

(30) B. B. asks: What is the proper quantity of soda and tartaric acid to be used to a pound of flour? A. Use 2 scruples bicarbonate of soda and 4 1/2 drachmscream of tartar.

(31) J. H. C. asks: How can I amalgamate nickel and mercury? The nickel melts at a very high heat and the other is fluid at common temperature and is very volatile at a high heat. A. Nickel does not form an amalgam with mercury.

(32) A. S. L. asks: 1. How can I make nitrate of silver (for photography) out of good coin silver? A. Dissolve the coin in pure nitric acid and evaporate the solution to dryness. Ignite the residue until all of the nitrate of copper is decomposed. The residue is next to be exhausted with pure water, and the solution filtered and left to crystallize. These crystals should be redissolved in distilled water and re-crystallized. 2. How can I make gold solution (for the toning bath) out of coin gold? A. Place the coin in any convenient vessel, and pour over it a little nitric acid mixed two and one half times its weight of hydrochloric acid and three times its weight of water; digest at a gentle heat, but do not boil the acid, or much of the chlorine will be driven off in the form of gas. At the expiration of a few hours add a fresh portion of nitro-hydrochloric acid, the same as at first. Continue this until the coin is completely dissolved. Then decant into another vessel carefully, so as not to disturb any sediment of chloride of silver at the bottom of the vessel. Next, dilute largely with distilled water, and add a filtered aqueous solution of common sulphate of iron (8 parts to 1 of gold). Collect the precipitated gold, which is now free from copper, and dissolve in aqua regia as at first, and evaporate to dryness on a water bath.

(33) H. L. N. asks: How can I best remove ink spots from writing paper, so as not to injure it? A. Wash with a camel's hair brush dipped alternately in oxalic acid and cyanide of potassium.

(34) L. F. B. says, as to the height at which a tree has to be cut so that its top will strike a given point on the ground: Square the height of tree and the given distance from tree to point. Divide the difference of these squares by twice the height of tree, and the quotient will be the height from the ground where the tree has to be cut. Example: Height of tree=60 feet, distance of point to the tree 20 feet; then 60^2=3,600, 20^2=400, difference=3,200. 3,200/(2x60)=26 2/3 feet.

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

We have received a handsome stereoscopic picture made by Mr. E. H. Train, photographer, Helena, Mon. Ter., of octohedral crystals of gold. It was sent by Charles Rumley, Esq.—A specimen of galena has been received, inclosed by a mineral supposed to be kaolin. It was, in fact, sulphate of barytes or heavy spar.—N. J.—It is clay, with some carbonaceous matter and a trace of oxide of iron.—P. F. T.—It is spiegeleisen, a kind of cast iron containing a large percentage of manganese and used in making Bessemer steel.—J. A. T.—No. 1 is hematite coated with crystals of ferruginous quartz. No. 2 is wulferite. No. 3 is analcite.—G. G. B.—It is mispickel, and consists of arsenic 46 per cent, sulphur 20 per cent, and iron 34 per cent. It possibly contains some cobalt, but the samples sent were too small to determine this. It has previously been found at Franconia, Jackson, and Haverhill, N. H.—D. A. B.—It is pyroxene, a silicate of lime, magnesia, iron, and manganese. The percentage of iron is not large enough to make it valuable as an ore.—R. T. P.—It is a mixture of clay with grains of quartz and felspar.—S. L.—It is a portion of a large octohedral crystal of iron pyrites.—C. H. W. Jr.—It is white crystalline limestone.—G. W. B.—There was not sufficient for complete analysis, but there was found to be some chloride of sodium or salt, some sulphate of iron, and oxide of iron.—F. H. McK.—It is a mixture of silic and mica, and appears similar to powder from rocks underlying the coal.

COMMUNICATIONS RECEIVED.

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

- On Decay of Teeth. By E. D. P.
On the Mouths of the Mississippi. By O. P. S.
On the Inventive Power. By A. A. M.
On Lightning. By D. B.
On Powder Mill Explosions. By C. H. R.
On Fire Escapes. By L. K. Y.
On the SCIENTIFIC AMERICAN. By D. B.
On the Iron Horse. By F. H. R.
On the Potato Bug. By T. A. C.
On the Fireless Locomotive. By F. G. W.
Also enquiries and answers from the following:
E. H. S.—T. J. F.—A. L. P.—J. B. J.—M. R.—C. C. J.—H. C. T.—J. S. B.—W. C. B.—A. E. Z.—A. L. F.—W. H. G.—H. K.—W. H. L.—C. H. C.—G. M. M.—C. & N.—J. P. H.—E. M. B.

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 patentability 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: "Who furnishes information as to water wheels? Who makes the most accurate water meter? Who buys sumac? Who makes mercury air pumps? Who sells the best blower for using with a

cupola?" All such personal inquiries 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.]

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week ending May 25, 1875,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

Table listing inventions with names and patent numbers. Includes: Addressing machine, H. H. Herr... 163,773; Alarm, burglar, F. H. Hunter... 163,779; Apple parer, E. L. Schauck... 163,813; Axle box, F. Kelsner... 163,783; Baby tender and crib combined, A. Baird... 163,625; Bale tie, J. M. Goldsmith... 163,649; Bale tie, J. N. Smith... 163,915; Bale tie, cotton, J. W. Philp... 163,903; Barrel faucet attachment, A. Zoller... 163,717; Barrel making machine, J. Y. Chapman... 163,740; Bed bottom, W. Wood... 163,714; Bed bottom, invalid, Ogborn and Kendrick... 163,684; Bed bottom, spring, E. O. Bennett... 163,627; Bed bottom, spring, E. P. Carter... 163,574; Bedstead fastening, W. H. Elliot (r)... 6,447; Bedstead fastening, W. H. Elliot... 163,787; Bell pull, C. Clay... 163,741; Bill file, C. Davis, Jr... 163,750; Bird cage mat, A. B. Hendryx... 163,772; Bolts, rounding ends of, J. Nelson... 163,797; Boot and shoe, laced, P. Plant... 163,804; Box making machine, J. 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Table listing inventions with names and patent numbers. Includes: Jack, lifting, W. Livingstone... 163,791; Jib hand, C. W. Clements... 163,577; Journal bearing, etc., C. Wheeler, Jr... 163,707; Kettles, copper bottom for, A. Cummings... 163,747; Key fastener, H. Stretcher... 163,822; Kilm, charcoal, W. Sparrow... 163,700; Label holder, C. F. Barker... 163,566; Ladder, extensible fire, J. M. Birchler... 163,725; Ladder, extensible fire, Covell, Chace, & Weaver... 163,580; Lamp chimney, O. D. Warfield... 163,826; Lathe dog, C. B. Davis... 163,640; Lathe rest, J. E. F. Leland... 163,670; Lathe planing attachment, A. Hoffman... 163,657; Lighting rod standard, Reyburn & Martin... 163,807; Liquids, filtering, T. R. Sinclair... 163,814; Lock for bags, etc., G. Bernhelm... 163,629; Lock, permutation, E. Grah... 163,767; Loom, J. L. Norton... 163,799; Loom harness frame, Casey, Auel, & Johnson... 163,575; Loom harness motion, G. Crompton, (r)... 6,442; Loom shuttle, J. 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Table listing inventions with names and patent numbers. Includes: Trap, animal, G. W. Kelley... 163,5; Trap, fly, Arandall & Runyan... 163,719; Trap, hog, H. Ogborn... 163,603; Umbrella, folding, U. G. Stelmetz... 163,821; Valve movement for rock drills, D. Kennedy... 163,785; Valve, safety, T. Walker... 163,618; Vegetable cutter, J. F. Goolsbee... 163,765; Vehicle pole tip, Grimshaw & Osgood... 163,768; Vehicle seat, Cloud & Craig... 163,741; Vehicle top, L. Sawyer... 163,812; Wagon brakes, shoe for, J. Grimste... 163,650; Wagon tyres, heating, S. B. Hopkins... 163,592; Wagons, brake for hay, W. Harper... 163,653; Washing machine, R. G. Orwig... 163,686; Watch crystals, grinding, A. C. Norton... 163,683; Watch key, A. & F. Hathaway... 163,771; Wat. h regulator, J. A. Miller... 163,680; Watches, mainspring for, Rice & Burbank... 163,694; Water wheel, I. Mallory... 163,575; Water wheel gate, G. W. Dunn... 163,754; Well point, driven, D. A. Darforth... 163,749; Windmill, W. T. Burrows... 163,734; Windmill, S. Cushman... 163,581; Windmill, I. Lehmer... 163,789; Windmill, W. W. Marsh... 163,597; Window blind, S. W. Merrill... 163,679; Window blind, J. Peyer... 163,690; Wood-boring machine, J. Faraday... 163,586; Wool-mixing machine, S. R. Parkhurst... 163,687; Wool, etc., treating, O. Braun... 163,722; Wrench pipe, G. D. Dean... 163,620; Wringing machine, Eisenhart & Laurer... 163,645;

DESIGNS PATENTED.

- 8,338.—BURIAL CASKET.—F. A. Field, Everett, Mass.
8,339.—BASE PANEL.—M. D. Jones, Boston, Mass.
8,340.—VASE BORDER.—M. D. Jones, Boston, Mass.
8,341.—VASE PANEL.—M. D. Jones, Boston, Mass.
8,342.—TELEGRAPH KEY.—C. W. Lewis, Chicago, Ill.
8,343.—ORNAMENTAL STAR.—W. Martin, Philadelphia, Pa.
8,344 to 8,351.—CARPETS.—J. M. Christie, Kidderminster, England.
8,352 to 8,354.—BACKS OF LOUNGES.—G. Hartzell, Philadelphia, Pa.
8,355.—NECK TIE.—R. R. Parker, Indianapolis, Ind.
8,356.—LAMP POSTS.—W. Tweeddale, Brooklyn, N. Y.
8,357.—CIGAR BOX.—H. Zimmerman, Chicago, Ill.

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
On appeal to Examiners-in-Chief... \$10
On appeal to Commissioner of Patents... \$20
On application for Reissue... \$30
On filing a Disclaimer... \$10
On an application for Design (3 1/2 years)... \$10
On application for Design (7 years)... \$15
On application for Design (14 years)... \$30

CANADIAN PATENTS.

LIST OF PATENTS GRANTED IN CANADA, May 19 to June 4, 1875.

Table listing Canadian patents with names and dates. Includes: 4,754.—P. W. Hart, Camden, N. Y., U. S. Lathe machine. May 19, 1875.
4,755.—A. Tracy, Pickering, Ont. Horse power. May 19, 1875.
4,756.—A. B. Sheraton, St. John, N. B. Steam carpet cleaner. May 19, 1875.
4,757.—P. N. Rugg, Compton, P. Q. Wash bench. May 19, 1875.
4,758.—J. D. Lawlor, Montreal, P. Q. Washing machine. May 19, 1875.
4,759.—J. Alkman, North Norwich, Ont. Secret lever hinge. May 19, 1875.
4,760.—M. Lesser, Montreal, P. Q. Cigar. May 19, 1875.
4,761.—D. W. Davis et al., Detroit, Mich., U. S. Preparing fish for market. May 19, 1875.
4,762.—G. W. Howell, Covington, Ky., U. S. Elbow machine. May 19, 1875.
4,763.—T. Warren, Flint, Mich., U. S. Safety stop governor. May 19, 1875.
4,764.—J. Wilson, Toronto, Ont., et al. Horse clipping and sheep shearing machine. May 19, 1875.
4,765.—S. W. Benham, Sweetsburgh, P. Q. Fire kindler. June 4, 1875.
4,766.—H. L. Smith, Westminster, England. Single rail railway. June 4, 1875.
4,767.—I. Fréchette et al., St. Hyacinthe, P. Q. Boot shank pieces. June 4, 1875.
4,768.—L. J. Atwood, Waterbury, Conn., U. S. Fireside burner. June 4, 1875.
4,769.—G. M. Mowbray, North Adams, Mass, U. S. Mica blasting powder. June 4, 1875.
4,770.—J. Struthers, Alma, Ont. Snow plow. June 4, 1875.
4,771.—J. E. Waterous, Brantford, Ont. Steam condenser and feed water heater. June 4, 1875.
4,772.—T. E. Webber, Pittston, Me., U. S. Harness lug lining. June 4, 1875.
4,773.—C. D. Wilson, Elmwood, Ill., U. S. Picture frames. June 4, 1875.
4,774.—J. Nicholson, Jr., Pittsburgh, Pa., U. S. Glass furnace. June 4, 1875.
4,775.—Wm. Ascough, Buffalo, N. Y., U. S. Pontoon boat. June 4, 1875.
4,776.—T. J. Blake, Pittsburgh, Pa., U. S. Making shovels. June 4, 1875.
4,777.—O. B. Kendall, Buffalo, N. Y., U. S. Water regulator and indicator. June 4, 1875.
4,778.—P. B. Hennessy, Hamilton, Ont. Time lock. June 4, 1875.
4,779.—G. Henry, Lennoxville, P. Q. Boiler feed regulator. June 4, 1875.
4,780.—R. G. McLellan, Woodstock, Ont. Measure indicator. June 4, 1875.
4,781.—H. E. Susand, Berlin, Ont., et al. Saw mill dog. June 4, 1875.
4,782.—H. Hagen et al., Toronto, Ont. Marble-veneered concrete. June 4, 1875.
4,783.—Wm. Schnabel, Orillia, Ont. Elastic wooden seat. June 4, 1875.
4,784.—A. G. Bayles, New York city, U. S. Gas burner. June 4, 1875.
4,785.—E. Draper, London, Ont. Musical instructor and game. June 4, 1875.
4,786.—Wm. M. Leyde, Newport, Minn., U. S., et al. Thrashing machine. June 4, 1875.
4,787.—Wm. P. Yeoman, Waukegan, Ill., U. S. Ear rings. June 4, 1875.
4,788.—L. M. Bissell, Addison, Ont. Sower shaker. June 4, 1875.
4,789.—L. J. Atwood, Waterbury, Conn., U. S. Lamp burner. June 4, 1875.
4,790.—D. A. McDonell, Charlottenburg, Ont. Dog sleigh. May 27, 1875.