at a brass section of the pipe rather than an iron or lead, and it should be soldered when possible. The surface face will answer every purpose if the soil is not too dry. It should be set in a vertical position. I have a galvanized sheet iron ground which has worked well for six. American locomotives? A. 36 to 35 tons. years. In sections of country where the soil is shallow a greater surface will be necessary to make up for the lack of depth. I have made good grounds by soldering a number of old oyster cans to a wire, and by burying iron turnings and filings in a trench. A failure of any of these methods should not discourage, as it often happens that a change of a few feet in the location will find

(27) G. W. L. asks how to enamel paper tubes and packages to contain butter, lard, etc., and similar substances. A. A sirupy alcoholic solution of bleached shellac mixed with terra alba or other opaque harmless earth has been employed for similar purposes. (28) H. M. J. asks how phosphor bronze

is made. A. Sec p. 411 (30), vol. 39, Scientific Ameri-

(29) R. & T, write in answer to W. M. M. query No. 23, page 203, current volume of Scientific AMERICAN: It is necessary for a practical man to have the mill stonebefore him and to know what quality and quantity of work is required of the same, also to see the grain to be ground; because of the many different circumstances controlling the millstone, it is impossible to iay down any fixed rule for a stone, as we are governed solely by conditions, and as such, milling is not a science but an art, and must, therefore, be handled to suit cir-

comstances and conditions.

- a blue writing ink that can be made in small quantities, say 16 gallon, of these qualities; color bright blue, will find an excellent article on the purification of drinking not settle or thicken on exposure to the air, and flows freely. A. Coupier's blue, also known by the name of also p. 346, vol. 39, Scientific American. For the indulin, dissolved in water in the ratio of 20 parts to purification of water containing much organic matter, 1,000 of water, forms a writing ink of a good color, Dr. Crookes recommends the addition in the proportion which it retains when treated with chemical agents. It of from one to two parts of the following mixture to which it fedared with decrease and agents. A does not corrode steel pens. Anything added to ink to every 1,000 parts of the water: Permanganate of lime, 1 prevent evaporation also tends to prevent it drying part; sulphate of alumina, 10 parts; fine pipe clay, 30 when written with. Replace the water lost by evaporation occasionally.
- (31) W. H. H. asks: 1. Will ordinary coal lose a part of its weight by being exposed to the air and sun? A. Yes, if it contains much moisture and sulphides. 2. If it does, what per cent of its weight will it lose? A. It depends upon the amount of moisture, sulphides, etc., present in the coal, and the conditions. time, etc., of exposure.
- (32) H. L. writes: I have a good deal of trouble with my lard, which I work every day in the hot weather: it gets sour very often. Can you suggest anything that will keep lard sweet? A. In hot climates a small quantity of calcium sulphite is sometimes used, a few grains to the ounce.
- millstone in furrows, what draught is given; what amount of the space of a stone is given to furrows and what to grinding surface?" The draught of the furrows of millstones should be in proportion to their diameters, must be in direct proportions to their diameters. A some dealer in minerals.—E. E. C.—The bead is comstone four feet in diameter, the draught of the leading posed chiefly of lead. It contains a trace of silver. furrows should be two inches from the center of the stone, and all other small furrrows should be parallel to the leading furrows; the whole surface of the face of the stone should be given to furrows, to form edges; because the principle of grinding is that of shears clipping; the furrows serving as edges to cut the grain; therefore, it is plain that the more cutting edges the stone has, the faster it will grind. The best dress that I have put on a stone is laid off in this form: divide the face of the stone into sixteen leading furrows; then divide the sections of the stone into as many straw furrows as possible. These straw furrows should be very narrow, and be made parallel with the leading furrows
- A., in "Answers to Correspondents," that he can get a very good and durable coat of brown on his gun, by allowing it to get covered with salt spray and letting it rust for a day or two, after which he must rub off the loose rust and give the barrel a couple of coats of oil.
- (35) S. B. G. asks: 1. Should a violin be left in tune when laid away? A. Yes. 2. At what angle to the axis of the wheel should the wings of a wind power be set? A. The mean angle should be from 15° to 17° from the plane of rotation of the wheel. 3 If a small log be split into halves or quarters it will spring outward, and appears as though the heart side is longer than the bark side. What is the cause of it: does the wood of the bark side contract, or does the wood of the heart side lengthen? A. The moister sap wood probably contracts most on exposure to the air.
- (36) J. H. asks: 1. What kind of wax or varnish is used in etching on steel with nitric acid? A. Beeswax or paraffin. 2. What parts of a locomotive are called the journals? A. The cylindrical parts of the axles, which revolve in the boxes. 3. A friend of mine has been disputing with me about governors: he says that they are all self-regulating, while I claim that the engineer has to judge from the speed of the balls. A. All governors are intended to be automatic or self-regulating.
- (37) W. S. W. asks: 1. Can a young man get enough knowledge of locomotive engineering by hard study, to materially lessen the time required on an engine as fireman? If so, what time would it require and what books would you recommend? A. Yes. "Bourne's Hand Book of the Steam Engine," and "Forney on Locomotives," and "Reynolds' Locomotive En-

tion with a gas or water pipe; if possible it should be | gine Driving." 2. How long should a young man, who Carpet stretcher, L. A. Winn... has a taste for the business, fire a locomotive before being qualified for promotion to engineer? A. It de should be thoroughly brightened and the wire given ten pends upon his intelligence, application, and observaor twenty turns around the pipe. In cases where | tion. 3. What traits of character are required in order a gas or water connection cannot be reached, a very to become a good locomotive engineer? A. System; good ground can in many cases be made by driving a habits of close observation; readiness of resource; a rod of iron five or six feet into the ground; this will cool head, and great presence of mind. 4. Is there any generally work well if the wire is soldered to it. A sheet of zinc or galvanized iron of say 10 square feet sur-weight, one having 4 and the other 6 drivers, the drivers to be of the same diameter? A. No, if friction is not considered. 5. What is about the average weight of

- (38) C. B. asks: 1. Have any vessels been constructed to go under water? A. Yes; Fulton constructed one, and in the early years of the late war there were at least two successfully operated in New York harbor. 2. Have any electrical engines of one horse power or more been invented? A. Yes, there have been many made of small power. You will find descriptions of both of them in the back numbers of the Scientific
- (39) B. F. asks: Does it take any more power to force a column of water through 1,000 feet of pipe on an inclined plane and raise it 70 feet than it does to force a column through 70 feet perpendicularly? A. Yes, by the amount of friction of the increased length of pipe required.
- (40) J. D. asks: What size wire cable was in use at the hauling off the steamship Americus into deep water at the time she was stranded on Long Branch Beach, and also what power engines were in use on her to get her off? A. No wire rope used, but four 18 inch hemp cables, with blocks and falls from the cables to the drum of the ship's hoisting engines.
- (43) M. O. D. asks: 1 Do you know of any materials that are preferable to infusorial earth and wrought iron turnings for use in a vessel for filtering drinking water? Will it answer to mix them together (30) D. J. W. asks for a receipt for making in one mass? A Well burned granular charcoal is in many cases preferable to iron in such a filter. You will water on p. 414 et seq., Science Record for 1874. See parts; intimately mix. After settling for 15 minutes the water can be drawn off from the sediment without filtering. 2. Is there any objection to a brass vessel tinned inside? A. Yes, wood is preferable. 3. Are tinned iron wire screens objectionable; how fine should the mesh be? A Stout cotton cloth will be found more serviceable, and is less objectionable. 4. Will the same filtering materials answer for boiler feed water? If thoroughly cleaned once a day how long a time will the filtering materials last? A. It would depend much upon

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

L. S. S.—21. A green trap rock, contains pyrite, quartz, (33) D. W. C. writes: In your issue of and garnet. 22. Similar to No. 21 with serpentine. This March 29, page 203, W. M. M. asked: "In laying off a sample contains traces of gold. -J. C. -Apatite, calcium phosphate, containing more •r less calcium chloride and fluoride.—E. H. A.—Fossiliferous limestone.—C. I.—Arsenical pyrites in talcose slate. It contains traces of gold.—J. R.—No. 1. Chiefly hornblende that is, to give stones of different diameters equal and calcite containing graphite (plumbago). No. 2. To draughts, the distance of their furrows from the center get the value of mineral specimens you should address

COMMUNICATIONS RECEIVED.

On the Whirlpool, By T. P. R. On Consumption. By R. R. G.
On the Autopsy of an Elephant. By A. J. H. On the Destruction of Insects. By F. L. J. Removing Stains. By J. C. W.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

(34) C. M. D. writes: Please inform G. M. Letters Patent of the United States were Granted in the Week. Ending

May 13, 1879, AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

	· · · · · · · · · · · · · · · · · · ·		
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I	Animal trap, W. Witt		215,30
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	Axle box lid, car, S. S. Sencenbaugh		215,29
١	Bales, apparatus for repressing cotton, C. Ewing		215, 270
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٠	Bread raiser and fruit drier, J. F. Heizer		215,27
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ĺ	Car coupling, G. W. Cushing		215,33
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	Hats, manufacture of felt, J. Thomas. Hay rake, horse, A. Obenchain. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley Holdback, vehicle, H. E. Hill Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day Horse detacher, E. M. Shirley. Horse power, P. C. McCune Insulating telegraph conductors, apparatus for, R. P. Manly Ironing machine, W. & J. Coutle Ironing machine, W. & J. Coutle Ironing machine, W. & S. Kinsman. Ironing table, C. F. W. Seidel Jewelr's findings, manufacture of, G. H. Fuller. Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal Lamp chimneys, machine for flaring and crimping, P. Zimmermann (r). Latch keeper, door, F. W. Brocksieper. Latch, reversible, J. J. Dinnan.	215,275 215,411 215,237 215,356 215,253 215,209 215,359 215,362 215,249 215,214 215,234 215,234 215,234 215,236 215,236 215,368 215,316 215,234 8,716 215,206 215,216
	Hats, manufacture of felt, J. Thomas Hay rake, horse, A. Obenchaln. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley Holdpack, vehicle, H. E. Hill Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day Horse detacher, F. M. Shirley. Horse power, P. K. Dederick. 215,213, Horse power, P. C. McCune Insulating 'telegraph conductors, apparatus for, R. P. Manly Troning machine, W. & J. Coutle Ironing machine, W. & J. Coutle Ironing machine, W. & J. Coutle Jeweler's findings, manufacture of, G. H. Fuller. Jewelry, manufacture of, J. W. & I. M. Miller. Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal Lamp chimneys, machine for flaring and crimping, P. Zimmermann (r). Latch keeper, door, F. W. Brocksieper. Latch, reversible, J. J. Dinnan Laundry Jack or bracket, F. Lyford	215,275 215,411 215,237 215,356 215,253 215,209 215,359 215,249 215,249 215,249 215,249 215,234 215,234 215,228 215,412 215,249 215,217 215,228 215,412 215,234 215,236
	Hats, manufacture of felt, J. Thomas. Hay rake, horse, A. Obenchain. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley Holdback, vehicle, H. E. Hill Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day Horse detacher, E. M. Shirley. Horse power, P. C. McCune Insulating 'telegraph conductors, apparatus for, R. P. Manly Ironing machine, W. & J. Coutte Ironing machine, W. & J. Coutte Ironing machine, W. S. Kinsman Ironing table, C. F. W. Seidel Jeweler's indings, manufacture of, G. H. Fuller. Jewelry, manufacture of, J. W. & I. M. Miller. Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal Lamp chimneys, machine for flaring and crimping, P. Zimmermann (r). Latch, reversible, J. J. Dinnan Laundry Jack or bracket, F. Lyford Lidnors, process and apparatus for fining fer-	215,275 215,411 215,237 215,356 215,253 215,209 215,359 215,363 215,249 215,214 215,234 215,234 215,234 215,249 215,235 215,412 215,402 215,412 215,402 215,236 215,234 8,716 215,234 8,716 215,236 215,216 215,236
	Hats, manufacture of felt, J. Thomas Hay rake, horse, A. Obenchain. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley Holdback, vehicle, H. E. Hill Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day Horse detacher, E. M. Shirley. Horse power, P. K. Dederick. 215,213, Horse power, P. C. McCune Insulating 'telegraph conductors, apparatus for, R. P. Manly Ironing machine, W. & J. Coutle Ironing machine, W. & J. Coutle Ironing machine, W. & S. Kinsman Ironing machine, Thomas & Smith Ironing table, C. F. W. Seldel Jeweler's findings, manufacture of, G. H. Fuller. Jewelry, manufacture of, J. W. & I. M. Miller. Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal Lamp chimneys, machine for flaring and crimping, P. Zimmermann (r). Latch keeper, door, F. W. Brocksieper Latch, reversible, J. J. Dinnan Laundry jack or bracket, F. Lyford Liquors, process and apparatus for fining fermented, A. E. & W. E. Feroe. Loom temple, P. P. Quackenboss.	215,275 215,411 215,235 215,236 215,253 215,209 215,356 215,211 215,249 215,325 215,231 215,232 215,217 215,228 215,412 215,228 215,412 215,234 215,236 215,236 215,236 215,238 8,716 215,236 215,238 8,716 215,238
	Hats, manufacture of felt, J. Thomas. Hay rake, horse, A. Obenchain. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley Holdback, vehicle, H. E. Hill Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day Horse detacher, E. M. Shirley. Horse power, P. C. McCune Insulating telegraph conductors, apparatus for, R. P. Manly Ironing machine, W. & J. Coutte Ironing machine, W. S. Kinsman Ironing table, C. F. W. Seldel Jeweler's findings, manufacture of, G. H. Fuller. Jeweler's findings, manufacture of, G. H. Fuller. Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal Lamp chinneys, machine for flaring and crimping, P. Zimmermann (r). Latch keeper, door, F. W. Brocksieper Latch, reversible, J. J. Dinnan Laundry jack or bracket, F. Lyford Liquors, process and apparatus for fining fermented, A. E. & W. E. Feroe. Loom temple, P. P. Quackenboss. Mail bag fastener, T. M. Cunningham.	215,275 215,411 215,237 215,356 215,253 215,209 215,356 215,211 215,249 215,214 215,214 215,214 215,214 215,215 215,325 215,228 215,412 215,236 215,236 215,236 215,236 215,236 215,236 215,316 215,236 215,236 215,238 215,380 215,380 215,386 215,386 215,386 215,386 215,386 215,386 215,386 215,386 215,386
	Hats, manufacture of felt, J. Thomas. Hay rake, horse, A. Obenchain. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley Holdback, vehicle, H. E. Hill Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day Horse detacher, E. M. Shirley. Horse power, P. K. Dederick. 215,213. Horse power, P. C. McCune Insulating 'telegraph conductors, apparatus for, R. P. Manly Ironing machine, W. & J. Coutte Ironing machine, W. & J. Coutte Ironing machine, Thomas & Smith Ironing table, C. F. W. Seidel Jeweler's findings, manufacture of, G. H. Fuller. Jeweler's findings, manufacture of, G. H. Fuller. Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal Lamp chimneys, machine for flaring and crimping, P. Zimmermann (r). Latch keeper, door, F. W. Brocksieper Latch, reversible, J. J. Dinnan Laundry jack or bracket, F. Lyford Liquors, process and apparatus for fining fermented, A. E. & W. E. Feroe. Loom temple, P. P. Quackenboss. Mail bag fastener, T. M. Cunningham.	215,275 215,411 215,237 215,356 215,253 215,209 215,359 215,359 215,249 215,214 215,214 215,214 215,215 215,228 215,412 215,402 215,215 215,236 215,316 215,234 8,716 215,234 215,315 215,380 215,316 215,380 215,388 215,388
	Hats, manufacture of felt, J. Thomas. Hay rake, horse, A. Obenchain. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley Holdback, vehicle, H. E. Hill Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day Horse detacher, E. M. Shirley. Horse power, P. K. Dederick. 215,213, Horse power, P. C. McCune Insulating telegraph conductors, apparatus for, R. P. Manly Ironing machine, W. & J. Coutte Ironing machine, W. & J. Coutte Ironing table, C. F. W. Seldel Jeweler's findings, manufacture of, G. H. Fuller. Jewelry, manufacture of, J. W. & I. M. Miller. Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal Lamp chimneys, machine for flaring and crimping, P. Zimmermann (r). Latch keeper, door, F. W. Brocksieper Latch, reversible, J. J. Dinnan Laundry jack or bracket, F. Lyford Liquors, process and apparatus for fining fermented, A. E. & W. E. Feroe. Loom temple, P. P. Quackenboss. Mail bag fastener, T. M. Cunningham Measure, liquid, L. Kosiol Measuring device, liquid, W. B. Sherman	215,275 215,411 215,237 215,356 215,253 215,209 215,356 215,211 215,249 215,214 215,214 215,214 215,215 215,325 215,228 215,412 215,217 215,236 215,216 215,236 215,236 215,316 215,236 215,236 215,236 215,236 215,236 215,237 215,380 215,380 215,381 215,381
	Hats, manufacture of felt, J. Thomas. Hay rake, horse, A. Obenchain. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley Holdback, vehicle, H. E. Hill Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day Horse detacher, E. M. Shirley. Horse power, P. K. Dederick. 215,213. Horse power, P. C. McCune Insulating 'telegraph conductors, apparatus for, R. P. Manly Ironing machine, W. & J. Coutte Ironing machine, W. S. Kinsman Ironing table, C. F. W. Seidel Jeweler's indings, manufacture of, G. H. Fuller. Jewelry, manufacture of, J. W. & I. M. Miller. Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal Lamp chimneys, machine for flaring and crimping, P. Zimmermann (r). Latch, reversible, J. J. Dinnan Laundry Jack or bracket, F. Lyford Liquors, process and apparatus for fining fermented, A. E. & W. E. Feroe. Loom temple, P. P. Quackenboss. Mail bag fastener, T. M. Cunningham. Measure, liquid, L. Kosiol Measuring device, liquid, W. B. Sherman Mechanical movement, W. Lorey. Metal groover and swager, I. G. McMillan.	215,275 215,411 215,237 215,356 215,253 215,209 215,359 215,236 215,249 215,214 215,232 215,249 215,249 215,240 215,232 215,412 215,232 215,412 215,232 215,412 215,232 215,412 215,232 215,412 215,232 215,412 215,232 215,412 215,232 215,432 215,234 8,716 215,234 8,716 215,234 215,235 215,338 215,338 215,338 215,338 215,338 215,3371 215,330 215,377
	Hats, manufacture of felt, J. Thomas Hay rake, horse, A. Obenchain. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley Holdback, vehicle, H. E. Hill Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day Horse detacher, E. M. Shirley. Horse power, P. K. Dederick. 215,213, Horse power, P. C. McCune Insulating 'telegraph conductors, apparatus for, R. P. Manly Ironing machine, W. & J. Coutte Ironing machine, W. & J. Coutte Ironing machine, Thomas & Smith Ironing table, C. F. W. Seldel Jeweler's findings, manufacture of, G. H. Fuller Jeweler's findings, manufacture of, G. H. Fuller Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal Lamp chimneys, machine for flaring and crimping, P. Zimmermann (r) Latch keeper, door, F. W. Brocksieper Latch, reversible, J. J. Dinnan Laundry jack or bracket, F. Lyford Liquors, process and apparatus for fining fermented, A. E. & W. E. Feroe. Loom temple, P. P. Quackenboss. Mail bag fastener, T. M. Cunningham Meesure, liquid, L. Kosiol Measuring device, liquid, W. B. Sherman Mechanical movement, W. Lorey Metal groover and swager, I. G. McMillan Milk cooler, O. Leonard.	215,275 215,411 215,237 215,356 215,253 215,209 215,359 215,359 215,249 215,214 215,214 215,234 215,234 215,234 215,235 215,402 215,402 215,402 215,402 215,236 215,316 215,236 215,316 215,360 215,317 215,380 215,380 215,381 215,382 215,3832 215,3832 215,384 215,384 215,384 215,384 215,384 215,384 215,384 215,384 215,384 215,384 215,384 215,384 215,385 215,386 215,386 215,388
	Hats, manufacture of felt, J. Thomas. Hay rake, horse, A. Obenchain. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley. Holdback, vehicle, H. E. Hill. Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day. Horse detacher, E. M. Shirley. Horse power, P. K. Dederick. 215,213, Horse power, P. C. McCune. Insulating 'telegraph conductors, apparatus for, R. P. Manly. Ironing machine, W. & J. Coutte. Ironing machine, W. S. Kinsman. Ironing table, C. F. W. Seidel. Jeweler's findings, manufacture of, G. H. Fuller. Jewelry, manufacture of, J. W. & I. M. Miller. Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal. Lamp chimneys, machine for flaring and crimping, P. Zimmermann (r). Latch, reversible, J. J. Dinnan. Laundry jack or bracket, F. Lyford Liquors, process and apparatus for fining fermented, A. E. & W. E. Feroe. Loom temple, P. P. Quackenboss. Mail bag fastener, T. M. Cunningham. Measure, liquid, L. Kosiol. Measuring device, liquid, W. B. Sherman Mechanical movement, W. Lorey. Metal groover and swager, I. G. McMillan Milk cooler, J. White. Mower, lawn, A. Jusberg.	215,275 215,411 215,237 215,356 215,253 215,209 215,356 215,211 215,249 215,214 215,325 215,218 215,325 215,412 215,325 215,412 215,326 215,412 215,326 215,412 215,326 215,412 215,346 215,236 215,236 8,716 215,236 215,236 215,217 215,236 215,218 215,318
	Hats, manufacture of felt, J. Thomas Hay rake, horse, A. Obenchain. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley Holdback, vehicle, H. E. Hill Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day Horse detacher, E. M. Shirley. Horse power, P. K. Dederick. 215,213. Horse power, P. C. McCune Insulating 'telegraph conductors, apparatus for, R. P. Manly Ironing machine, W. & J. Coutte Ironing machine, W. S. Kinsman Ironing table, C. F. W. Seidel Jeweler's findings, manufacture of, G. H. Fuller. Jeweler's findings, manufacture of, G. H. Fuller. Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal Lamp chimneys, machine for flaring and crimping, P. Zimmermann (r). Latch keeper, door, F. W. Brocksieper Latch, reversible, J. J. Dinnan Laundry jack or bracket, F. Lyford Liquors, process and apparatus for fining fermented, A. E. & W. E. Feroe. Loom temple, P. P. Quackenboss. Mail bag fastener, T. M. Cunningham Measuring device, liquid, W. B. Sherman Mechanical movement, W. Lorey Metal groover and swager, I. G. McMillan Milk cooler, J. White Mower, lawn, A. Jusberg. Musical instrument, O. H. & C. A. Needham	215,275 215,411 215,237 215,356 215,253 215,209 215,359 215,359 215,249 215,214 215,234 215,214 215,232 215,412 215,402 215,235 215,412 215,402 215,236 215,236 215,236 215,236 215,236 215,236 215,236 215,236 215,236 215,236 215,236 215,331 215,377 215,300 215,378 215,376 215,419 215,376 215,378 215,376 215,378 215,376 215,378
	Hats, manufacture of felt, J. Thomas Hay rake, horse, A. Obenchain. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley Holdback, vehicle, H. E. Hill Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day Horse detacher, E. M. Shirley. Horse power, P. K. Dederick. 215,213, Horse power, P. C. McCune Insulating 'telegraph conductors, apparatus for, R. P. Manly Ironing machine, W. & J. Coutle Ironing machine, W. & J. Coutle Ironing machine, W. & J. Kinsman Ironing machine, Thomas & Smith Ironing table, C. F. W. Seldel Jeweler's findings, manufacture of, G. H. Fuller. Jewelry, manufacture of, J. W. & I. M. Miller. Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal Lamp chimneys, machine for flaring and crimping, P. Zimmermann (r). Latch keeper, door, F. W. Brocksieper Latch, reversible, J. J. Dinnan Laundry jack or bracket, F. Lyford Liquors, process and apparatus for fining fermented, A. E. & W. E. Feroe. Loom temple, P. P. Quackenboss Mail bag fastener, T. M. Cunningham Measure, liquid, L. Kosiol Measuring device, liquid, W. B. Sherman Mechanical movement, W. Lorey Metal groover and swager, I. G. McMillan Milk cooler, J. White Mower, lawn, A. Jusberg. Musical instrument, O. H. & C. A. Needham Necktte, L. Knapp.	215,275 215,411 215,237 215,356 215,253 215,209 215,359 215,236 215,211 215,249 215,214 215,214 215,214 215,214 215,214 215,214 215,216 215,216 215,217 215,228 215,412 215,216 215,216 215,218 215,216 215,216 215,217 215,226 215,217 215,236 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,317 215,316 215,317 215,317 215,317 215,3184 215,316 215,317 215,317 215,3184 215,317 215,3184 215,317 215,3184 215,317 215,3184
	Hats, manufacture of felt, J. Thomas Hay rake, horse, A. Obenchain. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley Holdback, vehicle, H. E. Hill Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day Horse detacher, E. M. Shirley. Horse power, P. K. Dederick. 215,213. Horse power, P. C. McCune Insulating 'telegraph conductors, apparatus for, R. P. Manly Ironing machine, W. & J. Coutte Ironing machine, W. S. Kinsman Ironing table, C. F. W. Seidel Jeweler's findings, manufacture of, G. H. Fuller. Jeweler's findings, manufacture of, G. H. Fuller. Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal Lamp chimneys, machine for flaring and crimping, P. Zimmermann (r). Latch keeper, door, F. W. Brocksieper Latch, reversible, J. J. Dinnan Laundry jack or bracket, F. Lyford Liquors, process and apparatus for fining fermented, A. E. & W. E. Feroe. Loom temple, P. P. Quackenboss. Mail bag fastener, T. M. Cunningham Meeasuring device, liquid, W. B. Sherman Mechanical movement, W. Lorey Metal groover and swager, I. G. McMillan Milk cooler, O. Leonard Milk cooler, J. White Mower, lawn, A. Jusberg. Musical instrument, O. H. & C. A. Needham Necktle, L. Knapp. Nut cracker, C. F. Ritchell. Nut lock, J. Leffler.	215,275 215,411 215,237 215,356 215,253 215,209 215,359 215,236 215,249 215,214 215,383 215,232 215,412 215,402 215,235 215,412 215,402 215,236 215,236 215,236 215,236 215,236 215,236 215,237 215,236 215,236 215,236 215,236 215,236 215,236 215,236 215,237 215,338 215,371 215,370 215,378 215,376 215,376 215,377 215,370 215,378 215,370
	Hats, manufacture of felt, J. Thomas Hay rake, horse, A. Obenchain. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley Holdback, vehicle, H. E. Hill Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day Horse detacher, E. M. Shirley. Horse power, P. K. Dederick. 215,213, Horse power, P. C. McCune Insulating telegraph conductors, apparatus for, R. P. Manly Ironing machine, W. & J. Coutle Ironing machine, W. & J. Coutle Ironing machine, W. & J. Koutle Ironing table, C. F. W. Seldel Jeweler's findings, manufacture of, G. H. Fuller. Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal Lamp chimneys, machine for flaring and crimping, P. Zimmermann (r). Latch keeper, door, F. W. Brocksieper. Latch, reversible, J. J. Dinnan Laundry jack or bracket, F. Lyford Liquors, process and apparatus for fining fermented, A. E. & W. E. Feroe. Loom temple, P. P. Quackenboss. Mail bag fastener, T. M. Cunningham Mecanical movement, W. Lorey. Metal groover and swager, I. G. McMillan Milk cooler, O. Leonard. Milk cooler, J. White Mower, lawn, A. Jusberg. Musical instrument, O. H. & C. A. Needham Necktle, L. Knapp. Nut cracker, C. F. Ritchell. Nut lock, J. Leffler. Ore roaster, revolving, W. O. Sleeper.	215,275 215,411 215,235 215,236 215,253 215,262 215,249 215,356 215,211 215,249 215,325 215,228 215,217 215,228 215,412 215,228 215,412 215,234 8,716 215,236 215,236 215,238 215,316 215,238 215,316 215,238 215,316 215,238 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,316 215,317 215,384 215,376 215,370 215,370 215,370 215,370 215,370 215,370 215,375 215,375 215,375 215,375 215,375 215,375 215,375 215,375 215,375 215,375 215,375 215,375 215,375 215,375 215,375 215,375
	Hats, manufacture of felt, J. Thomas Hay rake, horse, A. Obenchain. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley Holdback, vehicle, H. E. Hill Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day Horse detacher, E. M. Shirley. Horse power, P. K. Dederick. 125,213, Horse power, P. C. McCune Insulating telegraph conductors, apparatus for, R. P. Manly Ironing machine, W. & J. Coutte Ironing machine, W. & J. Coutte Ironing table, C. F. W. Seidel Jeweler's findings, manufacture of, G. H. Fuller. Jeweler's findings, manufacture of, G. H. Miller. Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal Lamp chinneys, machine for flaring and crimping, P. Zimmermann (r). Latch keeper, door, F. W. Brocksieper Latch, reversible, J. J. Dinnan. Laundry jack or bracket, F. Lyford Liquors, process and apparatus for fining fermented, A. E. & W. E. Feroe. Loom temple, P. P. Quackenboss. Mail bag fastener, T. M. Cunningham, Measure, liquid, L. Kosiol Measuring device, liquid, W. B. Sherman Mechanical movement, W. Lorey. Metal groover and swager, I. G. McMillan Milk cooler, O. Leonard. Milk cooler, O. Leonard. Milk cooler, J. White Mower, lawn, A. Jusberg. Musical instrument, O. H. & C. A. Needham Necktte L. Knapp. Nut cracker, C. F. Ritchell. Nut lock, J. Leffler. Ore roaster, revolving, W. O. Sleeper Ore roaster, P. Plant. 215,289,	215,275 215,411 215,237 215,356 215,253 215,209 215,359 215,359 215,249 215,214 215,214 215,214 215,215 215,228 215,412 215,228 215,412 215,236 215,236 215,236 215,237 215,236 215,316 215,236 215,316 215,331 215,371 215,371 215,384 215,376 215,384 215,377 215,384 215,377 215,384 215,377 215,384 215,377 215,384 215,377 215,384 215,377 215,384 215,377 215,384 215,377 215,384 215,377 215,384 215,377 215,384 215,377 215,384 215,377 215,384 215,377 215,384 215,377 215,384 215,375 215,384 215,375 215,384 215,375 215,384 215,375 215,384 215,375 215,384 215,375 215,384 215,375 215,384 215,375 215,384 215,375 215,396
	Hats, manufacture of felt, J. Thomas. Hay rake, horse, A. Obenchain. Heating stand, L. Hellman. Hinge, spring, J. Spruce. Hoisting and transferring heavy weights, machine for, B. Coakley. Holdback, vehicle, H. E. Hill. Honeycomb base, artificial, J. Y. Ditwiler. Horse detacher, F. M. Day. Horse detacher, E. M. Shirley. Horse power, P. K. Dederick. 215,213. Horse power, P. C. McCune. Insulating 'telegraph conductors, apparatus for, R. P. Manly. Ironing machine, W. & J. Coutte. Ironing machine, W. S. Kinsman. Ironing machine, W. S. Kinsman. Ironing table, C. F. W. Seidel. Jeweler's findings, manufacture of, G. H. Fuller. Jewelry, manufacture of, J. W. & I. M. Miller. Joint holder, R. Gregg. Kitchen utensil, P. E. Bird. Ladder and trestle, T. Mikeal. Lamp chimneys, machine for flaring and crimping, P. Zimmermann (r). Latch keeper, door, F. W. Brocksieper. Latch, reversible, J. J. Dinnan. Laundry jack or bracket, F. Lyford. Liquors, process and apparatus for fining fermented, A. E. & W. E. Feroe. Loom temple, P. P. Quackenboss. Mail bag fastener, T. M. Cunningham. Measure, liquid, L. Kosiol. Measuring device, liquid, W. B. Sherman. Mechanical movement, W. Lorey. Metal groover and swager, I. G. McMillan. Milk cooler, J. White. Mower, lawn, A. Jusberg. Musical instrument, O. H. & C. A. Needham. Necktle, L. Knapp. Mustcaker, C. F. Ritchell. Nut lock, J. Leffler. Ore roaster, revolving, W. O. Sleeper. Cre roaster, P. Plant. 215,289, Ores, apparatus for dry-separating precious met-	215,275 215,411 215,237 215,356 215,253 215,209 215,356 215,211 215,249 215,214 215,325 215,228 215,412 215,325 215,402 215,217 215,236 215,216 215,300 215,217 215,236 215,318 215,319 215,319 215,319 215,310
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Stove, G. R. Prowse
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Vehicle spring, W. A. Sweet 215,304 Ventilator, G. R. Moore 215,279 Vest, R. Vogel 215,416 Warper, R. H. Plummer 215,239 Watch chain bar, R. F. Simmons 215,232 Water elevator, steam. H. F. Colvin 215,324 Water wheel curb, W. R. Calkins 215,232 Well, bored and driven, Philow & Perkins 215,238 Wire and sheet metal cutter, F. C. Leypolet (r) 8,714 Yeast and producing specific fermentation, obtaining pure, J. C. Pennington 215,287 TRADE MARKS. Anti-febrile medicine, C. E. Brown 7,278 Canned meats, The St. Louis Beef Canning Co. 7,287 Chewing and smoking tobacco, cigars and cigarettes, Goodwin & Co. 7,291 Cigars, cigarettes, and smoking and chewing tobacco, Rerbs & Spiess 7,280 Cigars, cigarettes, and smoking tobacco, S. Ottenberg 7,281 Cigars, cigarettes, and smoking tobacco, Straiton & Storm 7,283 to 7,285 Clured fish, J. G. Schmidt 7,282 Drygoods, Eddystone Manufacturing Company 7,262
Vehicle spring, W. A. Sweet 215,304 Ventilator, G. R. Moore 215,279 Vest, R. Vogel 215,416 Warper, R. H. Plummer 215,239 Watch chain bar, R. F. Shimmons 215,239 Water elevator, steam, H. F. Colvin 215,324 Water wheel curb, W. R. Calkins 215,232 Well, bored and driven, Philow & Perkins 215,238 Wire and sheet metalcutter, F. C. Leypoldt (r) 8,714 Yeast and producing specific fermentation, obtaining pure, J. C. Pennington 215,287 TRADE MARKS. Anti-febrile medicine, C. E. Brown 7,278 Bread, crackers, and biscuit, C. T. Goodwin & Sons 7,282 Canned meats, The St. Louis Beef Canning Co 7,287 Chewing and smoking tobacco, cigars and cigarettes, Goodwin & Co 7,291 Cigars, cigarettes, and smoking and chewing tobacco, Kerbs & Spiess 7,280 Cigars, cigarettes, and smoking tobacco, Straiton & Storm 7,283 Clugh sirup, I. E. Wilber 7,283 Cough sirup, I. E. Wilber 7,282 Cured fish, J. G. Schmidt 7,282 Cured rangue and liver pads, Hamburg Ague Pad
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Ventilator, G. R. Moore

English Patents Issued to Americans.

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