Gas for motive power, heating, W. N. Hill......
 180,478

 Gas meter, R. C. Phillips......
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Pat.Att'ys & Experts wanted everywhere, to Coll't Millions. Good pay. Add. Am. Pat. Coll'n Co., Phila., Pa. Agricultural Implements and Industrial Machineryfor Exportand Domestic Use. R.H. Allen & Co.. N.Y. John McDonald (formerly of Kingston, Jamaica) will please address Geo. B. Lundy, Balmoral, Ontario, Ca.

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Jethro Wood.—If any of our readers can send or refer us to any publication containing a portrait of Jethro Wood, the plow inventor, we should be obliged. Munn & Co.

For the cheapest and best Small Portable Engine manufactured, address Peter Walrath, Chittenango, N.Y Amateur Scroll Saws, the best.—Address, with stamp, Trump Bro's, Wilmington, Del.

Hand Fire Engines, Lift and Force Pumps for fire and all other purposes. Address Rumsey & Co., Seneca Falls, N. Y., U. S. A.

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Baxter's Adjustable Wrench for first class Mechanics, 62 cents each. Sent by mail on receipt of price. Greene, Tweed & Co., 18 Park Place, New York,

See Boult's Paneling, Moulding, and Dovetailing Machine at Centennial, B. 8-25. Send for pamphlet and sample of work. B. C. Mach'y Co., Battle Creek, Mich. M. Shaw, Manufacturer of Insulated Wire for galvanic and telegraph purposes, &c., 259 W.27th St., N.Y.

F. C. Beach & Co., makers of the Tom Thumb Telegraph and other electrical machines, have removed to 530 Water Street, New York.

Pat'd Graining Stencils—J. J. Callow, Clevel'd, O.

Lathe Dogs, Expanding Mandrels, Steel Clamps, &c., for Machinists. Manufactured by C. W. LeCount, So. Norwalk, Ct. Send for reduced Price List.

Dynamo-Electric Machines for electro-plating and other purposes. Send for illustrated circular. W. Hochhausen, 132 William St., New York.

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400 ne w & 2d hand Machines, a tlow prices, fully described in printed lists. Send stamp, stating just what you want. S.C. Forsaith & Co., Manchester, N. H.

Driving Belts made to order, to accomplish work required. Send full particulars for prices to C. W. Arny, 148 North Third St., Philadelphia, Pa.

Scientific American—The early Volumes for Sale—very cheap—either bound or in numbers. Address A. F. R., Box 773, New York City.

Hydrant Hose, Pipes, and Couplings. Send for prices to Bailey, Farrell & Co., Pittsburgh, Pa.

Machine-cut brass gear wheels, for models, &c.
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"Dead Stroke" Power Hammers—recently greatly improved, increasing cost over 10 per cent. Prices reduced over 20 per cent. Hull & Belden Co., Danbury, Ct.

Power & Foot Presses & all Fruit-can Tools. Ferracute Wks., Bridgeton, N.J. & C. 27, Mchy. Hall, Cent'l. Shingles and Heading Sawing Machine. See advertisement of Trevor & Co., Lockport, N. Y.

Steel Castings, from one lb. to five thousand lbs. Invaluable for strength and durability. Circulars free. Pittsburgh Steel Casting Co., Pittsburgh, Pa.

For best Presses, Dies, and Fruit Can Tools, Bliss & Williams, cor. of Plymouth and Jay, Brooklyn, N. Y. For Solid Wrought-iron Beams, etc., see advertisement. Address Union Iron Mills Pittsourgh, Pa., for littograph. &c.

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Diamond Tools—J. Dickinson, 64 Nassau St., N. Y. Temples and Oilcans. Draper, Hopedale, Mass.



W. C. W. will find directions for purifying his cistern water on p. 395, vol. 32.—R. C. C. will find a description of an incubator on p. 273, vol. 33.—E. F. Y. can waterproof his boots by following the directions on p. 154, vol. 26. Wire will do as well or better than string for the two cent telegraph.—G. P. A. will find a recipe for a durable epaint for iron on p. 379, vol. 31.—W. R. H. is informed that a steam derrick is commonly used for raising a sunken ship.—A, P. M. can clean light leather shoes by the process described on p.68, vol.34.—W. C. M., J. C. L., J. H. D., E. L., R. R., J. H. P. & Co., S. & E., and many others, who ask us to recommend books on industrial and scientific subjects, should address the booksellers who advertise in our columns, all of whom are trustworthy firms, for catalogues.

(1) F. McA. says: 1. I have produced colors from a certain bug, and I have also procured a color from the gum of the fir tree. How can I tell whether they are dyes or not? A. Treat

them with the various solvents, such as water, alcohol, acid liquids, alkaline solutions, etc., until you discover the proper solvent. Then experiment with the solution obtained on woolen and other goods with the various mordants. 2. How can I separate nitric acid from a mixture without altering the nature of the mixture? A. You fail to state with what the acid is associated. It is necessary to know this in order to answer your question.

(2) J. W. and others.—We do not think that feathers are generally injured by steam heating. We believe this method is considered one of the best ways of purifying feathers.

(3) A. S. asks: 1. Is a person liable to get the hydrophobia from having been bitten by a dog entirely free from it? A. No. 2. How soon does it make its appearance? A. Sometimes years elapse, but it is oftener developed in a few days or weeks. 3. What are its first symptoms? A. It is characterized, as its name implies, by a singular loathing for water, also by violent spasms of pain in the spinal column and brain.

(4) J. W. W. says: A friend contends that whisky, brandy, etc., increase in strength after they are three years old. I contend that they continue to decrease as long as there is any spirit remaining. Which is correct? A. As far as we have observed, the liquors, if kept in barrels, decrease constantly in the percentage of alcohol by evaporation and otherwise.

(5) J. E. F. asks: What can I mix with cotton seed oil, as a substitute for boiled oil in paints, and to make it act as a dryer? A. Litharge.

(6) A subscriber asks: Is it possible for an iceboat sailing in any direction to sail faster than the wind? A. Yes. On smooth ice, sailing at the proper angle, ice boats often move much faster than the wind. The wedge principle is involved. For example: a wedge two inches square at the head, six inches long, sloped on one side to point If such a wedge be introduced between two sufficiently strong bodies, one of which is fixed, the other movable against the sloping side of the wedge: if sufficient force is applied to the movable body, it will expelthe wedge, which latter must move six inches, during the same time that the impelling body moves two inches. The ice boat sail is the wedge, ice the fixed body, wind the force acting against the sloping side of the wedge.

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

J. M. N.-It is clay containing a large percentage of carbonate of lime.—E. W.—It is an trilobite. found in the older fossiliferous rocks. It was long supposed to be an insect fossil, but it was at length ascertained that it corresponded most nearly to the living genera of crustaceans, the perolis, lumulus, branchipus.—D. K. C.—The specimen appears to be brown coal.-H. & J.specimen of clay is of unusual purity, and gives a very clear porcelain.—G. H. S.-Nos. 1 and 3 are magnetic oxide of iron (lodestone). No. 2 is spiegeleisen, a carburet of iron with manganese. -R.C. J.-Your sample appears to be a scrap of spiegeleisen—a carburet of iron.—F. T. M.—The water contains a considerable quantity of carbonate of iron in solution, which, on exposure to air, is precipitated by the escape of the carbonic acid with which the water is charged. The sediment consists of hydrated sesquioxide and carbonate of iron, together with some carbonate of lime. The water will be improved by the addition of a little lime water—not too much.—R. Y. G.—It is an impure clay containing iron. It might beemployed for the purpose you mention. There is an alloy commonly known by then ameyou mention. -We have received a slate pencil box, not labeled, containing a number of pieces of granite, gneiss rock, and hornblende.

J. A. P. asks: In making fruit butter, etc. I am anxious to know if the dried fruit is wholly used, or is there a mixture of both dried and fresh? Is it ground, or reduced by boiling, etc.? -A. R. asks: Can any one inform me of the process of making lager beer?-P. McS. O'F. asks: What purpose does the two-fold division of the back and belly of a violin serve? Is the belly carved or scooped out to the propershape, or is the material steamed and then compressed to the required shape?—J. N. J. asks: How much does a wagon axle need to be set under, and why should not the under side be straight or level as it lays in the box? Does the concavity of the wheel make any difference as to the setting of the axle? Is not a straight wheel better and stronger than one that is concave?

COMMUNICATIONS RECEIVED.

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

On the Moon's Longitude. By J. H.
On Working Men's Education. By A. S.
On Weight on and in the Earth. By H. A. H.
Also inquiries and answers from the following:
G. F.-L. H.-H. T.-F. T. H.-E. C. W.-W. C.C. C.-C. F. S.-J. E. K.-F. E. H.-M. D. H.G. T. W.-J. F. C. G.-V. T. B.-G. W. P.

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 inquiries analogous to the following are sent: "Who sells friction match making machinery? Whose is the best railway ticket printing machine? Why do not makers of telegraph batteries advertise in the SCIENTIFIC AMERICAN? Who sells the best carriage varnish?" 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

Letters Patent of the United States were Granted in the Week Ending August 1, 1876,

AND EACH BEARING THAT DATE.
[Those marked (r) are reissued patents.]

A complete copy of any patent in the annexed list, including both the specifications and drawings, will be furnished from this office for one dollar. In ordering, please state the number and date of the patent desired, and remit to Munn &Co., 37 Park Row, New York city.

Air brake relief valve, C. Chadwick...... 180,460
 Air compressor, D. Wood
 180,44

 Alarm circuit closer, W. J. Phillips
 180,497

 Awning, A. Hessels
 180,580

 Bed and cushion, air, W. Boggett
 180,528

 Bed bottom, spring, W. R. Cunningham 180,555
 Bed bottom, spring, w. L. Commingment

 Bedstead, sofa, H. York
 130,694

 Bee hive, C. M. Jones
 180,596

 Belt, W. Roemer
 180,500

 Bending machine, Scott & Schultz
 180,436

 Bin, meal, J. Hunter.
 180,590

 Birdcage hook, J. Maxheimer
 180,432

 Boiler, feed water heater, etc., T. R. Butman.... 180,458
 Bolt-threading machine, A. Ward
 180,681

 Book and cover, S. L. Robinson
 180,642
 Boot counter stiffeners, forming, G. F. Moore . 180,492 Boot heel stiffeners, cutting, G. Boivin 180,580 Boot soles, channeling, J. Dargan 180,419 Bottle, caster, H. Waudby...... 180.508 Breastpin joint or tongue, C. E. Smith...... 180,437

 Bridge, draw, G. Moody
 1×0,491

 Broiler, F. O. Badger
 180,519

 Bung vent, A. J. Klein
 180,479

 Bustle, J. Jenkinson
 180,593

 Butter dishes, clasp for, T. Van Skelline
 180,506

 Car axle, R. W. Nelson
 180,494

 Car axle washer, W. H. Fitz Gerald
 180,586

 Car coupling, J. A. Patterson
 180,629

 Car windows, fender for, R. P. Proctor
 180,635

 Carbureters, regulating heat of, Randall et al.
 180,635
 Carding machine feeder, W. C. Bramwell...... 180,539 Carpet fabric, J. Allison 180,515 Carriage, child's, R. G. Britton 180,534 Carriage seat, Hubbell & Ruff. 180,427
Carriage slat iron, W. S. Ward 180,508

 Chair, chiid's, Lass & Glarner
 180,602

 Chair, nursery, J. Kopp (r)
 7,246

 Chair, reclining, R. & W. McCabe
 180,435

 Chair, tilting, F. Chichester
 180,545

 Churn, G. Ridler
 180,640

 Churn, A. Woodard.
 180,514

 Cigar box, S. Hood
 180,586

 Clock al 3rm, S. Johnson 180,599
 Clothes dryer, A. S. Whittemore
 180,686

 Clothes pin, G. A. Lambert
 180,430
 Coffee pots, tea kettle, etc., cover, K. Eberle... 180,469
 Crushing machine, F. Motte.
 180,620

 Cuff and collar box, E. Scheel.
 180,650
 Cultivator, Lynch & Wright (r).....

 Cultivator, W. P. Stalcup.
 180,438

 Curtain fixture, G. W. Cornell
 180,468

 Curtain fixture, C. H. Miller
 190,489

 Curtain stretcher, lace, J. Gilray
 180,572

 Damper regulator, G. Beane
 180,522

 Diffusion apparatus, C. Neames
 180,623
 Disintegrating molten scoriæ, A. D. Elbers. 180,470
Doll supporter, E. C. McCutchins. 180,613 Door, Carrera et al

 Drill bit, metal, G. B. Cubberley
 180,554

 Drills, expanding metal, P. Duffy
 180,561

 Earth-boring machine, A. W. Morgan
 180,493

 Elevator, hydraulic, J. Perkins...... 180,495

 End gate, H. Swintz.
 180,673

 Engine, rotary, W. F. Leopold.
 180,606

 Engine, rotary, W., Sr., & W. Sillman.
 180,662

 Engine, valve for steam, J. R. Maxwell...... 180,433 Evaporating apparatus, J. E. Weaver...... 180,441 Evaporator furnace, Towers et al...... 180,677 Faucet, L. Drevfus..... Faucets, replacing worn-out, T. W. Rees...... 180,639 Fertilizer distributer, D. C. Brown............ 180,586 Fire arm, breech-loading, F. W. Freund....... 180.567 Fire extinguisher, lint room, F. L. Ellis 180,565 Furnaces, feeding fuel to, A. Cockrell...... 180,550

 Game apparatus, C. Sonnenberg
 180,502

 Gas and air, mixing, L. B. Bellingrath
 180,527

 Gas, etc., lighting, Bell & Thorp
 180,526

Gas. lighting. Hufeland & Batchelder...... 180,58

Gas, lighting by electricity, A. T. Smith (r).... 7,249

-	Glass-blowing apparatus, W. Beck	. 180, 451
1	Glass-grinding machine, T. HipwellGlass mold, W. Beck	. 180,584
2	Glass bucket, pressed, W. Beck	
	Grate, G. B. Mershon	180,462
	Hammer, steam, F. B. Miles (r)	180,599
	Harness saddle, R. Spencer	180,676
	Harrow, W. C. Moore	180,498
	Harvester, bean, W. Bradford	180,455
	Hinge, lock, P. J. Dinn	180,420
	Hopper, feeding and discharging, H. J. Huttner. Horse collar, W. Hamley	180,591
1	Horseshoe, M. H. Wilcox	180,532
ı	Horseshoes, making, H. J. Batchelder	180,628
ı	Ice cream freezers, J. Dooling180,421, Ice creeper, T. Gunsalus	180,422
1	Implement combined, L. Beach	180,521
П	Inkstand, W. J. Schilling	7,247
ı	Jack, lifting, T. J. Corn	180,496
l	Knife, hominy, J. Outcalt	180,626
L	Lamp, A. Bechet	180,449
	Lamps, lighting, Hufeland & Batchelder Lamp wick, W. H. Lyon	180,587 180,482
ŀ	Lantern, signal, J. M. Shank Leather-cutting gage, J. Potter	180,633
Ľ	Leather-shaving tool, J. Smith	180,663
L	Lubricator, Smith & Collins	180,666
L	Mail bag catcher, E. W. Jones	180,595
	Meat, preserving, J. Parent	180,627 180,411
ŀ	Mill chopping, D. Gartman	180,454
Ľ	Mowing machine, Peck & Keeler	180,478
þ	Music leaf turner, E. B. Robinson Nut lock, Bushong & Fitzpatrick	180,499
ŀ	Ores, amalgamating, C. T. Secor	180,657
1	Paint, etc., package for, G. Sidey Paper bag fastening, H. S. Gillette	180,571
1	Paper bag machine, R. K. Hughes	180,415
1	Pianofortes, stringing and tuning, M. N. Gage	180,424 180,649
1	Planter, corn, A. J. Greenman	180,473 180,615
1	Planter, corn, J. D. Smith	180,695
1	Planter, seed, W. T. Easterday	180,624
1	Plow, Wiard & Hough	189,511
1	Plow, gang, M. S. & E. W. Curtiss Plow, potato, T. C. Baxter	180,464
1	Plow stock, Davis & Aycock	180,655
1	Press, baling, E. Fales	180,471
1	Printing press, plate, J. Milligan Pulleys, grooving metal, J. D. Alvord Pump, beer, P. Krumscheid	180,409
E	Pump bucket, chain, J. F. Daugherty Pump governor, J. S. Leas	180,465
1	Pump, steam, J. Mayher Pump, stocks, cyllnder for, P. Wineman	180,513
1	Railway, elevated, S. H. Shreve	180,540
lı	Railway gate, D. K. Madie. Railway switch, W. Buchanan Railway switch, C. H. White	180.539
1 8	Recording appara'us, A. A. Anderson Bad iron, L. M. Davis	180,516 180,55 7
8	Safe, marine, J. L. Gouley Sand and gravel separator, S. Friend	180,569
8	Sand, crushing and washing, J. R. Smith (r) Saw filer, gin, F. Charter	180,547
8	Saw, pile, D. Bean	180,523
8	Sawing machines, table for, F. J. Betts	180,412
82	Scissors sharpener, screwdriver, etc., G.D.Dean	180,466 180,622
8	Seeder, cultivator, etc., J. P. Long	180,428
8	eparator, middlings, J. Graham	180,582
8	sewing machine shuttle, J. Butcher	180,541
92	hears and scissors, G. H. Taylor	180,675 180,410
8	hirt, Z. S. Durfee	80,562
20 00 00	hirt, M. Kayser	80,607 80,672
S	hovel, snow, E. Campbell	80,549
92	ignal, fog, G. Sweanor	80,674 80,646
8	kirts; etc., tape for, T. C. Cassidy	80,545 80,535
8	now plow. E. Brown	80,688
8	ole edge burnishing, tool stock, G. A. Fullerton 1 park arrester, W. F. Grassler	80, 577
S	pinning ring, J. Booth	80,611