瓦 H

(1) J. S. asks by what means street venders of microscopes give the appearance of animal life existing in a drop of water. We have tried many
drops of stagnant water, but are unable to discover the drops of stagnant water, but are unable to discover the
existence of animal life to extent shown by them on the street. A. The vender has a little sour paste at hand of which he manages to get a particle in the drop of water he places in the field. See explanation in Sciev tific American of March 13, 1886.
(2) W. H. B. asks: 1. Is there any remedy that I can use to wash the eyes that will
strengthen them and not injure them? A. Use a little ealt in water for bathing them once or twice a day. 2. A description of a simple water motor that I can make to run a lathe? A. See Scientific American Su
(3) C. W. asks if photographer's tin type is too thick for the diaphragm of a phonograph.
What other substance could be used in the place of tin
type? A. Tin type plate, or very thin tin, answers very type? A. Tin type plate, or very thin tin, answers very
well. Mica has been used for this purpose, with good
(4) Bell asks: How many Law cells do I need to ring a small resistance electric bell 400 feet
distant? How do you work out such problems? Is there any other open circuit cell preferable to the sal ammoniac? What is the ordinary resistance of the common $2 / 3$ inch bell? A. Two or three would be sufficient. There is no way of working out such problems, as the
constants vary with every bell; the sal ammoniac bskconstants vary with every bel;; the sal ammoniac bosk
tery is the most popular for open circuit, although 4 he Lalande-Chaperon potash battery is excellent; there is no standard resistance for such bells.
(5) N. J. G. asks how to make one or two batteries (to put in the same circuit with two Leclanche batteries) to ring a large electric bell three or
four times a day. A. The battery describeã in Scien tific American, vol. 57 , No. 25 , if charged with a so lution cf sal ammoniac, may be used in circuit with Le
clanche batteries. The latter are, however, the best.
clanche batteries. The latter are, however, the best.
(6) J. L. S. asks if there is anything that can be applied to an old scar (in the face) that will take out the blue color. A. Under certain circumstances blisters made with croton oil have produced
satisfactory results, but all such experiments should be satisfactory results, but all such experiments should be
made under the guidance of a physician who is a spe made under the guidan
cialist in skin diseases.
(7) C. L. H. asks: How to make a liquid cement for putting bill heads, letter heads, etc..,
in tablet form, thatcan be applied cold with a brush, in tablet form, thatcan be applied cold with a brush,
and also, how to color it red, blue, or green. A. The and also, how to color it red, blue, or green. A. The per cent of glycerine made with a suitable composition mine, or any other dry pigment.
(8) M. F. B. asks : 1. Does the presence of copper tubes in steam boilers cause electrical action
to take place in the same? A. They are liable to to take place in the same? A. They are liable to
2. If so, is that"the reason they are not more used? A 2. If so, is that the reason they are not more used? $A$, copper and iron, with their a
cipal cause of their little use.
(9) B. P. asks how to test sugars and to detect if they contain any glucose. A. Dissolve the
sugar in water, filter through charcoal if colored, then add Fehling's solution, and a red precipitate indicates (10) F. A. F. writes : I have a valuit with oil-common kerosene. How can I remove the it with oil-common kerosene. How can I remove the
oil, without destroying paper or removing the ink ? A. Much of the oil can be removed by cautiously heating
the book, causing the evaporation of the more volatile constituents. Kerosene can be removed by passing a
brush dipped in essential oil of turpentine, heated, over hrush dipped in essential oil of turpentine, heated, over
the paper while still hot. When it is removed, dip anthe paper while still hot. When it is removed, dip an-
other brush into ether, chloroform, or benzine, and other brush into ether, chloroform, or
apply over the stain, especially the edges.
(11) L. W. M. asks (1) how to make or mix the wax for electrotyping. A. Put some coma slow fire; and when it is all melted stir into it a little
black lead or white lead, about 1 oz . to the pound of black lead or white lead, about 1 oz . to the pound of
wax. This mixture tends to prevent the mould from cracking in the cooling, and from floating in the solu cracking in the cooling, and from foating in the solu-
tion. Thixe should be remelted two or three times before using it for the first time. 2. The remedy for concaving of the mould? A. It will not concave if made thick enough. 3. What is "Star Moulding
Composition," which is something besides beeswas! Composition," which is something besides beeswas:
A. It may be the composition recommended in answer A. It may be the composition recommended in answer
1, or it may be beeswax alone, or a mixture of beeswax ith resin.
(12) H. P. writes : I have a spirit varnish made of juniper gum, $80 \mathrm{gr} . ;$ mastic, 100 gr ; elemi,
30 gr ; ; concentrated essence of turpentine, $60 \mathrm{c} . \mathrm{c}$. 30 gr ; concentrated essence of turpentine, 60 c c. c.;
castor oil, 25 c c. . i alcohol, 1 liter. I can color it red parent brown stain can I ase in connection with the
aboves (It is for vlolia varnish.) A. Procure an
aniline color fromithe druggist, of desired shade, and aniline color from the druggist, of desired shade, and
dissolve it in the afcohol, incorporating it directly with dissolve it in thearcoh
the other ingredients.
(13) A. Z. asks : 1 . Can you give me the formy/a for making quinine and rum hair tonic? A. ycerin, 4 oz.; alcohol, 3 oz.; water, 10 oz. ; tinct. cantharides, 2 drachms; sulphate of quinine, 25 grms.
oil of roses, 2 drops; neroli, 5 drops; tinct. cudbes oil of roses, 2 drops; neroli, 5 drops; tinct. cadbear
sufficient, and sulphuric acid sufficient to dissolve the quinine. The other consists of bay rum, 2 pints; $1 / 2 \mathrm{oz}$; ; tinct. cantharides, 1 oz . Mix them well. 2. I
ar junior only used after a person's name when the father
is living and bears the same name? A. When a man in is living and bears the same name? A. When a man in
business has become widely known as "Jr.," he some mes retains the same form
(14) N. U. asks: What will remov "rust "from window glass. It is something that forms
on the glass if stored in a damp place for a long time. n the glass if stored in a damp place for a long time.
Try a mixture of 30 parts of water with 7 of hydro A. Try a mixture of 30 parts of water with 7 of hydro chloric acid and a trace of iodine. Rub the plate with
linen rag moistened with the fluid and then polish.
(15) S. S. G. asks : Will there be any onomy in fuel by using the exhaust from the engin for heating purposes where a number of coils of 1 in
pipe are used, and will the engine loose any power b pipe are used, and will the engine loose any power by
so choking the exhaust? A. The use of exhaust steam is not only economical to the extent of its entire value as a heating element, but is coming into almost unive sal use in our factory practice. The later systems of ditional back pressure, and where long exhaust pipes are used can be made to relieve the engine fromits no mal back pressure. There are but very few places $w$ more than from $1 / 4$ to $1 / 2 \mathrm{lb}$. of back
quired to utilize the whole exhaust.
(16) C. J. M. asks : Is there any benefit derived from wetting bituminous coal before firing in an ordinary steam boiler furnace? A. None whatever, beyond the sticking of the dust and slack together, to
prevent its falling through the grate, or the dust being drawn over the bridge wall in brick set boilers, or into the tubes of locomotive boilers, without being burned.
All the water used in this way is so much heat wasted All the water used in this way is so much heat wasted
in converting it into steam to clog the tubes with rapory at too low a temperature for steam making.
7) R. S. desires (1) a receipt for mak an a cheap, penetrating liniment? A. Alcohol, 1 quart camphor gum, 2 oz.; spirits of turpentine, 2 oz .; and
cand tincture of cantharides, 1 oz . Mix. 2. A receipt for making a liquid glue. A. Fill a glass jar with broken up glue of first quality, then fill it up with acetic acid. melted. 3. A recerpt for making a cheap soap that will remove grease and paint. A. Take of aqua ammonia,
2 oz.; soft water, 1 quart; saltpeter, 1 teaspoonful; 2 oz.; soft water, $\mathbf{1}$ quart; saltpeter, $\mathbf{1}$ teaspoonful;
shaving soap in shavings, 1 oz. Mix together; dissolve grease eradicator.
(18) G. N. G. writes: In a 23 inch pinion driving wheel, with 24 teeth, with a 9 foot spur wheel, with 114 teeth, should the teeth be just the sam the pinion wheel be a little smaller than those in th spur? The wheels are on a pair of hoisting engines. A The pitch should be the same for both wheel and pinion, but the form of the teeth should vary with the relative variation in the size of the gears in respect to each
other. See Nystrom's "Mechanics," which we can furnish for $\$ 3$.
(19) J. S. asks: If I place a hollow vessel at the depth of 20 ft . deep in water and fill it with air, say it contained 50 gallons, what amount of foot
pounds of power would it produce in its ascent to pounds of power would it produce in its ascent to the
surface? A. The lifting power will be equal to the weight of the water displaced, with a correction for the weight of the vessel. A gallon weighs about 8:38 lb.,
which multiplied by 50 is $4161 / 2$ pounds. Multiplying which multiplied by 50 is $4163 / 2$ pounds. Multiplying
this by the distance gives the amount of foot pounds, $8,330 \mathrm{lb}$., leaving out of consideration the weight of the vessel. This should be subtracted.
(20) J. H. asks the proper way to set tuyere iron in a forge, to set mortar over the rim, or Fire brick should be cut to fit snugly around the edge of the tuyere flange, a little above its face (say $1 / 4$ to $1 / 2$ inch). If possible, cut the brick so that it will catch
under the flange, which will prevent the loosening of the brick in working the fire.
(21) J. O. asks (1) what can be put on . Wiping the windows on the inside with glycerine partial preventive of frost. Ventilation from the top or double glass is the best. 2. Will a stationary engine nake a greater number of revolutions per minute with a steam pressure at 120 lb . than with a pressure of 100 lb ., if the ordinary pressure carried is 100 lb . $?$ Will not the
governor regulate this and not let the speed increase? A. The governor will regulate the speed of the engine with variations of work; but will not keep the regulated speed with increased steam pressure, without being itself (22) ) the increased pressure
(22) M. I. asks (1) how he can increase entific American Supplement, noribed in the Sci work 12 lights. Would it do to wind the field magnets of the dynamo described in Scientific American Supplement, No. 161, with No. 18 double cotton covered wire? A. Do not depart from instructions given
for dynamo described in Supplement, No. 161. To increase the capacity of the eight light dynamo, double the width of the cores of the field magnet, double the
length of the armature, using No. 19 wire on the armalength of the armature, using No. 19 wire on
ture, and same as in eight light on the field.
(23) S. asks in what form ammonia is sed as a baking powder, and in what proportion with
other powder. A. Mix
$1 / 4$
pound tartaric acid,
a/2 pound alum, 34 pound pure bicarbonate of soda,
better and simpler form of baking powder is the fol-
lowing: 30 ounces cream tartar, lowing: 30 ounces cream tartar, 15 ounces bicarbonate of soda, and 5 ounces of flour. Alum is considered in-
jurious.
(24) F. B. F. asks : 1. How many 2,000 candle power electric lamps can be furnished with a
30 light dynamo? A. If the dynamo is rated for 30 Oossibly the from it Possibly the rating is below its real power. 2. If
reater electric current is sent over the wires is the not the same as a greater electric force or power? A with current or intensity but with its tension. A great current at lower potential could be distributed by the same expenditure of energy. 3. Does not each lamp
added to a circuit offer additional resistance to the elecadded to a circuit offer additional resistance to the elec
tric current? A. Each lamp added to a circnit in series ncreases the resistance. Arc lamps are usually used hus. If added in parallel with othanps it de tr own definite resistance and counter electromotive orce. If added to a circuit in either series or parallel, it will require additional electrical energy for its
(25) C. E. G. asks : What method can be used to clean the leaves of old books? A. See the arnt, Nos. 115 and 124 . 2 . Can writing ink be removed fron the pages, and if so, how? A. Some inks it is almost impossible to remove without also destroy ing the payer. You migg try first washing the paper
with warm water, using a camel's hair brush, then the paper minsto wetted with a solution of oxalate of one ounce to half a pint of water. in the proportion of the stained place with clean water, and dry it with blotting papr.
(26) A. M. H. asks the best way to renove burned oil from an engine, or other piece of cas oda and water. What this will not remove, take of with a scraper. Finish bright work with fine emery
(27) J. E. W. desires directions for anlyzing ice; that is the formula necessary to detect impure parts in ice. A. Most of the impurities are solule lu water and hence can only be determined by an daborate analysis. Of course solid impurities can be
detected by filtration, and an excellent test is to evapor ate a given quantity, and so determine the total solid.
Bacterial examination is also used. (28) A. L. C. desires a receipt formak hg Florida water. A. Take two drachms each of the ils of lavender, bergamot, and lemon; 1 drachm each of tincture of turmeric and oil ofj neroli; 30 drops oi of balul and 10 drops oil of rose; mix the above with
pints of deudorized alcohol.
(29) E. H. W. asks what cheap article to se to make sulphur tough. Must be something tha will dissolve under heat. A. Add resin or shellac to
(30) J. K. F. asks : What will take the ain of iron rust out of white marble? A. Take 1 ance butter of antimony, and 1 ounce oxalic acid, and digsolve them in 1 pint water, add flour, and bring the
composition to a proper consistence. Then lay it evenly composition to a proper consistence. Then lay it evenly
on the stained part with brush, after it has remained on few days, wash it off, and repeat the process if the
(31) G. C. S. asks how to clean silk lush so the surface will be as smooth and straigh as new. Cleaning it with a liquid (as far as I know
leaves it in about the condition a drowned rat is in, fur all matted down. A. Clean it with the usual solvent, for which see table given in Scientific American SUPPLEMENT, No. 158. Then, to restore the plush, hold the wrong side over steam arising from boiling water ntil the pile rises; or dampen lightly the wrong sid of the plush, and hold it over a pretty hot oven, no hot, place upon it a wet cloth, and hold the plush over and the steam will raise it
(32) P. G. H. asks : 1. What should be he focal distance, and distance apart of a pair of 4 inch condensing lenses for a magic lantern? A. The 4 inc placed back to back, nearly touching. 2. What should jective of medium' power (achromatic)? A. The 2 inch objective for a lantern should be 6 inches focus for each lens, plano convex; place 2 inches apart back to back. If each pair is achromatic, the details of curves
(33) B. D.
(33) B. D. F. asks concerning the use of nd if Fowler's solution of arsenic is dangerous in lon usage. If the usage of arsenic changes the colors of he blood, or has it effect on the skin? A. We do no approve the use of arsenic in any shape for the com-
plexion, and would not indorse its employment except der the direction of a physician.
(34) E. L. H. asks : Kindly inform me hat work gives internal resistances of various size riation in the strength of solution makes the resistance vary. For bichromate batteries without porous cells The following ressistances are sometimes given:-

(35) R. L. McI. writes : I have ten Gre batteries, each houng one pint or haid. What long without recharging? A. A 3 or 4 candle lamp for
one or wo hours.
(36) W. W. B. asks : Is it a fact beyond question that plants emit oxygen by day and carbon
dioxide by night? If so, can this reversal be accounted
for? A. Plants under the actinic influence of sunlight emit oxygen by day. At night they emit carbon diox-
ide gas. It cannot be accounted for any more than ide gas. It cannot be acc
their other vital processes.
(37) C. C. B. asks : Will you kindly anwer through your valued paper how sulphur may be
endered plastic and melted ? A. By heat; also by pouring into water while melted, and in the viscous tate. See query 29.
(38) Subscriber asks: Is there, or has there ever been, in existence any clock or other meown or diminished it is being replenished or re ewed as fast as it is lost, so that, granting that the echanism never wore out, it would continue in motion orever, without any addition to the original power?
No.

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## [See note at end of list about copies of these patents.]



