

#### HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication.

References to former articles or answers should give date of paper and page or number of question.

Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all, either by letter or in this department, each must take his turn.

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Special Written Information on matters of
personal rather than general interest cannot be
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Win erals sent for examination should be distinctly marked or labeled.

- rifie and revolver which I desire to keep in good order. A. By warming with sulphuric acid and manganese d What oils shall I use? A. Sperm oil that has been exposed to the sun for a week, in a bottle, with lead shavings, makes a very fine oil, much used for sewing ma chines, clocks, and watches.
- (2) C. P. C. desires a receipt of wine color lacquer, such as is used upon tinware, etc. A. water line. 2. What, if any, is the advantage of build Put 3 ounces of seed lac and 2 drachms aniline, color of ingyachts with the falling-in top sides of a man of war shade to suit, into a pint of well rectified spirits. Let 'A. Because this form gives better lines when sailing o the whole remain for 14 days, but during that time their beam. agitate the bottle once a day at least. When properly combined, strain the liquid through muslin.
- (3) L. B. asks the latest processes on mixing and preparing the material with which to manu- springs will not be covered with verdigris. A. Us facture paper buckets. A. Ordinary wood pulp is used, silver solder with borax flux. mixed with glue or size, pressed into moulds and var-
- (4) J. G. writes: 1. The English unit of heat being the quantity required to raise one pound ; of water one degree Fah., what is the measure of a unit of heat as applied in measuring change of tem- of perspiration. A. In 1,000 parts perspiration the perature of air? A. The amount of heat which would are of: raise one pound of water any given number of degrees would raise about one-quarter of a pound (more accurately 0.2374 pound) of air the same number. A cubic foot of air weighs 536.96 grains. A given weight of ice in melting would absorb enough heat to lower the temperature of an equal weight of water 142° Fah., or 79° C. On these factors ordinary calculations as to refrigerators can be based. Thus a pound of ice in 2. If used in quantity sufficient for the exciting fluid melting would have capacity to lower the temperature a common battery cell where zinc and copper are use

/ <sup>142°</sup>  $\begin{pmatrix} \frac{1}{120} \\ 0.2374 \end{pmatrix}$  or to lower the temperature of 624×13 cubic feet 1° Fah. Taking 94° as the temperature of the air

the melting of a pound of ice would absorb enough heat to lower 130 cubic feet, to 32° Fah. This does not take into account the additional heat absorbed in the melting of the ice nor the inevitable waste in its application. If the refrigerator is ventilated, this feature would also involve a loss in economy. 2. What chemical effect has aqua ammonia on the materials used in clothing, especially underclothing? A. If not too strong, it has a cleansing action without injuriously affecting the material. 3. What effect has aqua am monia if taken into the human stomach? A. It acts as a strongly corrosive and fatal poison if concentrated. If very dilute, it counteracts acidity, is a stimulant, and is a good cure for sick headaches. 4. What will take out the "fire" (so called) of aqua ammonia, so that in its use for cleansing it will not make the hands feel rough? A. Mix oleic acid with it. 5. What produces the cloudy appearance of some of the ammonia compounds sold by grocers for washing fluid, etc.? A. The different washing ammonias vary in composition. Oleic acid is contained in one prominent brand, and accounts for the milky appearance. 6. What is the best combination with aqua ammonia for general family use in washing and general cleaning purposes? A. Oleic acid is very good. Such a combination is patented. 7. Can you give a formula for family washing compound and state effects on underclothing and hands resulting from frequent use and give the cause of the effects? A. Dissolve 1 pound hard soap in 6 gallons of water, then add  $\frac{1}{4}$  ounce spirits of turpentine and  $\frac{1}{4}$ ounce spirits of ammonia. Such soaps are stronger than the ordinary varieties, and contain a large amount of alkali, which tends to rot the clothes. See a book on soap making, etc., by Watts, which we mail for \$3.

- (5) S. U. P. asks if the burning of bones renders them less valuable as a fertilizer. A. It does impair their value. 2. How to make silhouettes, with the aid of a good magic lantern. A. Locate the lantern three feet from a hard wall, seat the subject in a chair one foot from the wall; place a sheet of white paper against the wall, securing the four corners with flour paste, then with a pencil trace out the outline of the figure as projected by the lantern. If the paper is cut out on the lines sketched, a silhouette will be made. Black paper may be pasted on to the white sheet before cutting, if it is desired to produce a black silhouette.
- (6) M. L. S. asks: 1. How great is the distance at which the telephone in its present state of perfection can be worked with good results? A. There is so much difficulty in working long lines that no general answer can be made. Although Chicago has been in telephonic communication with New York, and Boston intermittently, and Philadelphia with rather more success, we think the telegraph is more used for distances exceeding twenty-five miles. 2. To what is this limitation of distance due? Is it owing to the current being enfeebled by induction, or does the simple fact of the distance enfeeble it? A. It is owing to electrostatic capacity of the line. 3. When an iron is white hot and is then allowed to cool, does it pass through all the colors of the solar spectrum? If not, what colors and in what order does it pass through? Can the same thing be produced by chemical heat? A. Iron or steel cooling from a white heat has its surface oxidized, and only shows the gradations of temperature ranging through

the yellow and red series to the black, and does not r present the prismatic spectrum. Its light is inca descent. In heating a piece of polished iron or stee the order is reversed below 700°, and commences wi the pale straw, deepening into orange and reddie brown to violet and blue, ending in black, when, the heat continues to rise, it runs back through the re and yellow series to white. The lower heat series colors is due to the reflection of light from the surfa altered by oxidation. The oxidized surface color permanent if properly preserved. There are chemic means of producing colors on the surface of steel, iro and other metals by their proper degree of oxidation the deposit of other oxides or metals.

- (7) G. B. asks (1) whether common sal (NaCl) dissolved in water, and decomposed with ele tricity, will yield (HCl) hydrochloric acid? A. Wit a current of sufficient electromotive force, chlorine ga will be given off at one pole and hydrogen at the other The electrodes must be of carbon or some materia not attacked by chlorine. Otherwise only a portion of none will escape, as the electrode will be dissolved The fluid should also be warm, as chlorine dissolves i (1) D. R. P. writes: I have a valuable cold water. 2. How could CI be extracted from NaC
  - (8) H. S. asks: 1. Which of three mid ship sections of equal depth and beam will have th greatest initial stability—one with the extreme beam o the rail, on the deck, or on the water line? A. On th
  - (9) J. T. D. asks the best soldering so lution for soldering copper wires to German silve springs, so that, after being soldered a far weeks.
  - (10) Machinist.—You should put nothin on leather belts to prevent their slipping. Cover the pulleys with leather.
  - (11) M. A. M. asks (1) the composition

Water	.995·50 j	parts.
Sodium chloride	. 2.23	**
Potassium chloride	0.24	0
Sodium and potassium sulphate	. 0 0 <b>1</b>	**
Sodium and potassium united to	,	
organic acids	2.02	16
	1,000	**

of a pound of air (volume 13 cubic feet) 624° Fah. what parts of the fluid would have an affinity for the metals, and what changes would take place in the flu or its parts? A. The water would suffer decomposition

> (12) G. F. R., Hawaii, asks (1) whether the use of crude petroleum as fuel for boilers is i jurious to boilers, either directly or indirectly. If s in what way? I have been using it with bagasse in th furnaces of a sugar factory. A. The use of petroleum boiler furnaces is gradually increasing in the Unit States, it being principally used in connection with steam jet. The manner of its use you will find in So ENTIFIC AMERICAN SUPPLEMENT, No. 8, also in a boo 'Petroleum Fuel," by Ross, which we can furnish f \$1.50. Petroleum as fuel is not injurious to iron or t boilers. 2. Whether Stockholm tar possesses any ac or other properties in its component parts which ma be injurious to iron, if used on bearings in proportion of one part to three with coal tar? A. "Stockhol tar," as also other wood tars, contains a very small po centage of pyroligneous acid and creosote. But t tar would not be injurious to iron in the manner your use mixed with coal tar for heavy bearings,

(13) W. O. C. says: Will you please to me how many pounds of water a cubic foot of de granite will absorb? A. A correspondent' to who we submitted the above inquiry, made a practical e periment, concerning which he writes as follows: V inserted a cubic foot of granite into a barrel of water placing same on four small blocks, so that the six sid of the cube would be exposed to the water. And aft the granite was in the water thirty-six hours, it w again weighed, and we find only about 1 ounce diffe ence in the weight, and as the granite was weigh while it was wet, we calculate it was the water on our surface that made this 1 ounce difference.

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For which Letters Patent of the United States were Granted

June 14, 1887,

AND EACH BEARING THAT DATI

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tector. Pulp beating engine, B. B. Tobie	Wagon bed hoist, J. P. Potter 364,728
Pulley, belt, W. N. Wilkinson       364,67         Pump, B. C. Vanduzen       364,73	8 Wagon gear, J. P. Johnson
Pump for emptying cans, H. L. Hauser	9 Hedges
Pumps, forcing attachment for lift, J. Knopp 364,65 Rack. See Hay rack. Towel rack.	Washing machine, G. M. Miller 364,723
Rack tooth, Hodgman & Cheney	
Railway track chars, die for forging cross bars of, A. A. Strom	:
Railways, safety appliance for, F. S. Guerber,  365,001 to 365,001	
Railways, switch for overhead, V. Angerer 364,62 Railways, tongue swith for street, A. J. Moxham. 364,72 Rake. See Hay rake.	5 Whip button, S. Baker 364,886
Rat trap, J. Harvell	
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Reel. See Wire cloth delivering reel.  Refrigerator, G. E. Fell	Brock
Register. See Cash register. Regulator. See Gas regulator. Temperature	Wrench, R. B. Marks. 364,765 Zinc ore, reducing, E. Walsh, Jr. 364,979
regulator. Rein holder, J. C. Henry	8
Ring. See Curtain ring. Rods, tubes, etc., machine for cutting or screw-	DESIGNS. Badge, W. H. Stinson
threading, A. Saunders	Bootjack, J. M. Thain
Roller mill, H. A. Barnard	2   Card, sample or pattern, E. H. Converse 17,386
Rotary cutter, E. Beecher         364,79           Rotary engine, Hills & Fitch         364,92	5 Railing bracket, J. F. Wollensak 17,395
Rubber band holder, W. A. Cooper         364,90           Safe lock, J. C. Harris         364,92	2 . Ticking or similar woven fabric, H. S. Kneedler 17,393
Safe, vault, etc., W. Corry	0
Sash attachment, R. Schenck. 364,86 Saw, W. Ward. 364,78	Agrated bayers as Charterman & Rarrow 14 505
Saw handle, crosscut, C. Richardson	Ale, Greenway Brewing Company
& Newhouse	pany
Scale, automatic grain, K. H. Schaper 364,90 Seal lock, E. J. Brooks 364,89	Flour, wheat, F. M. Arming & Co
Seal lock, I. C. Plant       364,85         Seal locks, seal tag for, R. M. Sully       365,02	Ges fixtures United States Works Petent Ges
Sectional boiler, J. Robb	2 Lamp Company
Separator. See Ore separator. Sewing machine, C. H. Bayley	Ville Hay Tool Company
Sewing machine, J. A. House	Medicine for external and internal use and for
Sewing machine, book, A. M. Stickney	1 Medicine for kloney diseases, dyspepsia, liver com-
Sheet metal can, cap, head, or blank, E. Norton 364,66 Sheet metal scroll cutter, Kittredge & Leavitt 364,76	3 Sweet
Shoe nailing machine, O. E. Seymour	9   Mineral water, natural, E. Von Eckardstein 14,507
Shutter fastener, D. E. Darnell	5 Petroleum for illuminating purposes, refined
Sleds, hand guide and brake for, P. B. Doty 364,91 Sliding screen, adjustable, S. B. Comstock 364,92	Umbreilas and parasols, A. Hirsh & Bro 14,510
Smoke consuming furnace, H. Adams	8 Whiskey, hand-made sour mash, Stein Bros. &
Solder for vent holes, prepared, E. Norton	Wine, celery, C. M. Heer 14,509
Spark arrester, W. T. Reed         364,8           Spike point, S. A. McLean         364,7           Spike point, S. A. McLean         324,7	A Printed copy of the specifications and drawing of
Spikes, re-enforce for, S. A. McLean	issued since 1866, will be furnished from this office for 25
Spinning machines, support support for, A. Wood 364,85 Spinning spindles, support for, W. T. Carroll 364,85 Spring. See Vehicle spring.	·
Sprinkling vines and plants, apparatus for, T. Wickersham	granted prior to 1866; but at increased cost, as the
Stairs, doorsteps, mats, etc., tread of, Hendra & Gooding	hand.
Stand. See Railway switch stand. Steam and hot water boiler, W. R. Parks	inventors for any of the inventions named in the fore-
Steam boiler, portable, Mitchell & Fischer 364,8	
	8 New York. Other foreign patents may also be obtained.

		~ &	i
Ī			1
	Steam generator, A. L. Gilstrap Stone, machine for curve sawing in, J. W. Maloy	365,000 364 834	i
	Stone sawing machine, E. Foerster (r)	10.844	
	Stone sawing machine, J. W. Maloy	364,833	
i	Stovepipe thimble, Hutchins & Macomber	364,651	
į	Stove, regenerative hot blast, Ford & Moncur Stoves, feeder for, M. S. Briggs		
	Street washer, W. Strong.	364,738	٠
	Supporter. See Abdominal supporter. Hose sup-		
	porter.	00.040	
	Surgical splitt, J. E. Lee Sweat pad hook, F. S. Derr		
ı	Swing, H. H. Fowler		
ı	Switch. See Safety switch.	•	ĺ
ĺ	Table. See Billiard table. Folding table. Game		ı
ļ	table. Ironing table. Picking table. Teaching spelling, kindergarten game for, I. B.		ı
	Oaklev	364,845	1
ı	Telegraphy, synchronous, R. G. Brown364,893,	364,894	l
	Temporature regulator, W. H. Richardson		I
ı	Terminal or distributing box, F. E. Degenhardt Theater chair, J. A. Listlefield		I
į	Thill coupling, C. R. Patterson		ļ
	Thill shackle, T. Derrick		l
ı	Tiles, protector for drain, W. W. Ingold Timber roll, R. M. Webb		I
	Tire, wheel, W. H. Carmont		I
	Tobacco curing flue, J. A. Kernodle	365,008	I
	Tobacco lath holder, Vintree & Climenson		I
	Tobacco pipe, F. Roesling		I
	Toughe support, A. N. Rooks		
	Trammel point, J. A. Traut		ļ
	Tramways, suspension wheel for wire cable, R.		
	Prentice	364,669	
	Tricycle, H. Thiessen	364,782	
	Truss, G. N. Tibbles	364,738	
	Turbine wheel, A. D. Cole		
	Umbrella, W. H. Burnett		
:	Valve, T. F. Morrin.		
•	Valve operating mechanism, G. T. Wilson	904,000 904,005	Ì
	Vehicle body, H. A. Moyer		
	Vehicle, road, G. B. Schoepf		ŀ
	Vehicle spring, King & Magner		
	Vehicle two-wheeled, Hare & Sproul Vehicle, two-wheeled, B. J. Healy		į
	Vehicle, two-wheeled, B. F. Rix		
	Vehicle wheel, R. A. Townsend	364,872	
	Velocipede, J. S. Copeland		
	Velocipede, T. W. Moore Velocipede saddle, W. Cook		
	Veneering machine, J. W. & J. W. Sherwood	364,681	
	Ventilator. See Window ventilator.		
	Vessels, construction of navigable, W. Forward Wagon bed hoist, J. P. Potter		
	Wagon box lock, N. O. Calkins		
	Wagon gear, J. P. Johnson	364,654	
	Wagons or agricultural machines, seat for, S. Hedges	264 710	
	Wardrobe hook, Crosby & Jayne.		
	Washer. See Street washer.		
	Washing machine, G. M. Miller		
	Washing machine, G. W. Wilson	365.032	
	Water gauge, safety, A. H. Fowler		
	Water heater, M. Muller	365,016	
	Waterproof garment, M. R. Yeomans	<b>365,</b> 036	
	bine wheel. Vehicle wheel.		
	Whip button, S. Baker		
	Whistle, steam, Losch & Harner		
	Windmill, F. Altman		
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	Wire couplings, machinery for making, W. E.		
	Wrongh See Adjustable Tropph Bips Tropph	364,985	
	Wrench. See Adjustable wrench. Pipe wrench. Wrench, R. B. Marks	364.765	
	Zinc ore, reducing, E. Walsh, Jr		
	<del></del>		
	DESIGNS.		
	Badge, W. H. Stinson		
ľ	Badge, button, S. M. Stevens		
	Bootjack, J. M. Thain Box, A. C. Rex		
	Card, sample or pattern, E. H. Converse	. 17,386	
	Corset, Olmstead & Nason		
	Railing bracket, J. F. Wollensak Stove, oil, G. W. Swett	. 17,395 . 17,391	
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	Butter, J. H. Gray	14,508
	Flour, wheat, F. M. Arming & Co	14,503
	Furniture and woodwork, liquid preparation for	
	cleaning and polishing, Steffee & Judd	<b>14,51</b> 3
	Gas fixtures, United States Wenham Patent Gas	
	Lamp Company	14,517
	Hay elevators, hay carriers, and hay forks, Janes-	
į	ville Hay Tool Company	14,511
	Lead, white, Carter White Lead Company	14,523
	Liniment, C. A. Vogeler Co14,518,	14,519
	Medicine for external and internal use and for	
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	Medicine for kidney diseases, dyspepsia, liver com-	
	plaints, and similar diseases, liquid, O. P.	
	Sweet	14,514
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	Nasal balm, T. Fulford	14,516
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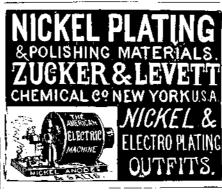
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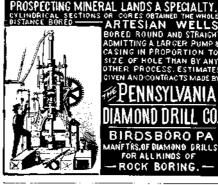
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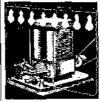
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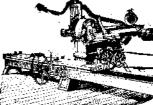




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