H. H. J. says: I I have been studying upon
harvester to reap and thrash the grainas it runs, teaving the straw on the ground and delivering the grain to
a proper receptacle; out I am told that the tea Im not
new. One man tod me that such harvesters are used in California, but 11 takes 25 horses to run them. What is
the reason that such a machine tis not th general use? 2. Can a chemist ascertain by a quantity of scum on the water, Whether it comes from any mineral or not? ${ }^{\text {Where }}$.
 count of the expense attending its employment, or its not being adequate to the work required, on account of
anat of simplictty or easy derangement of trarts He can. 3. Oxide of manganese is found in the United States in Vermont and Massachusetts.
$\underset{\text { rifte rise above a horizontal line drawn through the cen- }}{\text { W. F. }}$ ter of the barrel, orwillit continue on a direct line? In
neither case is the rffe elevated. Answer: The ball will neither case is the rifle elevated. Answer: The ball will
follow neither of the paths mentioned, but will describe a curve, continually falling under the infuence of grav-
D. \& W. Say : A reservoir at a certain hight
has a pipe leading from it, which pipe has a stopcock at has a pipe leading from it, which pipe has a stopcock at
its end. Is the pressure on each square inch of the pipe to fiow, or shat, cutting of the water? If not, why not? No account is to be taken of the coup demarteu caused
by closing the cock. A nswer: The pressure will be diferent in the two cases, for the reason that when the overcome friction.
C. E. A. asks for the modus operandi of raising a number to a fractional power without the use
of logarithme. For example, raise 2 to the power of 3 3
ion Answer: Raise the number to the power indicated by
the numerator of the fractional index, and extract the root indicated by the denominator. In the example
given, you should take the tenth root of the thirty-sixth gower of 2 .
J. B. P. asks what is asbestos, and what is
Its original formation? A nswer: A sbestios is a mineral Its original formation? Answer: A sbesios is a mineral
substance. It is a silicate of magnesia. It is composed and oxygen.
-. R. B. asks: What should be mixed with ground asbestos to keep it from being blown out of
tuffing boxes when used for packing? Will oll or tallow do A
W. S. A. asks: Would a balloon filled with
smoke rise? Answer: Smoke really consists of fine particles of unconsumed carbon, which are elevated in the atmosphere by the warm current of air or gases from combustion in which they are suspended. These par-
ticles of carbon, however, after the air surrounding them has cooled, or after they have dififted into a cool-
er atmosphere, ultimately fall to the earth. The term smose, though, as generally understood and as you evidently regard it, embraces both the unconsumed carbon
and the surrounding hot air gaseous media. This would raise a balloon a certain hight until the hot air, etc., fillWhen the balloon would fall.
S. asks: From 900 gallons liquor at $15^{\circ}$, how much evaporates at $22^{\circ} 5^{\circ}$, at $30^{\circ}$ and at $36^{\circ} ?$ Answer: The question does not give sufficient data for an explicit answer. What is the alcoholic strength of the liquor, that is, what percentage of alcohol does it contain, and
does the writer refer to Fahrenheit's or the centigrade does the
scale?
C. M. asks for a recipe for removing print-
ers fink paper. Answer : Printer's ink consists of a mixture of linseedo oil and lamp black, a kind of very finely divided carbon. There is no solvent for the carbon,
but the dried oxydized oil might be removedto some extent by sulphide of carbon or ether, and with it some
 paper, the Ink is removea in the process of bleaching, chloride of pulp is exposed in a vat to the action of
Tne removal of the carbon of the fik in this process is due to mechanical not to chemical, ction. The carbon is not bleached by the chlorine, but material is passed, as pulping, washing, etc., serve to ash away and obliterate all tracesof the carbon of printer page, the only effective way is by scraping wit W. P. H. says: In coativg friction matc not hold the emery on to the tin firmly, and it does not not hid the emery on to the tin frmly, and it does not
harden. Can I use any other pr paration instead of
varnish, or can I put something into the varnish that will cause it to dry quickly? Answer: Your varinish
probably does not contain a sufficient amount of spirits of turpentine cr other dryer, or it is otherwise improp. erly prepared. Use a spirit varnish, consisting of shellac, broken fine, and yellow resin, each $1 / 31$ lbs., rectified pirit 2 gallons; or shellac 8 oz., alcohol 1 quart ; digest
in close vessel in warm place 3 or 4 days, then decant and strain. You can try a strong solution of glue, ap-
plied to the metal with a brush, like a varnish, dusting
e emery over the sur w.
A. says: The following question has arisen: focal length of a watchmaker's eye glass, by forming the image of the window on a piece of paper and meas-
uring the distance from the paper to the glass, assuming that to be the focal length. B, Who was standing by,
said :"Go farther back from the window; an object so close as the window is no fair test." A insisted that it made no difference; that a four inch lens would show near or remote the object. The following statement
was drawn up at the time; " The nearness or distance of an object from the lens does not vary the focus, that is the image formed by the lens is constantly at the sam
distance from the lens, no matter what the distance of the object $\dagger$., B contended that the focus receeded as the
object advanced; or that the focus for near objects would be fartherf rom the lens than for distant ones and that the test to get at the rated focus of a lens wa
with parallel rays. Which wasright, A or B? Answer 8 was right. The solar focus would be practically the
focusfor parallel rays of the lens mentioned.
S. H. S. asks: 1. If green hams are put into
tank filled with brine (ham pickle) and a strong pressure put on the brine, will the meat take up the brin and cure faster than if there were no. Are there any
the brine be forced into the meat? 2 . Arest
methods of curing hog meat in pickle, other than he one now cused, namely, brine made of water, selt the one now used, namely, brine made of water, sal
saltpeter, molasses and saleratus? 3. Will honey mi
with above brine and not be deleterious to same?

Cana fayoring be added to such a pickle, as lemon,
vanilla, orange, etc.? Answers: 1. The brine will be forced into the meat at a greater or less depth, accord.
ing to the pressure. 2. There are various recipes for pickle. The following is sald to give a fine red color and superior flavor to ham: Bay salt, 3 lbs., saltpeter each, brulsed, 1 oz., water 9 pints ; simmer together in clean covered iron or enameled vessel 7 or 8 minutes
when cool, remove scum and pour it over the hams. whencool, 4 . Fes .
W. M. R. says, in relation to the idea pubIshed on page 132 of our current volume : A pplying a 30 I once looked at the image of my Gregorian with a spy still, but I wished that I could put them to y. Answer: The ordinary compound microscope is under-corrected" for use as an eyepiece, and must be specially made fort he purpoge. The small telescope is
used for viewing the spectram of the sun's chromo sphere. The combination of colllimator, prisnns, and small telescope 18 attached to twoparallelbalancerods,
H. . says: Our power is a turbine wheel ; and with the head and fall, we have, according to the
makers' estimate, about 15 horse power. There are engths of shafting, each 40 feet, connected by 2 feet beve gears, and at the extreme end of the said shaft, 80 feet
rom the wheel, the greatest amount of work is requir fit. Upon the machine driven is a 5 feet drum, and nnning seep the belt down. The distance from center to cen-
ter of puliey and drum is 11 feet. There are eight journals or bearings in the entire shafting. When there 1 othing to drive but the machine, what amount ightener? Answer: We could not answer this que ionwithout more data. It ordinarily takessome power to drive a tightener; but as it prevents
sllpping, teere is a gain of usefuleffect.
Minerals, etc.-Specimens have been re eived from the following correspondents, and examined with the results stated:

## y antimony

V. E. H. $\rightarrow$ Beryl, a mineral composed of silica end and allied in composition to the emerald.
W. F. S.-Selenite, a transparent vartety of gypoum
E. W. T.-Pyrites in ferruginous quartz.
W. K. S. $\rightarrow$ Chrysocolla, a silicate of coppe
C. G.-Sandstone with the imprint of some fossil ani-
G. W. S.-Oneis charcoal and

## T. B. J.-Ferruginous quartz.

A. G.-The green mineral occurring in spots in the opper.
G. A.F.- Your specimen of limestone is hard and comact enough for lithographe stone
R. T.--Iron pyrites, only of value when found in large L. M. L. -The mine
valuable ore of zinc.

## COMMUNICATIONS RECEIVED

The Editor of the Scientific American acknowledges, with much pleasure, the receipt of original papers and
apon the following subjects:
On Indelible Pencils. By R. B. F
On Meteorology. By E. J. M., Jr
On the Million Dollar Telescope. By J. H. S., and by J. S. P

On the Cumberland Gap Cave. By A.L.S On the Bursting.Strain on a Balloon. By W. W.

On Steel and Quill Pens. By W. V. R. On the Compass on Board an Iron Ship By J. S.
On Lunar Acceleration. By J. H
On Down Draft in Stoves. By C. W
Also enquiries from the following
A.E.-A. K.-E.M. D.-N. P. S.-D. M. B.--W. P. H.

- W. S. B.-R. B. G.-W. S. $\&$ H. - H. W. P. - J. C. -
T. A. S.-J. B. R.-G. H. H.
manufacturers, or where specified articles are to be had also those having goods for sale, or who want to find partners, should send with their communications an mount suffictent to cover the cost of publication under
he head of "Business and Personal," which is specially evoted to guch enquirles.
Correspondents In different parts of the country ask:
Where can I obtain sulphuret of sodium? Who make Where can I obtain sulphuret of sodium ? Who make steam road carriages? Who builds really economical
coal-burning portable engines? Where can I obtain Mushet steel? Who makes the best piston for steam engines? Where can 1 obtain a lathe for turning axe and
broom handes? room handles? Is there a successful machine for sep, Who makes steam engtines at a cost of $\$ 20.00$ pach and under? Makers of the above articles will probably pro mote their interests by advertising, in reply, in the CIENTIFIC AMERICAN


## [OFFICIAL.]

## Index of Inventions

Letters Patent of the United States
Were granted for the week endina
September 2, 1873,
and each bearing that date.
[Those marked (r) are reissued patents.]

## Air compresser, H. P. Fairfie

A xle and thimble skenn, A. Kessberger
Axle, wagon, G. A. Bolser.
Bale etie, cotton, W. J. Orr.
Bale tie, cotton, H. D.
Basket, H. E. Jones....

Basket, grain, H. E. Jones
Battery, galvanic, A. L. No
Bed bottom, spring, C. H. Dunks Bed bottom, spring, Hill \& Van Valkenburg Beer, preserving, A. Adametz. Bell door, W. M. Preston. Billiard table cushion, J. E. Came
Blind slat fastener, T. G Spring Boat detaching device, W.F. Morga Boiller, agricuitural, C. M. Cloud... Boiler, steam, Douglass \&
Boller, wash, E. Schofeld
Booller, wash, E. Schofield
Bolt and rod cutter, H. Schmidt
Boot crimping block, Bordner \& Sullivan
Boot and shoe insole, J. Gascoigne
Boot and shoe last, P. Ware, Jr.
Boot soles, channeling, M. Wesson
Boot uppers, crimping, A.
Boots and shoes, P. Ware
Boring and drilling, J. J. Sherida
Brick machine P.
Brick machine, P. K. Dederick.
Bridge foundation, iron, J. B. Eads
Bridge, iron. J. B. Eads.
Bridge, Iron, J. B. Eads.
Bridge, iron, J. B. Eads
Bucket, butter, Gllberds \& Harri
Building block, T. Hyatt.
Building, fireproof, J. H.
Buildings, wall for, T. Hyatt.
Burner for heating,
Burner for eating, gas,
Can, fruit, M. O'Conner.
Car coupling, F. E. Howar
Car coupling, H. E. Lowr
Car coupling, H. E. Midd
Car propeller
Car propeller, J. Day
Cars by air, propulsion of, W. H. H. H. Bowers
Carbureter, J.
Carbureter, J. F. \& G. E. Lockwood.
Carbureting, etc., gas, T. G. Springe
Carpet, manufacture of,
Carriage, G. K. Tichenor
Carriage, steam, J. Grantham..
Chest protector, etc., Austin \& McMurphy Coal breaker, R. A. Wilder...
Cock, regulating, Sell \& Brooks
Cock, stop, Regester \& Bowen..
Combing tampico and bristles, etc., G. Willet Corpse cooler, J. Hoffman
Cultivator, cotton, E. H. Nelson.
Doors, ar cushion for J. Wetmo
Doors, air cushion for, J. Wetmore
Doors, weather guard for, C. A. Wood............
Douoling and twisting, Cockcroft \& Ackroyd. Drawing frame top roll, H. T. Potter.
Dredge, salt and pepper, D. C. Ripley Drill, ratchet, T. J. Sloan..........
Envelope, letter, J. D. Mc nulty errule, Green \& Bod w ell........... Fertilizer distribu
File and binder, paper, L. P. Keech.
Fire arm, revolving, B. K. Dorwart.
Fire arm, breech loading, D. Hug...........
Fire extinguisher, chemieal, A. E. Hughes
Fire place grate, J. L. Runyan..
Flower, artificial, C. A. Schaller....
Furnace, air neating, J. M. Wilson
Furnace, air neating, J. M. Wilson.
Furnace, blast and cupola, F. Lawre
Furnace, oll burning, F. Hungerford.
Furnace, etc., iron smelting, S. W. Harris.
Furnace, cinder plate, blast, S. W. Har
Gage, slding, J. Eaton............................
Garments, etc.,ironing. R. B. Sanson.
Gas, illuminating, W. H. St. John...
Gas tar, burning, A. Smith
Gate, hanging, E. Secor................
Generator, steam, W. P. Trowbridge
Governor cut-oft gear, H. H. Meyer
Grate bar, R. A. Hutchinson....
Hair wash, R. Travis...................
Harness maker's elamp, D. Elghme. Harness, check hook for, A. V. Sargeant.... Harvester cutter, W. E. Shoales. Harvester reel, C. F. Goddard... Heater anal blower, W. M. Jackso
Heating alr, J. A. Morrell Heating alr, J. A. Mor
Hinge, spring, W. Hoar.
Horseshoe nalls, J. C. Paige.........
Horseshoe nalls, finishing, R. Ross Horseshoe nalls, making, A. H. Car Indicator, high and low water, G. Walton Inking apparatus, G. P. Gordon.......
Irrigation, subterrranean, W. H. Pugh Irrigation, subterrranean,
Jack, lifting, D. Putnam.... Journals to rollers, attaching, G. Amsden Knitting machine set-up, H. L. Arnold Ladder, fire escape, W. W.

Lamp, Blaisdell \& Young
Lamp, J.C. Wharto
Lampextagulsher, Pike \& Graham
Lantern, decorative, C. C. E. \$chwartz Lead, white, M. Tolle....... McInt Lemon squeezer, E. M. Samm Lock, F. Gorris.
Loom, shuttle, J. Brown......................
Loom stopping mechanism, L. J. Knowles
Lounge, hammock, J. C. Craft...
Lumber, preserving and drying, J. Olver Map, dissected, C. J. Higgins. Medical compound, M. P. Munder Medical compound, S. E. Paddock Meter for liquids, etc., J. J. Greenough Mill, smut, J. Hintey
Mop head, J. Davis..............
Nasal respirator, B. W. James
Nozzle for drawing liquor, F. Nozzle for drawing Huor, F. C. Edward Oils, distilling heavy, H. Ryde Ore washers, gudgeon for, s. Thoma
Organ, reed, W. J. Kent Organ, reed, W. J. Ken

112, 312

aPPLICATIONS FOR EXTENSIONS.
A ppications have been duly filed, and are now pending
or the extension of the following Letters Patent. Hearngs upon the respective applicat
the days hereinafter mentioned:
26,339.-Water Whhel.-J. P. Colifins. Nov. 19.

EXTENSIONS GRANTED

```
25,239.-Elastic Hose Tubinc.-John C. Boyd.
```

25,343-STOVE.-E. M. Manigle.
25,344-WIRING JoINTs.-A.C. Mason.
25,373.-PAPER BoX MACHINE.-S. B. Terry.
DESIGNS PATENTED

 6,865 \& 6,866.-CARPETS.- . Crabtree, Philadelphia, Pa.
6,867. EscuTcHEON PLATE. -W.Gornan,New Britain,Ct. 6,868.-Toy Rail Car.-W. A. Harwood, Brooklyn, N .
6,89.-CAPE.-M. Landenberger, Philadelpha, Pa.
670.-VAILs.-S. M. Meyenterget al Pater M. Meyenberg et al.,Paterson, N. J 6,871.- Oil Cloth.-C. T. Meyer et al., Ber
6,82.-CAN.-H. G. Shook, New York city.
6, 873 -

TRADE MARES REGISTERED
1,430.-Pencils.-American Lead Pencli Co., N. Y. city.
 1,434.-MEN'S FURNISHING GOODs,-Fisk \& Co.,N. Y. clty. Phladelphla, Pa .
1,437.-Axle Grease.-Palm Oil Axle Grease Co.,Charle
1,438.--Bruseres.-C. C. Thum, Philadelphia, Pa

1441.-Cleaning Powder.-Wright \& Co., Keene, n.

SCHEDDLE OF PATENT FEES: On each Trade-Mark.
naling each application for a Patent (17 years) On isssing each original Patent.
On appeal to Examiners-In-Chief.
On appeal to Commisisioner of Patents.
On application for Extension of Patent.
On granting the Extension
On Aling a Disclaimer
On an application for
On an application for Design ( $71 /$ years)
n an application for Design ( 14 years)

