## Distitess and eprsoanl.

The Charge for Insertion under this head is one Dollar a linefor each insertion; about eight woras to a line. Advertisements must be recived at mubication affice asearly as Thursday morning to appear in next issue. The mublishers of this paper guarantee to adver weekly issue.
Vertical \& Yacht Engines. T.P.Pefmberton, 276 Wate st., N. Y
Brick Presses for Fire and Red Brick manufa
at 509 S. Fifth St., Phila., Pa. S. P. Miller
The great advantage of the genuine Asbestos Cover ings for Steam Pipes, Boilers, etc.., over any other forms
of non-conducting coverings, aside from their superior of non-conducting coverings, aside from their superio
effectiveness, is that they are manufactured in con effrectiveness, is that they are manufactured in con
venient form ready for use, and can be easily applie venient form ready for use, and can be easily appin, Co., 87 Maiden Lane, $\mathbf{N}$. Y., are the sole manufacturers. Having bought the Forsythe Scale Works here, we offer our present manufactory, with 25 H . P. engine and
boiler, for sale. This property is well situated for manuboiler,for sale. This property is well situated for manu-
facturing, only three blocks from depot. W ill be sold low. Waukegan, III., is $3 \overline{3}$ miles north of Chicago. Full description sent on application. Fowell \& Douglas description sent on application. Fowell
M' t rs Pumps and Windmills, Waukegan, III.
For Sale cheap. - Williams' Standard Swltch Board
and District Hook Bells for Telephone Exchange. Adand District Hook Bells for Telephon
Practical Founder or Machinist, with some capital esirous of going West. Box S, Helena, Montana, T. Wanted-A pair of Hoisting Engines, cylinders $6 \times 9$ or thereby; new or second-
For Sale.-A small Iron Planer. W.W.Oliver, Buffalo
Wanted-The address of 40,000 Sawyers and Lumbermen for a copy of Emerson's Hand Book of Saws. New edition 1380 . Over 100 illustrations and pages of valuable
nformation. Emerson, Smith \& Co., Beaver Falls.
Spokes and Rims, white oak and hiclory, best quality to any pattern, and Hammer Han
Patent for Walter's Method of Carpeting Staire, illus trated in this number, for sale cheap.
Wanted-Scrap Iron, car lots. Box 502, Pittsburg, Pa For the best Stave, Barrel, Keg, and Hogshead Ma For Iron Gas Pipe, see adv. on inside page.
Sidewheel Yacht Engines, boats drawing 6 to 10 in .
Collection of Ornaments.-A book containing over Collection of Ornaments.-A book containing over
,000 different designs, such as crests, coats of arms, vigen different designs, such as crests, coats of arcis,
vignetes, scrolls, corners, borders, etc., sent on receipt
of $\$ 2$. Palm \& Fechteler, 403 Broad way, New York city. Best Oak Tanned Leather Belting. Wm. F. Fore paugh, Jr., \& Bros., 531 Jefferson St., Philadelphia, Pa. National Steel Tube Cleaner for boiler tubes. Adjust-
able, durable. Chalmers-Spence Co., 40 John St., N. Y. For Pat. Safety Elevators, Hoisting Engines, Friction Clutch P'ulleys, Cut-off Coupling, see Frisbie's ad. p. 126. Mineral Lands Prospected, Artesian Wells Bored, by
Pa. Diamond Drill Co. Box 423 , Pottsville, Pa. See p. 125 . Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Vocom \& Son's Shafting Works, Drinker St., Philadelphia, Pa
Stave, Barrel, Keg, and Hogshead Machinery a spe
cialty, by E. B. Holmes, Butfalo, N. Y. Salty, by E. \& B. Holmes, Buftio, N.
Solid Emery Vulcanite Wheels-The Solid Original
Emery Wheel-other kinds imitations Emery Wheel - other kinds imitations and inferior
Caution.-Our name is stamped in full on all our best Standard Belting, Packing, and Hose. Buy that only Standard Belting, Pasking, and Hose. Buy that only.
The best is the cheapest. New York Belting and Yack-
ing Company, 3 / and 38 Park Row. N. Y . Sheet Metal Presses. Ferracute Co., Bridgeton, N. J Nickel Plating.-Sole manufacturers cast nickel anodes, pure nickel salts, importers Vienna lime, crocus,
etc. Condit. Hanson \& Van Winkle, Newark, N. J., and etc. Condit. Hanson \& Van Win
92 and 94 Liberty St., New York.
Wrights Patent Steam Engine, with automatic cut off. The best engine made. For prices, a
Wright, Manufacturer, Newburgh. N. $\mathbf{Y}$.
For Solid Wrought Iron Beams, etc., see advertise ment. Address Union Iron Mills, Pittsburgh, Pa., for
lithograph, etc.
Presses. Dies. and Tools for working Sheet Metal, etc. Fruit \& other can tools. Bliss \& 'riliams, B'klyn, N. Y
Bradley's cushioned helve hammers. See illus. ad. p. 110
Forsaith \& Co , Manchester, N. H.. \& 213 Centre St. Hand Firt Forging Machines, Power Hammers, Comb' ery. Send stamp for illus. cat. State just what you want Electrical Indicators for giving signal notice of ex tremes of pressure or temperature. Costs onty
tached to any instrument. T.Shaw, 915 Ridge A ve. Phila
Instruction in Steam and Mechanical Engineering. A
thorough practical education. and a desirable situation thorough practical education. and a desirable situation as soon as competent, can be obtained at the Natioral
Institute of Steam Engineering, Bridgeport, Conn. For Institute of Steam Engineering,
particulars, send for pamphlet.
Hydraulic Jacks, Presses and Pumps. Polishing and Buffing Machinery. Patent Punches, Shears, etc. E Buming Machinery. Patent Punches,
Lyon \& Co., 470 Grand St., New York.
Steam Engine for sale very low. See advertisement
Portable Forges, $\$ 12 . \quad$ Roberts, 107 Liberty St., N. Y
For Mill Mach'y \& Mill Furnishing, see illus. adv. p. 141 Telephones repaired, parts of same for sale. Send
stamp for circulars. P.O. Box 205, Jersey Clty, N. J.
Eclipse Portable Engine. See illustrated adv., p. 94. Machine Knives for Wood-working Machinery, Book Binders, and Paper Mills. Large knife work a specialty Also manufacturers of Soloman's
Stiles \& Co., Riegelsvills N. J.
The Twiss Automatic Cut-off; also Vertical and Yacht
Enkines. N. w. Twiss, Now Hent Engines. N. W. Twiss, New Haven, Conn
For best Portable Forges and Blacksmıths' Hand
Blowers, address Buffalo Forge Company, Buffalo, N. Y.

New Inventions examined and tested. Designs and
mprovements. Reports for investors. Recipes and ininprovements. Reports for investors. Recipes and in-
formation on all industrial processes. Benjamin's Sci. inpert Once, of Park Row, New York
Ice Machines selected. Information on all kinds. enjamin's Scl. Expert O\#\#ce, 37 Park Row, New York. Chase's Pipe Cutting \& Threading Machine. Send fo
circular. Chase Machine Co., 120 Front St., New Yor's. Diamond Planers. J. Dickinson, 64 Nassau St., N. Y. steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York. Eagle Anvils, 9 cents per pound. Fully warranted. Cylinders, all sizes, bored out in present posit For Wood-Working Machinery, see illus. adv. p. 156. Tight and Slack Barrel machinery a specialty. John
reenwood \& Co., Rochester, N. Y. See illus'd adv. p. 62 . Elevators, Freight and Passenger, Shafting, Pulleys,
and Hangers. L. s. Graves \& Son, Rochester, $\mathbf{N}$. $\mathbf{Y}$. nd Hangers. L. S. Graves \& Son, Rochester, N. Y.
The Horton Lathe Chucks; prices reduced 25 per cent. The Horton Lathe Chucks; prices reduced 25 per cent.
ddress The E. Horton \& Son Co.. Windsor Locks, Conn. \$2r5 Horizontal Engine, 20 H . P. See page 156 . Emery Wheels of all kinds, and Machines at reduced ices. Lehigh Valley Emery wheel Co., Weissport, Pa. Pat. Steam Hoisting Mach'y. See illus. adv., p. 158. Hydraulic Cylinders, Wheels, and Pinions, Machiner Castungs; all kinds; strons and durable; and easily worked. Tensile strength not less than 65,000 lbs. to
square in. Pittsburgh Steel Casting Co ., Pittsburgh, Pa Drop Hammers, Die sinking Machines, Punching Drop Hammers, Die sinking Machines, Punchmg and
Shearing Presses. Pratt \& Whitney Co., Hartford, Ct.
Rue's New "Little Giant" Injector is much praised for its capacity, reliability, und ling use wit
Rue Manufacturing Co., Philadelphia, Pa.
For best low price Planer and Matcher, and latest mproved Sash, Door, and Blind Machinery, Send
catalogue to Rowley \& Hermance, Williamsport, Pa. The only economical and practical Gas Engine in the market is the new "Otto" Silent, built by Scheicicher.
Schumm \& Co., Philadelphia, Pa. Send for circular. Elevators.-Stokes \& Parrish, Phila., Pa. See p. 158 Improved Solid Emery Wheels and Machinery, Automatic Knife Grinders, Portable Chuck Jaws. Important, that users should have prices of these frst class
goods. Acluyess Auer. Twist Drill Co., Woonsocket, R.I.

## NEW BOOKS AND PUBLICATIONS.

The American Antiquarian. A Quarterly
Journal devoted to Early American His Journal devoted to Early A merican His-
tory, Ethnology, and Arelumolopy. Edited tory, Ethnology, and Arelerology. Edited
by Rev. Stephen D. Peet. Chicago:

A very creditable and thoroughly scientific periodica ing good
The Antiquary. A Magazine devoted to
the Study of the Past. Edited by Edward the Study of the Past. Edited by Edward
Walford. M.A. New York: J. W. Bouton. No. 1, Vol. I.
A thoroughly English magazine likely to delight the dilettante gatherer of antiquated trifles, devoted chiefly
to historical and biographical matters pertaining to the British islands and the British people.
How to Learn Shorthand. By Arthur
M. Baker. New York : S. R. Wells \&
Co. Paper, pp. 43.
Claims to be an improvement upon Taylor's system of stenography, and to te the simplest, most practical, and
the best adapted system of shorthand for reporting There are probably not more than twenty systems before the public that are better.
The Refutation of Darwinism and the By T. Warren O'Neill. Philadelphia: By T. Warren O'Neil
J. B. Lippincott \& Co
Another illustration of the facility with which the but a second hand knowleige (and little at that) of the facts of natural history. As a constructive theorist Mr. O'Neill is as fearless as he is in the work of destroying Darwinism; but we do not apprehend that naturalists will he greatly influenced by his views.
The Sugar Beet: Includinga History of the Beet Sugar industry in Europe delphia: Henry Carey Baird \& Co. 8vo, cloth, pp. 323. Price $\$ 4$.
In addition to a detailed account of the varieties, qualities, cultivation, feeding value, etc., of the sugar eet as developed in Europe, this thoroughly practical treatise reviews at considerable length the history, pres-
ent condition, and future prospects of the beet sugar industry in this country. The author is confident that fefore long the $\$ 80,000,000$ annual tribnte we pay to foreigncountries for sugar will be kept at home, and
that the sugar beet will be one of the chief means for enabling the people of the United States to produce all the sugar they require.
Sixth Quarterly Report of the Penn srlvania Board of Agriculture. Har
risburg: Lane $S$. Hart, State Printer. Contains a report of the fall meeting of the Pennsylcrops in comparison with the yield of the year before the condition of growing crops and of farm stock; prices of farm products, etc. Also a useful paper on the
lung plague among cattle, and other information of use lung plague among cattle,
to Pennsylvania farmers.
The Microscope in Medicine By Lione $\begin{array}{cc}\text { Beale. } & \text { Yhiladelphia: Lindsay \& }\end{array}$ This is the fourth edition of Professor Beale's well rations have been drawn on wood by the author. The ndex, which contains over 2,000 references, fairly indicates the encyclopedic character of the work. It is somewhat remarkable that an edition for American use ddresses in the list of "microscope makers and oth aseful to micrescopical observers."

The Compend of Takigraphy. By D. P.
Lindsley. New York: D. Kimball. 12mo, paper, pp. 34.
Contains a summary of the principles of the simple style of takigraphy, a system of sho
which deservedly ranks among the best.

## Maldest (Hunciss

HINTS TO CORRESPONDENTS.
No attention will be paid to communications unless writer.
Names and addre
iven to inquirers.
We renew our to former answers or articles, will be kind enough to name the date of the paper and thepage, or the number of the question.
Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may concl
Editor declines them.
Persons desiring special information which is purely of a personal character, and not of general interest, should remit from $\$ 1$ to $\$ 5$, according to the subject, as we cannol be expected to spend time and lab
obtain such information without remtneration. obtain such information without remrneration.
Any numbers of the Scientific American Sup Any numbers of the Scientific American Supple
ment referred to in these columns may be had at thi offlice. Price 10 cents each.
(1) C. H. B. asks how to color glue
(2) E. S. asks: 1. Could you suggest a lear transparent and quickly drying varnish to pre erve sphymographic tracings on mica slides? A. Try he following: Gum juniper, 2 drachms 8 grains; gum Filter through paper, and use the clear solutions. 2. Give a method by which the tracings could be transferred to a record book
ter than a solar print.
(3) W. H. C. asks for the best acid or mixture for scouring and polishing copper. A. Solu-
tion of oxalic acid is commonly employed. Finish tion of oxalic
with whiting.
(4) C. R. writes: We are using the con densed water from exhaust steam in the boiler, and find
that the grease in it makes the boiler foam. Would coal oil cut the grease and precipitate it so that we Try a small quantity of lime (caustic) and use the blow Try a smail quantity of lime (caustic)
(5) I. G. B. asks the name of the very bright star now to be seen near the borizon about due It is Sirius, the dog star:. It is estimated that it gives as four times as much light as any other star visible in Sirius had a companion, but it was not actually that until February 1862, when the younger Mr. Clark, of he firm of Alvan Clark \& Sons, the well known tele scope makers, turming upon the star the eighteen inch glass then just completed for the Chicago Observatory عaw it. The satellite was discovered exactly in the pre-
dicted direction for that time, though the discoverer dicted direction for that time, though
was not aware of this fact at the time.
(6) A. B. asks how to make emery belts or polishing spokes and other wood work. A. Take emery or sharp sand, spread it out on an iron plate heated to about $200^{\circ}$ Fah. Apply to your straps or
belts a rather thin coating of strong glue, then press it upon the heated emery or sand. Either leather or cot webbing may be used for the belt.
(7) B. J. R. asks: How is carbon tracing or copying paper used for duplicating writing in pencil orepared? A. Rub into a suitable tissue a mixture of 6 parts of lard, 1 part of becswax, and sufficient fine
lamp black to give it a good color. The mixture should
(8) J. H. P. asks where to find a full explanation of the theory that the top of a carriage whee moves faster than the bottom when the carriage is
ing. A. P. 394, Vol. 39, Scientific American.
(9) A. S. G. writes: Tell J. B. R. (No. 40, in No. 8) that I have had exactly the same experienc as he, with four Watson cells, and, after charging it t
every cause but the right one, removed the trouble b every cause but the right one, removed the trouble by
taking out the zincs and cleaning them with a stif brush. Iknow this is contrary to directions, so much the worse for them.
(10) G. L. B. asks: What is the ratio of inrease of resistance to that of speed, to an object drawn through water? A. Nearly as the square of the velocity
at high velocities not quite so much,as the friction does ot increase as the square of the velocity.
(11) W. J. P. writes: In your issue of February 28, in "Notes and Queries," No. 10, W. E. K. aslss how to take a large coal oil spot out of a
carpet. If it is of any value. I give you my experiencs carpet. If it is of any value. I give you my experienc? A kerosene lamp was carelessly dropped in the center
of my parlor carpet. I drew the tacks nearest to it and drew out the paper under the spott and put in four thickarew out the paper under the spot and put in four thick-
nesses of newspaper. I then strewed over the spot comnesses of newspaper. I then strewed over the spot com-
mon whiting to the depth of about half an inch, which I covered with a large paper to prevent tracking, etc. left it a week, and then scraped up the whiting and raising the carpet a few inches from the floor I whipped it with a light switch to start the whiting, after which
the spot was carefully swept. The oil had disappeared the spot was carefully swept. The oil had disappeared.
This was four years ago, and no brighter spot is on the This wae four years ago, ane no brighter spot is on the
carpet than the place so treated.
(12) A. M. M. asks: 1. Will any kind of battery answer for silver or gold plating? If not, which
is, best? A. For light work the Smee battery is geneally used. Forheavy work use a carbon battery with electro-poin fluid in the porous cell. 2. How are soutions prepared for silver and gold plating? A. For silver bath, see p. 27 (2), Vol. 41, Scientific A merican, for gilding bath, see Supplement, 160. 3. Can an electric lamp be operated with a battery? A. Yes, but not economically. It will take 50 cells of Bunsen battery
to get a fair light. Better use a machine.
(13) J. G. S. asks: 1. What wire is it necessary to use between stations using the telephune de-
cribed in No. 142,Scientific American Supplementscribe i in No. 142,ScIENTIFIC AMERICAN SUPPLEMENT-
hat is, size; material, copper, or iron? A. Use No. 9 galvanized iron wire. 2. Is there any simpler calls than in No. 162? A. A single stroke electric bell is the simin No. 1629
plest call.
(14) P. T. writes: One party claims that anchor ice runs at night and whatever it tonches it
clings to. An opposite party claims that it does not clings to. An opposite party claims that it does not
run at night, but freezes on the bottom, and rises and run at night, but freezes on the bottom, and rises and
runs when the sun warms the water sufficient to loosen fons when the sun warms the water sufflcient to lo
from the bottom. Which is righty A. The latter.
(15) M. P. B. writes: 1. Suppose a per fectly round wheel to be rolling on a perfectly smooth surface, is the part of the wheel which touches the surace on which it is rolling at rest for the instant? A. Yes. 2. Does a cane gun come under the head of concealed weapons? If so why? A. Yes, because the
weapon is concealed or disguised. 3. Does the piston roa of an engine come to rest atthe end of each stroke rod of an engine come to rest at the
before beginning the next? A. Yes.
(16) D. O. asks: 1. Is an engine with cylinder $21 / 2$ inches diameter by 5 inches stroke with 100 lb . steam powerful enough to drive a propeller 20 inches diameter with 36 inches pitch 9 A. Yes. 2. What
 er hour.
(17) E. S. asks: 1. Is it necessary that a locomotive engine have two cylinders. If so, why? A.
Yes, so that the engines can be started from any position. Yes, so that the engines can be started from any position.
What size engine used as a locomotive will it require to draw 12 cars weighing 800 a piece up a grade quire to draw 12 cars weighing 800 a piece up a grade
4 feet per 100, that is, not allowing for slipping of the drive wheels on the rails? A. Your data is quite insufficient; you do not give size of driving wheels, pressure of steam, or speed.
Minerais, etc.-Specimens bave been received from the following correspondents, and examined, with the results stated:
B.-Hematite and chalcopyrite-W. K.-Notemery, but garnet in quartz.

## COMMUNICATIONS RECEIVED. <br> On Experiments in Magnetism. By H. E. E <br> On Activity on Jupiter's Disk. By I. S. <br> On Russian System of Shop Instruction. By W. F. <br> On a Curious Dust Formation. By B. N. <br> On Copper Nails. By J. A. B. On the Force and Heat of Light. By c. B. M.

[OFFICIAL.]

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AND EACH BEARING THAT DATE. [Those marked (r) are reissued patents.]
A complete copy of any patent in the annexed list, inluding both the speciflcations and drawings, or any atent issued since 1867, will be furnished from this office date of the pording and remit to dart of the patent desirea,
Paw, New York city.
Alcoholic spirits, manufacturing, J. R. Gladney.. 224.419
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ed bottom oring, A. W. Jackson
Bed spring. L. Wildermuth...
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Belt tightener, J. Baughman..............
Berth, self-leveling ship's, D. Parks ..
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