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 one connecturg bar useed. Righis for sale. w. W. Benson Wayzesboro', VIrtima.






 Sure cure for Slipining Belts suotton's pat
 CHe Catalogue on Transwission of Power by H Heve your Shop fitted out by Gear, of Bos.



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 Eaub Boults Patent Moulder for all kinds of
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manufactured at Colt's Armory, Bartford, Conn. The larger sizes have a ral.ge of over two
are indispensable in modern warfare.
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righting, strong and cheap. All Hardware and Tin Houses have it.
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dles. Shaphb Machne tor Wood rorting. T.R. Balies

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and S:Iicate of Sod and Pot ash- All. grades in L. L J. W. Feuchtwanger, 55 Cedar St., New y ork. Fi Manufacturers of Malleable Iron Tinned
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Amerccat Addrese M Deal \& Co., Bucrrus, olio.
 Steam Fire Engines,R.J.Gould.Newark, N.J.


## 4 M dest Whuries

A. M. C. asks: Is there anything which

 on thi . Theer
vill not hold.



## 

C. T. S. can preserve his composingstick or
other steel articles from rust by followingthe directions other steel articles from rust by followingthe directions
on p. 27. volume 25.-F. can attach leather or cloth to p. 27. volume 25.-F. can attach leather or cloth
galvanized dron by using the recipe given on p. 167, vol,
8.-J. W. J. shouldtry the method described on p. 406 28.-J. W. S. shouldiry the method described on p. 406
vol. 25, , or preserving eggs.-F. A. Will ind a recipe for
shoemakers ink on p. 75 , vol. 27.-R. H. L. will find his shoemaker's ink on p. 75, vol. $27 .-$ R. H. L. Will ind his
question as to the weight on a safetr valve answered in sult the makers of windmills. His query sult the makers of windmills. His query about sltp o
belts is answered on page 380 , vol. $28 .-J . \mathrm{L}$. R. can try
the much recommended tannate of soda in his lime belts is an
the much
water.
W.C.
W. C. F. asks: At what velocity will steam ons sixteenth of an inch in diameter, under a pressure
of 100 lbs. to the square inch; and what would be the difference in the velocity provided the diameter of the hole be increased to one elghth inch, the pressure and
length of hole remaning the same? Answer: See edit orial pages of this issue.
W. H. S. asks how to precipitate gold, sil
ver, copper, nickel, and platinum from golutionh. An ver, copper, nickel, and platinum from solutionh. An
swers: To preciptate gold, add a strong solution o
ferrous sulphate salt of gold, as the chloride, prepared by dlssolving gold in aqua regia. The gold is precipitated as a brown
powder. Silver is precipitated in themetallic statefrom the chloride, made by dissolving silver in aqua regia
by fron. Add clean pleces of iron to a solution of the by iron. Add clean pleces of iron to a solution of the
chloride of silver. For copper, add clean scrap iron to a solution of blue vitriol, sulphate of cupper. For me.
tallic nickel, first add a strongsolution of oxalic acid to tallic nickel, first add a strongsolution of oxalic acid to
a strong solution of sulphate of nuckel. Collect the pale bluish green precipitate. Heat the precipitate in a cov
ered crucible, lined with charcoal. For platinum, dis ered crucibe, lined aqua regia (s misture of muriatic
solve the metal in
and nitric actds), precipitate with a solution of sal am and nitric actds), precipitate with a solution of sal am
moniac, and heat the preclpitate red hot. The result is pongy platinum.
N. J. N. asks: 1. How can I calculate the
difference between the steam pipe ni exhaust plpe of a starence between the steam pipe na exhaust pipe of a
sor an engine of 12 Inch three inch exhauast ange enough 20 inch stroke, with a
for 2 Inch steam pipe, running at 104 revolutions per minute What is the accompanying specimen composed of? 3 Will it affect the waterin the boiler toputint the carcass
of a dead mule, in pieces? 4 . How can I compute horse power? Answers: 1. Consult "Link and Valve Mo tions," by W. S. Auchincloss. 2. Some compound of
lime, probably the caroonate. 3. We never heard of the
plan before. 4. See answer to M. C., on this page. J. R. K. says: 1. We want to carry the condensedsteam from an engine into a tub elght feet
deep, for the purpose of boiling straw. What per centage of power do we lose on the eng.nes? 2. We have a
tubular boller 42 inches in diameter, 80 two inch tubes 14 feet long, with stark 18 inches diameter and 50
feet high, with very 100 draft . The boiler is situate in feet high, with very 1 oor draft. The boiler is situate in
a hollow; the hillon one side s about as high as the stack, the othertwice as high. Can yousuggest a rem-
edy for the bad draft? Answers: 1 . None, if the condensed steam does not have to be raised, to be put into the tub. 2. Probably a m
will remedy the trouble.
J. P. C. says: I use a small vertical porta-
ble engine and boiler, and sometimes $I$ have to carry 100 lbs. steam to do the work. The boiler is 56 inches high
28 outside diameter, with 24 one and a half inches tubes. The firebox is 18 inches diameter $x 22$ inches high. The
middle gage is 39 fnches from bottum of boller, and she steams best with water at that hight. I use fir wood for fuel, which makes an intense heat. Am I safe from
heating the tubes too hot with the firebox full of wood and water at middle cock, 13 inches above crown sheet? Evaporation is rapid and steam 18 pretty wet if carried higher. The boiler foamed so badly that I could not
tell anything about the hight of the water. I fancled tell anything about the hight of the water. I fancled
that the ofl which got in around theplunger of the force pump had something to do with it. I got the idea from
something I once saw in the Sorsmitrio; since then I have been very careful to keep all on out, and have never been troubled with foaming in the least, at ans
rpessure from 20 to 100 lbs. Answer: If when the engine
is $n$ motion, the water Issues solld from the lower gage
cock, there is no danger. It 18 only when botlers have cock, there is no danger. It 13 only when boile
sucha bad circulation that the tubes or crown sh
left bare that there s danger from heavy fring.
H. B. \& K. ask what kind of dryer is best
to put in coal tar, in makingagravelroof. Answer: Try onled hiseed onl, ar harg
T. S. S. asks how to make and bleach skel-
etonized or phantom leaves. Answer: Boll the leaves in a weak solution of caustic soda for some hours. wash
thoroughly and then expose to the fumes of burning sulphur.
E. C. C. says: I want to make springs 4 Inches long $x \$ /$ inch wide by one thirty -second thick, to
be pressed from sheet metal or therwise. They are required to spring $3 /$ inch and not to rust, and to be as
cheap as possible. Is there any metal cheaper and bet. cheap as possible. Is there any metal cheaper and bet.
ter than sheet spring steel? They can be tinned or
galvanized to prevent rust. probably be the best material for you to use
G. says: Some bins containing soft crushed
sugars are full of little red ants ; I would like to know Why they select that sugar from the other kinds, and
how we canget them out? Answer: A plentifulsuppls of what is known as Persian powder, around (not in) the sugar bins, will prevent the inroad of ants. Sugar
bins should be made of hard stout plank, with closely fitting covers, and kept perfectly clean. If they could tight, so much the better. The only way we can suggest to spread it out in thin lajers and pick out the ants by hand. The ants prefer the brown sugar, proba
account of its greater sweetness aud moisture.
R. W. W. asks how to clean a carpet which
has been soiled by accident. It was washed with soap suds: and to remove a sour smell, it was washed with
soda water. "The color remained good until, toremove soda water. "The color remained good until, to remove
further odor, I poured on bay rum; that operation turned it a light green color. The original colors are ground." Answer: We advise you by all means to dis-
continue the use of soda water and bay rum on the carpet. The alcohol in the bay rum has probably so dissolved and spread the colors that there is no remedy.
To remove the smell, try a very dilute solution of carTo remove
bolic acld.
W. H. R. asks: 1. How great a vacuumcan be produced withan arrpump with one inch bore and
33/ inch stroke? 2. Can an article be held on a trap by
such vacuum fast enough to lift 16 bss.? 3. Will soluble such vacuum fast enough to 1 ift 16 lbs.? 3. Will soluble
gass answer for artificial stone exposed to the weather S.ass answer for artifcial stone exposed to the weatier
4. What sudden pressure will a cast Iron tube stand safe1y, ifgiven bya quantity of gunpowder or other combustirecelver and connections. With the cylinder alone, if the piston is tight, a nearly perfect vacuum can be pro the size of the cylinder. 3. Correspond with the manufacturers. 4. The tensile strength of cast fron is about $18,0001 \mathrm{bs}$.per square inch. Take 36 of this for a safe
strain, and then the pressure per square inch that it will siran, and then the pressure per square inch that
safely bear may be fouud by multiplying the thickness
in inches by the esafe strain, and dividing th by the dam. eter of the tube in inches. This is for thin cylinders. For thick on
June 21, 1873.
June 21,1873 .
A. S. asks how to bleach and cure palmetto grass. Answer: Steep or boil the leaves in a weak solu.
tion of caustic soda, wash thoroughly, and then expoase them to the fumes of burning sulphur in a close cham-
ber; or instead of the sulphur fumes, olution of chloride of lime and rinse well afterwards
H. R. asks: Is there such a thing as scag-
ifola?
If so, where can I get it, how can I make it, and What is it used for? Answer: Scagliola is a species of
stucco made with the best plaster of Paris and a weak solution of Flanders glue ; it is colored according to taste. This composition is often applied upon hollow
columns of wood, and the surface, when hard, can be smoothed in a lathe or polished.
A. H. C. asks: What is the cause of white
sugar flashing like a glow worm when you run the scoop into it? Answer: The cause of sugar flashing, as you describe, is probably owing to the electricity dev
by the friction between the scoop and the sugar
C. E. asks: What is the difference bet ween for the year 1173 ? Answer: The magnetic north is 70
P. D. asks: By what means flowers, leaves and other vegetable matters are deprived of their col-
ors, that is, bleached or whitined, for introduction into Expose the fiowers for a few minutes to the fumes of
burning sulphur in a close vessel, care betng taken to prevent the heat from reaching them.
W. A. S. asks: 1. What formule are used do you go to work after you get the figures? Answers:
Measure the diameter of the valve, in inches-square 1. Measure the diameter of the valve, in inches-square
this and multiply it by the dectmal 7854 ; this will give the area of the valve in square inches, Find the weight
of the lever, and the distance of its center of gravity of the lever, and the distance of its center of gravity
from the fulcrum. This can be found by balancing the lever on a knife edge. We call the distance, the lever
arm of the lever. Weigh the valve, and measure the distance from the center of the valve stem to fulcrum, noting that all distances are to be measured horizontally. This
is the lever arm of the valve. Find the number of pounds in the weight, The distance of point of suspension of
weightfromfulcrum is called the leverarmof the weight. . Having obtatned these figures, make an equation thus: Pressure of steam in pounds per square inch
$\times$ area of valve in square inches $\times$ lever arm of valve $=$ (weight of ball $\times$ lever arm of ball) + (weight of lever $\times$ lever arm of lever) + (weight of valve $\times$ lever arm of valve:)
It it evident that if all the parts but one are known, this quation will determine that part.
E. M. K. says: 1 . How quickly can a 35 horse
power engine be stopped if it is making 75 revolutions perminutewith 70 lbs. steam? 2. How can I Babbitt a low cup that was on the cut off-chest was changed and
put above the governor in the steam plpe; 1s thatright? put above the governor in the steam pipe ; 1s that right?
4. How can I reverse an engine? 5. The boller ts to
carry tu the safety valve. When it is off, steam blows off at
75 lbs. by steam gage. Is this right? 6 . Is there water or on used on emery stonies and wheels, and how are they turned off? 7. Are the toads that stay around gar-
dens poisonous? Answers 1 . It depends in a rreat measure on the weight of the moving parts, but under ord1nary ctrcumstances such an englne could be safely stopped in 15 seconds. 2. If it is a box, closed at both
metal. If the place is open at the bottom, after putting
in the journal stop the opening with clay, and proceed in the fournal stop the opening with clay, and proceed
as before. 3. Yes 4 . Arrange stops for the eccentric as othat it will be loose on the shaft, between the post-
sionsfor for ward and backward motion. 5. We think tionsfor for ward and backward motion. 5. We think
you had better remove the extra wetght. 6. There are you had better remove the extra wetght. 6. There are
emerry wheels made to run in on and water. Unless emery wheels made to run in on and water. Und
they are specially prepared, they should be run dry.
So far as we know, such toads are not polsonous. J. K. S. . asks:
storm glass?
2. How cau I
I expel fleas from a cat that is filled with them? Answers : 1 . Put the following ingredientsinto a long and narrow bottle: one quarter ounce
camphor, one sixteenth ounceniter, one sixteenth ounce muriate of ammonia, dissolved in 2 ounces of alcohol. containing a puncture madte by a fine needle. 2 . Boil tobac.
tion.
M. W. H. asks : 1. What is nitro-glycerin
made from? 2. Does it, when ignited, leave any sedt. ment or ash? 3. Can gunpowder be ignited by a current
of electricity without the conducting wire touching it? 4. What will be the pressure of one ounce of common gunpowder, when ignited in a cubic foot of space? 5
What is the pressure of nitro-glycerin per ounce, in a cubic foot of space? 6 . What the pressure of white or
cur fulminating powder per ounce, in a cubic foot of
space? 7. How many cubic feet will one ounce o1 common gunpowder fill, if exploded in a cyllnder or
tube one foot square, it standing upright, so that there will be only the atmospheric pressure of one square foot
to sustain? Ing? 9. Wi. ifso, how long will take, ano cantre madegood again,
and how? Answers $: 1$. Made of and glycerin. 2. No. 3. Yes, ifthe powderbe confined.
4. One ounce gunpowder equals $\approx$ bout 1 cubic inch space, and expands at the moment of explosion, as estimated by competent chemists, $, 2,700$ times, or to a bout $11 / 2$
cubic feet. Therefore the pressure in a confined cubic foot space, will be $221 / 1$ lbs. ab Jve the atmosphere per
square inch. 5. Nitro-glycerin has 13 times the explosquare Inch. 5. Nitro-glycerin has 13 times the explo-
sive force of gunpowder, therefore the pressure of one sive force of gunpowder, therefore the pressure of one termined. 7. At moment of explosion 13/s cubic feet.
After the gases have cooled, however, probably from $3 / 2$ to $3 / 5$ of this. 8. The effect will be to corrode steel pens. 9. It will not, if not tampered with. When lost, the
magnetic power is easily restoredby rubbing on another magnet
C. G. G. says: I wish to dig an ice cellar through a filter, Into the well, will the water be affected hurtfully? Answer: We would advise you by no means
to drain our cice house, even through a fller, into your
well wodrain your ice house, even through a filter, into your

M. C. asks: 1. How can I find the power of
a steam engine by plain arithmetic? 2. I want a platn Full for finding the horse power of a tubular boiler. 3 . for fnding the capactty of a plunger pump? 5. Which would be the proper place for an air chamber of plunger
pump, on suction or force side? I propose to attach it pump, on suction or force side? I propose to attach it
to relieve a very heavy thumplng. 6. What causes a
vacuen in Answers: 1. Multiply the diameter of the cylinder in inches by the decimal '7854; multiply this by the number of revolutions per minute, and by twice the length of
stroke in feet, and divide the result by 83,000 . 2. Divide the number of square feet of beating surface by 15. 8. Only approximately to eng. We do not know of any
absolute rule, except a practical test. 4. Multiply the absolute rule, except a practical test. 4. Multiply the
diameter of nlunger in feet by the length of stroke in fou w1ll by half the numberoimation of the number of cubic feet delivered per minute. So much depends upon the construction and location of the pump that it is diff-
cult to give a general rule that is reliable. 5 . On delvery cuit togive a general rule that is reliable. 5. On delivery
side generally. 6 . The condensation of the steam. It czn be destroyed or prevented by letting in air.
J. H. says: You repeatedly advise young
mechanics to studj mathematics. Will you tell me how long it will take to make a person suffclently posted on
the subject, provided that he has an average amount of brains, a good general knowledge of arithmetic, no knowledge of algebra (or very slight), a fair amount oi
perseverance, his nights only to study, and no funds to emi loy a teacher? What work would you advise me to
commence with? Answer: A reat deal depends upon making the right kind of start, so as to know huw to study, as well as what to study., In algebra, we would
recommend Davies' " Bourdon," and in geometry, trigo nometry, and the use of logarithms, Davies' "Legendre.' Each book costs from $\$ 1.50$ to $\$ 2.00$, and to master their
contents thoroughly will require, with the limited time afforded you for study, from nine months toa year. But you will have gained a recompense; for avenues of greal
benefit to your business will be opened to you, which would otherwise have been as sealed chambers. In
commencing your studies, remember that it is not so much rules, as methods, that you wish to acquire. Al
ways proceed on the principle the the book is wrong and must be provedright; and get practice continually
and
A. A. D. says: I
engine with 4 vanes, each of which has 2.8125 squart Inches area; it is constructed on the eccentric principle
and is to work on expansion, with 50 lbs steam pressure and to make 200 revolutions per minute. Would mort
vanes create more power? What sized boiler would 11 require, and what kind of boiler, of plate iron or copper ought it to have to make the most steam and be the most economical? Please rate the power of the abovi engine, and give a rellable mode of calculatingpower o
rotary engines. Answer: We cannot answer thest questions without the po by a rotar piston ares that is acted on continuously by the meal pressure of the steam throughout the stroke. Multipl
this by the mean piston speed in feet per minute, ani
E. A. W. asks: How is the black varnisb hooks, hair pins, etc., and of what is it composed? An
swer: Add to 2lbs. asphaltum (fused in an iron pot) ho bolled onl 1 pint; misthoroughly, remove from the fire
and when cooled a little add 2 quarts oil of turpentine F. B. T. asks: What should be the size of
a water whee, and of the stream of water to run
sewlng machine? The water is suppled through hosi sewing machine? The water is supplled through hosi
to a tank 8 feet above ground. Answer: There are : number of sewing machine motors, driven by water, if
the market. Correspond with thetr manufacturers.
V. R. H. asks: How chn I make india rub
ervious to kerosene ofll? Answer: Xou cannot pra,
 ought to last long enough to make its renewal rvals not very expensive.

- A. H. asks: Is nickel plating a surcess nickel? Answer: Nickel plating 19 a succese, bur
ic no known methoo of plating zinc 819 no known method of plating $z$ zinc. The acia
used 18 an obstacle, the aclids attackling the $z$ Inc at
is less penetrating than molst heat. Answry the the the
 at of hot dry arr. The rappd evaporation from the lee of the body prevents she Internal heat thou f the 1. If the ait be molist, however. or the medium of
be steam, a temperature considerably below 2120 $\underset{\text { man }}{\substack{\text { man }}}$
Fr. A. asks: 1. How can I melt old compo printers' 'ollers, so as to pour into molds forcast
laster in 2 . What are the exact proportions gredients used in makting the composition roilers nue? 3. Can you:nform me how he composition
by decorators for looking glass frames, etc, Answers: i. You can melt compostion rolle er ac:ng them ina veseel surroundeamoybtoiling roile water,
the ordnary the ordinary llee pot. When melted, you can pour
o molds. 2 . Dissolve, in two poundis of molases molds. 2. Dissolve, in two pounde of molasses
at heat not above that of bolling water, one dof good glue, previously soaked over night in
vater. 3 . Decorators use for gllding, what isknown osaic gold", a bisuluphuret of tin. Tuls is mixed S. S. B. asks how to recover diamonds frow ne, or $\begin{gathered}\text { diy substance that will remain for a length }\end{gathered}$ Te suspended in water, by the following means: stream of water enter the tank at the bottom; and the taik is full of water and the stirrer in motion, edebris in as fine powder as possible. Let a plipe
ofthe surplus waterat the top of the tank. In ay, with plenty of water, you can wash free fro E would like to know the rule for find making 420 revolutions per minute with a beltrun-
in a 10 inch one; what would be the number of itions of the small one? Wh $t$ is the rule forsuch
? Answer: The speeds of two pulleys, under such In the case men foned, the speed of the smalle , If the belt did not slip. wouldbe $420 \times 22+10=924$
H. D. asks: 1 . Is an enkino shop the lace in whieh to learn the wachertatrade? 2
what manufacture would you recommend? 8 : 1 you recommend me to work at what my mind
lartis set upon, in preference to any thing else? zrs: 1 . Probably a large machine shop would be or acquiring a general knowledge of the work, on
at of the great variety of machinery constructed ta a place. 2 We cannot recommendany particuablishment. Tryand get in a shop where themen courazed by the owners to study and improve
elves. 8 . If you are so strtated that you can fol. elves. . If you are so sitt-ated that you can fol dur favorite pursuir, by all means do so. That
the greatest steps towads success in life. S. L F. Says: Can you refer me to any
hat will tell me how to ascertan the exact power take to force water up esjofet high, at the rate of
lons par minute? Answer: See article on "FricThe power required in your case will be that used ag the water, and overcoming the resistance dae C. C. asks how to take off window glass
luish appearance eaid to be caused by using creoluish appearance faid to be causer dy using creo-
id sulphur. It makes its appearance whle the I going through the tiattening process. An-wer:
uifh apgearance on yuur glassis pro bably caused defect in its mode of manufacture. Too mueh ell with whiting and rub off with a linen cloth. R. C. asks: Will a railway head, conrds without alteration? Answer: It will pro
aecessary to change the trough andgearing. O. S. says: I have a small sailing boat
sh to convert it into a steamer. She is 22 feet dd of 8 feet beam. What number of horsepower
int to run her 12 or 15 miles an hour $?$ What be the size of wheels and what the length, width, mber of buckets? Answer: See himensions pub
n Scientific American for May 10,1873 . O says: We had a new engine cylinpattern. The supply pipe and gove rnor are $31 / 2$
ndameter, oravout 10 nches area, and the steam is between toravout ports and cylinder are about $91 / 2$ area, but the passages above the ports are only
ns area, and still the designer of the valve persists ig that the valve and passages are exaculy right. ry fo pounds of steam and run 96 revolutions per
I claim that the steam is wire drawn, and that I claim that the st.am is wire drawa, and that
aot obtain the full power of engine. Please say at obtain the fill power or engine. Please say
alve is properly constructed. Answer: We think its are sufficienly large, and that the cylinder wire drawing
"I asks: What is the effective power oller as shown by gage? By effective powes he power that would be availlable for driving lachinery after deducting that necessary to run
the itself. Answer: We could not answer this otherwise than approximately t, but we thl
horse power.
C. says: The joint between the cylinder
ve Jacket or my engine is badly eaten away, am unable to make a tight jolnt wita rubber have tried red lead and iron borings, but it will
it a short time. It appears to be eaten away by m or tallow. How can I make a jofnt that will
answer: You can probably make a permakent utting a groove and driving a rust joint; but it
ufllcult to break the connection if this is done 1sh to mabe a joint that oan be readily broken ;parts fled off. If you think the tallow causes tie, try some other lubricant; but we have an
t , if you will get the jolnt perfectly tight, you

 per cylldier and condensing nin lower. Feed water is
taken from condenser rop botler. Te. drum deteriorateseng opomething eating holesis in the sur.
dace, some of which are large enough to place theend $o$ Afinger In. and the.bolts which protrude into drum frond
heck
val hakes a moderate ammount of seaie which becomes s most.
mate IV detached whenaboutz\} finct thick. Pressure of steam
is 40 pounds. Please give your opnition as to the cause of this corrosion or deterioration of mud drum. An.
wer: We have Enown cases of this kind in which the tho cyllinder, which the lub tcating material used thence into the boller. We cannot say positively tha the corrosion il
quite probable.
T. E.C. asks: How much resistance is re miles an hour? \%. Which is the best patented stea ear brake, the cost of the same, and the cost of beeplng It in running order? 3. In now short a apace of tism, ed by the best brake? Answeis: 1. The moving forc of the car can be ascertained br multiplying tis weigh
by the square of tits veloctty, in feet per second, and dit Vlitur by 644 . Suppose a car, moving 30 milios an hour
welght 88.00 poonds. $A$ speed of 30 miles an tour eesponds to 44 feet per second and me power reaur cor ostop the car will be sufficient to raise $\left[44,000 \times(44)^{2}\right]+$ 64:4-1, 1,42,981 pounds one foot hlgh. 2. Witb so many
eompetitors for public favor, It would be out of place eompetitors for publc favor, tt would be out of plac
for us to name any one as the best. We adrise you correspond with the different manufactureers. S. . It A. W. I. says: I differ from J. E. E. in his eat sized circular saws. He says that "a saw just large
enough to cut througha board will require les, power than a saw larger, the number of teeth, speed and thicl
 teeth, and one 64 Inchers with 56 teeth, all 18 gage In thick or 14 Inches cut with less nower that ethough a 12 others. Idiffer with him concerning the saw with few
teeth cutting tbe easiest, as my 52 Inches saw with teeth takes more power than elther of the others; and
Irun the same hook to the teeth, and flie them all ex. actly alike. My engine 18 small and tim ber large, so
that have every facllity for finding out which cuts with least power.
$\underset{\text { asked for a rectpe for cress:ul gold for dental uses: Take }}{\text { W. . }}$ any gold, the purer the better, roll into thin ribbnns and
dissolve tin aqua reg $a$ or 1 part nutrcic acld and 3 patid hydrochloric actid, bs measure. After actlon has ceased pour off into a deep glass jar, leayting the silver alloy tin orm of a chluride. Dilute the clear bolutian of gond With an equal quantity of water, and slowly add a batu
ratei P olution 0 protosulphate of ircn in water, which precipitates the gold as a brown powder. Pour off th water, etc., wash the powder with several waters, dry and amalgamate 1 tw with mercury to the consistency
hick cream. Wash out the oxlde found durtng thick cream. Wash out the oxide found durlng amal
gamation with alconol or salt watcr, and put the mive ture ints pure nitric acid, retting the dish into a hot sand $b$ th. The acid dissolves the mercury, leaving the gold ta form of a sponge, whicn wash with water and
anneal a a a red heat fo 1 alf of acid or mercurv. The porosity will depend on the thlcsndse of the amaligam. The softer the amalgam, the
ughter the sponge. There are diftculties attending the process, owing to tmpurity of chenicalls, mercury, etce.,
which are so great as to make it tmpracticable for an alateur to make the eold as cheaply as he can buy it in
the market aut the bove the market; but the above directions are reltable, as the A. M. asks for an explanation of the word penny" as used to de.cribe the size of nalls. Answer In the early history of our country, all nalls were
wrought (forged by hand); our currency then was poundes shillings, pence and farthings. Each sized nails
were sold by so many pennies per nundred. The usual were sold by so many pennies per pundred. The usual
way was to ask for fecurpenny naili, sixpenny, tenpenny
 teid of the price in pennies per hundred. When cut nalls wrer introduced, the sizes were still designated by pennies; and this has ben continued and in all proba.
bulty $\boldsymbol{m i l l}$ be, as long as nalls are used..J. E. E., of Pa.
C. F B says: In filing hand saws, the mathe teeth with nure bevel on the back slde than on the front, which is caused by the taper of the file. A few
persons file their saws towards the point, which give more bevel to the front or cutting slde of the teeth. think that the back side of the teeth should he fle rennam sharp much longer. The front side of the teeth
ehould be beveled to suit the timber; soft wood re. quires more bevel than hard wood. Answer: The corhand saw, as it to only hatended to cut oneway.-J.E.


## communications received.

## The Editor of the Scientific american

 ckno pon the original papersOn Steam and Compressed Air. By-.
On Retrogression of the Sun. By J.A. B.
On the Patent Right Question. By R.H.A. by M. J.. by T. W., and by L. G. J.
On a New Motive Power. By H. P. J
On the Nebular Hypothesis. By E. H. P. On a Shocking Accident. By J. E. E. On the Case of Stearns, Hill, \& Co. By J.F. On a Diagram of the Months. By E. B. W On the Multiplex Telegraph. By J. T. On Steam on the Canals. By S. W. H.
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also those naving goods for sale, or who want to ind



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Parer, apple. W.A. C. raks

| Parer, apple. W. A. C. raks. Pespary, O. M. Muncqster. Piano, G. C. Manner |
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Planter, cottcn seed, J. L.
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Sharpening machine, S. .F. Emerson
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25,978.-TAOKLE BI.ock -I. E. Palmer. Oct. 15 .
25,984.-BITSTock.-N. Spofford. Oct. 15.

EXTENSIONS GRANTED. $1,915-$ Castina Copper Cyinnders.-F. Adams. 24,923.-Elevator.-A. Betteley.
24,952.-MEAF CUTTEL.--J. G. Perry. DISCLAIMERS.
24,963.-Flour Packer.-S. Taggart.
DESIGNS PATENTED.
6,776 to 6,778.-NUBIAs.-H. Boot, Phlladelpha, Pa.
6.7. 9 -HANDLE TIP.-G. W. Bunnell, West Meriden,Ct. 6,780-HAND BELL.-E. G. Cone, East Hampton, Ct.
6,78i to 6,785 . -CHaiN s.-V. Uraper, s. Attle boro', Mass e,784.-CARPET.-J. Powell, Kidderminster, England.

TRADE MARKS REGISTERED.

 1,775--STove Polise.-Fletrher \& Co., Lynn, Mass.
1,773.-Brandy.-H. Imhorst, New York city. 1,973. -BRANDY. - H. Im horst, New York city.
$1,377$. .STEEL AND IRON. -Leng \& Ogden, N ew York cit



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