

W. H. J., of Pa.-The old system of fastening shoes to borsesfeet by nails is still universally practiced. Attempts have recently been made to introduce other methods, but we have still to look for the result.

- J. R., of Ohio.-The weight of one cubic foot of water is 623 pounds. The weight of one gallon is about 8 pounds. You can calculate the weight of water in your tank for yourself.
- P. B., of Com.-One square foot of wrought iron one inch thick weighs 406 pounds, of course if half an inch thick it weighs 203 pounds. You will ind the information desired about water in another part of this column.
- B. F. G. W., of N. Y .- Our charge for obtaining the information you desire in regard to Legare's patent will be \$5. As your letter is not properly signed we cannot preserve it on our
- G. R. B., of Pa.-We do not know of any parties engaged in making artificial leather. The best way to reach such persons is to advertise.
- G. H. C., of N. J.-Nothing is more agreeable to us than to receive accounts from our institutions of learning of new discoveries in science. We see nothing novel in your battery, how ever, except the form, and that seems to be no improvement. The zinc cup holding the acid will be rapidly corroded, and as soon as it is eaten through, the acid will run out upon the floor. The iron too is liable at any moment to lose its passive state when it will be very quickly dissolved.
- P. W., of R. I.-Every steam piston should be packed. We have seen many varieties used but none that were at all equal to the three rings as ordinarily made. Water packing has been employed but it is not efficient or economical. It is made by turn ing small grooves in a solid piston; the grooves are 3-16thsof an incl wide and deep. The theory is that they get filled with water from condensed steam and prevent leakage. They get filled with dirt instead and scratch the cylinder greatly.
- T. W. R., of N. Y .- There must have been water in your mold, or the cores were damp. Metal will not fly out of the
- "gate" if proper care is taken. M. McD., of Mass.—One 20-inch gun has already been
- cast, but is not yet inished, we believe. C. R. M., of Conn.—Fusible safety plugs are not used in this country forsteam boilers. They have been found inoperative. They are still employed to some extent in England, but they are regarded with suspicion, we are told.
- I. P., of N. Y .- If your invention has proved to be valuable one to the country, the fact of your having realized a small fortune from it will not militate against its extension. An inventor of a really valuable improvement is entitled to a munificient reward, and we think your case not an exception. You must make your application for the extension at least ninety e the date of its expiration.
- J.J. S., of Ky.-The machine to which you refer for g cigars was published in the SCIENTIFIC AMERICAN, Vol. I new sories. We do not know the present address of Mr Beanchi, the patentee.
- water flows up from an under seam above the surface. Such wells are generally formed in basins, where the rocky strata dip down-wards, and they are supplied from distant elevations or the water would not be forced up to the surface.
- J. G., of Mass.-You will find an illustrated series of arti cles on the manufacture of axes, in Vol. I, of our new series, begin ning at page 207. V. C., of N. J.—Stevenson's turbine yields a larger pro-
- portion of the total power of the water than any other water wheel that we know of. But turbines are not adapted to work where great changes are made in the amount of resistance, as in throwing machines into and out of gear. Stevenson's address is 200 Broadway, New York. We know of no manufactory of Barker mills.
- S. W. N., of N. Y .- Nothing is better settled than that a body projected vertically upward from the earth, would fall with the same velocity that it rises were it not for the resistance of the atmosphere. It is also true that but for the resistance of the air all bodies would fall with the same velocity—afeathera ; rapidly as a guinea. We have seen this demonstrated repeatedly in a vacuum tube. As you desire authorities, we refer you to Newton's Princi pia, Definition VII. "Theforce of gravity (taking away, or ing for, the resistance of the air) equally accelerates all falling bodies, whether heavy or light, great or small." See also Silliman' Philosophy, page 71.

Money Received.

At the Scientific American Office, on account of Patent Office business, from Wednesday, July 6, 1864, to Wednesday, July 12, 1864;

of N. Y., \$16; A. W. T., of Ill., \$20; J. F., of N. Y., \$22; J J. D., of N. Y., \$16; A. W. T., of Ill., \$20; J. F., of N. Y., \$22; J. H. C., of N. Y., \$16; P. & M., of Mass., \$15; L. D., of N. Y., \$16; J. R. B., of N. Y., \$20; O. C. P., of N. Y., \$20; A. J. L., of N. J., \$20; J. B. R., of N. Y., \$20; E. T., of Pa., \$20; G. G. P., of N. Y., \$16; M. R., of N. Y., \$16; L. G. K., of Mass., \$20; A. M., of Ill., \$25; E. C. C., of Mass., \$16; S. W., ot Ill., \$25; McI. & G., of Pa., \$16; W. H. H., of III., \$25; A. W., of III., \$25; G. McK., of N. Y., \$26; T. G. M., of N. Y., \$40; G. & G., of Pa., \$16; W. S., of Ohio, \$26; N. T., of N. H., \$16; L. M. H., of N. Y., \$15; W. R. M., of Pa., \$32; A. S., of N. Y., \$16; L. M. M. N. 1, \$20; O. C. F., of D. C., \$16; G. H., of N. Y., \$46; G. E.
R., of N. Y., \$20; E. C., of Iowa, \$20; A. A. S., of Iowa, \$20; S. W.
W., of N. Y., \$20; W. W., of Conn., \$20; H. U., of Conn., \$20; H. F., of N Y, \$16; G. M., of N. Y., \$10; C. B. R., of Mass., \$32; E. S., of Minn., \$16; S. N. T., of Wis., \$26; II. N., of Fa., \$21; R. W. G., of Ill.,

\$60; E. D., of Pa., \$10; G. H., of Cal., \$25; T. S., of Pa. \$25; D. C. A., of Iowa, \$20; D. D., of Ill, \$16; A. M. G., of N. H., \$25; J. P. C., of N. Y., \$25; E. C. G., of Cal., \$100; J. R., of Mass., \$22; W. G. K. of Ind., \$16; O. C. McC., of Ohio, \$20; E. B., of C. W.. \$20; J. P., of Mass., \$20; J. T. D., of N. Y., \$16; H. E. F., of Conn., \$20; C. B. G. of Iowa, \$20; I. H. L, of Pa., \$45; H. T., of Wis, \$20; J. P. of N. Y., \$20; P. J. P., of N. Y., \$20; C. H. S., of Pa., \$16; S. S. G., of Mass., \$23; J. A. L., of Wis., \$16; L. O. C., of Pa., \$36; R. P. B., of Mich., \$20; H. C. S., of III., \$16; T. W. H., of Wis., \$30; E. O. F., of La, \$16; C. R. H, of Wis, \$25, T. & P. S., of P., \$25; H. D., of Ono, \$16; E. L., of Ind., \$16; T. S., of N. H., \$41; T. R. F., of Mich., \$25; P. T. J., of Iⁿ., \$16; J. W. C., of N. Y., \$25; H. C., of N. Y., \$27; G. H. S. D. of N. Y., \$75; O. C. E., of N. Y., \$25; P. L., of N. Y., \$25; I. L., of N. Y., 325.

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ound in his list they will please notify v immediately statin untera how i was sent, whether oy mail or expres

recifications and drawings and models belonging to

parties with the o'lowing tals have seen orwarded othe 'a.e.nt Office from Wednesday uly 1864, to Wednesday, July 10, 1364;-J. F., of N. Y.; H.C., of N. Y.; G. H. S. D., of N. Y. (3 cases); O. G. B., of N. Y.; P. L., of N. Y.; J. L., of N. Y.; J. B. E., of Mo. (2 cases); F. W., of England (3 cases); D. E. B., of Ind.; J. B., of cases); F. W., of England (3 cases); D. E. B., of Ind.; J. B., of Mich.; E. S., of Pa.; N. Y., of N. J.; F. G. L., of Maas.; R. W. G., of Ill.; T. S., of N. H.; D. & B., of N. T.; C. & M., of Ohio; H. N., of Pa.; T. S., of Pa.; S. N. T., of Wis.; T. G. M., of N. Y.; R. W. G., of Ill.; J. R., of Mass.; W. S., of Ohio; T. R. F., of Mich.; G. C., of Ill.; J. P. C., of N. Y.; J. W. C., of N. Y.; A. M. G., of N. H.; L. O. C., of Pa.; B. & G., of Ill.; A. M., of Ind.; S. S. G., of Mass.; T. & P. S., of Pa.; A. W., of Ill.; J. & J. N. T., of Ind.; G. H., of Cal.; W. H. H. of Ill.; S. W., of Ill.

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- the petition, specification and oath, except the Government fee. RECEIPTS.—When money is paid at the office for subscriptions, a receipt for it will always be given ; but when subs remit their money by mail, they may consider the arrival of the first paper a *bona-fide* acknowledgement of our reception of their

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The second secon

melting and vaporizing bodies. Calorimeter. Source of I Heat generated by mechanical operations. Combustion. Term ture necessary for combustion. Oxidation. Effects of galvanit tion. Boiling point. Boiling pointas influenced by pressure. ' perature of steam, Vapor. Formation of dew. Causes influen be formation of dew. Vapor and steam distinguished. Metho obtaining steam. Steam distinguished from other clastic fi Boiling point of fresh water. Boiling point of salt water. steam of salt water is fresh. Process of distillation. High-pres steam. Measure of steam by atmosphere. Laws regulating pressure of steam. Tressure, density, and temperature of st Analysis of sea-water. Saltne contents of sea-water. Gaseous ter in sea-water. Calorimeter. Source of heat. erations. Combustion. Tempera-ixidation. Effects of galvanic acam nat-

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caution in case a vessel be run ssort. Temporary repair of boiler bubes. Steamers in class. To repair the lunded after an action. To straighten a bent pisson rod. To work engines without cylinder. Cover.

- Industrial Puolisher, Walcot st

PROPOSALS FOR MORTAR SHELL. ORDNANCE OFFICE,

ORDNANCE OFFICE, WAR DEPARTMENT, WASHINGTON, D. C., July 8, 1864. Sealed Troposals will be received at this office until Monday, he ist day of August, 1864, for 8 inch Mortar Shelt, to be delivered a the following quantities, at the undernamed arsenals, viz:--At the Watertown Arsenal, Massachusetts, 5,000. At the Watertown Arsenal, Mew York, 10,000. At the Water Vork Arsenal, Governor's Island, N. Y., 20,000. At the Alleghany Arsenal, Orthory 10, 000. These projectiles are to be made of the kind of metal, and inspect-datier the rules laid down in the Ordnance Manual; the tensile thrength of the iron to be not less than 14,000 lbs, per square inch. Drawings can be seen at any of the United States Arsenals. The projectiles are to be inspected at the foundry where cast, and are to be delivered at the Arsenals free of charge for transportation or iandling.

A denivered at the Arsenais rece of charge for transportation of midding. Bidders will state the rate at which they will deliver. Failures to hake deliveries at a specified time will subject the contractor to a orfelture of the number he may fail to deliver at that fime. Bidders will state explicitly the Arsenal, or Arsenals, where they ropose to deliver, and the number of projectiles they propose to de-ver at each place, if for more than one. No bids will be considered from parties other than regular foun-ers, or proprietyrs of works who are known by this Department to e capable of executing the work proposed for. Should any party biaining a contract offer shell other than those cast in his wn foundry, they will be rejected, and the contract rendered null nd void.

d void.

ns of bids can be obtained at the above-named Arsenals sals not made out on this form will not be considered. GUARANTY.

GUARANT. The bidder will be cresponsible persons, that, in case the bid is accepted, he will at once execute the contract for the same, with good and sufficient surveites, in a sum equal to the amount of the contract, to deliver the article proposed, in conformity with the terms of this advertisement; and in case the said bidder should fail to enter into the contract, they to make good the difference between the offer of said bidder and the next responsible bidder; so rule per-son to whom the contract may be awarded. The responsibility of the guarantors must be shown by the official certificate of the Clerk of the nearest District Court, or of the United States District Attorney. Bonds in the sum equal to the amount of the contract, signed by the contractor and both of his guarantors, will be required of the successful bidder or bidders upon signing the contract.

his guaranty must be appended, the official certificate oned.

entioned. Each party obtaining a contract will be obliged to enter into bond with approved sureties for its faithful execution. Upon the award being made, successful bidderswill be notified, and furnished with forms of contract and bonds. The Department reserves the right to relect any or all bids if not deemed as islactory.

eemed sa istactory. Proposals will be addressed to "Brigadier-General George D. Ram. 27, Chiof of Ordnance, Washington, D. C.," and endorsed "Propo-as for 8-inch Mortar Shell." GEURGE D. RAMSAY, 4 2 Brigadier-General, Chief of Ordnance.

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facturers. Very respectfully yours, B. KREISCHER. Letter from Charles A. Scely, Esq., Professor of Chemistry :-244 CANAL STREET, NEW YORK, June 16th, 1864. HENRY GERNER, C.E., 200 Broadway, New York-Dear-vir -Dur-ing my leisure of the past few days, I have been very agreeably em-joyed in the study of your various improvements in lurances. The irst favorable impression which, as you are aware, I conceived of your plans, are more than continned, every doubt is now removed. The economy of fuel and the other advantages of your system which you claim, seem to me results which nust follow by a rigid necessity. For myseli, I need no turther demonstration to convince me of the practicability of your various devices; they are founded on well-established laws of combustion and heat. I wish for your great and laudable enterprise every success. I have no doubt that you are able to bring about an economy of fuel in any furnace in the country, and your extensive experience and profound know ledge of the subject quality you to determ ine in advance, very accurately, the amount of saving that may be realized in any specific case. I look upon you as the master of the science and art of using tud economically. With these continual assurances of my high esteem, I remain very respectfully yours, CHARLES A. SEELY.

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The publishers of the SOIENTIFIC AMERICAN have just prepared with much care, a pamphlet of just ornation about Fatents and the Fatent Laws, which ought to be in the hands of every inventor and patentice, and also of manufacturers who use patented inventions. The character of this useful work will be better understood after read-ing the following gynopsis of its contents :-The complete Fatent Law Amendment Act of 1861—Practical In-Structions to Inventors, how to obtain Letters Patent, also about Models—Designs—Carveats—Trade-marks—Assignments—Reviewe Tax Extensions—Interferences—Infringenents—Appeals—Revisues of Defective Fatents—Validity of Fatents—Abandonment of Inventions —Who are contiled to Fatents—What will prevent the granting of a enteries; also a variety of miscellaneous items on patent law ques-tion to the patent of the publishest to and only turnish in con-tine the patent here the publishest to and only turnish in con-

ent Fees; also a variety of miscemancous items on particulations. It has been the design of the publishers to not only furnish, in con-venient form for preservation, a synopsis of he PATENT LAW and PRACTICE, but to answer a great variety of questions which have been put to them from time to time during their practice of upwards of seventeen years, which replies are not accessible in any other form. The publishers will promptly forward the pamphlet by mail, on receipt of six cents in postage stamps. Address MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, No 37 Park Row New York.

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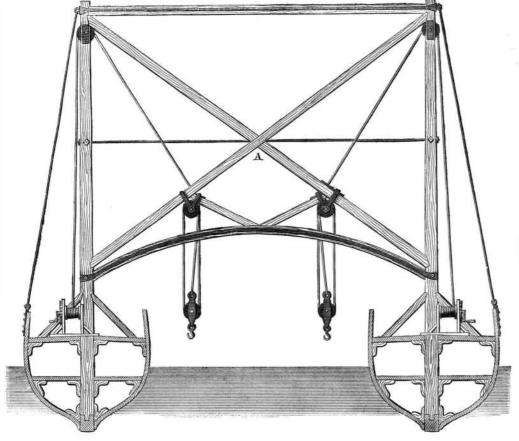
Die Unterzeichneren haben eine Anctinge Schnedet. Die Unterzeichneren haben eine Anctinung, die Erführern bas Der-hatten angibt, um fich ihre Patente zu fahern, herauszogeben, und berabfelgen felde gratis an biefelben. Erfinder, welche nicht mit ber englichen Sprache befannt find, fönnen ihre Mittheilungen in ber bentichen Befache nachen. Sigien von Erfindern Beschweitebungen beliebe man zu abbrefiren att Munt & Co..

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Improved Floating Derrick.

quaintly remarked to us by a distinguished pharma-A convenient and powerful apparatus for raising centist, the label almost suggests that a lucifer should sunken ships, anchors lost overboard, or prosecuting be struck on its roughened susface to enable the nasimilar duties is most useful, and in harbors or large cities they are in great request for lifting cargo that ture of the contents of the bottle to be seen. It ap-



COLLINS'S FLOATING DERRICK.

has fallen overboard or for conveying water-logged pears to us to be the most practically useful poison boats sunk in slips to some out-of-the-way place. A | label that we have seen. It is manufactured in the derrick which can be used for these purposes is here illustrated, and a glance at the engraving is sufficient to give the reader a clear idea of its objects and the uses to which it may be put.

The derrick consists of two strong hulls or boats connected by a rigid frame, A. These frames are braced and trussed in all directions, and so strengthened, both fore and aft the boats, and "athwart ships," as shown in the engraving, that they will sustain a great load with safety. The hoisting arrangement may be any combination of blocks or pulleys which is suitable for the work in hand. The very large space on the frames amidships, between the hulls, permits the use of any kind of tackle, so that heavy weights, such as ordnance, anchors, or steam boilers can be raised, swung clear of the water, and carried to a place of safety, or deposited on one of the boats. Steam or horse power may be applied to this derrick, and by the introduction of engines and boilers to one of the hulls it may be independent in its movements, and not only propel the boat but furnish power for hoisting.

The frames are so made that they can be taken down and stowed on board either one of the boats for transportation to a distance. This is a most useful invention, and one that can be employed to great advantage under a great variety of circumstances; it was patented on May 3, 1864, through the Scientific American Patent Agency, by James V. Collins, of Georgetown, D. C.; for further information address the inventor at that place.

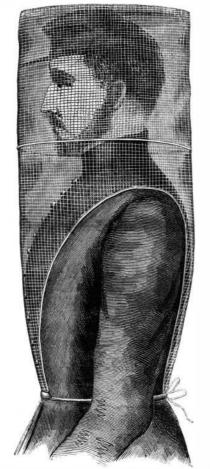
Thonger's Patent " Caution" Label.

The object-of this label, which is intended to be employed only with poisonous medicines and those used for outward application, is to prevent accidental poisoning by the caution which its peculiar nature involuntarily suggests when the bottle is taken into the hand. The patent consists in the application of a broad bordering of rough glass paper around the label. The effect of this on coming in contact with the hand is so well marked that it is impossible to conceive that it should be taken up without being

various sizes required both for dispensing and retail bottles .- Chemist and Druggist, London,

PORTABLE MUSQUITO NET.

Most persons during their life-time have had occa-



sion to use some protection from the annoyance of noticed. This effect is as surely produced during insects, and have "made-shift," so to speak, by em-

ploying veils, newspapers, etc., for their protection. The simple arrangement shown in the accompanying engraving is a perfect safeguard against the annoyance alluded to ; and travelers, tourists, sportsmen, and in fact all classes, will find it a great convenience. One half the pleasure of trouting is often taken away by the assaults of the little gnats or black files with which the woods abound, and the angler has as much as he can do to protect himself without making war on the fish.

Soldiers in the field will also be greatly comforted by the use of this net, and may enjoy a refreshing slumber in spite of musquitoes, "gallinippers," and pests of that class. Who has not been robbed of a noon-day's nap by flies walking over his face? This contrivance remedies all such evils. The engraving explains the invention; the weight is only two ounces, and the net folds up so compact as to be easily carried in the pocket.

This invention was patented by John Zengeler, of Chicago, Ill., through the Scientific American Patent Agency, on Dec. 2, 1863. For further information address him as above, Box 2,682.

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