Engine valve, steam, J. D. Bown.....

.. 147,736

H. W. S. asks: 1. How can I plate brass or copper with silver without a battery? A. Mix chloride of silver 1 part, pearlash 2 parts, common salt 1½ parts and whiting 1 part. Rub the mixture well on the sur face o. the brass or copper (previously well cleaned) with a piece of soft leather, or cork moistened with water and dipped into the powder. When silvered, wash the metal in hot water slightly alkalized and wipe dry.

2. With what solution can I clean the articles before
plating or galvanizing? A. In silver plating, the arti cles to be plated are first carefully freed from grease by boiling in a solution of potash, then quickly dipped in rednitrous acid to remove any oxide, and afterwards well washed in water to remove all traces of acid. If the surface be amalgamated, the adhesion of the silver will be promoted. In galvanizing, the iron is first dipped in dilute sulphuric acid to remove the oxide on the sur-

M. E.says: 1. A friend informs me that ice brought from Boston, exposed in the sunlight, will last one third longer than southern ice. Is this so? Does the ice absorb cold after freezing? A. Trials have been made of natural ice and that frozen artificially by vaious ice machines, with reference to their lasting qualities, and the latter were found to take longer time to melt. This is probably due to the fact that artificial ice has been frozen at and reduced to a lower temperature than the natural material. The crystallization may also at a longcontinued low temperature, be more compact and render the ice more firm, as what is known as snow ice is very perishable. After water has congealed at 32°, the ice formed may be reduced like any other solid to any low degree of temperature; and ice being a bad conductor of hea!, it (compared with some other solids) takes a long time for the mass to receive an ac cession of heat from without. These remarks may serve to explain the difference between Boston and southern ice, the former being probably frozen at a low er temperature than the latter.

J. W. H says: I have a common wooden pump with its valve bucket about six feet below the level of the ground, being attached to the pump handle by a rod nearly nine feet long. During cold weather, the water in this pump froze, and I have reason to believe that the pump was full of solid ice from the spout down to the valve bucket, which is about eight feet. I first tried to thaw it out with hot water, but found that made but little:mpression; so I poured in about one quart of hard coarse salt. I soon found the ice was melted down about two feet below the spout. Twelve hours afterwards, it had melted nearly four feet, and the next day the pump was all free of ice and works as well as ever. Nearlyall the time the mercury has been below zero. Will you inform me why cold salt will meltice in cold weather? What chemical action, it any, takes place with the salt and icc? A. Whenever solid body passes into the liquid state it absorbs heat and the heat which is thus absorbed is called latent or hidden heat. When it passes back again from the itquid to the solid state, this heat is again given out and called sensible heat. The particles of salt find their way into the pores of the ice; and since the point of freezing of a mixture of ice and salt is many degrees below that of ice alone, the mixture becomes liquid and in passing from the solid to the liquid state must absorb heat. Finding no source to take it from its temperature falls until the liquid is 32° colder than the solid ice and salt.

A. R. W. asks: To how many degrees of heat mustiron be raised to weld it? A. According to Siemens, the welding heat of iron is 2,700 $^{\circ}$ F.

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

E. L. F.-Iron pyrites, with rounded pebbles of

J. W.-Carnelian, but are not brightly enough colored to be of value.

H. B. S .- Magnetic iron ore, and is good for making

R. J. L.-Your material is clay, which might prove use

ful in the potter's art. W. R. E .- Your specimen is not black lead, but sul

phuret of lead, and is distributed through quartz, N. D. M. Iron pyrites.—It does not indicate coal, al

though it is sometimes found with coal.

J. P. D. asks: What will soften copper wire so as to work as readily as lead? Can I soften the wire to any degree of temper?—J. F. H. asks: How can I make bungs, cut across the grain of the wood?-W. E. C. asks: What are the ingresients used to increase the adhesive properties of sugar or molasses in making popcorn balls, and what is the process of making the same?-J. C. asks: What is the best bait for enticing rats into a trap? Is there any chemical preparation that will draw them?—J. B. G. asks: Is there any way to prevent the slacking of stone coal? We lay in fuel in the fall, in good sized lumps; before spring much of it is useless .- J. O. T. asks: How can I prevent an ivor flute head from cracking, and how can I stop the crack ing after it has commenced?-S. asks: How is a steely luster given to the surface of black glass? I have seen polished black glass, with a very thin coat (of platinum er bismuth. I think) which nitric or muriatic acid dee not affect. Fluoric acid raises it from the surface in hubbles. It is not an enamel burnt in, as that would destroy the facets on the glass, which show the polish ing marks through this thin coat .- M. S. W. asks: 1 is contraction of a horse's hoof produced? 2. How can I prevent contraction of the hoof? 3. On what part of the horse's leg does contracted hoof operate, to make the horse lame?-W.H. G. asks: Can you give me directions for the treatment of green moss, to pre pare it as an article of commerce? There are two different processes, one in which the moss is soaked in water

Could such a friction gear carry as much as 25 horse COMMUNICATIONS RECEIVED.

until it is sufficiently rotted, and another in which this

result is secured by the use of chemicals.—L. F. S. asks:

How did B. N. C. (see yourissue of January 24) arrange

his pulley to carry power from the drum on main line to his lathe? How was the pulley thrown out of gear?

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

On East Tennessee Industries. By H. E. C. On the Centralization of Matter. By J. P. On a Steam Buggy. By F. G. W. On Poisonous Aniline Dyes. By J. E. On Ventilation. By G. N.

On the Northern Lights. By J. R. On Wood Engraving. By H. C. F. On the Non-Actinic Rays of Light. By E, J. H.

On Glue as a Healing Remedy. By E. P. On a New Breech Blight. By J. S. On Coal Oil on Railroads. By G. H. K. On Mental Arithmetic. By J. P.

Also enquiries from the following:

W. F.-J. T.-A. C. G.-W. E.-J. R. & Co.-H. W. T. -P. W. L.-J. B. G.-P. M.

Correspondents in different parts of the country ask: Who makes ateel bars, to be used instead of bells? Who sells horse clipping machines? Who makes microscopes, sufficiently powerful to detect the animalcula in water? Who sells a rubber preparation in imitation of mahogany and rose wood? Who buys potato flour? Who sells hair cloth? Makers of the above articles will probably promote their interests by advertising, in reply, in the SCIENTIFIC AMERICAN.

Correspondents who write toask 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

[OFFICIAL.]

Index of Inventions

FOR WHICH

Letters Patent of the United States WERE GRANTED IN THE WEEK ENDING

February 17, 1874,

AND EACH BEARING THAT DATE.

AND EACH BEARING THAT DATE.	
[Those marked (r) are reissued patents.]	
Air foreing and exhausting W. I. Filis	147 690
Air, forcing and exhausting, W. I. Ellis	
Apron supporter and page, W. H. Chipley	147,479
Axle nut fastening, R. R. Jones	
Battery, galvanic, G. L. Leclanché (r)	
Battery, etc., G. L. Leclanché (r)	5,768
Beef tea, making, T. R. H. Johnson	
Belt fastening, J. E. Richard	
Belt fastening, J. E. Richard	
Blackboard rubber, J. F. Roenigk	147,527
Boiler, feed heater, E. P. Fenn	147,624
Boilers, gage cock for steam, R. P. Ross	
Boiler, hand hole stopper, D. Sullivan Bolt and rivet cutter, Wardwell & Wing	
Boot and shoe, J. A. Stockwell	147,579
Boot and shoe heei, R. C. Lambart	
Boot soles, etc., trimming, A. C. Carey	
Boot buffing cylinder, J. H. Webster	
Boots, heeling, D. S. Mooney Bootee, C. E. Langmaid	
Bosom pad, E. Stowell	147,526
Bottle, wicker covered, R. Dempsey	147,485
Bracelet, J. N. Thomson	147,481
Burner, lamp, W. Hathaway	147,496
Butter printing apparatus, J. Matthews	
Can soldering machine, W. D. Brooks	147,596
Capstan power, Henthorn & Thayer	147,557
Car axle box, J. I. Kinsey	
Car axle boxes, collar for, J. Whitaker	
Car brake, D. T. Casement	147,603
Car brake, railway, J. Raddin	
Car coupling, O.W. Clark	147,558
Car coupling, J. F. Hancock	
Car coupling, A. Kimber	
Car coupling, F. Yeiser	. 147,734
Car seat, C. D. Flynt	
Car, sleeping, J. Woodruft	
Car stove, railroad, J. Wilson	
Car wheels, etc., annealing, J. Matthews Cars, heating,W. Thamm	
Cars upon inclines, propelling, T. Shaw	. 147,577
Carboys, emptying, H. R. F. Koechling Carriage axles, turning, McKenzie & Coulter	
Carriage seat, W. Rall	. 147,687
Carriage seat, J. Burt (r)	. 5,767
Casting chilled mold boards, W. Rall	
Chair, folding, J. J. Baer	
Chair seat, T. W. Moore	
Chair, settee, etc., W. Chase	
Cigar mold, N. Dubrul	. 147,617
Clock, watchman's check. F. H. Piaget	
Corpse cooler, H. Kerster	
Corset and bustle, J. Waterman	. 147,581
Cot, spring bottom, Lord & Blanchard Crane, foundry, Z. S. Durfee	
Croquet apparatus, Bogia & Zimmerman	. 147.735
Crutch, G. Frantz	. 147,491
Culinary vessel, H. Van Altena	
Cultivator and plow, J. B. Lucas	. 147,669
Cultivator and plow sweep, E. Haiman	147,688
Cultivator stalk cutter, S. Crossley	
Curtain cord holder, W. T. Fry	. 147,4 9 3
Derrick, J. Thayer Derrick and platform, C.A. Campbell	147,590 147.600
Disinfecting compound, H. G. Dayton	. 147,615
Ditching machine, Ellis & Lindsey	
Dovetailing machine, A. Thomson	
Drill for metal, G. A. Bowers	. 147,478
Drill core lifter, G. Frisbee	
Ear cleaner, M. Leiner	
Egg, fruit, etc., preserver, Trimble & Bookhout.	. 147,712
Eggpreserver, French & Bowler Electrot ping, cop ing by, H. Duncan	
Elevator, hydraulic, J. S. Pierson	147,518
Engine, reciprocating, T. F. Reilley	

Engine fuel loader, Ballard, Burt, & Hildreth.... 147,591

ngine valve gear, steam, A. S. Cameron	147,621
ence, barbed, J. Haish	147,535
ire arm, preech loading, 1 m. Mitbankire arm, magazine, A. T. Freemanire brick, composition for, T. James	147,555
ire kindler, B. S. Harringtonorge, smith's, Case et al	147,556 147,602
ringe twisting machine, W. Brooksuel, mixing artificial, E. F. Loiseauuel, mixing and molding artificial. E. B. Loiseau	147,663
uel, making artificial, E. F. Loiseau147,664, uel, waterproofing, E. F. Loiseau	147,667 147,666
Curnace for recovering alkali, W. F. Ladd Curnace grate bar, E. Malon Curnace, hydrocarbon vapor, C. J. Eames	147,670
Hander, nytrocaroun vapor, C. J. Eames	147,619
łenerator, steam, J. H. Merrick	147,499
Frain and mait dryer, M.B. Lloyd	147,711
Harness hame, J. Letchworth	147,507 147,689
Iarvester cutter, Blood et al	147,483
Harvester rake, A. Wemple	147,583 147,724
Hay, etc., machine for raking, J. Trout Heater, boiler feed, E. P. Fenn Hinge, lock, F. Walker	147,624
Horse power, D. Landes	147,659 147,471
Hose coupling, W. M. Henderson	147,503
instep pad, J. B. Smithiron and steel, welding, H. Schierloh	147,698 147,576
ron for rolling, sheet, T. James	147,678
Kaleidoscope, J. Collicott Kiln, drying, G. I. Weigęlin	147,480 147,718
Knife-sharpening steel, O. W.Taft	147,672
Lasting tool, P. H. Howe	147,560
Lime, putting up chloride of, M. L. Bush bock, hasp,J. H. Runyan Lock, seal, F. W. Brooks (r)	147,476
Lock, seal, F. W. Brooks (r) Lubricator, S. C. Hamlin Mains, tapping, L. Spaulding	147,636
Mandrel, spring coiling, Nichols et al	147,679 147,650
Mill, grinding, R. S. Cathcart	147,783
Mill relief device, T. Shaw	147,641
Mud feader for equestrians, A. B. Speed Necktie, R. R. Parker	147,682
Nut lock, T. B. Wrigley Ores, treating, C. H. Aaron Organ, reed, A. F. Yarwood	. 147,542
Organs, reed board for, Cheney et al	. 147,608 . 147,548
Packing, piston, H. A. Jamieson Padlock, H. Ahrend Paper box, L. W. Beecher	. 147,585
Paper box, L. W. Beecher Paper box, F. W. Smith	. 147,548 . 147,697
Paper clip, A. D. Judd	147,717
Pen, fountain, W. E. Thomas Photographic screen, A. M. Bird	. 147,707 . 147,594
Photographs, enameling, N. Weston (r) Picture frame, J. W. Taft	. 5,766 . 147,528
Planing machine, metal, W. Henderson	. 147,671 . 147,686
Plastering board for walls, etc., L. H. Tideman Plow jointer, H. Gale	. 147,531 . 147,629
Pocket book, E. A. Hemphill	. 147,569
Pulley, differential, J. N. Floyd	. 147,625 . 147,545
Purifier, flour and middlings, G. W. Brown Purifier, middlings, D. S. Mackey	. 147,565
Purifier, middling4. O. A. Pray	. 147,719
Railroad gate, W. J. Garrison	. 147,692
Railroad switch, C. C. Shelby	. 147,695
Railway tie, Kendrick et al	. 147,702
Razor, G. A. Whitmarsh	147,725 147,604
Roofing material, J. N. Colby	. 147,627
Saddle, harness, S. A. Marker	147,509 147,681 147,570
Sash holder, A. L. Whitney	. 147,726
Saw-filing device, A. P. Durant	147,631
Scale beam, C. H. Miller	. 147,512 147,654
Sewing machine cabinet, G. Range	147,574
Sewing machine table. J. M. Baird	147,714
Shaft coupling, R. Whetherill	147,720 147,465
Sheet metal vessel, P. Lesson, (r)	5,770
Shirt collars, etc., making, P. D. Aub	147,588
Shoe, J. H. Vermilya	147,688 147,596
Soles and heels, burnishing, A. C. Carey	147,551 147,537
Spinning mule, self-acting, N. W. Bancroft	

Spool box, B. F. Carpenter 147,601
Stair hand rails, joint for, W. Leduc 147,659
Stamps, canceling, Goff & Hursy 147,630
Stanchion, H. Willard 147,727
Steam or water gate, S. Van Horn 147,532
Stone, hardening, D. M. Sprogle 147,522
Stone slabs, polishing, J. Finn 147,490
Stove, cooking, Z. Hunt
Stove, cooking, Z. Hunt 147,501
Stove, fire place, H. L. McAvoy 147.673
Stove, railroad car, J. Wilson 147,729
Surveying instrument, J. L. Bogy 147,472
Suspenders, J. W. Wattles 147,582
Table, dining and it oning, L. Berner 147,470
Table, drawing or writing, J. A. Knight 147,504
Tablet, erasive, C. N. Brown
Teas, coffees, etc., chest for, G. Lillibridge 147,661
Telegraph, duplex, G. D'Infreville 147,487
Telegraph, duplex, J. B. Stearns 147,524
Telegraph, duplex, J. B. Stearns
Tenoning machine, W. H. Elliott 147,554
Tobacco cutting machine, J. F. Kelley 147,562
Toilet case, pocket, G. Wunderlich 147,731
Towing canal boats, etc., T. J. O'Toole 147,680
Tey, automatic, G. W. Brown
Toy dancer, automatic, W. L. Hubbell 147,558
Toy locomotive, E. C. Phelps
Tubes, pile for rolled, E. Wheeler 147,721
Umbrella, Harrison & Pearson
Umbrells, folding, Phillips & Burnham 147,517
Valve, check, M. T. Davidson
Valvegear, steam engine, A. S. Cameron 147,478
Valve seats, refitting, W. W. Allmand 147,586
Valve, steam engine, J. D. Bown 147,736
Valve, stop, B. F. Wilson
Vehicle spring, J. Curtis
Vehicle spring, J. E. Jeffrey 147,644
Vehicle wheel, W. Crandell
Vehicle wheel, W. W. Crane
Vessels, raising sunken, H. F. Knapp 147,653
Wagon, dumping, H. Bailey
Washing machine, D. Graham
Water closet for vessels, A. B. Sands 147,575
Water closet regulator, J. Marquis 147,510
Windmill, M. J. Kauffmann
Window screen, A. L. Fuller 147,494
Wrench, L. F. Smith
ADDITIONS FOR EVERSIONS

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:

28.878.-FIRE ESCAPE.-L. King. May 6. 28,389.—Rubber Tubing.—T. J. Mayall. May 6. 29,402.—ICE Cream Freezer.—C. W. Packer. May 6. 28,469.-Horseshoe.-R. A. Goodenough. May 13. 28,684.—CORN PLANTER.—D. C. Myers. May 27.

EXTENSION GRANTED

27,241.—PHOTOGRAPHIC CAMERA.—A. Semmendinger.

DESIGNS PATENTED.

7,168.—BARBER'S CHAIR.—A. Abel, New York city. 7,169.—GLASSWARE.—T. B. Atterbury, Pittsburgh, Pa. 7,170.—Advertising Desk.—L. W. Burton, Syrabuse, N.Y. 7,171 to 7,178.—Carpets.—R. R. Campbell, Lowell, Mass. 7,179.—Swing Seat.—G. De Nottbeck, New York city. 7.180.—INSECT CASE.—G. De Nottbeck, New York city. 7,181.—Bottles.—E. R. Durkee, Brooklyn, N. Y. 7,182.—Carpet.—J. Hamer, Lowell, Mass. 7.183.—Tobacco Box.—C.J. Hauck, Brooklyn, E. D., N. Y. 7.184.—Bank Bills.—W. B. Hotchkiss, New York city. 7,185.—CARPET.—D. McNair, Lowell, Mass. 7,186.—Glass Tumblers, etc.—T. W. Mellor, Phil., Pa. 7,187 to 7,189.—OIL CLOTHS, ETC.—C. T. Meyer & V. E.

Meyer, Bergen, N. J.
7,190.—Canisters.—J. H. Preater, Brooklyn, N. Y.
7,191.—Pen Rack.—F. R. Seidensticker, Meriden, Conn. 7,192.-WAITER.-H. C. Wilcox, West Meriden, Conn.

TRADE MARKS REGISTERED.

1,634.—Braid.—D. Goff & Son, Pawtucket, R. I. 1,635.—Tobacco, etc.—E. H. & W. H. Hamman, Emaus.Pa 1,636.—Whisey.—G. W. Kidd & Co., New York city. 1,637.—Heel Counters.—J. Kimball, Boston, Mass. 1,633.—FERTILIZER.—Lorentz & Co., Baltimore, Md. 1,639.—PENS.—W. F. Murphy's Sons, Philadelphia, Pa. 1.640.—CARPETS.—R. Scott, Philadelphia, Pa ,641.—MEDICAL COMPOUND.—P. P. Van Aistine, Barnes ville, Ga. 1,642.—ILLUMINATING OIL.—Warden&Co.,Pittsburgb,Pa.

SCHEDULE OF PATENT FEES. On appeal to Commissioner of Patents..... On an application for Design (3% years)......

[Specially reported for the Scientific American.]

CANADIAN PATENTS

LIST OF PATENTS GRANTED IN CANADA.

FEBRUARY 20, 1874.

8,114.—J. Tufford, Beamsville, Lincoln county, Ontario Improvements on machine for drilling iron or steel called "Tufford's Improved Drilling Machine." Feb

3,115.-G. B. Getty, E. Mendenhall and E. Barton, all of Bloomsburg, Columbia county, Pa., U. S. Improve ments on head blocks for circular saw mills, called "Getty's Improved Head Block for Saw Mills." Feb

3.116.—H. R. Barnes, Rock Stream, Yates county, N. Y. U. S. Improvements on hoes, called "The Barnes Hoe." Feb. 20, 1874.

3,117.—Jas. Defoe, Detroit, Wayne county, Mich., U. S. Improvements on wood pavements, called "Defoe's

Wood Pavement." Feb. 20, 1874. 3,118.—Jas. Tredale, Toronto, Ontario. Improvements on coal oil stoves and lamps, called "Tredale's Portable Coal Oil Stove." Feb. 20, 1874.

8.119.-W. M. Mixer, New York city, U. S. Improvements inrefrigerator buildings, called "Mixer's Preserving House." Feb. 20, 1874.

.120.—S. R. Wilmot, Bridgeport, Fairfield county, Conn. U. S. Improvement on sheet metal tubing, called "Wilmot's Improved Lock Seamed Tubing." Feb. 20 1874.

Engine, three cylinder, P. T. Brownell....... 147,599 Spinning spindle and bobbin, N. I. Allen....... 147,466

3.121.-9. R. Wilmot, Bridgepor', Fairfield county, Conn. Improvements on the manufacture of metal g, called "Wilmot's Improved System of Manu tubing, called facturing Metal Tubing." Feb. 20, 1874.

8,122.-J. A. Whelpley, Dartmouth, Halifax c Nova Scotia. Improvements on skates, called "Whelp ley's Self Fastening Skates." Feb. 20, 1874.

-J. J. 1 homas & E. G. Thomas, Hamilton, Ontario. A railway switch, called "Thomas' Automatic Safety Railroad Switch." Feb. 20, 1874.

3,124.-J. Mille, Keeseville, Essex county, New York, U. S. Improvements on horse shoe nail machines "Mills' Improved Horse Shoe Nail Machines. Feb. 20, 1874.

3,125.—T. Rose, Georgetown, Halton county, Ontario Useful article for cleaning lampglasses, called "Rose" Spring and Slide Lamp Glass Cleaner." Feb. 20, 1874. L. M. Stockton, Yarmouth, Elgin county, Ontario, and D. Stockton, same place. Useful tanning composition to tan cow or any other hides, called "Manuel's and Stockton's Tanning Composition." Feb. 20, 1874. \$.127.-W. Foglesong, Dayton, Montgomery county, O.

Improvements on machine for making she metal pans, called "Foglesong's Sheet Metal Pan Machine." Feb. 20, 1874. 8,128.—D. Douds, J. H. Hartsupp and P. Douds, all of New

Castle, Lawrence county, Pa., U. S. Improvements on steam pump, called "Doud's and Hartsupp's Steam Pump." Feb. 20, 1874. 8,129.-G. Westinghouse the Younger, Pittsburgh, Alle

gheny, Pa., U.S. Improvement on a machine for reg ulating, applying and releasing the fluid pressure in railway air brake apparatus, called" The Westinghouse Triple Value." Feb. 20, 1874. \$130.-I. Dennis, New Market, York county, Ontario

Improvements in "Dennis' Economical Framed Log "called "Dennis' Improved Frame Barn." Feb 20, 1874.

3.131.—I. Kay, Indianapolis, Ind., U. S. Useful roller abstractor for lever watches, called "Kay's Roller Abstractor." Feb. 20, 1874. 8,132.-J. L. Cathcart, Washington, D. C., U. S. Usefu

improvements on propellers for vessels, called "Cath cart's Steering Propeller." Feb. 20, 1874. 8,138.—T. S. Hunt, Boston, Mass., U. S., and Jas. Doug

las, Jr., Quebec. Improvement in the utilization o refuse or waste tinned sheet iron (commonly called tin plate), the title whereof is "A New and Useful Improvement in the Utilization of Refuse or Waste Tinned Sheet Iron (commonly called Tin Plate.) Feb

-A. H. Pedrick, Philadelphia, Ps., U.S., assignee o E. Pedrick, Petrolia, Ontario. New and useful traction hydraulic engine, called "Pedrick's New Traction Hydraulic Engine." Feb. 20, 1874.

HOW TO OBTAIN Patents and Caveats $oldsymbol{IN}$ $oldsymbol{CANADA}.$

ATENTS are now granted to inventors in Canada, without distinction as to the nationality of the applicant. The proceedings to obtain patents in Canada are nearly the same as in the United States. The applicant is required to furnish a model, with specification and drawings in dupli-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 includes the government fees for the first five years, and also our (Munn & Co.'s) charges for preparing drawings, specifi-cations and papers, and attending to the entire business The holderof 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 enjoy 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 ingredlents, must be furnished.

Persons who desire to apply for patents in Canada are requested to send to us (MUNN & Co.), oy express, 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 a 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 twe)ve weeks' time, after com pletion of the papers, to cotain the decision of the Canadian Patent Office. Remit the rees by check, draft, or Postal order. Do not send the money in the box with model. Give us your name in full, middle name included Inventions that have already been patented in the United States for not more than one year may also b

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 eithe of these particulars, the application will be rejected, in which case no portion of the fees paid will be returned to the applicant.

Inventors may temporarily secure their impro ments in Canada by filing caveats: expense thereof. \$35

For further information about Canadian patents, assignments, etc., address MUNN & CO.

37 Park Row, New York

VALUE OF PATENTS

And How to Obtain Them.

Practical Hints to Inventors.



ROBARLV 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, Big low. Colt. Ericsson, Howe, McCormick, Hoe. and others, who have amassed immense for tunes from their inventions, are well known And there are thousands of others who have realizedlarge sums from their patents.

More than FIFIT THOUSAND inventors have availed hemselves of the services of MUER & Co. during the into any article of manufacture.

TWENTY-SIX years they have acted as solicitors and Publishers of the SCHENTIFIC AMERICAN. They stand at the head in this class of business; and their large corps of assistants, mostly selected from the ranks of the Patent Office: men capable of rendering the best service to the inventor, from the experience practically obtained while examiners in the Patent Office: enables MUNN & Co. to do everything appertaining to patents BETTER and CHEAPER than any other reliable agency.

HOW TO PATENIS OBTAIN

This is the closing inquiry in nearly eve-

ry letter, describing some invention which comes to this office. A positive answer can only be had by presenting complete application for a patent to the Commissioner of Patents. An application consists of a Model, Drawings, Petition, Oath, and full Specification. Various official rules and formalities must also be observed. The efforts of the inventor to do all this business himself are generally without success. After great perplexity and delay, he is usually glad to seek the aid of persons experienced in patent business, and have all the work done over again. The best plan is to solicit proper advice at the beginning. If the parties consulted are honorable men, the inventor may safely confide his ideas to them they will advise whether the improvement is prohably patentable, and will give him all the directions needful to protect his rights.

To Make an Application for a Patent

The applicant for a patent should furnish a model of his invention if susceptible of one, although sometimes it may be dispensed with; or, if the invention be a chem ical production, he must furnish samples of the ingredients of which his composition consists. These should be securely packed, the inventor's name marked on them and sent by express, prepaid. Small models, from a dis tance, can often be sent cheaper by mail. The safest way to remit money, is by a draft or postal order, on New York, payable to the order of MUNN & Co. Persons who live in remote parts of the country can usually purchasedrafts from their merchants on their New York

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another, who has had some experience in obtaining patents. His answer generally is as follows, and correct: Construct a neat model, not over a foot in any dimen sion—smaller if possible—and send by express, prepaid, addressed to MUNN & Co., 37 Park Row, together with a description of its operation and merits. On receipt thereof, they will examine the invention carefully, and advise you as to its patentability, free of charge. Or, if you have not time, or the means at hand, to construct a model, make as good a pen and ink sketch of the im provement as possible and send by mail. An answer as to the prospect of a patent will be received, usually, by return of mail. It is sometimes best to have a search made at the Patent Office; such a measure often save the cost of an application for a patent.

Preliminary Examination.

In order to have such search, make out a written de scription of the invention, in your own words, and a pencil, or pen and ink, sketch. Send these, with the fee of \$5. by mail, addressed to MUNN & Co., 37 Park Row. and in due time you will receive an acknowledgmen thercof, followed by a written report in regard to the patentability of your improvement. This special 🐽 is made with great care, among the models and patents at Washington, to ascertain whether the improvement presented is patentable.

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