



alone in acid and not when with copper? A. The effect of amalgamation is merely to neutralize the impurities of commercial zinc...

(4) i. E. asks: Is the old ship log in use at present, or is there any new improvement for measuring a ship's speed? A. It is still used...

(40) A. E. D. says, in reply to C. S., who cannot get heat enough from a charcoal fire to do ordinary welding: Be sure that your bellows is in proportion to the work...

(41) W. H. P. says, in reply to A. P. McC.'s query as to ventilation of a schoolhouse: I would suggest the placing of a part of the heating surface in chambers, in the basement...

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

(48) R. P. G. says, in reply to J. S., who asks how to make a raw hide perfectly transparent: Take a green hide (a dried one will not do)...

(49) J. V. H. N. says, in reply to correspondents who are troubled with Canada thistles: The mode that I found most expeditious and effective is to wait until the thistles are in full bloom...

(50) J. C. W. says, in reply to H. B., who asks how to calculate at what rate of interest, compounded yearly, \$2,000 is of the present value of 120 monthly payments of \$40...

(51) To D. N. G., of N. J., and many other correspondents: We know of nothing but poison of some kind that will kill potato bugs...

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

A. C. R.—These are the green and blue carbonates of copper.—A. A.—The magnesium could not be extracted profitably from your rock.—J. F.—It is silicate of alumina (clay) colored by oxide of iron...

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 Age of the World. By E. O. L.
On Steam Pleasure Wagons. By D. G. P.
On Fish Tanks. By A. S.
On a Memorial of the Centennial. By R. P. D.
On a Cause of Fire. By J. S.
On Skylights. By A. B. H.
On the Bessemer Saloon. By A. K.
On Grain Testers. By E. L. W.
On Reading Rooms. By J. O. C.
On the Kentucky Meat Shower. By A. M. E.

Also inquiries and answers from the following: C. S. B.—W. M. F.—W. L. S.—S. B. L.—T. G. R.—D. K.—E. D. C.—W. J. D.—J. F. H.—C. J. McC.—T. C.—F. C.—U. & H.—C. R.—C. S.—N. S.—D. C.—J. P. H.—G. W. C.—L. Z. Jr.—E. L. R.

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.

INDEX OF INVENTIONS FOR WHICH Letters Patent of the United States were Granted in the Week Ending June 13, 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.

Alarm and extinguisher, fire, Nevins & Smith. 178,660
Alarm, portable burglar, N. W. Palmer. 178,553
Alarm recorder, electric fire, H. Ennis. 178,750
Annunciator, electrical, C. W. Holtzer. 178,641
Auger, earth, D. N. Root. 178,675
Baby tender, T. Shaw. 178,680
Baby walker, N. Nelson. 178,548
Bag holder, Brown & Colbert. 178,727
Bagholder, Shumaker & Moorhead. 178,682
Baggage seal, J. L. Harley. 178,766
Bale tie, B. K. Fowler. 178,754
Bale tie, A. A. Goldsmith. 178,762
Bale tie, B. Hempsted. 178,771
Bale tie, S. Palmatier. 178,665
Bed bottom spring, S. Holman. 178,776
Bed bottom spring, W. P. Rheas. 178,560
Bed bottom spring, S. H. Reeves. 178,671
Bedstead, book support, etc., A. M. Eastman. 178,747
Bee feeder, W. E. Hamilton. 178,765
Bee hive, Elliott & Lucas. 178,614
Belt, voltaic, A. M. Dye. 178,611
Blackboard rubber, H. H. Burlington. 178,594
Blind stop, J. L. Crawford. 178,739
Boller, circulating tubular, G. S. Faulkner. 178,517
Boller, steam washing, A. S. Herr. 178,525
Bonds, canceling machine for, J. L. Harley. 178,76-

Boots, etc., driving nails in, S. Harris. 178,768
Boots, etc., making, C. W. Collyer. 178,596
Bottle, smelling and perfume, H. Warner. 178,918
Bottle stopper fastening, E. Dreher. 178,745
Bottles, moiding, A. R. Weber. 178,819
Bracket, wall, C. W. Latham. 178,534
Broom machine, Walrath & Bronson (r). 7,175
Brush-making machine, J. M. Pickering. 178,556
Burial apparatus, L. H. Shular. 178,681
Burner, lamp, J. Curzon. 178,602
Burner, lamp, J. Engle, Jr. 178,615
Butter package, W. B. White. 178,693
Button, W. Orr. 178,552
Button fastening, R. W. Huston. 178,779
Button fastening, A. T. Perrine. 178,355
Calendar and adding machine, W. Broomhall. 178,506
Can, heating and cooling milk, M. Downey. 178,610
Can, refrigerating, J. G. Gimmy. 178,761
Can, sheet metal, A. A. Chevallier-Appert. 178,501
Can, sheet metal, J. F. Merrill. 178,544
Can, etc., valve for varnish, D. T. Crockett. 178,601
Car axle box, J. M. Brosius. 178,723
Car coupling, J. Davenport. 178,741
Car coupling, R. Loomis. 178,787
Car coupling, C. L. Storra. 178,811
Car coupling, S. Ustick. 178,817
Car coupling, W. L. John. 178,828
Car stock, J. R. McPherson. 178,738
Car, street, J. Stephenson (r). 7,176, 7,177
Cars, drawbar for railway, W. H. Kelley. 178,581
Carpet stretcher, E. W. Bullard. 178,593
Carriage bolts, making, J. B. Clark (r). 7,167
Cartridge, W. S. Smoot. 178,683
Cartridge case, S. W. Wood. 178,698
Cartridge shell, a machine for heading, S. W. Wood. 178,825
Chair, folding, G. McAleer. 178,791
Chair, folding, W. C. Ovenden. 178,663
Chairs, reclining, T. M. Brintnall. 178,591, 720, 721, 725
Chair, rocking, D. J. Powers. 178,557
Chandler, Carter & Browne. 178,738
Chandler, A. Lang. 178,738
Chill, C. A. Wilson. 178,832
Christmas tree bracket, A. Dailer. 178,631
Churn power, C. B. Patton. 178,792
Clamp, door, G. G. Shaw. 178,677
Clod crusher, P. T. B. Smith. 178,807
Cloth cutting machine, P. C. Gerard. 178,758
Clothes pins, making, J. W. Millet. 178,516
Cock, stop, S. P. Brower. 178,724
Coffee mill, T. Stowbridge (r). 7,174
Coffee, F. H. Hill. 178,526
Com. V. J. Fieschmann. 178,61
Cooker, feed, M. H. Beach. 178,596
Cooker, feed, Olmstead & Wilson. 178,706
Cooker, steam, N. Jewett. 178,781
Corn and cotton cutter, etc., I. F. Harrison. 178,769
Corn sheller, J. E. Lewis. 178,536
Corset, G. S. Bracher. 178,719
Corset, H. H. May. 178,789
Corsets, bicycle springs for, G. S. Bracher. 178,718
Cultivator, W. Wright. 178,826
Cultivator and seed planter, Spradley et al. 178,808
Cultivator beams, bending, S. F. Drake. 178,744
Curtain fixture, J. Collins. 178,512
Cushion, upholstering, M. Albert. 178,613
Dampier, A. H. Norris. 178,795
Dice caster, G. R. MacIntire. 178,587
Digging potatoes, etc., H. A. McLaughlin. 178,542
Door plate attachment, Young, Reed & Shafer. 178,699
Drying wearing apparel, J. Braun (r). 7,166
Duster, feather, J. L. Little (r). 7,171
Elbow machine, C. H. Amann. 178,703
Elevator, E. H. Johnson. 178,630
Elevator, G. W. Reid. 178,802
Elevator, hay, E. L. Church. 178,781
Elevator, hydraulic, H. E. Bathrick. 178,711
Elevator, screw, H. W. Lafferty. 178,647
Engine, rotary, B. Brauer. 178,581
Engine valve, direct acting, W. H. McFaul. 178,792
Engine valve gear, H. J. Behrens. 178,714
Express call, Hinkworth & Lamprey. 178,674
Farrier's buttress, Gordon & Sleeper. 178,627
Feather renovator, De Witt & Ilite. 178,742
Fence, A. E. Balleit. 178,583
Fence, metallic, Walker, Devoe & Young. 178,519
Fence, portable, C. Reitz. 178,811
Fence post, Clark. 178,736
Fence post, F. Sulter. 178,684
Fence wire, L. B. King, Jr. 178,645
Fence wire, barbed, W. G. Allen. 178,581
Fence wire, barbed, A. C. Decker. 178,605
Fertilizer and grain distributor, E. M. Williams. 178,574
Filter for cisterns, J. M. Grove. 178,630
Fire arm, breech-loading, H. Egner. 178,744
Fire arm, breech-loading, J. A. Heckenbach. 178,637
Fire arm cartridge ejector, S. W. Wood. 178,824
Fire place, reversible, A. M. Ferguson. 178,752
Fire shield, W. Murray. 178,659
Flag, design for, W. A. Duff (r). 7,178
Flue cap fastening, McMillen & Rydman. 178,794
Fog signal, E. E. Mann. 178,788
Fork, horse hay, E. T. Stoughton. 178,810
Fuel, decomposing water for, M. W. Hazelton. 178,635
Fulling machine, C. P. Cooldige. 178,599
Funnel and measure, F. H. Winston. 178,697
Furnace, tire-healing, Sudebaker & Hinds. 178,812
Furnace, water chill, Davis & Roberts. 178,513
Furnace straw feeder, F. X. Fischer. 178,518
Gas apparatus, portable, J. S. Thomas. 178,688
Gas cock and valve, C. A. Gerdenier. 178,759
Gas fitters' hooks, making, W. A. Butler. 178,729
Gas return, oil feeding, J. Barbour. 178,551
Gates, closing, J. B. Reed. 178,559
Glass, tempering, H. O'Neil. 178,797
Glassware, manufacture of, W. Beck. 178,504
Glove, W. F. Foster. 178,520
Grain binder, J. Garrard. 178,757
Grain binder, S. D. Locke. 178,746
Grain, raking and binding, A. S. Harding (r). 7,169
Grain tally, P. Winsor. 178,823
Grate bar, W. T. Bate. 178,710
Grubber, E. Howell. 178,527
Guns, recoil check for, A. G. Sinclair. 178,806
Haine, L. Carr. 178,782
Harrow, W. Taylor. 178,696
Harrow, Tracy and Platt. 178,566
Harvester, S. D. Locke. 178,715
Harvester tinger bar, C. W. & W. W. Marsh. 178,540
Harvester binder's stand, C. W. & W. W. Marsh. 178,541
Harvester raising device, C. W. Marsh et al. 178,539
Hat body, wire, A. Freshfield. 178,625
Hat-pressing machine, M. A. Cumling. 178,740
Hat sweat band, J. W. Valentine. 178,689
Heater, J. E. Gridley. 178,764
Heater, sad iron, R. Reid. 178,561
Heating apparatus, C. Ezard. 178,751
Heating apparatus, J. P. Gill. 178,760
Heel-polishing machine, R. F. Burns. 178,728
Hinge gate, Walker & Devoe. 178,568
Hog cholera, remedy for, W. J. Galt. 178,756
Hook, button, H. S. Hurlbut. 178,778
Horseshoe calk sharpener, Edmonds & Kenyon. 178,749
Horseshoe machine, C. D. Bean. 178,503
Hose pipe coupling, T. Loftus. 178,649
Hot air chamber, J. U. Swisshelm. 178,813
Ice cream freezer, E. G. Wheeler. 178,692
Iron, bath for treating, C. Ziegenhelm. 178,706
Jack, lifting, G. W. Hunter. 178,777
Jack ball and socket joint, W. B. Alden. 178,702
Jar lifter, J. McLain. 178,655
Klin, brick, E. W. Bingham. 178,715
Knapsack supporter, H. C. Merrill. 178,545
Knob for vessel lids, C. Goldthwait. 178,626
Lamp, C. C. Bliss. 178,588
Lamp, G. D. Burton. 178,508
Lamp, Hicks & Smith. 178,637
Lamp, C. F. A. Hinrichs. 178,774
Lamp chimney, L. D. Gunn. 178,521
Lamp, street, J. M. Bruce. 178,592
Lantern signal, H. H. Doty. 178,607
Last, J. R. Switzer. 178,685
Last standard or support, J. W. Hart. 178,633
Lath, rake tooth, S. Bisbee. 178,87
Lift, jernan's hydraulic, Renwick & Anderson. 178,562
Lifting machine, A. Flecht. 178,620
Lock and key, J. J. Portoguez. 178,669
Lock, combination drawer, C. F. Barth. 178,658
Mattress and furniture spring, J. Hegedus. 178,770
Measure, liquid, J. J. Roberts. 178,803
Measure, liquid, J. W. Wilkinson. 178,573
Meter, liquid, F. A. Fowler. 178,628
Meter, water, B. Fitts. 178,829
Mill, crushing, F. I. Smith. 178,564
Mill, grinding, L. B. McDonald. 178,658
Milestone dress, Welch & Hann. 178,820
Molding machine pressing bar, H. Bauer. 178,712
Motor, reversible water, O. J. Backus. 178,582
Motor, water. Crandell & Brower. 178,737
Mowing machine, E. Webber. 178,570
Music repository, J. C. Ward. 178,691
Nail plate feeder, W. Koplin. 178,646
Navigator's protractor, J. D. & S. Leach. 178,535
Nut lock, W. McLimens. 178,654
Ordinance projectile, J. G. Butler. 178,408
Ore scourer and amalgamator, W. H. Patton. 178,551
Organ, reed, W. N. Manning. 178,670
Organ reed board and plate, T. Melnhoff. 178,658
Packing for balanced piston valves, D. Dale. 178,604
Pan, baking, H. K. Ford. 178,622
Paper clamp, Klein & Phillips. 178,532
Paper collar, extension, E. G. Cohen. 178,511
Paper-cutting machine, A. Dougherty. 178,609
Paper vessel, A. Wucmsch. 178,827
Pea fountain, H. H. Perkins. 178,667
Pen holder, A. Cantrel. 178,629
Pen rack, W. E. Thomas. 178,814
Pen rack and inkstand, E. C. Hamilton. 178,632
Pendulum, compensating, F. Willman. 178,695
Pianoforte, J. Bithner. 178,717
Pianoforte, C. F. T. Stehway. 178,565
Pillow, imitation, A. Degenhart. 178,515
Pipe cutter, J. M. Everts. 178,817
Pistol, spring air, A. C. Carey. 178,509
Planter and cultivator, 1892, E. P. Noyes. 178,551
Planter, hand corn, J. Niskey. 178,520
Plow, feet, W. M. Towers. 178,815
Plows, sulky, W. Henry. 178,634
Plow, sulky, J. B. Kalsron. 178,558
Plumber's trap, Adco & Foley. 178,577
Pneumatic dispatch tube, E. S. Leavercraft. 178,784
Portraits, incasing pocket, J. R. Applegate. 178,708
Powders, distributing, S. L. Allen. 178,701
Press, hay, P. K. Dederick. 178,514
Printing press, registering, A. Dougherty. 178,698
Printing press, trimming, W. H. H. Clague. 178,597
Printing rolls, making, J. J. Janeway. 178,524
Pump, J. S. Adams. 178,701
Pump, bucket, chain, J. A. Churchill. 178,735
Pump, lift, C. Fox. 178,624
Pump, rotary, R. B. Reynolds. 178,672
Pumps, valve for steam, H. Epping. 178,616
Pumps, valve for steam, W. H. Laurie. 178,648
Railway drawhead, C. Kelley. 178,644
Railway gate, H. Grunhill. 178,628
Railway track, portable, M. de M. C. y Martinez. 178,652
Railway water tank, E. S. Duval. 178,516
Rain water-cut-off, L. E. & A. Cray. 178,738
Rake, horse hay, R. Hofteln. 178,773
Register, M. D. Williams. 178,575
Registering, needle board for, P. McAleer. 178,730
Roller, land, F. B. Hadley. 178,631
Roofink, metallic, L. J. Holeton. 178,630
Sadiron heater, R. Reid. 178,561
Sails, reefing, J. W. Sharret. 178,678
Sash balance, J. Waddell. 178,690
Sash fastener, G. A. Harris. 178,522
Sash fastener, S. McNinch. 178,543
Sash fastener, J. R. Payson. 178,676
Saw mandrel, J. T. Bazzes. 178,502
Sawmill, W. E. Hill. 178,638
Saw, scoll, W. D. Westman. 178,821
Saw table guide, Lewis & Barnes. 178,830
Scale beam, H. L. Grisell. 178,529
Scales, weigh, R. H. C. Rice. 178,678
Scraper, J. H. Holt. 178,640
Screw-cutting tap, S. W. Martin. 174,651
Seal, metallic, E. J. Brooks. 178,722
Separator, grain, R. L. Downton. 178,743
Separator, grain, D. E. Fisher. 178,821
Separator, grain, Hancock & Leaman (r). 7,168
Sewing machine threaders, E. S. Norcombe. 178,662-664
Sewing machine seam gage, E. Shaw. 178,679
Shingle-planing machine, J. Flint. 178,758
Ships, construction of, T. Allen. 178,708
Shirt bosom supporter, F. Korf. 178,833
Shovel, ore, A. Bardell. 178,728
Sifter, ash, N. J. Felix. 178,618
Sikn, illuminated, A. L. Brumfield. 178,590
Skate, C. Brewster. 178,590
Skate, C. G. C. Simpson. 178,568
Smoke jack, Deeds & Bridwell. 178,606
Soldering machine, I. Hayes. 178,634
Soldering machine, W. H. I. Howe. 178,642
Spaying instrument, J. L. Turner. 178,816
Stove pipe elbow machine, H. Fisher. 178,519
Stove pipe thimble, M. N. Cobb. 178,510
Stove water heater, J. E. Montell. 178,547
Stove water heater, J. A. Frey. 178,755
Straw cutter, L. Beckler. 178,713
Straw cutter, L. Scotland. 178,676
Stud and button, C. N. Brown. 171,726
Syringe, vaginal, J. T. Butrick. 178,596
Table, folding, G. Hess. 178,772
Table leaf support, Pleukharp & Shilling. 178,668
Tablet, writing, J. H. Hodder (r). 7,170
Tank regulator, H. C. Meyer. 178,626
Telegraph relays, Allan & Wallace. 178,578-579, 178,580
Thrashing rolls, cover for, W. R. Wilcox. 178,694
Ticket case, C. N. Ayres. 178,707
Tinning or coating metals, Morewood et al. 178,657
Tobacco packing case, L. M. Marburg. 178,588
Trace carrier, L. Carr. 178,781