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Foreman. Would invest a few Thousand Dollars, if desired. Address M. C., Box 224, Mott Haven, N.Y. For Sale-Part interest in a Valuable Patent, or will Exchange for Western land. E. J. Sprague

P.O. Box 17, Youngstown, Ohio. "Just Published," Treatise on Watch-Work, Past and Present. By H. L. Nelthropp. Engravings,8vo., cloth. \$2.50. E. & F. N. Spon, 446 Broome St., New York.

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Creek Machinery Company, Battle Creek, Mich. We sell all Chemicals, Metallic, Oxides, and Drugs; directions on Nickel, in pamphlet form, we mail on receipt of fifty cents; a Treatise on "Soluble Glass" we mail for \$1. Orders will receive prompt attention by L. & J. W. Feuchtwanger, 55 Cedar Street, New York.

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Small Tools and Gear Wheels for Models. istfree. Goodnow & Wightman,23 Cornhill, Boston, Ms.

Brass Gear Wheels, formodels, &c., made to rder, by D. Gilbert & Son, 212 Chester St., Phila., Pa.

Superior to all others—Limet & Co.'s French Files. They are cheaper than English files. They are heavier, better finished, and better tempered. Send for price-list. Homer Foot & Co., Sole Agents, 20 Platt Street, New York

Steam Fire Engines, R.J.Gould, Newark, N.J. Pock's Patent Drop Press. For circulars, adress Milo. Peck & Co., New Haven, Conn.

Parties wishing Patented articles manufac-tured on royalty or otherwise, address Box 810, Glovers ville, N. T



G. W. L. can anneal his lamp chimneys by the process described on p. 42, vol. 26.-C. F. R. will find the directions for transferring pictures to glass on p. 233, vol. 26.-H. C. M. will find a recipe for fireproof paint on vol. 20. - H. C. M. which are the performer plant on p. 331, vol. 29. - F. W. E. can stop the leak in his pipe by the process described on p. 364, vol. 29. - R. A. D. willfind a recipe for black ink on p. 106, vol. 27. For violet ink, use a decocition of logwood, to which a little alum or chloride of tin has been added.

S. C. H. says: I have a $\frac{1}{2}$ inch pipe, 2 miles in length; and at one end there is an atmospheric press-ure of 10 lbs on the square inch. What amount of time would be required, to produce a pressure of 5 lbs. at the other end of pipe? A. A question of this kind could only be determined by experiment. Formulas have been established for the velocity of discharge of air through long tubes, but the constants have not been determined with sufficient precision to apply to this case. You will find the flow of air through tubes dis-cussed in Weisbach's "Mechanics and Engineering."

W. E. M. asks: How many pounds will a steel screw 2 inches in diameter with ½ inch thread be capable of raising? A. If you mean that the thread is cut half aninch deep, the screw will lift about 60,000 lbs. G. W. J. asks: 1. How many revolutions does the screw of an ocean propeller make in a minute 2. How is the screw made to revolve with the desired rapidity? A 1. In the case of large ocean steamers, the number of revolutions per minute is generally between 50 and 65. 2. By having sufficient power in the engines. Governors are commonly fitted, to correct a tendency to change the speed.

F. J. S. asks: How can I prepare mustard with vinegar, for table use? A. The common practice of preparing mustard for the table with vinegar or still more with boiling water, checks the development of the peculiar principles on which its strength almost entirely depends. Prepare as follows: Mustard (ground) 3% lbs., water sufficient to form a stiff paste. In half ar 5/2 105., water sum then to form a stin paste. In hart an hour, add common sait, rubbed very fine, 1 lb. Then re-duce to a proper consistency with vinegar, grape juice, lemon juice or white wine. A little soluble cayenne pepper, or essence of cayenne, may be added.

L. & H. say: We have a tubular boiler 12 feet long, 34 inches diameter, with 30 three inch tubes. We would like to know how to set it so as to economize 1. We find our shavings and wasteinsufficient to run It has been suggested to set the grates on a level fuel. with the floor, without a front, or at least with a door of full size, so that the furnace may be easily and quickly fed ; with the ash pit connnecting with a passage leading the plan proposed will answer very well. In regard to grate bars, you had better order them from some manu-facturerwho makes a specialty of building boilers for places where sawdust and shavings are to be used as fuel.

•. Q. asks: 1. How can I find out when sand contains gold, and how is the gold separated from the sand? 2. What is whiting? 3. What are the propor-tions of alcohol and chloride of lime used in making chloroform? 4. Is there such a thing as gold wash? If so, how is it made 2-5. How can I make lemon soda water, in bottles? 6. Can you give me a recipe for making bronze ink? 7. Can I make alcohol from rotten potatoes? If so, how? 9. What are cornices made of? A. 1. You can see the fine glittering grains of gold, if they exist in the sand, and you can separate them by washing in a pan. This pan is best made with sloping sides, and a circular depression in the center, Into which the grains of gold settle, while the sand and earth are washed along on the edge. 2. Whiting is elu-torated chalk. 3. Chloroform can be prepared as follows: Chloride of lime in powder 4 lbs., water 12 lbs.; mix in a capacious retort or still, and add 12 fluid ozs. of rectified spirit (strongalcohol). Continuously distil the mixture as long as a dense liquid, which sinks in the water which passes over with it, is produced. Separate this dense liquid, which is chloroform, from the water, agitate with a little sulphuric acid, and lastly rectify from carbonate of baryta. 4. A gold wash can be made by ag-itating ether with a solution of terchloride of gold for some time. Allow it to repose and pour off the supernatant liquid. When this liquid dries, it leaves a coating of gold. 5. By using a carbonic acid gas generator and a bottling machine, with receptacles for sirup. Soda water is only put up conveniently in this way on the large scale. 7. Grind up bisulphide of tin, or bronze powder, with a little gum water. 8. Not from those portions of the potatoes which have undergone putrefactive fermentation. The sound portions left con be used. 9. Cornices are generally molded in plaster of Paris.

R. T. M. asks: Is there anything that will remove the tattoo marks, made in the flesh with common Indian ink, without leaving a scar? I have heard that they could be made to disappear by first rubbing the marks with a salve of pure acetic acid and lard, then with a strong solution of potash, and finally with hydro chloric acid. Is this so? A. There is little doubt that tattoo marks could be made to disappear by the appli cation of the chemicals you name, but the entire cuticle and something more would undoubtedly be sacrificed in the operation, and we therefore advise you by no means to be imposed on by applying corrosive chemicals to the skin. The difficulty of removing the carbon which lies buried under the outer or scarf skin, without removing the skin at the same time seems unsurmountable, but perhaps some correspondent may be able to suggest a practical and painless method. A.K. says: I have two upright (external tubes) boilers, connected at steam and feed water. Each boiler is provided with a stop valve on steam pipe, so that either or both can be shut off. I find that, when both valves are closed, the water will fall in the one and rise in the other and run out of safety valve, when the pressure on steam gages indicates the same for each boiler. with no fire under either of them. Can you explain this? 2. Should the bottom of a circulating boiler, such as is used in connection with a cook stove orrang be set higher than the highest part of the water back exposed to heat of the fire; or is it only necessary to have the pipe, that carries the hot water into boiler. higher where it enters boiler than highest part of water back? A. 1. You do not send enough particulars to en-able us to answer this question. 2. The boiler should always be kept full of water; and provided there is suf- of the pipes owing to their small dimensions.

ficient pressure in the tank or main to secure this, it probably makes on difference at what point the connections are made.

J.W. asks: 1. What are the relative strength and freedom from vibration of two husk frames to carry machinery (especially the burr husks of flouring mills) one built with timbers all standing perpendicular to the

base, and the other with the sides vertical? 2. What is the best work for a millwright's guide ? A. 1. From your statement it seems to us that you desire to com pare two identical arrangements. 2. " Machinery and Mill Work," by Professor Rankine, and "Mills and Mill Work," by Sir William Fairbairn, are both excellent books. Byrne's "Practical Model Calculator" is also useful work.

H. W. asks: 1. What is the philosophy of soap takinggrease spots out of cloth? 2. Is there any profit in manufacturing lemon extract on a small scale. and how is it made? 3. Can you give me a recipe for making an oil for light machinery? A. 1. There is an excess of alkali in the soap. This mixes with the grease on the cloth, and forms more soap. 2. You can readily try it. For an account of the method, see page 331, curcent volume. 2. It would probably be cheaper and more satisfactory for you to buy it.

L. R. asks: Can you explain the working of a steam trap? A. Steam traps are frequently ar ranged with floats, so that when they become filled with water to a certain hight, a valve is opened below the water line. Thus the water escapes, but the steam is not permitted to do so; and when the water level is lowered to a given point, the float is not sustained, and the valve closes.

C. J. asks: How can I find the radius of wheel to make any number of turns, when worked by a worm or a screw, the pitch being given? A. To find the radius of the wheel to make any desired number of revolutions in a given time, knowing the number of revolu-tions and the pitch of the screw: Multiply the number of revolutions of the screw by the pitch in inches, and divide the product by 6 2332 times the number of rev-olutions made by the wheel. Example: Suppose a screw with one inch pitch makes 140 revolutions per minute what should be the radius of the wheel so that it shall make2 revolutions per minute? Radius=140×1+6.2832 $\times 2 = 11.141$ inches, nearly.

J. J. P. asks: How is Pepper's ghost pro-duced? Can I perform the experiment with a common magiclantern? A. The real figure is situated below the stage, at A, and has a strong light thrown on it. from B. C is a mirror, and a a piece of plateglass. To a spec



tator in front of the stage, as at S, the figure appears to proceed from a point G, behind the glass. Really, the figure would appear to be back of the glass as far as the image formed in the mirror was in front of it, and thu the spectator does not perceive the plate glass

T. thinks that, in the manufacture of shot the melted lead, when it drops from the top of the shot tower.ought to assume an elongated form, and asks what prevents, or what makes the shot so round. A The spherical form is due to the addition to the lead of a small amount of arsenic, which hardens the lead and causes it to assume the spherical form when poured through the strainer. The air chills the shot, which falls into the vessel of water below.

O. A. F. asks: 1. How can photographs be taken on another piece of paper without injury to the originalphotograph? 2. I have a small engine, 1 inch bore x 1% inch stroke; it makes 400 or 500 revolutions per minute with 60 lbs. steam when loaded. The fly wheel is 9% inches diameter. What is the actual power ofit? A. 1. We have seen several recipes for this pur-pose, but are not sure that they are reliable. 2. The engine, at 500 revolutions, probably developes about one fourth of a horse power. In answer to your steam gage question: It would be possible to test them by such as apparatus as you describe, but great care would be re quired in the experiments, and it would probably be nec essary to apply several corrections for differences of temperature, and variations in the bore of the tubes. A column of mercury, having one inch area of base, and a hight of 203759 inches, weighs one pound, at a temperature of 62° Fahrenheit. Every change of temperature will affect the hight of this column, since mercury expands about 0.00010395 of its volume for each degree that its temperature is increased.

W. J. S. asks: 1. What degree of heat is required to hatcheggs? 2. How can I construct an oven for this purpose? A. 1. 102° or 104° Fah. 2. See Science Record for 1873.

J. E. H. asks: How is lard oil made? A. By subjecting lard to pressure. In answer to your other

M. D. asks: How is it possible that a grind-stone can wear away into angles, so that as many as thirteen corners are seen in it? A. There are probably soft and hard places alternately in the stone from which it was cut.

J. E. S. W. asks: 1. How can I dissolve gum so that I can spread it on the soles of leather shoes, and what kind of gum shall I use? 2. What will take ink blots off paper? 3. How can I make a blackboard? 4. What can I make a mold of, to mold a leaden piece to set type in, with a level surface and without flaw? A. 1 Tou can dissolve India rubber in bisulphuret of carbon, and use it in the way you suggest. 2. Dip a camel's hair brush in dilute oxalic acid and paint the blots over with it. 5. See p. 299, vol. 23. 4. Lead is apt to form flaws in casting. Cast your plate on a smooth piece of iron, with a border of putty or clay.

A. A. B. asks: If a stove has no air to its furnace except what is delivered through an airtight pipe, the other end of which runs into water in a barrel, with a smaller barrel turned bottom up on the water, in the manner of a gas holder: Will the fire in the stove draw airfrom the barrel and burn it, and thereby allow the smaller barrel to fail down entirely inside of the larger? A. If the air in the chimney is heated, it will be lighter than the surrounding atmosphere; hence the stove will draw air from the barrel, or the barrel will drawair from the chimney, until the weight in each is the same

C. R. asks: When and where did a race be-tween the Niagara (American) and the Agamemnon (British) war vessels take place? A. We do not find any Account of this race, but suppose it took place when the Niagara and Agamemnon were engaged in laying the Atlantic cable. Captain William L. Hudson commanded the Niagara at that time. Possibly some reader may have the particulars.

J. A. E. asks: Can a steam engine give nore horse power than its nominal duty? Some persons claim that a 10 horse engine can be geared up to 20 horsepower. A. The engines of reputable builders will generally do the work at which they are rated, with a given steam pressure and piston speed. Hence by in-creasing one or both of these elements of the power developed, the engine could do more.

MINERALS, ETC .- Specimens have been received from the following correspondents, and examined with the results stated :

R.R.R.-No. 1, barytes and fluor spar. No.2, celestine No. 3, analsime. No. 4, limonite. No. 5, magnesite. No. 6, serpentine.

F. H.—Your specimens are crystals of quartz. Quartz is pure native silica, and is an important constituent of granite and other rocks, and of ordinary sand. The transparent variety, like the two larger specimens, is called rock crystal.

J. R. C. asks: Can you give a simple prac-tical rule for finding the exact position of the wrist in the shaft of a nail machine ?- C. F. S. asks how to make a blue stamping ink for marking knitted goods.

COMMUNICATIONS RECEIVED.

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

On the Science of Iron and Steel. By C. C.

On the Currency. By J. W. H.

- On Reconstructing the Navy. ByW.Y.
- Also enquiries from the following :
- J. B. H.-C. G. E. -J. C.-McG. & H.-S. H. A. F G. R. & B.-S. P.-F. G.-R. H. M.-W. A. B.-J. H. A. M.-E. H.-H. R.-C. E. H.-W. L. R.
- Correspondents in different parts of the country ask : Who makes life boats from willow and cork? Whose is where can I get stave machinery? Where is oil well where can right stave machinery? where is on wen boring machinery solid? Whose is the best cement for making corundum wheels? Who makes a hand willow peeler? Who makes a good velocipede, ora similar ma chine to be worked by the hands? Who makes platinum plates for Smee's batteries? Who makes steel runners for ice boats? Makers of the above articles will probably promote their interests by advertising, in reply, in the SCIENTIFIC AMERICAN.

Correspondents who write to ask the address of certain manufacturers, or where specified articles are to be had, also those having goods for sale, or who want to find partners, should send with their communications an amount sufficient to cover the cost of publication under the head of "Business and Personal" which is specially devoted to such enquiries.

[OFFICIAL.]

Index of Inventions

FOR WHICH

Letters Patens of the United States WERE GRANTED IN THE WEEK FIDING November 18, 1873,

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Telegraph & Electrical Inst's-Cheap inst's for learners-Models and light Mach'y. G. W. Stockly. Sec., Cleveland, Ohio,

Brown's Coalyard Quarry & Contractors' Ap-W.D. Andrews & Bro. 414 Waterst.N. Y.

Belting-Best Philadelphia Oak Tanned. C. W. Arny, 301 and 303 Cherry Street, Philadelphia, Pa.

Mercurial Steam Blast & Hydraulic Gauges of all pressures, very accurate. TShaw, 913 Ridge av., Phil.

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

For Solid Emery Wheels and Machinery, send to the Union Stone Co., Boston, Mass., for circular All Fruit-can Tools, Ferracute, Bridgeton, N.J.

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

Fivedifferent sizes of Gatling Guns are now manufactured at Colt's Armory, Hartford, Conn. The argersizes have a range of over two miles. These arms are indispensable in modern warfare.

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

Damper Regulators and Gage Cocks-For the best, address Murrill & Keizer, Baltimore, Md.

query, enquire for employment in a machine shop, an study Bourne's works on the steam engine.

J. W. F.-Your general design of guide pulleys is correct, except that, unless the connection is very long, it will not answer to have their shafts vertic-al; but they must be placed at such an angle that the belt will not have a tendency to change its plane of ac tion and thus run off.

T. Y. S. asks: Can a fly wheel be too large for an engine? I have an eighty horse engine which I have been using at only twelve or fifteen horse power. Since it has been doing so little, it has broken the bed plate, loosened the foundation, and otherwise damaged the engine. I use about 80 lbs. of steam. Myidea is that the momentum of the wheel is so great that it wants to get ahead of its work, which the steam will not allow, thereby keeping the engine moving on the foundation A. We have an idea that the trouble arises from improp er setting of the engine, or from the fact that you use such a high grade of expansion as to strain the engine eriously.

P. S. asks: Is it dangerous to make oxygen gas (for a stereopticon light) from chlorate of potash and black oxide of manganese? A. If the pipes from the retort and washer are all of liberal dimensions, we think there is little danger. We call to mind a few ex-plosions, one of a very serious nature, due to clogging

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

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4,722	Sugar draining machine, C. Fischer	144,752
4,818	Syringe hypodermic E Cutter	144,002
4,731	Table and desk, combined, C. Kade	144,769
4,765	Tackle block, chain, S. D. Backus	144,727
4,679	Tacks, etc., coating, G. Starks	144,712
3,002 4 685	Tea kettle, N. Plympton	144,698
4.728	Teeth, fastening, G. F. C. Reese	144,699
4,641	Telegraph, signaling, Unger & Towle	144,643
4,814	Telegraph stop for printing, C. J. Wiley	144.812
4,815	Thrashing machine. J. M. Wilders	144.721
4,595	Toy gymnast, F, A. Bancker	144,651
4,090	Toypropeller, G. W. Jones	144.767
4.625	Trackclearer, E. Abbiati	144,724
4,696	Trimming, W. Walker	144,804
4,592	Tweers Resement steel J E Atwood	144 726
4,682	Tyre tightener. Bellairs & Ough	144,729
4,757	Valve, C. F. Murdock	144,692
4,009	Vegetable cutter, J. Kram	144,773
4.619	Vegetable cutter, J. R. Wharry	144,645
4,780	Vegetable slicer, N. Botsford	144,596
4,719	Vehicles, seatior, U. C. Shyuer	144,709
4,628	Wagon axle skeins, clip for, J. M. Orput	144,695
4,665	Wagon, dumping, W. Fields	144,608
4,103	Wagon draw bar, J. M. Orput	144,694
4.622	Warp threads, rod for drawing in, M. S. Jordan	144,620
4,623	Washing machine, J. Trickett	$144,\!80_5$
4,638	Water, purifying mine, H. Burgess	144,737
4,613	Wells, steaming oil, T. B. Carothers (r)	5,659
4,789	White tree, J. Parker	144,786
4,715	Window fastening storm A J Lovejov	144 684
4,629	Wood joining, R. McChesney	144,626
4,000		•
4 669	APPLICATIONS FOR EXTENSION	8
4,782	HIT MORTIONS FOR EXTENSION	ю.
4,618	Applications have been duly filed, and are now pe	nding
4,660	for the extension of the following Letters Patent.	near-
4,720	the days hereinafter mentioned :	
4,605	27,241PHOTOGRAPH CAMERAA .Semmendinger	Feb.4
-+,013	27,291SEED PLANTERJ. S. Huggins. Feb. 11.	
4,748	27,406CULTIVATORR. Craig. Feb. 18.	
14,768		
4,591	EXTENSIONS GRANTED.	
14,597	26,177MAKING RUBBER BELTINGD. C. Gately	
4,809	26,178RUBBER BELTINGD. C. Gately.	
14,796		
5.665	DESIGNS PATENTED.	C
44,610	0,550LOCK CASE W. H. Andrews, New Haven,	conn.

6,998 to 7,001.-C. T. & V. E. Meyer, Bergen, N. J.

TRADE MARKS REGISTERED.

1,527.-ICE PITCHERS.-Adams & Co., Brooklyn, N. Y. 1,528.—Soap Powders.—B. T. Babbitt, New York city. 1,529.—Baking Powder.—B. T. Babbitt, New York city. 1.530.-COMPOUND SPICE.-E. R. Durkee & Co., N. Y. city 1,581.-MEDICINE.-W. H. Gregg & Co., Elmira, N. Y. 1,532.-KID GLOVES.-F. Hegle, New Yorkcity. 1,533.—CUTIERI.—I. T. Meyer & Co., New York city. 1,534.—Gold And Silver Solutions.—A B. Morrison

Portland Me -AGRICULTURAL IMPLEMENTS.-Rumsey & Co., St

Louis, Mo. 1,536.-DRYERS, ETC.-G. C. Liszka, Williamsburgh, N.Y

SCHEDULE OF PATENT FEES.

provement on gas meters, called "The Imperial Com-pensating Wet Gas Meter." Nov. 13, 1873. 2.844.-W. A. Telling and Samuel Johnson, Wood Green

Middless county, Eng. Improvement on gas meters. called "The Imperial Dry Gas Meter." Nov. 13, 1373. 2,845.-J. Brunet and L. Bellefeuille, Montreal, P.Q. Ma-chine a presser la tourbe, called "Machine a Presser La Tourbe de Brunet et Bellefeuille." "Machine for

pressing peat." Nov. 13, 1873.

2,346.—J. K. Home, Almonte, Lanark county P. Q. Im-provements on patterns for pipe elbows, describing the swift to form miter joints of elbow pipes at various angles, called "J.H.Holmes'Patterns for Pipe Elbows."

2,847.-D. C. Baker, Fulton, N. Y., U. S. Improvement on cultivators, called " Baker's Cultivator." Nov. 13, 1873.

2,848.-D. C. Baker, Fulton, N. Y., U. S. Bolt holders for railroad rails, called "Baker's Railroad Bolt Hold er." Nov. 13, 1873.

249.—S. Rue, Philadelphia, U. S. Improvements on in-jectors for steam generators, called "Rue's Little Giant Injector." Nov. 13, 1873.

Giab Infection, Nov. 18, 355.
350.—J. W. Stockwell, Portland, U.S. Machine for the manufacture of cement pipe, called "Stockwell's Ce-ment Pipe Machine." Nov. 13, 1873.

2.851 .- J. W. Stockwell, Portland, U. S. Improvements in mixingmachines, called "Stockwell's Improved Mix-ing Machine." Nov. 13, 1873.

2,852.-S. B. Munson, Jr., Chicago, U. S. Improvements on fireproof shutters, called "Munson's Fireproof Shutter." Nov. 13, 1873

2,853.—G. W. Cottingham, St. Mary's, Texas, U. S. Ma-chine for ironing clothes, called "Cottingham's Iron-

ing Machine." Nov. 13, 1873. 2,854.—H. Bolton, Bruntford, Ontario. Improvements on piano stools, called "Improved Double Adjustable

Piano Stool Back." Nov. 13, 1873. 2,855.—H. Spear, Elizabeth, Cumberland county, Msine, U. S. Improvements on pumps, called "Spear's Pump." Nov. 13, 1878.

2.856.-N.C. Locke, Salem, Mass., U.S. Improvements on pressure regulators for steam or water, called "Locke's Pressure Regulator for Steam or Water." Nov. 13, 1873.

2,857.—M. Merrick, Oswego, U. S., assignee of H. Tilden, Philadelphia, U. S. Improvements on gas machine, called "Tilden's Improved Gas Machine." Nov. 14, 1873. 2,858.-Ed. Beanes, Toronto, Ontario. Extension of Patent No. 241, for improvements in brewing. Nov. 14. 1873.

2,859.-G. Borden, White Plains, N. Y., U. S., and J. G. Borden, South East, Putnam county, N. T., U.S. Improvements on the manufacture or product of con-densed milk, called "Borden's Manufacture or Pro-

duct of Condensed Milk." Nov. 14, 1873. ,860.-G. Borden, White Plains, N. Y., U. S., and J. G. Borden, South East, Putnam county, N. Y., U. S. Process of preserving and condensing milk, called Borden's Process for Preserving and Condensing Milk." Nov. 14, 1873.

,861.-W. G. Dunn, Hamilton, Ontario. Movable self feed attachment for coal cooking stoves, called "Dunn's Removable Self-feeding Attachment for Cooking Stoves." Nov. 14, 1873.

2,862.-T. O. Kemp, Clinton, Lincoln county, Ontario A boiler attachment for removing scum and other impurities from boilers of steam engines, and also for preventing scale attaching to boilers and their tubes, called "Kemp's Patent Boiler Attachment." Nov.15,

1873. 2,863.-E. C. Flint, Belleville, Ontario, assignee of E. P.

Needham, New York city, U.S. Keyfor musical in-strument, called "Needham's Improved Key for Mu-sical Instruments." Nov. 15, 1873.

2,864.-J. R. Finley, Delphi, Ind., U. S. Improvements on gates, called "Finley's Improved Gate." Nov. 15, 1873.

2,865.—C. Kendall, Beloit, Wis., U. S. Machine for reno-vating and drying feathers, called "Kendall's Paragon

Feather Renovator." Nov. 15, 1873. 2,866.—R. Burdett, Erie City, Pa., U. S. Improvement in reed organs. called "Burdett'sImproved Reed Organ."

Nov. 15, 1873. 2,867.—J. C. Ford and A. D. Cable, Montreal. Improve

ment on attachment forsecuringhorses, called "Ford's Adjustable Leg Halter." Nov. 15, 1873. 2,868.—A. Pelletier, Washington, U. S., Rev. J. B. A. Brouillet, Walla Walla, Washington Territory, U. S., and H. Lafieur, Tamaska, P. Q. Composition of mat-ter for the manufacture of artificial stone and for oth-er purposes, called "Pelletier's Artificial Stone and Cement." Nov. 18, 1878.

869.-M. Henry, Parkhill, Ontario, and J. B. Steele, Montreal. Composition of matter for lighting fires, called "Henry's Fire Kindler." Nov. 21, 1873.

2,870.-J. West, Maidstone, Kent county, Eng. Method

2,871.-C. Vandandaigne, dit Sabois, Baltic, Conn., U.S. Improvement on washing machines, called "The

Baltic Washing Machine." Nov. 21, 1873. 2,872.—A. Wilson and E. M. Law, Bell Ewart, Simcee county, Ontario. Improvement on sash fasteners, called "Wilson and Law's Improved Sash Fastener. Nov. 21, 1873.

2,373.-E. B. Sims, Antwerp, Jefferson county, N. T., U. S. Improved door bells, called "Sims' Improved Door Bell." Nov. 21, 1873.

2,874.-W. Vincent, Arborfield, Berkshire, Eng. Apparatus for manufacturing gas, called " Vincent's Gas Ap-

2,883.-L. O. Thayer, Montreal, assignce of J. Duval, St. Joseph, Laprairie county, Quebec. Improvement on breechloading fire arms, called "Duval Thayer Breech Loading Rifie." Nov. 24, 1873.

HOW TO OBTAIN Patents and Caveats IN CANADA.

ATENTS are now granted to inventors D

ality of the applicant. The proceedings to obtain patents in Canada are nearly the same as in the United States. The applicant is required to fur-nish a model, with specification and drawings in duplicate. It is also necessary for him to sign and make affidavit to the originality of the invention. The total expense, in ordinary cases, to apply for a

Canadian patent, is \$75, U. S. currency. This inclutes the government fees for the first five years, and also our (Munn & Co.'s) charges for preparing drawings, specifications and papers, and attending to the entire business. The holder of the patent is entitled to two extensions of the patent, each for five years, making fifteen years in all.

If the inventor assigns the patent, the assignee enjoys all the rights of the inventor. A small working model must be furnished, made to

any convenient scale. The dimensions of the model should not exceed twelve inches.

If the invention consists of a composition of matter. samples of the composition, and also of the several ingredients, must be furnished.

Persons who desire to apply for patents in Canada are requested to send to us (MUNN & Co.), by express, a a model with a description, in their own language, show-ing the merits and operation of the invention, remitting also the fees as above for such term for the patent as they may elect. We will then mmediately prepare the drawings and specification, and send the latter to the applicant for his examination, signature, and affidavit. It requires from four to twelve weeks' time, after completion of the papers, to obtain the decision of the Cana-dian Patent Office. Remit the fees by check, draft, or postal order. Do not send the money in the box with model. Give us yourname in full, middle name included Inventions that have already been patented in the United States for not more than one year may also be patented in Canada.

On filing an application for a Canadian patent, the Commissioner causes an examination as to the novelty and utility of the invention. If found lacking in either of these particulars, the application will be rejected, in which case no portion of the fees paid will be returned to the applicant.

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Practical Hints to Inventors. ROBABLY no investment of a small sum of money brings a greater return than the expense incurred in obtaining a patent, even when the invention is but a small one. Large inventions are found to pay correspondingly well. The names of Blanchard, Morse, Bige-Ś

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low, Colt, Ericsson, Howe, McCormick, Hoe and others, who have amassed immense fortunes from their inventions, are well known. And there are thousands of others who have realized large sums from their patents.

More than FIFTY THOUSAND inventors have availed themselves of the services of MUNN & Co. during the TWENTY-SIX years they have acted as solicitors and Publishers of the SCIENTIFIC AMERICAN. They stand at the head in this class of business; and their large corps of assistants, mostly selected from the ranks of the of manufacturing gas and the apparatus to be employed therewith, called "West's Improved Gas Manufactur-ing Apparatus." Nov. 21, 1873. Co. to do everything appertaining to patents BETTER and CHEAPER than any other reliable agency.



ry letter, describing some invention which comes to this office. A positive answer can only be had by presenting a complete application for a patent to the Commissioner of Patents. An application consists of a Model, Drawings, Petition, Oath, and full Specification. Various

		paratus." Nov. 21, 1873.	ometairules and formalities must also be observed. The
Ore stamp feeder, J. Tullock 144,714	On each Trade Mark	2,875H. Brewer, East Parsonfield, York county, U. S.	efforts of the inventor to do all this business himself are
ores, separating metals from, S. W. Kirk 144,772	on hing each application for a Patent (17 years)	Improvement on wagon brakes, called "The Brewer	generally without success. After great perplexity and
●rgan action, reed, w. N. Manning	On issuing each original Patent	Wagon Brake." Nov. 21, 1873.	delay, he is usually glad to seek the aid of persons expe
Overshoe, G. watkinson 144,810	On appeal to Examiners. in-Chief	2,876 A. J. Sorenson, Erie, Pa., U.S. Improvement on	rienced in patent business, and have all the work done
Pantaloons stretcher, J. D. Ryan 144,703	On appeal to Commissioner of Patents	cases for cabinet organs, called "Sorenson's Improved	over again. The best plan is to solicit proper advice at
Pantaloons, steaming and drying, E. B. Viets 144,644	On application for Reissue	Case and Sliding Fall." Nov. 21, 1873.	the beginning. If the parties consulted are honorable
Paper to fix marks, treating, H. M. Johnston 144,678	On application for Extension of Patent	2.877W. R. Peck, Chatham, Kent county, Ontario, Ma-	men, the inventor may safely confide his ideas to them
Paper holder, shelf, G. F. Hawkins 144,768	On granting the Extension\$50	chine for molding the framework of yessels, ships and	they will advise whether the improvement is probably
Pavement, W. H. De Valin 144,748	⁸ On filing a Disclaimer\$10 ¹	other material called "Peck's Adjustable Frame	natentable and will give him all the directions needful
Pavements, treating brick for, W.H. De Valin 144,749	9 On an application for Design (3½ years)	Mold " Nov. 91 1979	to protect his rights
Photograph negatives, retouching, D. H. Wright. 144,72?	⁸ On application for Design (7 years)	9878 C B Hunt Springville Susquehanne county Pa	to protect his rights.
Picture frame, J.A. Burch 144,599	On application for Design (14 years)	I S Improvement in drills called "Hunt's Ham.	How Can I Best Secure My Invention
Picture frame and exhibiter, B. Anyan 144,648	8	mor Twist Drill " Nov 94 1979	This is an inquiry which one inventor naturally asks
Pipe joint, J. Demarest 144,665	8 [Specially reported for the Scientific American.]	9.70 H Gregory Boshland Maine H 9. Improvement	another, who has had some experience in obtaining pat
Planter, corn, L. Sipe 144,708	8 CANADIAN PATENTS	on election friction hands for booms of vessels called	ents. His answer generally is as follows, and correct :
Planter, corn, A. Springsteen 144,717		it Gragory's Flastic Fristian Band for Booms of Ves	Construct a neat model, not over a foot in any dimen
Planter, cotton, C. H. Nixon 144,784	4 LIST OF PATENTS GRANTED IN CANADA	sola " Nov. 94 1979	sion_smaller if possible_and send by express prepaid
Planter, cotton seed, D. P. Ferguson 144,60"	FROM NOVEMBER 13 TO NOVEMBER 24	9 900 H Hinds Ottama Ontario assigned of H John	addressed to MUNN & Co. 37 Park Row together with
Planter, hand corn, E. Rogers 144,707	1 INON NOVEMBER 10 TO NOVEMBER 24,	2,000.—H. Hilds, Ottawa, Oltario, assignee of H. John-	description of its operation and movits. On reasing
Plow, E. Bourne	s 1873.	son of same place. Improvement on drum heaters for	thereof thermill examine the invention exactly and
Plow, J. S. Hall 144,76	9941 I M Willin Dittahungh Do H O Improvement	Stoves and pipes, caned "Jonuson's Improved Stove	thereoi, they will examine the invention carefully, and
Plow, J. Oliver 144,78	5 an moldaria astes on annual collect to Killinia Moldard	Drum Heater." Nov. 24, 1873.	advise you as to its patentability, free of charge. Or, i
Plow, Shipp, Peterson, & McLurd 144,70'	7 on molder's gates of sprues, caned " Kning's Molders.	2,881J. Lewis, Manchester, Eng. Improvement on	you have not time, or the means at hand, to construct
Plow, draft attachment for, N, Westgott 144,81	1 Gate." Dated Nov. 18, 1878.	locomotive engine, called " Lewis' Improved Locomo-	model, make as good a pen and ink sketch of the im
Plug and faucet connection, tap, J, F. Kane, 144,68	2,844O. Sherwood, Jr., Brome township, P. Q. Ma	tive." Nov. 24,1873.	provement as possible and send by mail. An answer a
Pocket attachment, safety, R.L. Russell 144.70	chine for coupling railway cars, called "Sherwood's	2,852C. Carpenter, Hamilton, Wentworth county, Onta-	to the prospect of a patent will be received, usually, by
Polishing tool, H. Cottrell	Self Railway Car Coupler." Nov. 13, 1873.	rio. Attachments for door knobs and spindles, called	return of mail. It is sometimes best to have a search
Postal card H M Johnston 144.67	2,843D.DeCastro, of Mortlake, Surrey county, Eng., and	"Carpenter's Door Knob and Spindle Attachments."	made at the Patent Office ; such a measure often save
Press, cotton, T. D. Leoneard	5 R. Burton, Camden town, Middlesex county, Eng. Im-	Nov. 24, 1873.	the cost of an application for a patent.
		1	