N. R. H. asks: How can I make india rub-
ervious to kerosene ofl? Answer: You cannot prs.
 ought to last long enough to make its renewal a pought to last tong enoug

1. A. H. asks: Is nickel plating a surcess
generalt thing, and can zinc be successfuly plated nickel? Answer: Nickel plating is a succeses, bul
ela no known method of plating zinc. The acid 819 no known method of plating $z$ Inc. The acid
used 18 an obstacle, the aclids attackling the $z$ Inc at
is lese penetratifng the dry heat of the Turkish
 at of hot dry arr. The rapld e eapaporation from the ice of the body preventrs she nteronal heenting of the 1. If the air be motst, however. or the medium of
be steam, a temperature considerably below a120 $\stackrel{\text { woul }}{\text { man }}$
F. A. asks: 1. How can I melt old compo
 greadents used in making the composition roller use? 3. Can you :nform me how the compostt1o
by decorators for looking glase frames, etco den deorators for 1oking lass frames, etc., 1 is c: ing them in Tessel surrounded tybolling water, the ordinary lue pot. When melted, you can pour
omolds. 2. Dissolve, in two pounds of molases molds. 2. Dtssolve, in two poundis 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 ater. . Decorators use tor gllding, what isknown
osaic gold", a blisulphuret of tin. Thlis is mixed S. B. asks how to recover diamonds from ne, or ary substance that will remain tor a lengti re suspended in water, by the follo wing eanns:
de a large tank, fited with a surrer at the bottom. a a large tank, fitted with a stirrer at the bottom. the taik is full of water and the stirrer in motion, sedebris in as fine powder as possible. Let a pipe
off the surplus water at the top of the tank. In an, with plenty of water, you can wash free fro.n E would like to know the rule for find making 420 revolutions perminute with a belt run-
in a 10 inch one; what would be the number or itions of the small ore? Wh $t$ is the rule forsuch nstances, are inversely proportional to their diam.
In the case men foned, the speed of the smaller , if the belt did not slip. wouldbe $420 \times 22+10=924$
H. D. asks: 1. Is an encine shop the what manumpe work at what my lart ts set upon, in preference to anythlug else? 3rs: 1. Probably a large machine shop would be
or acquiring a general knowledge of the work, on Jr acquiring a general knowledge of the work, on
at of the great variety of machin ery constructed ta place. 2 We cannot recommendany particuablishment. Try and get in a 8 hop where themen courazed by the owners to study and improve
elves. 3. If you are so striated that you can elvir favorite pursuit, by all means do so. That 1 t S. L F. says: Can you refer me to any take to force water up wso feet high, at the rate of
lons per minute? Answer: See article on "Fric: Water in Pipes," on page 43 of our current vol-
The power required in your case will be that used ag the water, and overcoming the resistance dae tion.
C. C. asks how to take off window glass
lutsh appearance $\varepsilon$ aid to be caused by using creoid sulphur. It makes its appearance whlle the going through the tiattening process. An wer edefect inits mode of manufacture. Too mueh would be apt to cause it. If only on the surface, R. C. asks: Will a railway head, conrds without alteration? Answer: It will pro
decessary to change the trough and gearing. O. S. says: I have a small sailing boat
sh to convert it into a steamer. She is 22 feet d of 8 feet beam. What number of horsepower
nt to run her 12 or 15 miles an hour ${ }^{2}$ What be thesize of wheels and what the length, width, mber of buckets? Answer: See Gimensions pub
n Scientific American for May 10,1873 . O says: We had a new engine cylin-
in this spring, 14 by 24 inches, with circular valve vattern. The supply pipe and gove rnor are $31 / 2$ s between t ports and cylinder are about $91 / 2$ area, but the passages above the ports are onty g that the valve and passages are exacily rigbt y 70 pounds of steam and run 96 revolutions per chaim that the st/am is wire drawn, and
obtain the full power or engine. Please say ve is properly constructed. Ans. We think ave more area than is absolutely necessary to wire drawing
'. I. asks: What is the effective power
by 24 inches cylinder stationary engine, running oller as shown by gis? he power that would be available for driving lachinery after deducting that necessary to run
the itself. Answer: We could not answer this a other wise than approximately without a prac orse power.
. says: The joint between the cylinder
ve jacket or my engine is badly eaten a way, am unable to make a tight jolnt witu rubber have tried red lead and iron borings, but it will
t 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 it
utfleut to break the connection if this ; done tsh to mabe a jolnt that oan be readlly broken,
;parts fled off. If you think the tallow causes Ele, trysome other lubricant; but we have an
t , if you will get the jolnt perfectly tight, you

 per cyllinder and condensing in lower. Feed water id
taken from condenser for botler. The inside of $m$ and drum deteriorateen oy yomething eatng holes in the sur.
face, some of which are large enough to place theend o finger In, and the.bolts which protrude into drum fron makes a moderate amount of scaie whichbecom"s mest IV detached when about $3 / 6$ inch thick.
$f$ this corroston or deterior opinion as to the cause wer: We have known cases of this kind in which the the cylinder, which passed into the condenser and thence into the boller. We cannot say positively that the corrosion in
T. E. C. asks : How much resistance is re. miles an hour? 2. Which is the best patented stea ear brake, the cost of the same, and the cost of keeping it in running order? 3. In how short a a pace of tim-
can a car running at the rate of 80 miles an bour be stop ped by the best brake? Answeis: 1 . The moving force of the car can be ascertained by multiplying its weight
by the square of its velocity, in feet per second, and dilidtog by 644. Suppose a car, moving 30 milles an hour
welght 88,000 ponnds. A speed of 30 miles an hour cor responds to 44 feet per second, and the power require to stop the car will be sufficient to raise $\left[48,000 \times(44)^{2}\right]+$ 64:4-1,442,981 pounds one foot high. 2. With so many
eompetitors for public favor, it would be out of place for us to name any one as the best. We advise you to correspond with
$\underset{\text { rep'y to H. B., concerning the power required for differ }}{\text { A. . W. . . . }}$ eat sized circular saws. He says that "a saw just large
enough to cut through a board will require less than a saw larger, the number of teeth, speed and thick ness betng equal in each." Nuw I am running three
vaws, one 48 loches with 43 teeth, one 52 inches wih 42 teeth, and one 64 inches with 56 teeth, all 8 gage in thick or 14 inches cut with less power than etther of the others. Idiffer with him concerning the saw with few teeth cutting the eastest, as my 52 inches saw with 42 teeth takesmore power than etther of the others; and
I run the same hook in the teeth, and file them all ex. actly alike. My engine ts small and timber large, so
that I have every facllity for finding out which cuts with least power.
$\underset{\text { asked for a recipe for crysial gold for dental uses: Take }}{\text { W. . . . . . }}$ any gold, the purer the better, roll into thin ribbins an hydrochloric acid, by measure. After action has cease pour off into a deep glass jar, learing the silver alloy in iorm of a chluride. Dilute the clear solution of sol with an equal quantity of water, and slowly. add a satuprectpitates the godd as a brown powder. Pour off the water, etc., wash the powder with several waters, dry and amalgamate it with mercury to the consistency of hick cream. Wash out the oxide found during amal
gamation with alcohol or salt watcr, and put the mix ture into pure nitric acid, setting the dish into a hot sand $b_{t}$ th. The acid dissolves the mercury, leaving the goldin form of a sponge, whicn wash with water and
anneala aca red heat fo: half an hour to expel any traces ald or mercury. The porosity will depend on the thickndss of the amalgam. The softer the amalgam, the
Hghter the sponge. There are diflcult:es attending the process, owing to impurity of che.uicals, mercury, etc..,
which are so great as to make it impracticable for an amateur to make the gold as cheaply as he can buy it in the market; but the above directions are reltable, as the
wri er has made severg lots from this formula. A. M. asks for an explanation of the word "penny" as used to de cribe the size of nalis. Answer:
in the early history of our country, all nails were wrought (forged by hand) ; our currency then was pounds, shillings, pence and farthings. Each sized nails
were sold by so many pennies per hundred. The usual way was to ask for fourpenny nailz, sixpenny, tenpenny, ted oy the price in pennies per hundred. When cut nalls ware introduced, the sizes were sclll designated by pennies; and this has becn continued and in all proba-
billty will be, as long as nails are used.-J. E. E., of Pa. C. F B says: In filing hand saws, the ma-
jority of mechanics fle toward the handle: that leaves the teeth with nure bevel on the back side than on the front, which is caused by the tappr of the nile. A few
persons file their saws towards the point, which give more bevel to the front or cutting side of the teeth.
think that the back side of the teeth should he flle nearly square across; the saw will cut equally well and
ne that renam sharp much longer. The front slde of the teeth
should be beveled to sult the timber; soft wood re. quires more bevel than hard wood. Answer: The correspondent is perfec:1y correct in his idea of filing
hand saw, as it is only intended to cut one way.-J. E. E.

## Communications received.

The Editor of the Scientific american cknowledges, with much pleasure, the $r$ eipt of original papers and contributions pon the following subjects
On Steam and Compressed Air. By-_.
On Retrogression of the Sun. By J. A. B. On Retrogression of the Sun. By J.A. B.
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## Also enguiries from the following

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-T. Z.-E. B.
I. L. McL. - P. A. S. - T. P. P. Correspondents whe write to ask the eddress of certain aanufacturers, or where specifle. arlcles are to be had,
also those having goods for sale, or who want to $\mathbb{I n d}$ partners, shoula send witt thetr communications an amoun toufficlent tu csver the cost of publication under
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APPLICATIONS FOR EXTENSIONS. Applications have been duly fled, and arenow pending.
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25,854.-Bronzing Machine.-G. H. Babcock. Oct. 8. | 25 888.-Glass Coffin.-J. R. Cannon. Oct. 8. |
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EXTENSIONS GRANTED. 24,963.-FLOUR Packer.-S. Taggart. 24,923:-Elevator.-A. Betteley.
24,953.-MEA C Cutter.--J. G. Perry DISCLAIMERS. 24,963.-Flour Packer.-S. Taggart. DESIGNS PA'TENTED 6,776 to $6,778 .-$ Nubias.-H. Boot, Philladelphia, Pa.
$6,79 .-H A N D L E$
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 1,273 - M EDicine.-D. Dick, A ew York city.
$1,374,-$ Mineral Water. C. \& E. E. Dunbar, Waukesha 1,s75.-Stove Polise.-Fletr.her \& Co., Lvnn, Mass. 1,s73.-BRANDY.-H. Im horst, New York city.
$1,377 .-$ STEEL AND IRON $-L e n g ~ \& ~ O g d e n, ~ N e w ~ Y o r k ~$ 1,378.-Toвacco.-Loewenthal \& Co., Chicago, 111.
1,379.-SOA Pstone Packing.-Sellers Bi os., Pbila
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