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 amard at the Veenna Expoatlon.
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tel Annunclator-Inat's for Private Lines-Gas Lightiog
Apparatus, sc. G. W. Stockly, Scy, Cleveland, Ohio. Diamondis and Carbon turnea and shaped
or Sclentinc purposes; also, Glaziers' Dlamonds mana-

J. C.'s querv as to a boiler in the shape of a
asic moon, and E.P. J.'s, as to a vacuum, are incom-rehensible.-J.C. B. can remedy the dampness of tbe都 printed the recipe for mending rubber boots on $p$. 209, vol. 30. Figured fabrics fade in washing because they
are not printed in tast colora.-H II. Jr. Will Ind the
 king ice bymeans of heat on p. 243, vol. 30.- H. D. 0 .
will And rectpe for aquarium cement on p. 202 , vol. 28 .

J. W. Z. asks: How can I preserve egga? oluding tbem from the alr. One of the cleanest and
cantest methods of dolng this is to pack tbem with the mall end downward in clean dry sait in barrels or tabs, G. F. P. asks: 1. Why does paint in Rock-
port, Texas, change color, white paint turning almost lack in patches? A. The etfects mentioned are
ach as would be produced by the presence of sulhuretted bydrogen gas, and $1 t$ would be well to to inves. tigate the sewerage and drainage facillties, and any
potas where decaying and patrescible mattera might acamalate, in order todeterminewbethertberewere any
sources of tbis deletertous gas. 2. Are chromos printed oncloth as well as on paper, and are they not more val-
asble? Are not the best printed on eloth? A. The
S. V. C. asks: Is aluminum non-magnetic? needle? A. Aluminum tis non-magnetic.
O. A. F. asks: Which kind of prussiate of
potash, white or yellow. did B. J. B. use in making his explosive powder? What kind of sugar is necessary?
A. The ingredients are yellow prusstate of potash and ordinary wbite cane sugar. T
mixed togetaer In a dry state.
Q. V. asks: 1. How can I make good silver
A. Nitrate of allver, 11 parts ; distiled water, 85 parts ; powdered gum arabic, 20 parts; carbonate of
soda, 22 parte ; solution of ammonia, 30 parts. Dissolve he carbonate of sods, and afterwards the gam (by trit-
uration in a mortar) In the water, dissolve the nitrate aration in a mortar) In the water, dissolve the nitrate
of allver in the ammonia and add to the carbonateo oda solution. Heat gentif to the bolling point; the ink,
at arot turbid. becomes clear and rery dark. 2. What
are decarboaized and Damascua steel? A. Damagcus
steel ts steel made from an ore constoting of magnetic steel ls ateel made from an ore conslating of magnettc
oxide of Irou and allca, by the use of charcoal furnaces.
The name is also applled to imitationa of the ortginal The name is aliso applited to 1 mitations of the origina
Damascustel. Decarbonized steel is steel from which a portion of the combined carbon has boen removed. 3 .
la a breech-loading or a mazzle-loading shot gun the 1s a breech-loading or a mazzle-loading shot gun the
safer? A. Both are dangerous in the hands of careleas safer? A. Both are dangerous in the hands of careless
people, and may be safely used with cautlous handling. J. L. S. asks: 1. Where can full and complete information respecting the grinding, poinshing
and mounting of specula be obtanned? A. We relterate that Professor:Draper's treatise affords the most avalla-
ble information on the construction of specula. John Bre information on the construction of apecula. John
Browning's pamphiet Illustrates the method of mount ing them. 2. Has Professor Henry Draper Improved h
processeas for the construction of glass apecula slnc the pablication of Vol. XIV., 1864, of the Smithsontan contribations for the difualon of knowledge? A. No
3. What is the method at present pursued by with, of 3. What is the method at present pursued by with,
Hereford, in the cosstruction of silvered glass apeca for Browning's telescopes? A. Extra thick glass is
used to avold fiexure, and imperfect mirrors are repol lahed. 4. Of all the methods derised for the construc tlon of specula, which produces the best results in the
shortest time? A. The machine for local corrections
O. C. asks: 1. Why is it that people talk
and write so mach about the impossiblity of the sun betng a body of combustble matertal in a atate of in-
tense heat, alleging that, if such were a fact, it would tense heat, alleging that, if such were a ract, 1 , would
long ere this have been consumed and have left a blank In space? There is no such thing as destructible ma belng nothing more or less than the change of matter
from one form to another without destroylng one par ticle of it. A. The aun is really a combuatible body slowly burning, but its condensation supplies more
heat. The oxygen and bydrogen, which will in time form the solar oceans, are dissoclated by its bigh tem-
perature. Eruptions throw these gases into the cooler chromof phere, they burn, and, forming water, show us
steam lineain the spectroscope. 2. As the attractlon of the sun is suffletent to hold all this matter within its A. A velocity of 880 milles per second ts suffictent $t$ carry ejected materfal clear of the sun's attraction
The observed veloctty of projection 18500 miles. Star The observed velocity of projection is 500 miles.
therefore, are in conatant interchange of misilies. J. A. asks: 1. What is the formula for find Ing the ares of a lune when: the width of the lune and
the reapective dismeters of the two curves forming the lane are given? A. Draw the chord corresponding to
t'se two arcs of the lune; then multiply half of each arc by 1 ta radius, and subtract the least product (the area o the least clrcular sector) from the greatest. The re
mainder is the area of the lune. 2 . Can :you tell me o some of the double stars? A. A few doublestars are:
Gamma Leonis, orange and green yellow; Detta Corvo yellow and purple ; Gamma Vivirgints, wbtte and yellow;
Zeta Ursa Majoris, white and green; Iota Bootis, trlple Zela Ursa Majorit, white and green; Iota Bootis, triple
Pl Bootis; Eppilon Bootiz; $X f$ Bootit, orange end purple Mu Bootis, yellow and lilac ; Delta Serpentity, Zeta Coro nae, white and blue: Epsilon Lyra, multiple; Bet
Cygui, yellow and blue. All double stars, nehula, and
clusters are marked in Proctor's "Atlas," price 82.50 . N. B. says: 1. I have a 2 inches achromatic
object glass of
so inches focuf, with which I wish to construct a telescope. What stze of eyeplece, and of
what focus, should I ass? What power would such s glass have? A. Use a Huyghentan, or negative eye
plece, fleld lens abouthalf an fnch diameter, $x$ Inch fo cas, the eye lens $\%$ inchdiameterand $3 / 2$ inch focus, bot lenses plano-convex, plane alde next the eye. The ey
lens is placed Its own focal length within the focus o the fildiens, that 18, theyare half an Inch apart. An equivalent single lens would be baif the focus of the
feld lens or $\frac{1}{6}$ inch focus; therefore 80 tnches $+\frac{8}{\frac{1}{2}}$ inch $=80$, the magnifying power of the eyeplece. 2. What la the difference (nn construction) between a terrestrial and a
celestial eyeplece for a telescope? A. The terrestrial eyeplece is provided with two additional lenses, to erec the Image.
H. L. C. asks: Can I make a telescope, of rings, with a doable concave lens, 4 Inches diameter and
of 6 Inches focas, and 1 mentiscus lens, 4 Inches lens, 2 inches in diameter and of 8 inches focus, akd meniscas of the same size and focus; they are from a magic lantern. I also have a doable concave, $\%$ lnch ti liameter and of 1 inches rocus, and 1 double concas
linch diameter and of 1 Inch focus. Would these lenses do better for a telescope or for a mocroscope correct. A tolerable two inch achromatic object glas costa $\$ .55$, and a useful microscope, 86.00 . Kither would
be preferable to a chance combination of cheap lenses.
O. B. asks: 1. What advantage, if any, have why are they not in wore general nse? Wbat is th princlpal objection to them? A. We have seen no ac-
counts of thorough tests of rotary englues, and there fore canot give a decided opinion apon their adran cages. 2. Sappose the wheel of a rotary engine to have
\$ of a square inch effective preasure, and its mean dis tancefrom center of phaft to be $1 \times$ laches, it being on der continuel piessure; how will it compare with a ple ton engine having the same ares of plston and a atroke
of $3 \times$ inches under the same amount of pressure, ma kingthe same number of revolations? Woald such a that, for cheapness of construction, slmpllictty, and du-
rabillty, it will compare favorably with tbe piston engine now in use? A. If you can balldsuch an engine
it will be worth your while to experiment. 3. How will gas do as a anbstitute for steam in experimenting on a
small scale? A. It to used in sereral forma of en

Wh. F. M. asks: I. How can I protect iron cles? I have tried several paints now in market, bu
nid that tbey all fall to seep the fron or wood free. A The paint must be constantly renewed. 2. How ca
pitchor tar bereduced so as to makea paint, to be use
cold? A. With tarpentine, we belleve. 3. How can I redtuce copper to the aneness of fiour? Can it be done
wituaclds? A. By heating the copper inan atmoapher of hydrogen. . . Is the Sclence Record composed of the
coples of the Birs much will it cost to have 1 year's copy of the 8ciEMTIFII
AMERIOAN bound? A. In one rolume, 82 ; in two vol

## ames, as.

J. H. P. asks: Can air brakes be applied to
applited without the power of the engine? A. In some
and appiled without the power of the engine? A. in some
arrangements they can only be applied from the engine;
In otherf, they can be managed on each cor, indepen. in etheri, thoy can be
C. A. J. 日ays: $I$ have a callar about six feet

 foor had cement gpread upon It an tnch thlek, with one
course of brick latd apon It, and then well grouted with cement. A. The reason the wateris furcedinto your ellar, notwithetanding the extraordinary precautlonf
ounave taken to prevent it, is because of the extertor pressure the former is sabjected to. In betng confned in
the clay surrounding thetr fonndations and rising around clay hourrounding their fonndations and rising
head equal to the depth of the breaks, you are very likely to overcome the difficulty Todo this, excarate a trench outs:de the walls, down as deep as the foundations will allow without andermining
them, and fill in with stone of all sizes ap to 18 inches hem, and fll in with stone of all sizes ap to 18 Inche he house; then relll with the earth excavated, tablog the precaution to place gravel or amall stones agalDat
the wall all the way up for a fewinches out. Now,from htslower depoitt of stone, provide one or more dratns leading a way from the house and discharging at a lower one around the honse, and to prevent theirbelug filled up withdirt somestraw or carpenter's ghavingsmay be
latd over the stones. In thismanner the out ward press. re may be removed; and if, When the trench is open, a ions in addition, then
A. B. F. asks: How many cubic feet of wa aw per tun for river steamboats, and for salling ressels?
About 96 feet.
O. N. E. asks: 1 . What is the best battery
or silver plating? A. Dantell's constant battery 18 , orlver plating? A. Dantell's constant battery $18{ }^{\circ}$ a
ood one. 2. How can an old broken araphite cruclble good one. 2. How can an old broken rraphite cracible
be made over into a new one? A. Powder tine, mis wht water into a paste, mold, and dry or bake. s. How
can commerclal zinc be purined so as to make sultatie ancs for a battery? A. Zinc can be purifed by distilmuch pare sllver by weight is there in ratne, and contalns 900 A.A sllver dollar weif
 welght in a dollar $=871 \frac{2}{4}$ grains. As to your other ques-
J. W. B. asks: How can I grind a double
convex lens accurately round. with a bevel on each slde, o at any alzed frame? It is uow done by hand. Can it
bedone by machine? A. Yes, by an iron wheel fed with sand and water, or a traversing emery wheel. Glass
disks are cut outby a rotating vertical metal tube, fed with emery and water.
J. K. says: It is generally considered by aclentic men that the sun is a body which emics heat as
well as Hight. Now the tun is a hot body, why are not
the apper strata of the atmosphere heated to a blgher degree of temperature than uear the surface of the
earth? According to the laws of heat, it decreasea as he square of the distance increases: and by this law tbe upperstrata of tbe atmosphere would be warmer
tban near the earth, which we know to not the case. Again, the annual mean average temperature of the Again, the annual mean average temperature of the
earth in the warmest parts $1890^{\circ}$. The carth is 93,000 ,a00 mlles, and Mercary $s 8,000,00$ ) miles from the sun. The
square of the earth's distance is more than six times square of the earth's distance is more than six umes
that of Mercury, nearly 63 times, which would make ercary must be in a state of fusion. I would like to snowwhy itis colder as we ascend above the sea level
or a distance of ave miles, if the sun la a hot body? Is or a distance of avemiles, if the sun la a hot body? Is
ot the heat which we derive from the sun caused by Iction of therays of light passing througb our atmolons, bat they passin riygh the art without warming it
ntil absorbed and radiated from the suriace. The atton. W. M. W. T., whtch waply to the ettect that the end of the iphon that discharges the liquid should be on a lower
level than the end Into which it is drawn, M. J. T. says: I have always supposed that a siphon would draw wa:
 they are both of a lengtb (or on a level). A. M. T. J.
is sabstantially correct. The liquid will run o long as is substantially correct. The liquid will runs o long as he liguid.
W. R. B. asks: How is danger to the oye erfal telescope? The ereplece san glass will not prevent
the beat. Is it done by a dlaphragm over the object slass, or how? Of what tind of glass is the sun glats made? Could not a large non-achromatic lens be connected by a mall over-corrected lens placed near the
ocusof the large lens? A.A solar eyeplece may ba made thas: Attach s short tube, wbich Ats your eyeplece, at
aght angles to anotber wblch fits the ejeplece tube. Ight angles to anotber wblch fits the eyeplece tube.
flace al inch planoconvex lens so that the center of Place a 1 inch plano-convex lens so that the center of
the plane side forms an angle of $45^{\circ}$ with the center of WIll then be redected up to $h_{\text {a }}$ eyepiece, and 20 per cent
wll pass out of the lens. A dlaphragm over the objec. vemaybeused. Two suaglabses shoald be used tosether, a claretand a green one. The sun's image may
berecelved upon a white sheet of paper with the full
 in ing power,we must And some way to increase the light; lass." In constructing a cheap bome made telescope of TR inchesfocus, be a higher magnifying power and an achromatic lens 2 nnches in diameter and of 80 Inches
ocus? A. No, unless it were 90 feet focus. It would focus? A. No, unless it were 90 feet focus. It would
then bear a power of 190 only. 2. What is apherical
aberration? A. Each zone of a apherical lens has a dif. ferent focal plane, the outer zones bavtng the shortest
ocus. 3. Is the sewing machine an American or an A. machine to London.
X. X. O. asks: Can you tell me of any com-
binations of chemtcals that will remore the readiah cast of hemlock sole leather and glive it the appearabce of
oas tannisg? A. Try a neutral solution of perchloride
R. H. W. A. asks: 1. Can I use foil from Please me a rectpe for a cement for fastening glass to metal. A. Metals may be made to adbere to glase by a
cement composed of powdered litharge 2 parts, white isad 1 part, bolled lingeed oll 3 parts, mixed with 1 part
 dasy. I supposed that it only turned 864 times, the solar
 thlolk 18 less $b y$ about four minutes than a complete re Volution (or sidereal day) on account of the enward mo
tion of the earth in lits orbit, which would neceasarily make one day in a year if the earth did not tura on it
arisa at all. Am I not right? A. The troplcal year, or interval between two succesasive pabageses of the sun throunh the meenn veranal equtnox, eq
soair da ye, or 366 2122
sidereal days.
$\underset{\text { takee place between carbolt acid and iomical reaction }}{\text { Fhen the }}$ re mixed ti solution? A. Little it any chemical ac tion. Tbe lodme colors the carboltc acid a dark reddish bollc actd on iodine would produce sucha a change 1 n the
lodine as would alter the therapeutic action on the syg. tem? A. No.
J. A. B. asks: Can a man lift more with a
rope over a large pulter than with one over


Cutce A. says: I am told that the coing of the
 ot stlver dollare of 1796 and 1299 ? $A$. Dollare of 1804 , are casily procured at a amall premlum, 17 at ail rubbe

 til 1831. DImes : Verg rare for the four following years
varied in the order of thelr rarity $: 1804,1799$, , 180, 1808 Cotned yearly from 1827. Hald dimes of 1802 , but thre known. Of 179. and 1883 , very scarce. None colned
from 1986 to 1828 . Three cent pleces of 1855 , very scarce,

 cotned 1 a a regular series. But fem of the gold pleces
are very rare. The quarter eagle of 1797t is most valua.
ble.
J. P. R. asks: How much power has an en
gine,1 inco borex x 2 nches stroke, running at 200 revolu tlonsperminute? How large a botiler should I have
 Axprican for Janaary 31,1874 . Allow about 20 suare
feet of beating surface for $a$ norse power. Ycu can feet of beating surface for a horse power. Ycu can
make the boller of copper or sheet or cast iron, whichI. S. S. asks: How thick should a cast lead ${ }_{\$ 5}^{5 p}$ 1bs. to the square finch? How thick one of suluche dameter? $A$. For the ephere, the bursting pressure 18
equal to the product of the tenactit of the material multiplited by the thickness, and dillided by the diame the prodact of the frrst two terms, divided by the radiu of the cyllnder. From theese rules you can find the ne
W. D. G. asks: Why is it that in the block
 but tit tends to thci ease the space over which the force
acts tin overcoming a given reesistance ; mo that the eame Iorre can overcome more reisitance, but recuirea
longer time. Tuus the power developed, which 18 composed of force
matns the same.
X. Y. Z. asks: 1. How can I make a gmall and plumbago. Your bent plan will be to buy one. ${ }^{2}$
What is laminated steel? A. It tis a mixture of steel and
M. E. asks: Why is it that, after digging a
 $\underset{40}{\text { C.eet cube of grante. It it should have been given at }}$ G. McK. asks: 1 . How can I mend a hy-
draulic cylinder that has a very fine faw tit it? I cannot see the crack when have no pressure on 1t. A. Pos jolnt. 2. What 19 the beet preparation for putting on a rope that has to run on or wrap around a amall pulley
under water, so as to make the rope last? A. Tar.
 :ameter. What shoula be the size of etacals to to to sure the best dratt? We have 16 suare reet grate surfsce.
Would that be enough to purn samuat, provided the draft were strong enough? A. Make the area of chlm-
ney from 36 to $1: 0 \mathrm{Oarea}$ of grate. the easier for both hard and boft wood, the one which
 mined by experiment. s. How can I make the most durable friction wheel, for the feed of a circular saw? A. Probably cast iron will be as auitable as anything.
 quite cool. What are the cause and remedy? A. It 1s
 put on plie p plank to make it trieproof or rincombustithe?
A. There are eeveral varlettes of palint that are sald to make wood freproor
J. B. Bays: I have bome young evergreen
trees prowing under some walnut irees, but the turive. Can you tell me the reason? A. The reason 18
that the walnuts shade the evergreens and deprive their roots of proper nourthbment. As an antldote, remove
the trees where eaoh may have abund ance of alr, 1 light , the trees where
F. H. H. apks : Why does water form anes-
.ception to the law of contraction by cold? What are the princtples of its expansion when turning to tce $A$
 solid condition, the temperature remalnang the same. But previlosily Axing themnelves rigidily to certatn po-
eltione so as to form crystals of ice, the particles of water laske up relative pontillong with regard
other, in whleh thes occupy a larger volame.
 parts sufficient veloctly to the water with which 12
omes in contact to overcome theresian the presaure withln the boller.
Z. Z. asks: 1. What is the coloring matter owers a rc referred to three distinct substances by cer. laln chemptas, one on which isa blue or rose color, whlle he other two are yellow. The former ts produced by ompound which has been termed cyanlin. Cyannn may
be obtained from the petals of the viletet or of the rils. o otained fom the petais of the viole or or the ris.
To the yellow matter which is nisoluble in water the Dame of xantulne is glven, and to the yellow matter
nitc is soluble, the name of xantheline. See article
 carcest, and is not this cansed by their slinking near the center of earth when the earrth was in Its molten state? A. The rare metals, which are also noble metals, are of
great spectifc cravity, and many geolog tits have app.
 nonstration.
J. C. M. asks: 1 . How are the salts of nickel
 he wood for two or three days in lukewarm water, in Which a ilttie ealum has been ditaolved: then puta tand-
 1 a added. the color will be more Deautiful. Spread a
yer of this liquor quite hot on the wood with a pen. layer of this 1lquor quate hot on the wood with a pen.
cil, whicl will then boll verdigris at discretion in its own vineger and spread a layer of it on the wood; when 11 it dry, rub it
lith a brush, and then with olled chamole gkln. 8 . With a bruab, and then with olled chamote skin. 3.
What is your price for binding two volumes (in one W. T. sayis in reply to J. H. P., who says: been gradually coollnin, but the glaclal theory neceesi-
tates the beller that the earth was once much colder han tit sat present. Has any attempt been made to reconclle the two theorles?): Allow me to answer this
question, Such an attempt tas been made, and,


 Very probably the star Alpha Centauri. It is almost
ertain that matteris not equally distributed in apace and that there are reglons of the heavens where there are more celeatial bodies in one given gpace than an-
otber, and consequently these reglons are warmer
 surrounded by glowing Rases, as the spectroscope
proves. But In thereglona in which they are less abun-
 he sun (with the earth) was in a region thronged with stars, and therefore the ellmate on earth was warmer
than It 1 B now; and by gradually progresing to other re glone, the cllmate became colder and coldor, untit the
lowet temperature was reached in the lowest temperature was reached in the glaclal period,
and that it moves now to reglons that, are warmeragain It that op moves now to reglons that, are warmeragin. cllmate slnce the end of the jurassic pertod at least, and peruapsverymuct earlier.
J. L. R. says, in answer to F. O. C. H.., who not to leak: "I put one on a boller about two months
go, and it does not leak and never will. The patch was ago, and 1 d does not leak and never will. The patch was
24 bolta long and 4 wide, over wherethe sheets were riveted. The Inslde sheet was cracked from one hole to
 eeads of 1 Inch, made solld, and good threade. Put 4 round of candie wrck with stift white load round each
bolt and draw it tight. In putting the bolta in, have the heads square with the boller, anci hold them so; be sure not to let them turn. After acrewing on the nuts, hammer the heado down hard and screw agaln, also nammer
the patco after itis screwed tight. Caulk the same as a
 etightand will stay 8
M.Y.R.says that P.andG.G.can make a good water, by disoolving powdered alum to the tuice or lemon; the denasty of the tnk is procured by the amount
of alum ueed, but half a teaspoonful to the jutce or or alum used, but
one lemon is enough.
C. D. S. sags. to J. J. H. P., Who agks if any
attempt has beenmade to reconclle the glacial theory with the theory tbat the earth was once in a molten state : The reason aselgned by Benton for the change of
cllmate wilch caused the glaclal epoch lis that the axis of the earth may not have had the same finclination to the plane of 1 ts orbt durtig the glactal epoch as at
present; at the earlystage of the earth's extatence vol canicactlon must have been much more frequent and poweriul than at present, and this volcance action mas havecaused an uphearal at some polnt of the surface,
accompanied by a corresponading depression at an opposite point, which would be safficlent to alter the center
of gravity to such an extent as to change tbe ticlina Hon of the earth axis to the piane or its orbit. A there is no trace of glacial actlon within the troptes,
somegeologitscontend that the part of the northern hemlaphere on which traces of glaclal action are found may have occupled a positlon analog ous to the poles of
the earth st present. For a full and satisfactory explathe earth at present. For a full and satilsfactory expla,
natton of this and many other points, read Bentor's ctures on Geology in America
S. T. says, in reply to H. C. R., who asks
for appan for an apron for a double ended ferry bast: 'The frat engline I ever handled was on anch a boat on
the Ohlo river, and the two aprons were bung to the pow snd stern decks, much as a barn door 18 hung, with
 Iron hloges were bolted to apron and deck. This method
throws the timbers near each side of tie boat, out of the way or teams; and a large clevis on deck, looplag lng. On nearing shore, the clevtis was dropped of, let rast in its balance center, and a bole ern the outboard or etther apron to recelve 1 t , so that both ends of the Doa
 inches long, making a loop of tit, putting it iown the chicken'stanoat, and withdrawipg it quickly, two
three times, for as many days. Trit to a sure cura.
F. A. R. Bays, in reply to P.'s query as to
addrogen ee are compelled to oue very pure zinc and sulphurit cidd, and then the hydrogen will come ont very slowly,
he pure zinc reatiting the actlon of the sulphuric aclad By adding a few drops of chloride of platinum, how ever,the nydrogen will be produced vers quiccly, l, and probably sulphate or copper would be
Jour purposes as chloride of platinum.
W. S. X. Aays, in answer to J. J. . D.. who
asks how to reverre an engline: Firat make amark he alde of the eccentric, near the shart, with a scribe or small chisel : make a corresponding marz on the sart at the esme polnt,then place one polnt or a pair of calpers on the mark in the shart, and whth the othee
polnt tnd the ceater of the siaft on the opposite side Then, with a scribe, mark this polnt also. Now unsere
 the eccentric comes into line with the second mark o the shart ; then make the eccentric fast, and the engine
will run in the oppoalte direction. It does not make any difference in what
Mintrals, etc.-Specimens have been re ceived from the following correspondents, and examined with the results stated
A.M. G.-No. 1 is oxide of iron: No. 2. quartzo
J. W. Z.-No. 1 is clay fronstose; No.2, sandston col with oxide of fro This might be of service as a plgment.
M. D. W.-This material is shale.
J. P. M.-Thisis an impure elay.
. J. h.-The specimen sent is limestone. Th answe o. our other question: W
but you can experiment.
G. W. s.-The sample is animpure sllicate of alumina a. ath.-One or these specimens is a fossil bone, and
en orgentiferous galena. The subscription price this journal is \&s per annum, in all parts of the UniW. States.
W.
.... Jr. - Your specimen is an alloy conssisting of
copper and zinc, in other words, brass. It li positble that a plece of brass may have accidentally fallen into
the stamp copper. Native brass bas not as yet been and.
M. R. asks: 1. How are sewing machines
apanned, what ingredientsare used, and how are they Japanned, what ingredtentsare used, and how are they
applled P-O. . asks if 2,000 feet of 6 inch fron plpe applled by a pump driven by 24 horse powcr, wlllit b horse power, at the other extremity of the matn pipe,
in throwing water from a hydrant placedin the center in throwing water from a hydrant placedin the center?
If so, what?-J. C. C. asks: After belng drowned, how long will a person lie under water before he will rise? salt water? What is the cause of the rising? If it b gas, what produces it ? What is the theory of firlag
cannons over the water where tis cannons over the water where it is supposed that a per-
son has been drowned ?-E. H. K. asks In the drive
whel Whelsophy place tbe fulcrum, tbe, power and the welght
pespectively? E. C. B. askik: What dojewellers use for clcaning diamonds? is it a solution of arsenic or pot ash ?-J. A. McC. Jr. says: Take a tube, s-16inch in di
ameter, of any length, and cut a round plece of paste board $2 s$ incbee in diameter. Make a hole in the center

then cut a round plece of paper of the same slze as the
pasteboard; place it on the pasteboard, and the othe end of the tube in the mouth. and the strongest lungs
cannot blow the paper off. Will you give me the philosophy of it? - B. says: I see in the SCIENTIFIC AMER van the use of the left hand and left side of to cultithus exercising the left lobe of the brain, teaching it to think. He recommende learniug to write with the left
hand. Can any of the readers of the Scirntific Amer CAN give directions for the proper holding of the pen and the pr
manshlp?

COMMONICATIONS RECEIVED.
The Editor of the Scientific American cknowledges, with much pleasure, the re ceipt of original papers and contribution apon the following subjects:
On Steam Boiler Explosions. By W. M. D On the Attraction of the Sun and the Earth By A. D., and by A. F.
On a Problem, etc. By G. W. E.
On an Aurora visible in Michigan. By
B. B. S .

On Preventing Scale in Boilers. By C.L.E On the Beech Blight. By D. E. R.
On the Chameleon. By H. A. H. G
On the Philosopher's Hunt. By T. H. C. On a Double Lamb. By J. H. P.
On some Useful Recipes. By C. B. L.
lso enquiries and answers from the following:
T. O'D.-E.P.J.-J. B.s. H.-G. N.-D.F.

Correspondents in different Darts of the country ask
Who sells small brick-making machines? Who selle
 Selentidio Amesioan.
Several correspondents request us to publish replites
o their enquiries about the patentabuits to their enquirles about the patentabillty of their in.
ventlons, etc. Such eaquirise will only be answered by letter, and the partles should give thetr addresses. Correspondents who write to ask the address of certa in annufacturers, or where spectfed artlcles are to be had,
lso those bavilug goods for sale, or who want to ind partnera, should send with their communications an the head of "Business and Personal," which is spectally evoted to such enquirles.

## [OFFICLAL.]

## Index of Inventions

Letters Patent of the United States
April 7, 1874,
and bach bearing that date


