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Saw Mill Machinery. Stearns Mfg. Co. See p. 221.

Supplee Steam Engine. See adv. p. 221.

The Berryman Feed Water Heater and Purifier and Feed Pump. I. B. Davis' Patent. See illus. adv., p. 237.

For Pat. Safety Elevators, Hoisting Engines. Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 237.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 238.

4 to 40 H. P. Steam Engines. See adv. p. 238.

Ball's Variable Cut-off Engine. See adv., page 252.

Fire Brick, Tile, and Clay Retorts, all shapes. Borgner & O'Brien, M'f'rs, 23d St., above Race, Phila., Pa.

Drop Forgings of Iron or Steel. See adv., page 252.

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Paragon School Desk Extension Slides. See adv. p 253.

Brass & Copper in sheets, wire & blanks. See ad. p. 253.

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Wm. Sellers & Co., Phila., have introduced a new injector, worked by a single motion of a lever.

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Improved Skinner Portable Engines. Erie, Pa.

Patent Key Seat Cutter. See page 252.

Notes & Queries

HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the writer.

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from $1 to $5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at this office. Price 10 cents each.

Correspondents sending samples of minerals, etc., for examination, should be careful to distinctly mark or label their specimens so as to avoid error in their identification.

(1) G. B. M. asks: What solution is used by manufacturers to fasten the caoutchouc on clothes wringers? A. See receipts for marine glue, page 2,510, SUPPLEMENT No. 158.

(2) C. D. R. writes: 1. I am interested in a water ditch for placer mining in the State of Oregon, and I have a question that I have failed to have answered satisfactorily as yet; but I am informed that you have a book that will give me the necessary information. If so, I want it. A. Beardmore's "Hydraulic Tables" will give information on these subjects. 2. I wish to run 150 to 200 inches of water, miner's measure (that is, water running through a 2 inch orifice with 6 inches from the center of the orifice to the level of the water, called a pressure of 6 inches), through a pipe from the side of one hill across a depression to another hill. The water leaves the pipe 20 feet lower than it enters, and has to move 3,200 feet in the pipe, and passes down hill 135 feet, and up hill 115 feet; thus there is 20 feet pressure. Now, what size pipe will it require to convey across this depression 150 inches of water: also, what sized pipe for 200 inches, and how heavy iron should it be made of? The friction is the thing that bothers. Will it make any difference to make the first half, or the half in which the water goes down hill, a little larger than the other half? A. A miner's inch is equal to the discharge of 1,562 cubic feet per minute under a head of 6 inches over the top of opening, 1 inch square; hence two miner's inches = 3·124 cubic feet per minute. According to calculation a 2½ inch diameter pipe, under the conditions given, will discharge 3·7 cubic feet per minute. Your pipe should be same diameter the whole length; and put together so as to have a smooth, even bore, otherwise the pipe should be larger. If the discharge opening is 2 inches square, it is *four* miner's inches, not two; in which case the pipe should be 3½ inches diameter.

COMMUNICATIONS RECEIVED.

On a Maple Sugar Bush. By H. H.
On Railroad Ties. By W. A.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending

April 4, 1882,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, will be furnished from this office for 25 cents. In ordering please state the number and date of the patent desired and remit to Munn & Co., 261 Broadway corner of Warren Street, New York city. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications not being printed, must be copied by hand.

Air and gas burner, combined, J. Lewis 255,875
Air compressor, W. Wang 255,901
Air machine, cold, H. F. Starbuck 255,895
Alkali, putting up caustic, B. T. Babbitt 256,095
Arm, artificial, D. W. Kolbe 255,796
Auger, earth, C. A. F. Peters 256,039
Bag fastener, C. W. Bradford 255,922
Baling band, hay and cotton, W. S. Gordon 255,968
Balloon, C. P. Fest 255,963
Ballot box, T. F. Dodge 255,951
Bar. See Boring bar.
Battery. See Thermo-electric battery.
Bed bottom, spring, T. Burdick 255,837
Bed, folding cot, C. J. Sundbeck 255,897
Beer cooler, L. J. Birgler 255,758
Bicycle, A. F. Curtin 255,775
Binder, temporary, Brower & Adams (r) 10,073
Board. See Game board.
Boiler. See Steam boiler.
Boiler furnace, G. R. Ricketts 256,051
Bolts, apparatus for brushing polygonal, F. Stansfield 256,066
Boneblack revivifying kilns, cooler for, F. Wetton 255,828
Bookbinding, A. J. Megee 256,022
Boot and shoe soles, taps, and heels, manufacture of, J. L. Thomson 256,077
Boots and shoes, metallic counter support for, V. B. Morton 256,030
Boots and shoes, spring heel for, M. B. Kerr 255,871
Boring bar, L. R. Faught 255,846
Bottle stopper, C. Sedgwick 255,821
Bottle wrapper, Mark & Martinek (r) 10,069
Bottles, cushion protector for, J. M. Thorpe 255,900
Box. See Ballot box. Locomotive fire box.
Box fastener W. M. Ducker 255,952
Boxes, combined label holder and handle for, Croak & Moran 255,841
Bracket. See Curtain bracket.
Brake. See Car brake. Elevator safety brake.
Brake shoe, E. Stebbins 256,067
Brick machine, P. H. A. & J. M. Kells 255,870
Brick machine, M. Wright 256,092
Bricks, mould for making tubular, A. Hahn 255,972
Bridge, draw, M. A. Zürcher 255,831
Brush, rotary, Albert & Dinkelbihler 255,906
Buckle, A. Cadwell 255,838
Buckle, trace, J. Thomas 256,075
Building ventilator, J. McDonough 256,021
Burglar alarm, car door, J. D. Hollister 255,988
Burner. See Air and gas burner. Paint burner. Lamp burner.
Butter case, J. K. Hamlin 255,974
Butter, etc., wrapper and package for, S. H. Smith 256,064
Button, E. H. Royce *et al* 256,056
Button, cuff, D. Lubin 256,015
Calipers, E. C. Smith 256,062
Can capping machine, J. C. Winters 256,090
Candlestick, miner's, Hume & Tate 255,995
Capsules, machine for cutting off, Wohnlich & Scholes 255,829
Car brake, J. F. Mallinckrodt 256,017, 256,018
Car brake, automatic, S. P. Tallman 256,074
Car brake, railway, E. P. Vinning (r) 10,077
Car coupling, Allen & Poynor 255,907
Car coupling, S. Bray 255,761
Car coupling, T. J. Hilliard 255,984
Car coupling, G. Hollister 255,987
Car, dumping, I. B. Robbins 255,888
Car heater, D. M. Kirkpatrick 256,006
Car spring, J. B. N. Berry 255,835
Carbureting air, process of and apparatus for, E. L. C. D'Ivernois 255,948
Carpet sweeper, R. Soper 255,823
Carriage, child's, A. Heim 255,855
Carriage jack, W. J. Scott 255,820
Cartridge, H. McGee 255,878
Cartridge primer, W. S. Smoot 255,822
Case. See Butter case. Pocket case. Seed case.
Caster, salt, J. J. Kittel 255,873
Chain, J. M. Dodge 255,950
Chain, drive, J. M. Dodge 255,949
Chain, drive, W. D. Ewart 255,959, 255,960
Chain, drive, E. L. Howe 255,994
Chain, drive, C. H. Low 256,014
Chair. See Opera chair. Reclining chair.
Cherry seeding machine, G. W. Knapp 255,874
Christmas tree, imitation, A. Wengenroth 255,902
Churn, W. C. Burrows 255,770
Cider press, J. Stevens 255,896
Cigar coloring and flavoring machine, Bowman & Throne 255,921
Cigar coloring and flavoring machine, L. Spindler 256,065
Clasp. See Glove and shoe clasp.
Clip. See Tramway clip.
Clutch, friction, A. M. English 255,957
Coffee, preparing tablets of, A. Von Hofmann 256,082
Coffee, process of and apparatus for roasting, Fleury & Barker 255,965
Coffin, W. A. Richey 255,815
Collar cap, horse, A. Waugh 256,085
Cooler. See Beer cooler.
Compound engine, J. B. Root 256,055
Corset, M. P. Bray 255,924
Cotton gin, R. M. Brooks 255,936
Cotton gin, W. L. Crowson 255,943
Cotton, etc., machine for hulling and ginning, W. L. Crowson 255,942
Coupling. See Car coupling. Thill coupling.
Cross section rod, S. B. Fisher 255,778
Crusher. See Ore crusher.
Crushing ores, etc., machinery for, F. J. & W. H. Hoyt 255,862
Cultivator, L. P. Hiatt 255,983
Cultivator, L. Luppen 255,877
Cultivator, G. Moore 256,029
Cultivator, C. W. Post 256,044
Cultivator spring, J. M. Long 256,012
Cultivator tooth, J. S. Rowell (r) 10,076
Curtain bracket, H. C. Clement 255,773
Dandy roll stand, adjustable, R. Hutton 255,867
Dental drill, C. M. Richmond 256,050
Dental plugger, E. Ebi 255,955
Die. See Threading die.
Dish, covered, E. A. Parker 256,036, 256,037
Disintegrating grain, etc., machine for, F. Taggart 256,072
Door, G. W. Howell 255,788
Door check, I. P. Poulson 256,045
Door check, W. E. Sparks 255,893
Dramatic effects, apparatus for producing illusory, J. W. Knell 256,007
Drier. See Fruit drier.
Drill. See Dental drill. Wheat drill.
Drill holding device, J. C. Titus 256,078
Drying and pulverizing offal, etc., apparatus for, J. F. Gubbins 255,852
Electric circuits, signaling on, D. H. & L. C. Rice. 255,814
Electric generator and motor, J. H. Bunnell 255,931
Electric light regulator, N. S. Keith 255,795
Electric machine, dynamo, F. Von Hefner-Alteneck 256,081
Electrical distribution, system of, E. Thomson 255,824
Elevated way, N. Newman 256,034
Elevator. See Pneumatic elevator. Water elevator.
Elevator bucket, Calkins & Woodhill 256,100
Elevator safety brake, automatic, C. S. Longstreet 256,013
Engine. See Compound engine. Steam and hot air engine. Steam engine.
Fanning mill, P. Poyneer 255,812
Fat from slaughter house scraps, etc., extraction of animal, A. J. Huet 255,863
Faucet, L. Bergen 255,914
Faucet, D. Morrison 255,881
Faucet for regulating the overflow from basins, F. A. Bishop 255,918
Faucet, beer, J. Mappes 256,020
Feed water heater, R. P. Valentine 256,080
Fence post, E. P. Phillips 255,810
Fencing strip, barbed metal, W. E. Brock 255,762, 255,763
Fertilizers, apparatus for desiccating animal matter for, B. Breer 255,925
Field roller, A. R. Moore 256,028
File, permanent letter, J. F. Adams (r) 10,078
Firearm, magazine, Spencer & Roper 255,894
Fire escape, J. Kellner 256,004
Floor cloth, manufacture of, C. F. Leake 255,798
Floor for rolling mills, glass houses, etc., W. Rogers 256,053
Flour, manufacturing, F. Taggart 256,073
Flour packer, Barnard & Leas 256,096
Flue cap for stove pipes, F. E. Heinig 256,783
Flue stopper, F. G. Arter 255,755
Fruit basket, C. E. Bartram 255,911
Fruit drier, J. M. Burghardt 255,768
Funnel, O. T. Petzold 256,040
Furnace. See Boiler furnace. Retort furnace. Smelting furnace.
Furnace front and door, T. Henderson 255,784
Gauge. See Pivot gauge.
Game board, W. B. Silver 255,892
Gas, process of and apparatus for manufacturing, J. W. Hodges 255,786
Gasalier, J. H. Seaman (r) 10,070, 10,071
Gate. See Sliding gate.
Gate, R. J. Colvin 255,940
Gear, platform, A. H. Beach 255,834
Generator. See Electric generator.
Glove or shoe clasp, F. J. Herrick 255,857
Gluing barrels, method of and apparatus for, G. H. Hopper 255,861
Governor, engine, R. P. Bolton 255,760
Governor, steam, J. J. Hahn 255,973
Grain binder, P. F. Hodges 255,985
Grain binder cord tyer, J. H. Dean 255,944
Grain, ores, etc., apparatus for pulverizing, F. Taggart 256,071
Grain separator, H. A. Barnard *et al* 256,097
Grain separator, Herberg & Claussen 255,982
Grappling iron, Michael & Masten 256,024
Grinding iron, J. J. & B. Clark 255,772
Grinding mill cooling mechanism, J. Fitzgerald 255,964
Gun, breech-loading bomb, E. Pierce 256,041
Handle for pocket knives and other implements, B. A. Fiske 255,847
Harness, C. F. Wiesenmeyer 256,087
Harrow, Burger & Simpson 255,934
Harrow, L. Luppen 255,876
Harrow and roller, combined, J. Harvey 255,978
Harvester, corn, G. W. Irwin 255,790
Hat flanging machine, Plumb & Marchant 256,042
Hat sweat and other corded edged fabrics, Hosmer & Lathrop 255,993
Hay knife, G. F. Weymouth (r) 10,072
Hay stacking apparatus, G. Richardson 255,887
Heater. See Feed water heater.
Heater, E. E. Gold 255,849
Heating apparatus, N. W. Williames 256,089
Heel plate, revolving, J. L. Thomson 256,076
Hinge, Pfauntz & Franck 255,809
Hinge, spring, C. B. Clark 255,938
Hoisting apparatus, safety device for, A. C. Ellithorpe 255,956
Holsting machine, A. Dobbie 255,844
Hoder. See Pen holder. Shoe holder.
Horses, check for, M. M. Nathanson 255,832
Horseshoe, H. Bland 255,919
Horseshoe fastening device, G. Bryden 255,765
Hydraulic press, C. Kimplen 255,872
Indicator. See Station indicator.
Ingot mould shield, J. Pedder 256,038
Injector, steam engine, S. Borland 255,920
Insecticide compound, W. B. Nettle 255,883
Insulator for electrical conductors, A. C. Lewis 255,800
Iron. See Grappling iron.
Jack. See Carriage jack.
Jewelry setting, H. B. Smith 256,063
Joint. See Railway joint.
Key for bolts, etc., B. W. De Courcy 255,843
Knife. See Hay knife.
Knitting machine, J. Denton 255,945
Knitting machine, H. J. Griswold 255,971
Knitting machine, W. D. Huse 255,996
Knitting machine needles, manufacture of, S. Peberdy 255,848
Knob attachment, O. M. Hidden 255,858
Label for animals, P. P. Johnston 255,793
Lacing for wearing apparel, bags, and other articles, J. Nathan 255,806
Lamp, W. T. Murphy 255,805
Lamp bowls, centering and attaching sockets to, A. G. Paul 255,807
Lamp burner, E. L. Bryant 255,929
Lamp, electric, N. S. Keith 255,794
Lamp, electric, C. D. Jenney 255,999
Lamp, electric, J. J. Wood 256,091
Lamp, hanging, E. C. Lawrence (r) 10,075
Lathe for turning irregular forms, E. Myers 256,082
Lead, apparatus for the manufacture of red, N. B. Gregg 255,970
Lever, interlocking, H. F. Cox 255,774
Lifting jack, J. O. Joyce 256,002
Lightning arrester, A. R. Prescott 256,046
Link bending machine, metal, Evans & Green 256,104
Links, manufacture of open, D. Hults 255,866
Load binder, S. S. Conklin 255,941
Lock. See Nut lock. Nut and bolt lock.
Locomotive fire box, Kearney & Hawley 255,869
Loom shedding mechanism, R. B. Goodyear 255,850
Loom shuttle, S. A. Dudley 255,958
Lounges, folding leg fixture for extension, J. Graeser 255,781
Lubricator, W. K. Rhodes 255,813
Malt drying apparatus, G. F. Burkhardt 255,769
Measuring beat supplied from steam, E. F. Osborne 255,884
Measuring machine, leather, W. A. Sawyer 256,058
Mill. See Fanning mill. Grinding mill. Roller mill.
Millstone, R. Moody 255,880
Mower and reaper knives, machine for sharpening, C. W. Henshaw 255,980
Mower, grass, E. Beckwith 255,913
Mowing and reaping machine, A. Rank 256,048
Mowing machine, W. F. Cochrane 255,939
Music scale and chord indicator, C. H. Hauschel 255,979
Musical instrument, mechanical, J. H. Chase 255,101
Needle bars, device for the compensation of wear in, R. H. St. John 256,063
Nut and bolt lock, B. Marks 255,802
Nut lock, S. M. Churchill 255,839
Nut lock, S. Gissinger 255,780
Nut lock, A. L. Lincoln 255,801
Opera chair, Johnson & Dé Souchet 255,868
Optometer, G. D. Edmondson 255,845
Ore crusher, A. N. Cameron 255,945
Ore separating machine, centrifugal, G. Glass 255,967
Oven, M. L. Hull 255,865
Overshoe fastening, J. L. Joyce 256,003

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