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rylan stone, address Steam Stone Cutter Co.,Rutlana,vt.

A. P. asks: Is there an invention for ex racting watery mat?
preserving the meat?
 southerly wind in summer. Can you tell us of any preparation that
npurethe oll?
A. E. S. says: I tried to make ink by follow but as soon as I put in the blchromate of potash, the
 U. E. asks: What are the cause of and remedy for the cracking or taps, etc., when in process of
hardenting tin water?
oil will not always make them
 usually accompanted with a report, espectally in the C. E. asks: Can you give me a reliable ap-
proximation of the torae power required to drive the different slinds of cotton machinery, namely, opening and lapplng machnes, carde, drawing, coarse, interme
diate,
and spoollng, warplug, slashning, weaving, etc.?
D. T. asks: What is the best process for
mitating Ruseli leather ? R. C. . K. desires to know the difference cf
strength, for farm purposes, in ashes made from white ood and trom oaks, maple and blrch
J. H. P. asks for a for mula for deternining
Ith accuracy the contents of a barrel or cask when onls
S. A. T. asks for a recipe for a dead black blacsboard" on white pine.
S. A. T. says: I should like a recipe for
anking hard soap for tollet use, say about 25 lbe, quanAty,colored and perfumed.
W. H. R. asks: Can magnesium be ob$t$ what price, and how arelts characterlatic cualute an
W. F. H. asks for the best method of cleaning
emoty cider barrels so that they will be eweet whe empty claer barrels 8 ot that the
wanted for use in the next fall
 the degree below proof and what the gravity? 2 . How
 ne of lower proot?
B. L. B. asks: Is the temper of steel knives
mpatred by cuttin
apples or other rruit? If so, why? B. L. B. says: I have noticed that my var-

 | tIn cups, |
| :---: |
| affect tit? |

J. W. K. asks: Would there be any advan-
 $\substack{\text { terproof, , oas to retain the buogant propertles of dry } \\ \text { sponge? }}$

## 

J. B. asks how to prevent food, put in
cupboard newly palted ingide and grained outside
 are thoroughly dry
E. J. M. says: Near here was a high pres as repreaented below. Durlig a cond emap, the iltitle globe marked B was found filled with 1ce, and a plece
was brozen out. It puzzee us to would have been Alled with water, when there was could have been diled with water, when there was
nothing to prevent tita fowting back to the bother as fnat
 dameter, filled up and froze arst. There'b the rub, as
how didan ymore pase, on at to filt the globe? $A$ frend

 be able to circulate within and to ailow or the entranc of steam or ar tr to dapplace tit. The plpe should be mad
at least $X$, and stralght rom $B$ down to the lower end.

J. B. D. says: 1. I heard some gentlemen
ave an argument about the rainbow. P. K. C D. sags the bow is in the clouds beeause God put it there, that all the nations of the earth might know that it would not be degtroyed by water agatn. I contend that 1 th the the
sunabnining on the ratin, refecting on the cloude, because sun. The bow shows more platinly on the oky than theclouas. Mavenever been a bow in the soath or north. I once ea w a very till tree fallin ino river. This
 ever I Baw. 2. I have heard 14 sald that the machnery
of a mater mill ran 2 per cent faster In the night than In the day time. The water appeared to be the same. What
was the cause of it? $\mathrm{s.1}$ want to know the cause of znockIn in in an engline. One engineer asys it is in the crosa head, anotherraags it was an up and down or side knock in the wrist. Answers: 1. The cause of the rati of 1 ght from the enn, , our correspondent. The ray of 1 Ight from the gun, refected and refracted by the
trangparent raln dropa, are brought to the e ese tin such a manner a to to cause the e beantitul cololors that character-
tze the rat

 to produce the ratnbow may have qrat occurred as
stated in the scriptures. $\operatorname{scriptural}$ trutha and the trutho of nature enerer conalitct, althoung our 4 nterpr tation of the former often creates an apparent contra-
diction. 2 . We do not $t$ snow what 18 the cause of the

 ropes, $\mathbf{c}$ c, the other by one continuous rope $\boldsymbol{C}^{\prime}$, passing
ander ander pulleys with smooth fat faces. Some assum


 swer: There would be no difference in the amount of stratn on the rope, and one would be just as likely to
part as the other, if the ropes are equally part tas the other, it the ropes are equally strong. The
tension on $C^{\prime}$ must be bual throughout, at $A$ as well as
J. B. P. says: A circular sawivg machine
un by one ortwo men with cranke, has two 11 ght bal ance wheels, 20 inches in dameter. Would there b gatn, orloss, by placting a large balance wheel beneat the foor, connected by b belt with themachne? If auch
a change tis advisable, what alze and welght of whee
 We Bhould not anticlpate a galn, and the fric

 many lbe. of team we should carry to give one half of the power as deacribed above, and allo how we should
 ably 4010 bb , team would glve about halt power. It cal only be determ
olnamometer
E. says: One of our workmen from England
gave ua the following rectpe for removing scale
 ectlonable otherwise? slbs. gum catechn, 3 Ibs. black 1ead, 6 bs. crystals Boda. Anser: The mixture woulc
do o ho harm, probably, unleas when used 1 n exceess; the accomponitlon or he gum ihoula produce vegetab) scldas. Let us know, ir it secceeds, w.
you have, and the nature of the scale.
F. O. C. says: 1 . I claim that in order to get
pertect combuastion, you must not admit any more alt under or through the ire than it will congume, for 1 you
do, 1 will tend to deaden the fre, and to lose the heat that you would get if only the right quantity were ad mitted. A friend clasms that th does not matter how much arr $y$ ou admit to the fre, and that all the difference
ig that the
 well as at first. 2. My frlend asays the clussices are the foundation of everything tin the matter of learning. I say they are not; and that, if a great part of the time
gpent on them were devoted to nathematice mechanal dratting, drawing, natural phillogophy and some other practical studles, there would be many less dronesin the battle of lffe, and that we thould have many more young men ready and willing to work. Many a father and
mother will work to stuff their chlldren with French and German ; and when the parents drop by the
 the seventh to the frist Sabbath was not changed from centurrees at ter C Crrist, and that by the Pope. I clasm that that changed it when He arose from the dee, and been so regarded by hastorians ever stice that time; and that nownere tn the New Testament, atter the death of
Christ, can you find $1 t$ mentloned as any other than the arrt day of the week. 4. On pagc 251 of your current

 is right? Anwers: 1. Were it possible to reduce the temperature of escaping gases to that at which they entered the furface, ally, however, he wrong. The however, found usurequired to combine with the fuel, in order that complete combustion may take place. The excess causes
some loss, but it is not so serlous as would be the loss from Incomplete combustion, were a less quantity sup.
plied. About 12 pounds ofair per pound of fuel would be suffletent, could time begiven it to find and unite with every atom of fuel. It 1s, however, necessary to supply
usually 24 pounds, sithough in some cases of forced draft the quantity has been brought as low as 18
pounds. 2. To a man of fortune, or to the proposes to devote his iffe to study, we should say tbat his education would be fncomplete did it not include a snowledge of the classcs. his own Intelligence, energy and education for support and for success in life, we should commend a thoroughis practical, technical course of study. Were we desirous of atting a son for a high position as a workman,
and to take a valuable position as superintendent of a manufactory, we should send him to pome such school pred to dubirial school at Worcester, Mass. If he aswe might give tima a hifher course of study in such a
school of engineerlng as that of the Stevens Institute of Technologs, at Hoboken, that of the Massachusetts In-
stitute of Technology, in Boston, or that of the Sheffeld School, at New Haven. To make him a good civil englneer, we should go to a spectal school of engineering
ilke that at Troy, N. $\mathbf{Y}$. The necessity of such schools has long been seen by us, and in answer to the rising de-
mand they are springling up all over our country. Their success is one of the most encouraging signs of the
tImes. 3. Your friend is about right. The change how. tmes. 3. Your friend Is about right. The change, how
ever, was a gradual one, beginning with the time of Con stantine the Great,In thefourthcentury. 4. Six ounces
E. W. G. says: 1. I bave two engines run
Ing a circular sam mill. They have cylinders $8 \times 22$, set about 5 feet apart and connected by a crankon each end pipe is 2 Inches, about 30 feet from boller to near the cyllinders; then It branches to each steam chest with $11 / 8$ nch plpe. The question Is: Is this 2 Inch plpe large enoughfor the maln pipe, and the 1 x tnch for the branch
es? 2 . The regulator valve is about half way along the malu plpe; would it be better nearer the engines or the boller? s. My teeam gage shows 10 lbs. When at rest,
and we usually run the engineat 60 lbs. by it. Do we really have 60 lbs., or only 50 lvs.? Ts there any way of main pipe about $2 X$ Inches diameter, and perhaps 3 Inch-
es,if the engine were running at high speed, and the es, if the engine were running at high speed, and the
branches 2 Inches. 2 . The regulator should always be as near the cyllider as positble. 3. Probably 50 lbs. Have L. P. C. says: I would like to know how
arge a round chlimey would be required for a boller with 88 three Inch tubes. In other words, ought the chlmney to contalin the same number of inches in Its
area as the sum of theareasof the tubes? chlmney ts usually made of somemhat less cross area han the collectlve cross section of the tubes. A com-
non proportlon, when natural draft ti employed, glves
the area over bridge wall one elghth the area of grate, the area over bridge wall one eighth the area of grate,
one ninth through the tubes, and one tenth in the chim.
 There is a drum of wood 12 feet in dameter, connecting in dlameter, and a large drum about 3 feet in dameter. I use two cylinder bonlers, no flues, 34 fuches in diamete up steam, with wood sometlmes partly wet. The smoke atack is of Iron, 26 inches diameter and 30 fect long. lust and wet grate surrace should F hive to burn saw Which is best of the two, and at what point and in hat way should it be applied? How many revo ress perminute should the saw make cutting soft cyrevolution? Answer: Run the saw about 60 revolution ser minute. There are many devices for burning we
saw and spent tan bark, few of them satigfactory, however. A blast must be used to burn them on ordinary grates, but it is better to make special furnaces fo them, with large area of grate, and with provision for
drying them before burning, and allowing considerable
S. B. E.asks: What injury, if any, would hotoll, say at bolling point? Which lens would be bes
tor mintature bull's eye lantern with very small fame plano-convex or double convex? Answers: 1. Ther noulu be no injury to the ma. . But hot oll has less body than cold, and would be less
valuable as a lubricant. UUIfg hot oll would compel raning as a lubricant. Uilig hot oil would compe nd overheating in consequence of ex panslon with the heat. 2. Plan
eource of light

