
#### Abstract

 that thesecurlous yitle lizards are never seen on tuts continent. I have often seen, In several of the Southeru States, small 1 Izards that answer your descriptio the chameleon tn every respect. The people rest in thesc loc, iltes have no other name for them but ng in thesc locsities have no other name for them but ng them. A. Str Rlchard Owen, F.R.S., says: "This canclly, whtch includes only the stingle genus chameleo anclly, whtch includes only the single genus chamele old world," etc. And again: "It occurs in all the old world," etc. And again: "It occurs in all the come naturalized in some parts of Europe.," There are innumerable vartettes of lizard closely alled to the 1nnumerable vartetles of lizard closely allted to the chameleon Indigenous to this country; espectally asand geckos, whtch have doubtless led to your 1 m - any paint, plagment, substance,or aclution which can be applied to the weatherboarding of a frame bullding with the effect of rendering it wholly or partially tnwith the effect of rendering it wholly or partially in- combustible, or at least capable of reststing the heat and flames of a burning bullding 25 feet distant from $t$ without ignitting? A. We do not think it is possible to render a wooden house perfectly fireproof. In regard to your other questions, it must be evident to you that it would be improper for us to manufacturers in these columns. C. C. asks: What is the best way to take the scale out of tubular or locomotive botlers? There are ceveral about here that have been running in litmestone or some other mineral water; they are thickly scaled nimpe, and therefore will not make team well. he market, whtc rc satd to be effleactous in such cases. By inserting a otite tin our Bu:tness and Personal columns, you can


E.M. B. says: I have a horizontal tubular he tubes. Would it save coal to put a brick floor with n 9 Inches of the shell'sfront end, and 6 inches from back
end to keep the heat in the shellof boller. A. We would ant recomm
J. K. asks: How are artesian wells made ter stock? A. The mere fact of tnserting a plpe wil ot cause the water to flow. It ts necessary to bore un 11 water 18 reached that comes from a source higher
H. J. I. asks: What is the rule the calculate the ram is equal to the pressute persquare tnch produced by the pump,multiplied by the n
in the cross section of the ram.
J. .1. A. says: 1. We have a fire engine culm chamber. Whll lt help her to put one on? Whalt
be any advantage, and how much? The pumpsare oches bore by 7 tinches stroke; suction ta 3 3/2 inches by is feet long. A. We would not recommend it, it the pump works satisfactorily at present. 2. What is the
preesure to the square foot of gas that will raise water $5 / 8$ Inches ta
8 pound.
O. J.P.says: We generally use here lift and orce piston pumps for tanksin housee, bathing purposes, etc., but instead I would like to use two plinger lasels, and connected together, with the same action In this case, the pump will be about 200 feet from the
riverand 18 or 20 feetabove the level of the water, the tankbelng 30 feet above the pumps. I fear that two plunger pumps could not be used as advantageous
y as a piston pump for liftling the water, but $I$ under tand that the plunger pumps would force up the wate more advantageously than a plston one. Am Irght? . We think that the plston pumps will give better sat isfaction in this case. Your other question ts a profe
J. H. W. asks: 1. Is it possible to transmit plpe, 15,000 to 20,000 feet long, by forctng compressed at nto one end? Could the loss of power and the time equired for transmission be calculated? A. Yes. Yo rations in the Mont Cenis Tunnel, pubished tn Ensineering a few years ago. 2. Is the process of lightng street lamps by electrictty attended with such a de$s$ to preclude its my? A. We think so. soym What would be the probable
mproximate cost of erecting theapparatus necessary light tbe 5,000 lamps of Boston. Mass., and what would robably be the annual working expense? A. We beleve the attempt was made some time ago; and proba
bly by writing to the authoritles, you can obtain the in ormation you desire.
$\underset{\text { mensions, focal alstances, etc., of toe lenses tor a won }}{\text { W. P. }}$ der camera, as described tn your paper of June 6? A.
The larger your objectlves, the clearer will be your pic-
ture ure. The convexty of the glasees depends much upon gas cannot be obtained? A. A coal oll lamp has been used to advantage. 3. Would an extra lens between the
light and the photograph be an advantage, and what the better. 4. Wbat is the next step in the educalion of a mechantcal engineer after a college course, and on What terms are learners taken tnto machine shods and other engineertngescablishments? A. The nextstep is
to lay aside the idea that college cducation will give anything but a theoretical knowledge, and to learn to
do any mental labor that a mechantc has to do with all the strength and abllity he possesses. On these terms,
if heis fortunate, he will be admitted into a machine J. C. K. asks: Is it injurious to the water trench as gas plpes, the gas plpe and water plpe lying within three or four tnches of each other, and passing
through the same opening in a stone wall? If sa, what through the same opening in a stone wall? If so, what
ts the effect? A. No; there ts no reason why it should be injuriou
C. F. B. asks: What are the velocities of Ight aud electricity? A. Wheatstone gives electrictty
of htgh tension, such as atmospheric) a veloctty of about 288,000 miles per second. Light has a speed of
J. K. asks: Does the sun, by ghining on
one adde of a asam every day fora lengta of time, injure it? A. Ordtnarily, we scould suppose not. We do not, however,
you refer.
of S a tube 20 Leet long, 8 feet wide, and $1 \%$ deep? Can 1 do it with an air pump? What stzed valve would
be necessary, and what power would be required to ru ? A. Tes. Thesize of the valve ts not the matter $t$ e considered. A large alr pump would answer. 2. Fas placed a flywheel runningat moderate speed, would
the motion of the wheel create air againin the cyllnder the motion of the wheel create alr againin the cyllnder
A. No. 3. If a tube, open at one end, were placed wit A. No. . If a tube, open at one end, were placed wat
the open end in a cistern of water, could the atr be Wou out of it so as to create a perfect vacuum? Would air enter by the water at the lower end? A. A.
por of water and atr transplring through the wate wouldprevent obtaining a perfect vacuum. 4. Plea name some good work on alr pumps. A. Consult a
work on natural phillosophy, Gacot's" Physics," for ex work on
ample.
T. J. K. asks: What is the best material to
put on a carpet when sweeping it? A. Try spent tea
H. W. asks: 1. Will scrap zinc do to use a a Hill or blue vitriol battery? A. If melted and cast.
yes. 2. What s!zed cylinder do I want to make a 1.6 orse power engine at 30 lbs. pressure? A. A cylinde 2tnches dameter by 6 inches stroke, making 60 revolu-
tlons per minute, will give just over $1-6$ of a nominalhorse $\underset{\text { almuth angle, orthe }}{\text { C. L. F. asks: }}$ Hariation of the magnetic from he truemertdan? A. By the declination compass. E.B. W. asks: What is the rule for find through a nozzle 3 tinches diameter at varytng prestures
nthe water matin? A. We must refer you to some goo reatise on hydraultcs for an anst refer you to some goo
han Its consideration would occupy too muen space for
thesecolumns. We have discussed some of the point in our a
vol. 29.
H. I. W. asks: What is the best equilibri-
m side valve? A. We do not recommend spectal arM. C. S. asks: What are the chief objecnons a sertes of arches or curves, designed to span the spaces between the tles? The top or tread of the rall ts
to be horizontal as now, but the understde curved, es ept worizontalas now, but the und wes arely, ex the change 18 very destrable.
C. R. asks: Will a spring made of the best n engine? If so, is there any metal or alloy that wil esist the most intense heat of ateam and retain its or ginal form? A. Springs exposed to high pressures and temperatures are apt to become weakene
know of an hetter matertal than steel.
G. M. R. assis. Who compose the American
Soctety of Civil Engineers, what is the object of the soctety, and what formalitles are necessary to become
member of this soclety? What are the time and plac of their meetingsand are the meetlings public or no
A. It numbers the princtpal engtneers of the count A. It numbers the princtpal engtneers of the countr
mong tismembers. By addressing the secretary ( G. Leverich, 63 Willam street, New York city), you
can obtain full tinormatlon tin regard to your other
F. W. B. asks: 1. Would there be a deman a double engine, having osclllating cylinders, an uchengtines in the market. 2. Is an oscllatingengine with a given head of steam, tnfertor to an engine whose
A.asks: 1. How can gutta percha be fastened
o ordinary sole leather? A. By using guta percha assolved in naphta long as sole leather? A. No. 3. Will it melt with or
dilary sun heat on the sidewalk? A. It will soften it ummer weather.
P.P. W. asks: If the pressure is greates
the bottom of a botler, how does an in jector work A. We do not see the connection between the two. As
o your other question: According to general ubage, a
corner bullding ts on the street on which the main ena G. W. M.- Your questions are too compre
henaive to be answered in these columns. You will fin the flight of blrds fil
E. B. K. says: I have a small telescope cope, with achromatic oblect glass $1 \%$ tnches in dame er and 13 tnches focus. Eye-plece consista of 4 lenses ect glase of a higher power by using an achromatic ob A. Tes. J. S. asks: How can I cut moss agates and
cornellans? A. By means of a blade of softiron and ron.
S. D. L. asks: 1. Is there any difference Can colored photographs be used in them? A. Yes 3. Can photographtc negatives be used? If so, how can
hey be colored? A. Read directions for coloring pub 11shed on p. 397, vol 26
D. G. asks: 1. What is the process of polbrush marksare to be seen? A. Carrlage painting and described in these columns. See M. Arlot's work, fre quently advertised in our pages. 2. What causes patn to crack? Is
A.Too ittle.
S. says: If spiritualism is a humbug, how Edmands belleving in it? A. Splritualitsm to no more humbug than 18 hydrophobls. Both phenomena have certain points of resemblance. Both appear to be a
fections of the nervous system, resulting from some is induced is upon the nerve centers. How this action dence to show that a mental impression, a wim, or the magination of the individual, may be a suffctent exc lies, nervous disorders of all kinds, are not respecter of persons. They attack all classes, the learned and the tgnorant; but the earllest and easiest victims are gen
erally found among tndividuals of weak or bad phy sica onditions.
T. A. C. says: Tell D. S. H., whom you an his pulley with leather to keep his belt from silppping. He can put it on with tacks or very
ades together 1 think, work best.

MINERALS, ETC.-Specimens have been re cived from the following correspondents, and aramined with the resulte stated
R.R. R.-No. 11 is finely laminated micaceous achis containing, as farascan be determined from such sma
pleces, nodules of tmpure steatte. No. or barite. The spectific gravity of the spectmen enclosed 54. No.3, llmonite, containing on an average from W. -No. 1, on analysts, was found to contaln a litt a te of lime. It matter, the rematuer being carb is burned it would be converted into quickilme. No. der,for polishing purposes, with rouge, the finest Frenc cougeand French emery paper, betng medtum betwee and much superior to the emery. It is just equal to minent optictan observes that $1 t$ might be used by tekel platers.-A. M. B. - No. 1 ts tron pyrttes. No. 2 verted into oxide of tron.
F. E. T. says: Piles driven in salt water o
 Theymight be protected by mettil sheathing, but that is
too expensi ve. Is there any method known, both cheap nd effective, of securing wood against the attacka
hese worms?-J. C. G. asks: How can I burnish brass? -J. S. N. asks : How can Istralghten a rite barrel?-E.
H. B. ask : How 1 is raw wool prepared for dyelng wit ndigo blue? -T. H. R. asks : How can I wash a chamo How are white rubber hand stamps made? What kin of molds are used, and what kind of rubber? How bands of different sizes sold by stationers jotned to as any other part.-H. B. S. asks: What matertals are ised the manutacture of irebricks, and what is the usual methc, of the1r manufacture?-H. E. K. asks different woods (walnut, ash, etc.) ?-L. H. asks : What Will prevent pastel colors from betng rubbed ?-G.H.M. pring? What is the wetght of a four horse power en ne? ?W. C. L. says: The front wheels of a wagon are
feet 10 inches high, and the hind wheels 4 feet 4 inche igh, or the front wheels are 4 feet and the hind whee feet 6 inches. What is the rule for setting the axie, an whould the hind axle be any longer than the fore? ? $W$ . Whasks: 1 . What is the rule for computing the hors power of an overshot water wheel, of 18 feet diamete
width ot buckets 4 feet, depth 18 tnches by average o $3 \times 1$ Inches, with a 10 inch run, making 64 buckets to th wheel; 2. What is the meaning.of the word "rages, isedby machinists? 3. Will crawish work in soft slate?

We shall be glad to receive replies to the bove for publication.

## communications received

The Editor of the Scientific American cknowledges, with much pleasure, the reeipt of original papers and contributions upon the following subjects:
On Feathered Arrow Heads. By S.C.G by T. L. W., and by A. H. I.
On a Balloon Device. By L. A.
On the Dress of Women. By F. M.S
On Bursting and Explosion of Boilers. By
M
On the Boiler Explosion at Geddes, N. Y
By D. T. H. P

On the Chances of War. By W.W. H.
On the Interior Angles of a Polygon. B C. E .

On a Small Steamer. By J. F. K
Also enquiries and answers from the follow ing:
J. A.C.-C. M. С.-W. C.-H. L. M.-C. E. J.-J.J.J
-D. B. s. - T. M.e.

HINTS TO CORRESPONDENTS Correspondents whose inquiries fail to ap pear should repeat them. If not then pub ished, they may conclude that, for good re ons, the Editor declines them. The addres f the writer should always be given.
Enquiries relating to patents, or to the pa entability of inventions, assignments, etc. will not be published here. All such ques tions, when initials only are given, are thrown into the waste basket, as it would fill half o our paper to print them all; but we generally take pleasure in answering briefly by mail f the writer's address is given.
Hundreds of enquiries analogous to the following are sent: "Please to inform me where I can buysheet lead, and the price Where can I purchase a good brick machine Whose steam engine and boiler would you recommend ? Which churn is considered the best? Who makes the best mucilage? Wher can I buy the best stgle of windmills?" All such personal enquiries are printed,as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mencioned t the $\begin{gathered}\text { ead that column Almost any desired }\end{gathered}$ information can in this way be expeditiously informatio

## [OFFICIAL.] <br> Index of Inventions

 for whichLetters Patent of the United Stater
June 23, 1874,
AND rach bearivg that datr.
Acld, making carbontc, H. Betns...................

Air and steam brake coupllog, s.
Alarm, burglar, I. H. Whitelcgge
Anvil, reverstble, B. A.
Bag tie, A. Lodde
Bale tie, cotton, A. A. Goldemit
Bale tie, cotton, G. W. Scott
Basolnet, folding, S.M. Hogan
Bayonet fastening, R. P. Beals
Bedstead, J. B. French
Bedstead, J. L. Haven
Bee hive, J. G. Gwal:ney.
Belting, Ieather, C. Munson
Boat, aerial, D.
Boat, aerial, D. L. Rhone.
Bonler, , \&team, C. . . Clark...........
Box, butter-preserving, etc., Gllett \& Hartshor
Brewers, mashing machite for, A.
Bricks, enameling, D . W. Cilark...
Buckle for clothtng, E. B.
Bullding, $\begin{aligned} & \text { treproof, E. F. Co } \\ & \text { Burner, gas, J. W. Graham }\end{aligned}$.
Barıer, vador, F. A. Suwy
Burner, electric lighting, A. T.........
Can for coolthg milk,

Car standard, A. Pennebacke
Car axle box, S. R. Hughes
Car braces, bendtng, s. RIgby, 3 d
Car brake, rallway, G. A. Be
Carsprtng, A. Middleton,
Car, stock, H. Purdy
cars, door for grain, H. Purdy.......
Carpets, screw for stair, M. Krickl
Carriage, chlld's, J. A. Crandall
Carriage, child's, G.Martienssen
Cartridge fire arm, w s. Smo
Cartridge-loadtng machine, C. H. Webb
Celluiolds, etc. molding, I. S. \& J. w. Hyat
Chatr seat needle, D. C. Mosher.
Checks, etc., die for, R. B. Caraley.
Churn,
Georre \&
Cigar ounce machine, C. Windra
Clock lockwork, F. Kroebe
Cloth-measuring machine, w. M. Ke
Clothes wringer, w. A. Sharpe
offie, extracting, R. B. Cnderbitli.....
Coffee for transportation, T. H. Berry
Cooking anparatus, M. A.
Copy holder, D. T. Hall...
Cork cutting mach!nes, E. o. Schartau................
Cultivator, L. J. Davis
Cultvator and stalk cutter, 九..............
Curry comb, T. J. Hutchins ..
Curtain fixture,. Bradbury.
Cutter, mcat, S. Gable....
cutter, straw, J. A. Corats
Derrick, portable, H. Donnelly
Desk, school, W. P. Goolman.
Drawldg boand, C. Poor...
Dray, C.M. Murch .......
Drill, seed, J. H. Arney...
Dyetng with indigo, Oldroyd
Egg carrler, w. O.Strong
Egg hatchtng apparatue, J.
Eievator, hog, w. F. Kelly...........
Eogine and pump valve, A. J. Loret
Eye avd lung protector, G. A. Crofu
cather renovator, w. H. Elito
Fence, barbed wire, J. Halsh
Fiber-separating machine, W. M. Hughes
Flie arm, breech loading, L. Gulneuf..
Fire arms, cartridge for, w. S. Smoo
Fire arms, cartridge for, W. S. Smoo
Fuel from coal slack, I. McCormack
Furnace,
Furnace, hot atr, E. H. Camp ..........
Furniture fastenting, Haven
Gage cork, H. A. Clunton
Gas manufacture, I. Kendrick
Gas retort, portable, C.
Gate, farm, G. Hosklins
Gear cuttlng machine, N. T. MIr
Glove, gauntlet, E. V. Whttaker
Gloves, die for cutting, J. Haa
Grain blader, J. Garrar
Grate bar, gang, J. C. Kllgor
Grinding and polishing wheel, Walters et al.
Grinding carpenters
Hame, Smith \& Burr
Hammer, atmosphertc, W. Manso
Harvester, E. L. Hutchinson.....................
Harvester dropper, D. B. \& J. J. Brownid
Heater, feed water, R. Garstaug
Heattng apparatus, G. Stevens.
Hinge, spring, A. Acker (r)..............
Hog ringtig apd marking, P. Listeman
Hogs, watertng tanh for, G. A
Holst, hydraultc, M. L. Bassett.
Horse blinder, J. W. Kennedy
Horse hay fork, w. R. Reed
orse power, L. R. Faugh
Horseshoetng harness. J. Clarridg
Hose, hydraulic, E. A. Street
Ice machine, B. F. Teal........
Indicator, station, J. F. Ket.
ndicator, station, J.F. Kettell.
ronting boarro, Loper \&
Joist seat, w. H. Drake.
Joist seat, w. H. ©rake.........
Journal bearing, D, c. Clough.
c. Clough............................

152,29
152,289
152,277

