

Business and Personal.

The Charge for Insertion under this head is \$1 a Line.

Annealer Wanted—To take charge of the furnaces in a malleable iron foundry; must be able to give reference, and state where and how long he has been engaged in the business. Address John H. Thomas & Co., Dayton, Ohio.

To Engine Builders and Boiler Makers—A practical Boiler Maker desires a location for a small shop, or would purchase an interest in one already established. Address J. C., P. O. Box 2723, St. Louis, Mo.

For Solid Wrought-iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, etc.

Engines 2 to 8 H.P. N. Twiss, New Haven, Ct.

For Sale—A lot with building suitable for a small manufacturing business, in a very healthy, thriving village, where coal and lumber are cheap. Enquire of Box 204, Canton, Bradford Co., Pa.

No Keys, Key-seats, Set-screws, Bolts, or Pins used in fastening the Taper-Sleeve Belt-Pulley. Holds firmly; can't be thrown out of balance; easily moved; can't injure shafting. One pulley sent on trial to any part of the U.S. Address A. B. Cook & Co., Erie, Pa.

Wanted—A Good, Cheap Cotton Compress. Address A. Shorter Caldwell, Rome, Ga.

Steam Air Pump Wanted—A good Second-Hand Steam Air Pump, capable of a pressure of at least 40 pounds. Address J. Barnard, 23 So. 3d st., Camden, N. J.

C. B. Cotton & Co., Agents for the Sale of Patents, West Gorham, Maine. This firm are reliable, and possess superior facilities. Patentees will find it for their interest to secure their services.

Clock Movement Stamping Cos., send Price List to J. F. Ronan, Boston Highlands, Mass.

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Button-Hole Worker—Patent for Sale—Sample worker sent for 75c. A. W. Webster, Ansonia, Ct.

Best and Cheapest Wind Wheel Wanted, for raising Water 6 ft. Davison & Silvers, Cranberry, N. J.

Scientific Books.—Send stamp for Illustrated Catalogue. E. & F. N. Spon, 46 Broome St., N. Y.

Wanted—Circulars and Price Lists from Makers of small Water Motors, suitable for running light machinery. Address Porter Blanchard's Sons Concord, N. H.

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Deane's Patent Steam Pump—for all purposes—Strictly first class and reliable. Send for circular. W. L. Chase & Co., 95 & 97 Liberty St., New York.

Models of all kinds made to order. All kinds of light metal work. H. B. Morris, Ithaca, N. Y.

Tornado Windmill Co., Elba, Genesee co., N. Y.

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Wanted—The Manufacture of "Specialties" made mostly of Wood. Sayer & Co., Meadville, Pa.

The Pickering Governor, Portland, Conn.

Portable Engines 2d hand, thoroughly overhauled, at 1/2 Cost. I. H. Shearman, 45 Cortlandt St., N. Y.

The Improved Hoadley Cut-off Engine—the Cheapest, Best, and Most Economical steam-power in the United States. Send for circular. W. L. Chase & Co., 95 & 97 Liberty St., New York.

Mechanical Expert in Patent Cases. T. D. Stetson, 23 Murray St., New York.

Gas and Water Pipe, Wrought Iron. Send for price list to Bailey, Farrell & Co., Pittsburgh, Pa.

Forges—(Fan Blast), Portable and Stationary. Keystone Portable Forge Co., Philadelphia, Pa.

Rollers and Engines, Second Hand. Egbert P. Watson, 42 Cliff St., New York.

For Surface Planers, small size, and for Box Corner Grooving Machines, send to A. Davis, Lowell, Mass.

The "Scientific American" Office, New York, is fitted with the Miniature Electric Telegraph. By touching little buttons on the desks of the managers, signals are sent to persons in the various departments of the establishment. Cheap and effective. Splendid for shops, offices, dwellings. Works for any distance. Price \$5. F. C. Beach & Co., 208 Broadway, New York, Makers. Send for free illustrated Catalogue.

All Fruit-can Tools, Ferracute, Bridgeton, N. J. Brown's Coalyard Quarry & Contractor's Apparatus for hoisting and conveying materials by iron cable. W. D. Andrews & Bro., 414 Water St., New York.

For Solid Emery Wheels and Machinery, send to the Union Stone Co., Boston, Mass., for circular.

Lathes, Planers, Drills, Milling and Index Machines. Geo. S. Lincoln & Co., Hartford, Conn.

Hydraulic Presses and Jacks, new and second hand. E. Lyon, 470 Grand Street, New York.

Dickinson's Patent Shaped Diamond Carbon Points and adjustable holder for working Stone, dressing Emery Wheels, Grindstones, &c., 64 Nassau St., N. Y.

Peck's Patent Drop Press. For circulars, address Milo, Peck & Co., New Haven, Conn.

Small Tools and Gear Wheels for Models. List free. Goodnow & Wightman, 23 Cornhill, Boston, Ma.

The French Files of Limet & Co. are pronounced superior to all other brands by all who use them. Decided excellence and moderate cost have made these goods popular. Homer Foot & Co., Sole Agents or America, 20 Platt Street, New York.

Mining, Wrecking, Pumping, Drainage, or Irrigating Machinery, for sale or rent. See advertisement. Andrew's Patent, inside page.

Automatic Wire Rope R. R. conveys Coal Ore, &c., without Trestle Work. No. 34 Day street, N. Y.

A. F. Havens Lights Towns, Factories, Hotels, and Dwellings with Gas. 34 Day street, New York.

Best Philadelphia Oak Belting and Monitor Stitches. C. W. Army, Manufacturer, 301 & 303 Cherry St., Philadelphia, Pa. Send for circular.

Temples & Oilcans. Draper, Hopedale, Mass.

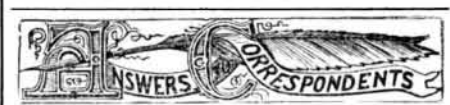
Buy Boulit's Paneling, Moulding, and Dove-tailing Machine. Send for circular and sample of work. E. C. Machy Co., Battle Creek, Mich., Box 227.

Engines, Boilers, Pumps, Portable Engines  
Machinists Tools. J. H. Shearman, 45 Cortlandt St., N. Y.

For best Presses, Dies and Fruit Can Tools, Bliss & Williams, cor. of Plymouth & Jay, Brooklyn, N. Y.

Price only three dollars.—The Tom Thumb Electric Telegraph. A compact working Telegraph apparatus, for sending messages, making magnets, the electric light, giving alarms, and various other purposes. Can be put in operation by any lad. Includes battery, key and wires. Neatly packed and sent to all parts of the world on receipt of price. F. C. Beach & Co., 263 Broadway, New York.

Rue's "Little Giant" Injectors, Cheapest and Best Boiler Feeder in the market. W. L. Chase & Co., 95, 97 Liberty Street, New York.



H. B. will find a recipe for modeling wax on p. 58, vol. 24.—A. J. L. can remove stains of ink and fruit by the recipe on p. 171, vol. 30.—C. A. B. will find that the construction of paper boats is fully described on p. 165, vol. 27.—J. D. G. will find details of the manufacture of tin plates on p. 377, vol. 29.—E. L. will find directions for canning green corn on p. 107, vol. 31.—W. R. H. will find a description of an aeolian harp on p. 330, vol. 26.—I. N. will find directions for making paper fire and waterproof on p. 129, vol. 28.—F. A. M. can japan small tin articles by the process described on p. 132, vol. 24.—J. E. can join pieces of rubber by using the cement described on p. 203, vol. 30.—B. W. B. can keep cider sweet by following the directions on p. 10, vol. 23.—F. C. R. can enamel leather by the process given on p. 122, vol. 27.—P. O. F. and W. R. T. do not send their addresses.

O. P. B. asks: What mode of procedure is necessary to prevent paint from blistering and cracking? I have three doors, all facing the east, which blister exceedingly, from the size of a pea to that of a Mexican half dollar. I have had them painted twice in the last year, each time with the same results, blistering, scaling, and cracking. They are pine of the best quality. Would boiling the oil have any effect? Or would hot oil, first applied, help the case? Is the use of shellac any advantage? A. The cause of the blistering is most probably a too rapid execution of the work. After the first coat of paint is put on, time should be allowed for it to shrink into the wood and get hard upon the surface before the next coat is applied; and the same for each coat, when there are more than two. Use spirits of turpentine to thin the paint, and not benzine.

F. A. H. says: 1. You deny that a solid body, projected vertically, returns to the earth with the same force as was used in projecting, by reason of the resistance of atmosphere, whereas the atmosphere has just as much resistance one way as the other. A. If you have any idea that our statement was incorrect, you can easily settle the matter by an experiment. Get a friend to throw a ball into the air, as far as he can, and you catch it as it returns. Then stand off two or three feet from him, and ask him to throw the ball to you, with all his force, and again catch it; you will thus be able to determine whether the force at starting and returning are the same. We do not think that we have given any rule for the horse power of steam boilers. If you have any information on the subject that you would like to impart, we shall be glad to hear from you.

W. E. D. says: I am building a conveyer to convey feed and grain and wish to turn an angle with a universal joint. The angle is of 110°: can the conveyer be made to work? A. It would be better to make the conveyer in two parts.

J. J. T. asks: Which will discharge the most water, two 6 inch pipes or one 12 inch pipe? A. All other things being equal, the discharges of water from pipes are as the areas of their cross sections. A 12 inch pipe has an area of 113.0976, and a 6 inch pipe, of 28.2744. Therefore a 12 inch pipe has double the capacity of two 6 inch pipes.

J. E. asks: What will restore the color to a black coat which has been stained by perspiration? A. Try ammonia.

L. E. A. says: In your issue of July 29, wax is recommended for softening violin tones. In what part of the bridge should the wax be placed, and what wax is the best to use? A. Use a hard white wax, and place it on the edge of the bridge where the strings are strained.

B. M. & Co. say: In casting an iron roller around a cast steel mandrel, the cast iron always bubbles up and forms, after cooling, a honeycomb. We have tried borax, and warmed the mandrel; but we had no better result. What will prevent it? A. Dry the molds and cast the rollers upright, suspending the steel shaft if necessary, and cast the roller rather longer than is necessary. By this means your casting will be sound; and cutting off the top end of the roller, to bring it to its proper length, will take away the few air holes that are liable to remain there.

J. A. B. asks: A freemasons' lodge has a hall in a brick building, using the second story. The lower story is used for store and dwelling; and in building, the usual method of deafening was used, namely, a floor midway in the joists, and then an inch or so of plaster, and then the floor laid down as usual. But this fails to deaden the sound, in fact it seems to make it more hollow sounding, and the noise comes below too much. Our proposition is to lay strips one inch thick on the floor, say 1 foot apart, and then fill that even with mortar, and lay another floor tight on that; will you please inform us about it? Would several thicknesses of sheathing paper, tacked down under the carpet, help it? A. The deafening was probably put in with a loamy mortar, which is too often the case, and has since shrunk from the wood and cracked, and perhaps turned to dust. If it were possible to take up the floor and put in a fresh layer of good lime mortar, it would help it. If not, two thicknesses of building paper laid under the carpet would improve it.

R. M. says: 1. I have a boiler about 16 inches in length and 8 in diameter. What would be the best size for a cylinder for such a boiler? A. You should use a cylinder of 1 inch diameter and 2 inches stroke. 2. What could I best make it of? A. Either of iron, brass, or white metal. 3. What should be the power to the pressure per square inch? A. It will equal the pressure on pistons in pounds, multiplied by space passed over in feet per minute, and divided by 33,000.

What power is required to run an ordinary sewing machine? A. About one thirtieth of a horse power, on an average.

W. S. P. says: I have hit upon a crank which gives two strokes of the pitman to one revolution of the crank shaft. I made a model and showed it to several machinists, and they all said that they had never seen or heard of anything like it. Do you know if such an invention was ever made? A. A device for the purpose is quite old.

M. & H. ask: Will leather last longer than rubber, if continually under sweet water, and bent forward and back under a little strain? How long will each last? Is there any other flexible stuff more durable for the same purpose? A. Rubber will generally be the more durable of the two. We cannot answer your other questions without knowing more details.

A. S. asks: Having to renew the firebox to my hot air engine, having a cast iron bottom with flange on the same and sides of heavy sheet iron, I find it impossible to draw the sheet iron to the bottom tight, although the rivets are only 1/2 inch apart. Can you tell me of a cement that will close them and withstand the heat, the bottom being often of a white heat? The leaks are small. I have tried pulverized firebrick 2 parts, with 1 part plaster of Paris, also litharge and glycerin. The former is the best, but flakes under the intense heat. A. A well made rust joint may answer.

R. G. T. says: I have a spindle of three inches diameter, and I want to bore a ring out, driving it. What additional allowance am I to make to get that ring to go on, and what is the specified rule to take in practical work of that kind? A. Set your outside callipers to just perceptibly touch the shaft, and your inside callipers on a pointed wire gage to barely touch the points of the callipers, and to barely touch the hole in the collar. Why do you not try the spindle in the collar while the latter is in the lathe? If the collar is to be a permanent fixture, why not warm it and then shrink it on? There is no rule as to the allowance on callipers for a driving fit; it is too fine an operation to allow of any practical rule. An expert workman can rely upon his judgment; others try and re-try the fit.

B. H. S. says: I am running an engine of the following dimensions: 20x26 inches cylinder, 125 revolutions per minute, 100 horse power, 7 1/2 inch crank shaft, and 11,000 lbs. fly wheel of 12 feet diameter. There is an opening in steam pipe from steam dome to engine of 5 inches diameter, and cast iron steam pipe 18 feet in all, with 3 elbows. I have 3 boilers, 24 feet long and 43 inches diameter, with two 16 inch flues in each. A steam drum runs across the 3 boilers at 1/2 the distance from the back end of boilers. The dimensions of steam drum are 18 inches diameter, 14 feet length, and there are three 4 inch openings in connection. At certain times, just after firing up, we have a severe rushing and hissing sound, just as if steam were passing very rapidly from one boiler to the other; this lasts for 3 or 4 seconds and is then followed by a heavy thumping and rumbling noise and a quick sudden jarring of the boilers. All of this probably lasts for 6 seconds, and at low stages of water and high pressures of steam; and the needle on the steam gage shakes and trembles, and the water leaves either the middle boiler or one of the side boilers. Can you tell me what is the trouble? I think the openings in the mud drum connections are too large, and the water passes from one boiler to the other from uneven firing. A. The trouble seems to be caused by excess of pressure on one boiler, due to uneven firing. We have frequently pointed out, on former occasions, the trouble and danger likely to result from this arrangement of feed pipe. Each boiler should be fixed so that it can be supplied with water independently of all the rest, and so that water cannot be forced from one boiler into the other.

G. & W. say: Sixty days since we put up a boiler of 44 inches diameter and 20 feet long, with nine 6 inch return flues, to run a 12 x 30 engine twenty feet distant, and connected thereto by a steam pipe of 2 1/2 inches diameter, with a furnace 18 inches deep and bridge wall carried within four inches of boiler and circular in shape, with side walls 3 inches from boiler. The side walls are carried up to make fire linings high, and there is a combustion chamber, at rear of bridge wall, 16 inches deep, divided by two walls equal distances apart, and carried up like the bridge wall; but it fired hard and ate up too much fuel. We changed it several times with no improvement, and now have the bridge wall 5 feet 2 inches below the boiler. We took down the division walls of combustion chamber and filled it up to within from 9 to 12 inches of boiler; but it is not as good as at first, firing much harder and not keeping steam so easily. We use shavings from yellow pine for fuel. We sometimes run three planers, besides a carpenter's shop. We require 100 lbs. steam to run everything well, but cannot keep it up now by any kind of firing. Our chimney is 30 inches diameter and 40 feet high. We shall await your advice before changing again. A. It may be that your furnace is not large enough, that your grate bars are of the wrong kind or improperly set, that there is a large leak of steam in the engine, that the boiler is not large enough for the work, etc. Matters of this kind are best settled by a good engineer, after an inspection.

J. D. asks: 1. Of what horse power should an engine be to run a boat 25 feet long and 4 feet wide, built with a flat bottom (like the boats on the Mississippi river) with a depth of 18 inches, with a 12 inch guard on each side? A. From 6 to 8. 2. What amount of tonnage could such a boat carry? A. From 3 to 4, including the weight of the boat. 3. Would a propeller or stern wheel be the most efficient? A. Stern wheel, probably. 4. Which would be the cheapest? A. There would not be much difference in cost between the two.

A. M. S. asks: What will be the pressure on 128 square feet when the wind blows against it at the rate of 40 miles per hour, 20 miles per hour, and 10 miles per hour?

Table with 2 columns: Velocity of wind, in miles per hour. and Pressure against a perpendicular surface, in lbs. per square foot.

2. Would the pressure be the same if the air was still, and the plane moved against it at the same rate? A. Yes.

1. What is the cost of aluminum? A. About the same as that of silver. 2. Can it be procured in this country? A. Yes.

N. B. S. asks: Where was the first railroad on which the first locomotive engine was used, for conveying passengers or freight, in this country? What was the date thereof? A. The late Joseph Harrison, Jr., states that the first locomotive run in America was the "Lion," built at Stourbridge, England, and used on the Delaware and Hudson railway in 1829.

A. & W. B. C. asks: How can we soften a broken circular saw, so that we can easily cut it up to use the steel for other purposes? A. Make the steel red hot, and leave in a heap of dry sawdust till cold.

G. D. asks: Suppose a man were stationed at every degree, or only four minutes of time apart around the globe, and a man should start from New York, say at noon on Monday and keep pace with the sun, which station would first inform him that it was Tuesday noon? A. At 180° from the meridian from which time is reckoned. All vessels keeping Greenwich time change the date one day either backward or forward, according as they are moving east or west, in passing the place where the longitude is 180°.

At what place opposite the sun on the earth should an observation be taken to be in a straight line through the center of the sun and the earth at the moment of perihelion, in order to establish a point in the heavens at the moment the earth is nearest the sun? A. The time of the earth's perihelion passage is given in astronomical almanacs in Greenwich time, and an observer who wishes to be on the line between the centers of the sun and of the earth at that time must place himself on the meridian of longitude there indicated.

M. H. R. says: I have a large brick building, built of common brick, which I am now having painted and penciled. Would you advise me to mix any liquid glass with the last coat of flat brick red, or to put on a coat of liquid glass, after the painting and penciling is done? If the liquid or soluble glass makes a permanent covering, I think it would be a valuable addition to put on a last coat of it, as otherwise in a few years the oil dries in and the red will rub off unless a coating of oil is applied. Perhaps it might be well to wait a year or two before applying the glass. A. We do not think the use of soluble glass would improve the paint; it is used mostly for inside work. If your building is a new one, it would be better to let it stand as long as possible without painting, to enable the walls to dry.

P. D.—The problem of a boring bar being out of true, boring a true or oval bore is capable of three explanations: If by "being out of true with the lathe shears" is meant that the bar is out of true as if in consequence of being bent in its length, it will bore a true hole, providing, as stated, that the carriage feeds up to the cutter. If the term "out of true with the lathe shears" means that a line drawn between the centers of the lathe will not be parallel, both horizontally and perpendicularly, with the shears of the lathe, still the bore will be true if the boring bar runs true and the cutter head feeds along the bar; if, however, in this latter case, the cylinder feeds to the cut, the bore of the cylinder will be oval. Boring bars with immovable heads are not, however, under any circumstances good tools to use, because their length must necessarily be twice that of the length of the cylinder; hence they are not so rigid, and are therefore more liable to jar and spring than bars having traveling heads, which need be only long enough to allow the head to pass through the cylinder.

E. L. E. and others: A child is in the second year of his age when he has completed the first, and so on. So that a man is in the twenty-sixth year of his age when he has completed twenty-five years, the twenty-sixth year commencing on the twenty-fifth anniversary of his birthday.

W. P. G. asks: Where can I get a copy of the American Astronomical Ephemeris? A. At the Hydrographic office, Washington, D. C.

J. H. G. asks: What objections are there to the use of raw gas tar with clean bar sand, thrown on as applied, for a coating on an English roofing felt? Would such a coating last, say, two or three years? Gas tar is sold here for eleven cents per gallon. Will it last long enough to pay for the putting on of it? A. Gas tar is used as a paint or varnish on wooden fences, and all wood exposed to the weather, and is found to be beneficial as a preservative; especially is it used to advantage on the bottom of fence posts in the ground, to prevent decay. It will no doubt preserve the felt, and we do not know of any objection to its use. But they charge you too much for it; two cents per gallon is enough.

G. W. S. asks: Is there any device for taking steam out of a boiler by a tube and conveying it under the grates of the fireplace, to keep the fire down when the engine is stopped? A. We do not know of anything of the kind.

C. asks: How can I blue gun work? A. Having a quantity of charcoal ashes on an iron plate or in a box, place over the fire and heat slowly. Put the articles to be blueed in the ashes; and as they heat up, take out occasionally to observe the color. When the color is a blue, do not take them out, but leave them until they have become white again, when they should be taken out and allowed to cool. By returning the articles and re-heating, you will have the second blue; the first will rub off easily, but the second will wear a long time.

H. D. A. asks: What is the correct weight of cast iron balls of 5 1/2 inches diameter, made of hard iron, such as is used for car wheels? A. Average weight, about 21 1/4 lbs.

Z. asks: How many lbs. of steam of 160° Fah. can one lb. of ice condense, leaving its water deposit at 30°? A. About 0.182 lb., if there is no loss by radiation and conduction. A line in our Business and Personal column will doubtless obtain an answer to your other questions.

H. H. H. asks: 1. Can an engine be made to cut off at any desired point with a cut-off valve working on top of an ordinary slide valve, by lengthening or shortening the cut-off valve rod? A. Yes. 2. If so, what is the relative position of eccentric? The cut-off eccentric should be set so that the cut-off valve has motion coincident with that of the piston.

W. C. asks: Will you please tell me the usual proportion between the high and low pressure cylinders in a compound engine? A. The low pressure cylinders made from 2 1/2 to 4 times as large as the high pressure.

Is it difficult to determine the horse power of a locomotive? A. It would be necessary to attach a dynamometer to the locomotive, or to take indicator diagrams from the cylinders.

Is the Science Record printed every year, and can I get back numbers? A. Yes.

J. B. says: I have seen it stated that, for accurateness of shooting, a muzzle loader beats a breech loader. Is this the case? A. A good breech-loading rifle is better than a muzzle loader.

C. M. A. says: 1. In a late number of your paper you advise a correspondent, who wants to build a sail boat sixteen feet long, to build a center board boat six or seven feet beam, and cat-rigged. What is a cat rig? A. Single sail with boom and sprit mast. Would you have the boat clinker-built or caulk-seamed? A. Caulk-seamed. 3. How far from the bows should the widest place be? A. From 8 1/2 to 10 feet.

E. S. G. asks: In setting the valves on a locomotive engine in which the throw of her eccentrics had been changed from 5 to 5 1/2 inches, I could not get her valves square. I first set her at full stroke; and when hooked up she was out very badly. I laid it to the links, but do not think the fault was in them altogether. I next set her hooked up to 1 3/4 inches, and found that at full stroke, on the forward center, giving her no lead and putting her on the back center, she was blind 1/4 of an inch. This was with the reverse lever in the forward motion, with the engine cold. The valves have 1 1/2 outside lap and 1/4 inside lap. When she went out, she was square at full stroke. I told the foreman that the expansion had divided that 1/4 inch blind, and made her blind 1/2 inch on each end. Was I right, and what is the reason we can get her square only at one notch? Would the link lifters affect it any? They are very short. A. It is generally impossible to get equal action of the valve at each end, on account of the angularity of the connecting rod, etc. A valve which is right when cold is frequently very much out of adjustment when steam is turned on. A trial with the indicator is the surest test, and in general the only one that can be relied upon to ensure accuracy.

B. W. says, in reply to W. H. M. L., as to accelerating the making of good butter in warm weather: When milk is reduced to between 50° and 60° Fah., immediately after coming from the cow, the cream will rise in four hours. If the temperature is kept at 54° without variation or agitation, all the cream will come to the surface in one hour. One of the secrets of making good butter is to remove the cream before lactic acid commences to form. Hence the reason why farmers who have milkhouses situated over cool springs invariably make the best butter. A few years ago, business necessitated my remaining in the South for about two years; and feeling the want of good, fresh butter, I arranged a block tin worm in a wash tub, with funnel in upper part, the lower end protruding through the side of the tub near the bottom. I filled the tub with ice water, and as the milk came in pails from the cows, poured themilk through the worm, regulating the flow and temperature by pouring it in. I could run it off at 51°, and kept it so for one hour by setting the pan in ice water, when the cream was removed and churned, making the "Stimon Pure." "Orange county" milk will keep one day longer without souring by the same process.

W. H. W. says: In your issue of July 25, F. E. T. says: "Piles driven in salt water on the Southern coast are very soon destroyed by worms. They might be protected by metal sheathing, but that is too expensive. Is there any method known, both cheap and effective, of securing wood against the attacks of these worms?" You add: "We shall be glad to receive replies to the above for publication." Thorough coating with amorphous black lead paint will effectually deter the worms; they will no more attack the carbon of that paint than they would charcoal; only by an abrasion which shall lay bare the wood, is there any danger from the worm. The paint should be carefully made, wholly with raw linseed oil. Let each coat be well worked on, and perfectly dry before a succeeding coat be put on; polish each coat gently with sand paper. Three or four coats of good paint, properly put on, will prevent any attack by the worms. This paint becomes exceedingly hard, and adheres with singular tenacity.

B. says, replying to the query of H. D. M.: "How can I clean petroleum barrels, fitting them to hold cider?" Steam the barrels by means of a pipe from a boiler introduced at the bung hole until all the glue and dirt comes away, then wash once or twice with scalding vinegar. The outside is of course to be cleaned with a brush and soap and water. Petroleum barrels cleaned in this manner, and with wooden hoops and the usual plastered ends, are extensively used in Europe for shipping the finest salad oils which come to our tables.

C. B. J. says, in reply to J. A. J., who asked how to kill house flies: Fill a tumbler about half full of soapy water; cut a piece of pasteboard somewhat larger than the top of the glass; cut a hole in the middle about the size of a cent; then smear one side of the pasteboard with molasses or other sweet stuff, and turn it so that the molasses will be on the lower side, nearest the water. Be careful not to get any of the molasses on the outside of the pasteboard; and put it in the place frequented by the flies. In trying to get the molasses, they will tumble off and be drowned. You will soon have a tumbler full of flies.

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges, with much pleasure, the receipt of original papers and contributions upon the following subjects:

- On Feathered Arrow Heads. By C. J. H.
On a Mechanics' Political Organization. By V. T.
On Davies' "Arithmetic." By L. H. S.
On an Improved Furnace. By B. T. S.
On a Mosquito Net. By L. E.
On Lightning Rods. By B. W.
On Ice Machines. By J. W. H.
On Aerial Navigation. By D. and by J. H. D.
Also enquiries and answers from the following:
A. O. L.—C. M.—G. W. R.—H. H. F.—P. & E.—W. R. T.—J. H. S.

HINTS TO CORRESPONDENTS.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them. The address of the writer should always be given. Enquiries relating to patents, or to the pa-

tentability of inventions, assignments, etc., will not be published here. All such questions, when initials only are given, are thrown into the waste basket, as it would fill half of our paper to print them all; but we generally take pleasure in answering briefly by mail, if the writer's address is given.

Hundreds of enquiries analogous to the following are sent: "Please to inform me where I can buy sheet lead, and the price? Where can I purchase a good brick machine? Whose steam engine and boiler would you recommend? Which churn is considered the best? Whomakes the best mucilage? Where can I buy the best style of windmills?" All such personal enquiries are printed, as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously obtained.

[OFFICIAL.]
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APPLICATIONS FOR EXTENSIONS.

Applications have been duly filed and are now pending for the extension of the following Letters Patent. Hearings upon the respective applications are appointed for the days hereinafter mentioned:
30,450.—RUBBER CAR SPRING.—T. F. Allen. Oct. 7.
30,451.—CLOTHES SQUEEZER.—F. Arnold. Oct. 7.
30,458.—CAR WHEEL.—G. S. Bosworth. Oct. 7.
30,517.—CAR SEAT AND COUCH.—E. Burke. Oct. 7.

EXTENSIONS GRANTED.

29,228.—MOWING MACHINE.—A. B. Allen.
29,229.—SCHOOL GLOBE.—J. R. Agnew.
29,231.—FILE CUTTING MACHINE.—E. Bernot.
29,238.—GRIDIRON.—J. S. Brooks et al.
29,261.—LOWERING BOATS.—W. Flowers et al.
29,300.—STOVE GRATE.—D. H. Nation.
29,319.—FLOUR CHEST.—I. R. Shank.
29,343.—WATER WHEEL.—J. W. Truax.
29,335.—GRAIN SEPARATOR.—A. J. Vandegrift.
29,338.—CABLE SURGE RELIEVER.—J. Bingham.

DISCLAIMERS.

29,300.—STOVE GRATE.—D. H. Nation.
29,333.—WATER WHEEL.—J. W. Truax.

DESIGNS PATENTED.

7,564.—NUBIA.—H. Boot, Philadelphia, Pa.
7,565 to 7,567.—CARPETS.—J. H. Bromley, Philadelphia, Pa.
7,563.—BOXES.—J. Comly, Philadelphia, Pa.
7,569 to 7,571.—CARPETS.—H. F. Goetze, Boston, Mass.
7,572 to 7,574.—STAIR PLATES.—W. T. Mersereau, Orange, N. J.
7,575 and 7,576.—CHANDELIERS.—F. R. Seidensticker, W. Meriden, Conn.
7,577.—CHECKER MEN.—C. Spooner, Bridgeport, Conn.
7,578.—TWINE HOLDER.—E. J. Steele, New Britain, Ct.
7,579.—BRACKET.—A. Wunder et al., New Haven, Conn.
7,580 to 7,584.—CARPETS.—J. M. Christie, Kidderminster, England.
7,585.—SPOON HANDLE, ETC.—J. Polhamus, N. Y. city.
7,586 to 7,588.—CARPETS.—C. A. Righter, Philadelphia, Pa.

TRADE MARKS REGISTERED.

1,883.—CARPET SWEEPER.—Haley & Co., Boston, Mass.
1,884.—DYE STUFF.—W. H. Place, Providence, R. I.
1,885.—POWDER.—J. W. Willard, San Francisco, Cal.
1,886.—SOAP.—C. E. Willetts, Chicago, Ill.
1,887.—WINES, ETC.—A. D. Findlay, Brooklyn, N. Y.
1,883.—KID GLOVES.—F. Hagle, New York city.
1,889.—ELECTRIC APPARATUS.—S. Kidder, New York city.
1,890.—OLIVE OIL.—H. K. Thurber & Co., New York city.
1,891.—PACKED FRUITS, ETC.—South Jersey Packing Co., Cedarville, N. J.
1,892.—SPICES, ETC.—Warren & Bidwell, Toledo, O.
1,893.—SPECTACLES, ETC.—T. A. Willson & Co., Reading, Pa.
1,894.—IRON AND STEEL.—W. Barrows & Co., Tipton, Eng.
1,895.—KID GLOVES.—F. Hagle, New York city.
1,896.—CURE FOR CORNS.—Lawrence & Co., London, Eng.
1,897.—BITTERS.—Sloat & Powell, Peekskill, N. Y.
1,898.—FILES AND STEEL.—W. Spencer & Co., Masbrough, England.

SCHEDULE OF PATENT FEES.

On each Caveat.....\$10
On each Trade Mark.....\$25
On filing each application for a Patent (17 years).....\$15
On issuing each original Patent.....\$20
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On an application for Design (3 1/2 years).....\$10
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On application for Design (14 years).....\$30

CANADIAN PATENTS.

LIST OF PATENTS GRANTED IN CANADA JULY 21 TO 25, 1874.

3,690.—W. E. Wright, Rome, Oneida county, N. Y., U. S. Improvements in evaporating moisture from drying peat, brick, lumber, fruit, vegetables, and other substances, called "Wright's Drying Arrangement." July 21, 1874.
3,691.—G. Doane and B. L. Harris, Grosse Isle, Wayne county, Mich. Improvements on hinges, called "Doane's Improved Hinge." July 21, 1874.
3,692.—C. E. Seal, Winchester, Frederick county, Va., U. S. Improvements on cut-off and regulating cocks, called "Seal's Gas Cut-off and Regulator." July 21, 1874.
3,693.—I. K. Macaulay, Kingston, Frontenac county, Ont., assignee of C. H. Williams, Mattheawan, Dutchess county, N. Y., U. S. Improvements on brick machines, called "The Star Brick Machine." July 25 1874.