

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 This is for our information, and not for publication.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.

Special Information requests on matters of personal rather than general interest, and requests for Prompt Answers by Letter, should be accompanied with remittance of \$1 to \$5, according to the subject, as we cannot be expected to perform such service without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Minerals sent for examination should be distinctly marked or labeled.

- (1) G. H. H.-We fear that your only remedy for nearsightedness lies in the use of suitable
- (2) J. G. C.—Opacity is supposed to be due to the reflection of light by particles or atoms of matter not in absolute contact or fusion. Transparchemical fusion or union of the atoms composing the
- (3) H. S.—The water level of a mine has no relation to the sea level.
- (4) H. B. H.-An air jet in a chimney has no value unless under considerable pressure, and of similar arrangement to the exhaust jet of a locomotive. The mere cutting of a hole for the admission of cold air by the draught of the chimney only lessens the strength of the draught, as it is the lighter gravity of the beated gases that constitutes natural draught.
- (5) H. S.—For a stone jar filter, cover the opening of the faucet on the inside with a perforated pure tin plate, or attach to the faucet a block tin tube perforated with small holes, extending across the bottom of the jar. Then fill with small clean gravel 2 inches deep, and a layer of coarse sand 1 inch more; then a layer of pulverized charcoal which has been washed on a sieve to clear it of dust, 2 inches thick, on top of which a layer of clean sharp sand 2 inches thick and a layer of finer sand 1 inch thick on top, making in all 8 inches in depth. All the material should be washed clear of mud and dirt previous to packing in the filter. .This may be done on two sieves of different grades, so that the fine sand may be separated from the
- (6) E. H. B. asks for a paste or cement very adhesive and pliable when dry, to repair cotton grain sacks. A. Try one of the following: Pure gutta percha dissolved in benzine or benzole, or a good quality of common glue dissolved in water, in t e usual way, with the addition of about ten percent of glycerine. See also list of cements in Supplement, No. 158.
- (7) A.—You will find microphones described in the back numbers of the Supplement; but no microphone will answer your purpose. They will not magnify or intensify the sound. Better have two telephone receivers, and place one at each ear. This will more than double the effect of the telephone
- well. 2. The best method of preparing silver solution? A. Consult Supplement, No. 310, for information on solutions for electro plating. 3. Is there any way of exterminating roaches from a kitchen? A. Use Per sian insect powder freely, or phosphoric paste.
- (9) S. M. L. asks how to find the positive or negative pole in a galvanic battery excited by a solution of sulphate of copper, zinc pole, and copper trough. A. The positive pole of a battery is on the negative plate, and the negative pole is on the positive plate. The positive plate of a battery is zinc, the negative plate is carbon, copper, or platinum
- (10) J. G. W. asks: What metals (alloyed) can be used for cocks to resist acid the longest? A. We know of nothing better than lead and glass. Cast iron is much used with lead seats. Also a hard com position of tin and copper with lead seats.
- (11) F. W. W. asks: 1. Would the telephone made with II magnets, described in Supplement. No. 142, work with No. 36 cotton covered wire? A. Yes. 2. Would carriage bolts do for the soft iron cores? A. Yes. 3. Are the magnets clamped together with iron plates? A. With plates of brass or other non-magnetic material; iron will not do. 4. If the ferrotype plates have been photographed on, does that affect their use for the telephone? A. No. 5. What is the best kind of wire to use for a line wire? A. No. 12 galvanized iron wire for out of door use, and No. 16 or 18 cotton covered copper wire for indoor use.
- (12) G. H. P. asks (1) if electricity can be made to run a boat, can it not be made to run a sewing machine or scroll saw or a light turning lathe? A. It'is common to run such machines by means of an electric motor. 2. Has there ever been invented an electric motor that can be attached to a sewing machine? If so, can they be purchased, where, and what the probable cost would be? If they cannot be bought, could an ingenious person manufacture one? A. Such a motor is sold by the Electro Dynamic Company, Philadelphia, You will find information on electric motors in the back numbers of the Scientific American and Supplement. 3. Has there ever been invented a spring motor or something similar to clock works for the purpose of running the above named machines? A. Many such motors have been invented, but none of them has proved practical, as it usually requires more time to wind up the springor weight and consumes more power than would

(13) C. B. B. writes: 1. Supposing an induction coil of 24 inches length by 1% inches in diameter in the core, primary No. 12 silk covered wire, in two layers, secondary No. 36; the whole most carefully insulated with paraffine paper and hard rubber. How many cells of battery could safely be used on this coil? Bichromate single fluid, two carbons and one zinc to each cell, plates 414x9. A. 2 or 3. 2. Would the primary or the secondary wire be most likely to suffer from too high battery power? A. Neither wire will be injured, but the insulation of the secondary wire might be ruptured with too great a current. 3. A well known work on electricity recommends, after making the core of an induction coil of best annealed iron wires, to heat the core to redness in a charcoal fire and allow it to cool as the fire goes out. What would be the difference in effect between a core thus treated and one not heated? A. You get the best results from the annealed wire, because it is more readily magnetized and demagnetized.

(14) F. C. A. asks: 1. What size of Edison incandescent, lamp would be necessary to furnish a light equal in power to an ordinary gas burner? A. What is known as 15 candle power lamp. 2. Where can the lamps be obtained, and probable price? A. From the Edison Electric Lamp Company, East Newark, N. J. We cannot quote price. 3. How many small bichromate of potash elements-half pint size-would be necessary to sustain such a lamp for say four hours A. A large number, probably from 75 to 100. 4. How ency is never perfect, but is believed to be due to the many Bunsen elements of a given size would be required for the same purpose? A. About the same. 5. Size of copper wire for connections? A. No. 8 or 10. 6. Should the elements be coupled for quantity or for is the level at which natural drainage takes place. It intensity? A. For intensity. 7. Probable cost per has no relation to the sea level. month for running said light? A. It would, of course, depend upon the cost of materials, which is variable. In any event, it would cost much more than gas or any other known light. It is not economical to operate one Edison high resistance lamp by means of They can be used economically only in the large system, where a number of such lamps are connected in multiple arc. 8. Which requires the most power-to run two machines exactly similar, at a speed of 1,000 revolutions per minute, or to run one of them at 2,000? A. It would require the most power to run one of the machines at high speed. The power required to run a machineincreases as the velocity.

- (15) E. K. writes: I want to make a batery as described in Scientific American of April 11, 1885, and would like to be informed as to how strong the caustic potash should be. A. Use from 30 to 40 per cent of caustic potash
- (16) J. W. asks: Which pulls the most of two horses pulling on a wagon, when one horse gets ahead of the other and keeps ahead, so the evener is six inches at one end in advance of the other end, each horsepulling the same distance from the center? A. If both horses go at the same speed, they must necessarily pull alike, no matter what the position of the evener may be.
- (17) J. W. asks how to construct a cheap medical battery. A. Consult the back numbers of the SCIENTIFIC AMERICAN and the SUPPLEMENT.
- (18) V. S. Z. asks: Which is easiest drawn up a hill or incline plane by horses-a wagon with, say, wheels 3 feet diameter or a wagon with wheels 4 feet 6, axle friction relatively equal, and everything else equal? A. The wagon with the larger wheels.
- (19) J. K. asks the best fish bait for (8) W. W. Q. asks (1) the best battery perch catfish and buffalo. A. Angle worms and minfor silver and gold plating? A. Use Smee battery. A nows for perch and catfish; for buffalo fish, wet cotton gravity battery or a Daniell's battery will answer very rolled in flour to make a fibrous dough that will remain
 - (20) A. M. asks the best way to braze or solder together two pieces of copper wire. In winding a dynamo, the joint should be no larger than the rest of the wire, but I cannot make a joint that will hold, with out making the wire so brittle as to break. A. File the ends of the wire to form a long scarf, so that when the two ends are placed together, the diameter will be no larger than the rest of the wire. Rub up a little borax with water on a slate or porcelain slab until the mixture of the borax and water is of about the consistency of cream; apply this to the contact surfaces of the wire, and fasten the ends of the wire together upon a piece of pumice stone. Apply some silver solder to the joint, and heat the wire with a blowpipe until the solder flows. A joint thus made will be as strong as the rest of the wire, and no larger
 - (21) T. B., Jr., asks (1) how to make the compound to be used in the Grenet form of battery, in which it is only necessary to add water to produce the exciting liquid. A. It is made by adding sulphuric acid to pulverized bichromate of potash. 2. How are the castings made, and what are they made of, in the miniature toy engines? It is more brittle than lead, and much whiter. A. Of type metal (lead and antimony) or an alloy of tin and antimony. 3. Recipe for Javell water. A. Consult Supplement, No. 314. 4. In making a permanent magnet, would there be any gain in attractive power if the piece of steel was tempered and magnetized at the same instant by being drawn to its proper color while under the effects of a powerful helix? A. It would be difficult to say what the result of such treatment would be.
 - (22) In the SCIENTIFIC AMERICAN of July 18 (question 46), S. J. H. asks for some means by which the odor of a new refrigerator can be gotten rid of. If, by the use of charcoal and a good washing and airing, the odor is still retained, I advise him to have the refrigerator taken apart, to see that there is no pitchpine in it. I had an ice box that troubled me in the same way. Investigation showed that a piece of pitchpine had been used in building it. The odorous piece of wood was removed and the ice box has been in constant use ever since, and has not scented the contents once.-W. B. H.
- (23) W. J. W. asks: What are the colors used in drawing to represent iron, wood, brass, etc.? be required if applied directly to the machine to be A. Iron, Prussian blue; wood, raw sienna; brass, chrome vellow; brick, crimson lake; copper, pale scarlet.

INDEX OF INVENTIONS

AND EACH BEARING THAT DATE.

- e	[See note at end of fist about copies of these par	ents.j	(
?	Abdominal supporter, M. M. & J. H. Werum		0
v -	Advertising device, automatic, E. Mason		0
	A ligning instrument, R. Garich	322,921	•
r	Amalgamator, cylindrical, J. W. Hilton	322,970	0
r	Atomizer, J. F. Corbly	322,908 322,338	1
,	Axle box, car, W. S. Schroeder	323,216]
7	Backing, plowing, and gilding press, combined, T.		1
e	FreemanBag. See Mail bag.	322,313]
1	Bag holder and truck, combined, C. Hatz Bait, trolling, W. D. Chapman]
1	Baling press alarm attachment, J. L. Hall	322,926	1
•	Barrel, J. Cosgrove	323,253	1
е	Barrel making machine, D. Murray Basket, folding, E. Kilborn		1
3.	Bed bottom, spring, T. Flagler Bed clothing, device for elevating and suspend-	323,309]
	ing, A. W. Bohaker	323,265	1
,	Bedstead, cabinet, S. S. Bradshaw Beehive, J. T. Shank	322,982]
3	Beehive, W. H. Shirley Belt fastener, G. W. Southwick	323,220 322,988	1
,	Belt hinge, E. C. Smith	322,986	
t	Bevel, G. W. Rice	322,906]
3	Bicy cle, J. G. Blount Bicy cle, F. D. Owen]
1	Bicycle, M. D. Rucker]
	Bin. See Flour bin. Bit. See Drenching bit.		
е	Bit stock, G. H. Packwood]
	Block. See Pulley block. Board. See Blackboard. Lap board.		1
e	Boat. See Life or other boat.	000 010]
	Boiler furnace, steam, A. Donneley	323,124	1
t	Boiler furnace, steam, J. P. Tuttle	323,375]
8	Bolting reel, A. Heine	323,143]
3	Boot or shoe last, E. S. Kingston (r)	10,630	1
r	Box. See Match box. Toilet powder box.]
	Box fastener, O. N. Brainerd	323,106 322,901	1
1	Brake. See Car brake. Bran duster, J. W. Wilson]
1	Brick machine, W. H. Stewart	323,083	1
r	Brick press, H. Lupher Bridge gate, automatic, R. W. Hale	323,348 323,034]
f	Brush, tooth, W. R. Evans	323,305	1
-	Buckle frames, die for swaging, J. E. Kelsey	323,156	1
e	Buckle frames, machine for making, G. R. Kelsey	323,155]
е	Burner. See Vapor burner. Button, J. P. Noyes]
e e	Button, Noyes & Winans	323,358	1
-	ting, F. H. Richards	322,972	1
f	Button fasteners, mechanism for feeding, F. H. Richards	322,971	1
e	Button or stud, J. J. Lindauer		(
t	Cables, electric wires, etc., underground conduit for, W. Walter		(
	Calculator, Kennedy & Nesbit	323,157	(
2	Capsule stripping device, J. Krehbiel	323,159	(
е	Car brake, C. M. Carnahan	322,899 322,959	(
e i	Car brake and starter, J. H. Muller	323,354	(
e !	Car coupling, P. V. Cornils	323,278	(
r		323,154	•
e i	Car coupling, R. T. Morrison, Jr		
-	Car coupling, E. E. Sell	323,080	(
1	Car coupling, J. H. Ward	323,242	(
1	Car hand strap, J. McManus	323,236	•
t	Car, stock, G. D. Burton	322,896	•
f	Cars, wind ow for street railway, R. L. Omenset-		ì
,	ter	323,125	(
1	Carding machine, P. T. Begley Carriage curtain button, J. G. English	323,131	•
е	Carriage, folding baby, M. Luxemberg	323,050	•
1	Carrier. See Hay carrier. Parcel carrier.		
f B	Cartridge shell extractor for firearms, F. Rushton	323,368	•
1	Cartridge shell trimming machine, W. Mason Case. See Bottle packing case. Exhibiting case.	323,180	(
8	Watch case. Chair. See Convertible chair. Opera chair. Rock-		•
3	ing chair.	000 000	(
?	Chair back, H. M. Rich	323,117	1
е	Check rower, G. D. Haworth]

<u>د</u>	107
(24) G. F. H. asks (1) if the dynamo de-	Chopper. See Cotton chopper. Cotton stalk
scribed in No. 161 of the Supplement is suitable for nickel or silver electro-plating or not, and how to pro-	Chuck, drill, W. Mason
portion a machine of the same kind, of double or treble its given size? A. The dynamo referred to will answer	Cider mill, M. B. Kaylor. 323,041 Cigar bunching machine, G. Moebs (r). 10,629
for electro-plating, but it would be better if it were wound with coarser wire, say No. 12 for the armature	Clamp. See Well pipe closing clamp. Clasp, C. C. Shelby
and No. 10 for the magnet. In making a larger machine for electro-plating, follow the general proportions given,	Cleaner. See Grain cleaner. Clip. See Paper clip. Spring head clip.
and you cannot go far wrong. 2. The best forms of battery for working on a closed circuit, suitable for	Cloth, gig for napping, J. Shearer. 322,983 Clothes prop, A. La Jennesse 323,044
burglar alarms, etc.? A. The ordinary gravity battery will answer your purpose.	Clutch, friction, S. Mead
	Cockeye, Cooper & Bollinger. 322,907 Collar, horse, M. F. Cavanagh. 323,274 Commode, J. Bennor. 322,891
INDEX OF INVENTIONS	Convertible chair, J. L. McKay 322,950 Corn sheller, A. V. & M. H. Pitts 322,964
For which Letters Batent of the	Cornice and ceiling decoration, A. Carlewitz 323,110 Corset stay, H. C. Sherwood
For which Letters Patent of the United States Were Granted	Cotton chopper, J. S. Lamar 322,941 Cotton chopper, J. T. Miller 323,192
Tul- 00 1005	Cotton chopper and cultivator, J. H. Sale 322,975 Cotton stalk chopper, J. A. Woodard 323,014
July 28, 1885,	Coupling. See Car coupling. Covering, measuring, and cutting-off strips, etc.,
AND EACH BEARING THAT DATE.	machine for, W. Croal
[See note at end of list about copies of these patents.]	Cultivator, O. P. Sowers
Abdominal supporter, M. M. & J. H. Werum 323,003	Cultivator, rotary, J. L. Laughlin323,163, 323,164 Cultivator tooth holder, J. F. Wheeler323,004
Advertising device, automatic, E. Mason	Curtain pole end, W. K. Pine
A ligning instrument, R. Garich	Cut-off valve for engines, H. J. Oliver
Asphaltic tiling and paving material, J. Rice et al. 322,970 Atomizer, J. F. Corbly	Cutter. See Hog snout cutter. Tobacco plant cutter. Vegetable cutter.
Awning wind ow. W. H. Jolliffe. 322,338 Axle box, car, W. S. Schroeder. 323,216 Axle lubricator, W. Cole, Jr. 322,905	Damper, J. P. Tuttle 323,376 Desk, D. Brower 323,271 Dipper, E. Hester 323,332
Backing, plowing, and gilding press, combined, T. Freeman 322,313	Door bolt, R. L. Leininger
Bag. See Mail bag. Bag holder and truck, combined, C. Hatz 323,141	Door opening device, S. H. Law
Bait, trolling, W. D. Chapman	Drenching bit, J. F. Marvin
Barrel, J. Cosgrove. 322,910 Barrel making machine, F. Andrew. 324,253	drier. Drill. See Grain drill. Rock drill. Rock and coal
Barrel making machine, D. Murray	drill. Seed drill.
Bed clothing, device for elevating and suspending, A. W. Bohaker	Electric machine, dynamo, I. Bollmann
Bedstead, cabinet, S. S. Bradshaw. 323,267 Beehive, J. T. Shank. 322,982	R. R. Moffatt
Beehive, W. H. Shirley 323,220 Belt fastener, G. W. Southwick 322,988	for dynamo, B. F. Orton
Belt hinge, E. C. Smith. 322,986 Bevel, G. W. Rice. 323,077	Orton
Bevel and miter, S. S. Colt	Orton
Bicy cle, F. D. Owen 323,066 Bicycle, M. D. Rucker 322,974	Electrical switch board, A. C. Mather
Bin. See Flour bin. Bit. See Drenching bit. Bit stock, G. H. Packwood	Emery wheel for card grinders, traveling, J. H. Loudon
Blackboard, W. E. McKenzie	gine. Pumping engine. Rotary engine. Steam engine.
Board. See Blackboard. Lap board. Boat. See Life or other boat.	Envelope folding machine, F. H. Richards 323,207 Eraser, knife, F. L. Stowell 322,991
Boiler cleaner, F. M. Forman	Exhibiting case, J. M. Clapp
Boiler furnace, steam, J. P. Tuttle	Faucet, F. F. Wolff. 323,094 Feed lubricator, J. S. Hall. 322,927
Bolting reel, A. Heine. 323,143 Book, black-leaf check, T. G. Cooper 323,276	Feed water heater, D. E. Rice. 323,076 Fence, J. S. Ferguson 323,032 Fence, J. M. Older 322,032
Boot or shoe last, E. S. Kingston (r)	Fence, J. F. Glidden 323,316 Fence, G. H. Ives 322,939 Fence post, D. P. Baker 323,256
Box fastener, O. N. Brainerd. 323,106 Bracelet, H. E. Chadwick. 322,901	Fences, machine for building and rerolling wire, J. S. Edge
Brake. See Car brake. Bran duster, J. W. Wilson	Finger ring, J. W. Gwinn 323,322 Fire escape, M. A. Arrowsmith 322,288
Brick machine, W. H. Stewart	Fire escape, H. Gollings
Bridge gate, automatic, R. W. Hale. 323,034 Brush, tooth, W. R. Evans 323,305 Brush, W. D. Evanter 323,206	Fire extinguisher and alarm, automatic, G. W. Laudon 323,160
Buckle, W. D. Stratton	Fire extinguisher, chemical, G. W. Lindgren
sey	Four bill, E. A. Fowell
Button, J. P. Noyes. 323,359 Button, Noyes & Winans 323,356	Fruit, machine for cleaning and brightening dried, J. J. Walsh
Button fasteners, machine for making and setting, F. H. Richards	Furnace. See Boiler furnace. Gas furnace. Furnace grate, S. E. Burke
Button fasteners, mechanism for feeding, F. H. Richards	Furnace grate, R. S. T. Cissel
Button or stud, J. J. Lindauer	Gauge. See Pressure indicating gauge. Galvanometer, reflecting, R. J. Pratt
Cables, electric wires, etc., underground conduit for, W. Walter	Gas furnace, regenerative natural, W. Swindell, 322,994, 322,995
Calculator, Kennedy & Nesbit	Gas, producing, A. W. Putnam-Cramer
Car brake, E. F. W. Muller. 322,859	Gate. See Bridge grate. Gate. G. A. Barlow
Car brake and starter, J. H. Muller. 323,554 Car coupling, C. A. Anderson. 322,887	Generator. See Vinegar generator. Glove, J. Blomstrom. 233,263
Car coupling, P. V. Cornils. 323,278 Car coupling, Hannay & Cowan 323,142	Gold, silver, and copper from their ores, extract- ing, J. W. Simpson
Car coupling, G. F. Jackson 323,154 Car coupling, R. T. Morrison, Jr 323,195	Goods to accord with the price paid therefor, ap- paratus for automatically delivering prepaid,
Car coupling, C. L. Schulze	Sandeman & Everitt
Car coupling, W. Turnbull. 322,998 Car coupling, J. H. Ward. 323,242 Car band strap. I. McManus 223,188	Governor, steam engine, J. Moore. 322,956 Grain binder, C. Miller. 323,353 Grain binder, L. Miller. 322,951
Car hand strap, J. McManus	Grain binder, L. Miller 322,951 Grain binder, Wedlake & Jones 323,001 Grain binder knotter, E. Ebi 323,126
Car, stock, Burton & Perkins	Grain cleaner and grader, S. R. Backus. 323,099 Grain conveyers and attachments. pneumatic ap-
ter	paratus for, Goodrich & Smith
Carding machine, P. T. Begley 323,021 Carriage curtain button, J. G. English 323,131	ing apparatus for, L. Smith
Carriage, folding baby, M. Luxemberg. 323,060 Carriage lack, D. True. 323,237	Grain drill, S. B. Hart
Carrier. See Hay carrier. Parcel carrier. Cartridge shell extractor for firearms, F. Rush-	S. B. Hart. 323,326 Grain elevator and transfer apparatus, [pneumatic, 7. Smith 223,298
ton	IL Smith
Watch case. Chair. See Convertible chair. Opera chair. Rock-	matic, L. Smith
ing chair. Chair back, H. M. Rich	Grate, W. Ernst. 323,031 Guard. See Saw guard.
Chair corner iron, Comstock & Gibson	Hair frizzler, J. Matzinger. 323,184 Hammer, J. Wolf. 323,248
Cheese press, gang, R. W. Jacobs	Handle. See Tool handle.