Turret Drill Presses. A.D.Quint, Hartford,Ct.
Patent Open-Side Planing and Shaping Machine
Pedrick \& A yer, Philadelphia, Pa.
Steam Hammers, Improved Hydraulic Jacks, and Tube New York. Screw machincs, milling machines, and drill presses.
The Garvin Mach. Co., Laight and Canal Sts., New York. Centrifugal Pumps for paper and pulp mills. Irrigating

and sand pumping plants. Irvin Van Wie, Sracue, N. $\mathbf{Y}$. For Sale or on Royalty-Something new in trunk pro| tectors or coverings. Address Inventor, 38 Ashland |
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| Place, Brooklyn, $\mathbf{N}$. |

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hints to correspondents.
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Water power........
White e eaa, teeit
Wood polish......
(4418) G. S. J. says : I would like to afk a question (to be answered in Notes and Queries)
on which there seems to be a great difference of opinion among engineers. On a plain horizontal tubular boiler what stage of water is mosteconomical (as regards labo and fuel) just as low as safety will permit, or as high as
is possible without drawing water through the engines A. The eafest and best practice is to carry the water inches over the tubes in boilers of 3 feet diameter, 6 inches over in boilers 4 feet diameter, and 8 inches in bollers 5 feet in diameter, when the rear end of such
boilers are set from one to two inches lower than the boilers are set from one to two inches lower than the
front or gauge end. This gives the largest safe water front or gauge end. This gives the largest safe water
surface for the liberation of steam and lessens foaming. surface for the liberation of steam and lessens foaming.
High water makes wet steam, and is no safeguard to a High water makes wet steam, and is no safeguard to a
boiler that is properly cared for. Wet steam is waste finl of fuel. Uniform feed and a uniform gauge measure
(4419) C. E. B. says: In your reply to W. H. P., query No. 4360, date of May 21 , o ou عay obtained by measuring the quantity of water delivered at the highest available point in cuhic feet per minnte etc. This is true in theory. I would like to hear you pillowing actual tests of a $\tau$ inch well. Pressure whe closed 130 pounde, gives 2 inch stream 80 pounds, 21 inch stream 72 pounds. 3 inch stream 62 pounde, 4 inch stream 58 pounds. Is the power in proportion to the product of the quantity multiplied by the preesure? The 7 inch well referred to is in Woonsocket, Sanborn
County, South Dakota. It is driving a 3 foot Pelton County, South Dakota. It is driving a 3 foot Petton
wheel which is running a 150 barrel flour mill, owned by Northy \& Duncan. It think they are using less tha an inch nozzle and have plenty of power. I inished the well in November, 1891. The tests were made throngh short pieces of standard nipe from 6 to 18
inches in length. The depth is 775 feet. This is a fair
example of the way the pressure decireases as more
water is used in South Dakota wells. A. This is the
most reliable record that we have had of the condition most reliable record tnat we have had of the condition of the flow under different heads and nozzle sizes from
the artesian wells of South Dakota, and we give with pleasure our deductions. The standard wrought iro pipe of the cent larger than their nominal diameter, which will nearly equalize their flow to the cocficient of properly formed nozzles of the stated sizes. We find that the pressure of the well. With close is 299 reet, the static is 184 feet with a flow of 135 inch siream the hea equal to 47 gross horse power, or 40 developed horse power from Peth wheel With the 216 inch stream the head fell to 16516 feet with a flow of 20712 cubic feet per minute, with 65 gross horse power, or 55 horse
power developed. For the 3 inch stream the head fell to $1423 / 1$ feet and 277 cubic feet per $m$. with 74 gros horse power $=62$ developed horse power. For the 4 inc subeam the head fell to $133 / 3$ reet, with a flow of 48 cubic feet per m ., with 121 gross horse power $=102 \mathrm{de}$
veloped horse power. These ranges of variation in head and flow go to show the almost perfect freedom of inflow at the bottom of the 7 inch tube, as in some wells the head falls very fast under the enlarged flow For the power used in the flour mill the pressure hea is probably 250 reet, having a nozzle velocity of 7,60 feet per minute; and with the 1 inch nozzle and a fio of only $41 / 1 / 2$ cubic feet per minute, the 3 feet Pelton
wheel is equal to 17 horse power, developed, and sufficient for the 150 barrel flour mill as atated. The flgure show that the present uee of this well is far below it capacity.
(4420) C. V. S. asks (1) for a corn salve
 smalts (to color), q. s. Mix. The above are applied
on a piece of rag, and renewed night and morn ing. Use for corns only. 2. How to clean carpets. A If brooms are wet with boiling suds once a week, they will become very tough, will not cut a carpet, and will last much longer. A handful or so of salt sprinkled
on a carpet will carry the dust along wilh it and make the carpet look bright and clean. A very duaty carpe may be cleaned by dipping the broom in cold water shaking off all the drops, and swceping a yard or so a a time. Wash the broom and repeat until the entire carpet hay been awept. 3. For a fiber that would make a good letter that would look like the enameled whit ${ }^{\text {signs. A. Nothing hetter than white cloth or whit }}$
(4421) W. M. asks : Will you kindly explain to me in the columns of your valuable pape the radius of gyration of an iron column, I beams, o Have been studying for quite a long time, but canno solve it. A. The radius of gyration of a column or beam is such distance from its central line or axis that if all the material in the section across the axis wer concentrated there, its moment of inertia would is the product of the mass of the beam or inerti of its radius of gyration. This is the basis upon which the strain due to the whole section under flexure is computed. For details of various forms of columns and beams,
(4422) D. M. asks how to make an elec tric bell work from each end of the line of the telephone described in the Scientific American of December 14 1889. A. To make a signal work at opposite ends of ingle line wire you require a closed circuit. With tw wires and the eround, son circuit.
(4423) T. M. R. writes: I am going to ouild a small motor, and wish to know if there is an way in which can make it run slowly without waste of nd armature. A. By making your armature of large operate without loss of power
(4424) O. W. C. asks (1) how to polish wood naphtha, $1 / 2$ pint ; benzoin, 2 drachue. Mıx and put in warm place for a week and keep the material from settling by shaking it up. To apply it, make
 ace, and till you have a good boay on your wood kee er sticks, well satura litle linseed oil on and rub rub polish up. Allow it to stand a few hours and give it nother coat, using rather more linseed oil on your rubber, so as to get a floer polish. Then let it stand again and finish off with spirits of naphtha; if not, add a smal quantity of polish toy our spirit. 2. Fora walnut stain . Water, 1 quart; sal soda, $1 / 2$ ounce; Vandyke brown,联 ounces; potassium bichromate, $1 / 4$ to $1 / 2$ ounce; bo se hot and allow the work to dry thoroughly before ouling or varnashing Another reliable walnut stain for urniture, mostly hard wood: Spirits of turpentine, allon ; pulverized asphaltum, 2 pounds; dissolve in a iron kettle on a stove, stirring constantly.
(4425) C. B. S. ask for an ink eraser. powder. When to be used, dissolve a little in wate tt is poisonous. 2. Oxalic acid mixed with citricacid may be used. 3. Equal parts of cream of tartar and citric acid in solution with water
(4426) D. L. N. asks for a sticky fly paper. A. . Melt resin and add thereto, while soft, old, about the consistency of honey. Spread on writing paper, and place in a conveniert spot. It will soon be filled with ants, flies, and other vermin. 2. Bolled linseed oil and resin, melt and add honey. Soak
the paper in a strong solution of alum and then dry before applying the above.
(4427) H. W. asks how the dolls of a chess game are called? A. The chessmen are called
kings, queens, castles, knights and pawns. 2. How much is an ounce chloride of platinum worth? $A$ Chloride of platinum is worth $\$ 90$ a pound.
(4428) Reader asks : 1. What is the length of a pendulum making one vibration in five applied to s 646 reet. 2. Power of eighty pound four hundred pounds. What is the diameter of the el A. One foot.
(4429) W. J. C. asks (1) how to remove rast from flely polished steel, such as drawing instruwith flour of emery paper and gloss with crocus eather. 2. How to remove dandruff? A. For dandruff
A. wash the head once a week with weak borax water, $n$ n ounce to a quart of water. 3. How to preveni excessiv perspiration of the feet? A. For sweating feet bath
(4430) H. E. T. writes: I have one of hose electric cigar lighters, and I cannot seem to muke
t work any more. At one time it worked all right There is a thin spiral of some kind of wire which when pon pushing the zinc in the solution becomes a white will only get warm. What can I do to remedy that and epair the concern? A. Apparentls your battery bas run down and needs renewal. As we do not know the tyle of the battery, we cannot give a formula for the (4431) D. W. McG. asks: In transmit ling motion by friction gears at right angles, using a riving wheel, what percentage of power will be lost b friction? Is it practicable to use this style of gearing
o tranemit 8 horse power, and what is the relative of tranemit 8 horse power, and what is the relative Is the perpetual screw or worm wheel a practicu nethod of transmitting 8 horse power, and what per entage of power will be lost by friction? A. The trans mission of power as above described is not admissible The system is not economical, but may he very convenent for variable motion. The friction depends so muct pon the width of the bearing surface and its distance
from the center of the driving wheel that no defnite prcentace can be given. It should only be used for ight and variable motion. If defnite speed only 18 re quired, there is but little loss of power by friction transmission to angular lines with bevel wheels faced with leather, such being in use on centrifugal driers. The
transmission by worm screw gear is practical and very transmission by worm screw gear is practical and very
useful for great reduction in speed, and is fully as conomical in friction as the same reduction of speed (4432) F. W. J. asks : What is meant by ine? Also, how can I find the north and sonth en a dynamo when in motion? How can I tell which he positive or negative brush? Does the fan of a cen rifugal pump force the water through the discharge or does in form a vacuum? A. The pass over valve is used essure cylinder for starting the eigine. You can entrally over it cynamo by placing a compass needle outh pole of the dynamo. Then trace the wiring to find the polarity of the brush. A centrifugal pump de-
rives its power. over both force and suction side, from the centrifugal force of the revolving water between the
(4433) E. J. G. says : I wish to put in Would there be any objection to no sewerage syntem. ewer pipe to discharge into if properly covered ? I beng about 30 feet deep and not closer than 300 feet rom auy other wells? A. It would be dangerons to use he well as a receptacle for sewage. It would be likely o poison the neighboring wells, perhaps within a radius of half a mile or more. The safer way will be to make a tight cistern, for the sewage contents, to b (4434) C. H. B
(4434) C. H. B. asks: Will you kindly lay a bell joint water pipe? should the bell point oward the pump and against the preseure or point the you kindly give me the correct way? A. The practice in long lines is to lay the spigot end down stream or or to Win. The bell end against the direction or fle in hort lines with tees and crosses Hence convenience of making joints is first considered. In vertical lines the ell end mnst always be up.
(4435) H. P. L. asks: 1. Give formula by which I may use certain chemicals which will gradually develop a steady pressure when conflned, and not imestone, and hydrochloric acid or a very comact ble may be used instead of the limestone. 2. Alsoasolution which willimparta bright, silver-like appearance o metals, and which will cause it to remain so for some time. A. A solution of nitrate of mercury in water will work on brass or copper, but will ruin the metal. 3. What sort of battery would be best for a small necktie pin light as regards, power, size, and expense? A. than to attempt to make one.
(4436) T. E. R. asks: What is the difference between momentum and inertia? Is it proper
to say, "The trick rider in acircus flnds it easy to jump from his horse through a ring and back to the horse rection as his horse?" A. The proper word is momentum, which indicates weight under motion. Inrtia is from tnert-motionless, and in physics means receiving or resisting motion.
(4437) "Inventor" asks: 1. What acids have the effect of acting upon or softening granite or
other stone, or what tools would give the best results besides the ordinary drills? A. No acid has this effect to a sufficient extent to be of any practical value. The For the former, see Supplement 416; latter, see SciENTIFIC American, No. 9, vol. 61. 2. Wouldaquafortis
act upon cast ateel 9 If ao to what extent

Lution should be used to give the best results ?
Yes; dilute strong acid with flve volumes of water. (4438) T. B. W. writes : 1. Give a sim perthod of determining the purity of the so-calle ry white lead and lead in oin now on the market. A. drywhite leadehould be completely soluble in nitri cid. If ground in onl, the oil may be removed by ben
ine before treatment with acid. 2 Will heat 0 white lead in oil restore the lead to its former metal cstate? A. It will more or less completely, depend ing on the percentage of the oil present? 3. If so what proportion of lead should be gotten from same . No exact proporion can be given. White lead itsel varies in comp
proportions.

## Replies to Enquiries.

The following replies relate to enquiries recently pub ished in Scientific American, and to the numbe
F. F. H
E. F. H.-The United States publi eb, less cash in the Treasury, has decreased each ye or the last five years, and each year since 1871. The his year, it was $\$ 8+3,333,356$.


INDEX OF INVENTIONS

## For which Letters Patent of th

 United States were GrantedJone 14, 1892,


