

TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted October 20, 1891.

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Acid, producing hydrofluosilicic, T. W. Cappon... 461,695
Air brake for cars, Westinghouse & Bayley... 461,779
Alumina from bauxite, obtaining, Bradburn & Penlock... 461,416
Amber, etc., apparatus for forming articles of, H. Thurfelder... 461,722
Amber, etc., apparatus for moulding articles of, H. Thurfelder... 461,721
Animal trap, G. Potter... 461,710
Annunciator, L. F. Fouts... 461,748
Armature for electric motors or dynamos, R. Lundell... 461,795
Asbestos, demagnetizing, H. W. Johns... 461,579
Auger handle, F. M. Hay... 461,529
Auger or boring tool, T. Charlton... 461,686
Axes, manufacture of, S. H. Brown... 461,418
Axle bearing, S. S. Arnold... 461,728
Bales, band tie for cotton, J. M. Larkin... 461,590
Barber's chair, A. D. Fernald... 461,484
Bed, folding, M. Kelly... 461,481
Bed slat support, M. E. McMaster... 461,687
Bell ringing attachment, Slater & Barnes... 461,718
Bell sounding mechanism, automatic, E. W. Van-duzen... 461,458
Belt fastener, L. A. Potter... 461,531
Bicycle, Anthony & Everitt... 461,699
Bicycle, A. Winton... 461,696
Bit brace, O. Peck... 461,617
Blind stop, A. Rowley... 461,524
Bobbin, K. Smith... 461,697
Boiler, see Portable boiler.
Bolt, See Headed bolt.
Books, making spring backs for, A. Von Auw... 461,653
Boat and shoe cleaning device, C. Schmidt... 461,512
Bottles, etc., instrument for handling, A. Ruff... 461,805
Box, See Letter box.
Box lining, see Lining.
Brace, See Bit brace.
Brake, See Rail brake. Railway brake. Vehicle brake.
Brick kiln, H. H. Hillis... 461,479
Bridle bits, manufacture of, B. Furton... 461,514
Bromine, purifying, J. C. Kautz... 461,811
Brush, clothes, B. J. Dietz... 461,924
Brush, rotary, H. A. Webster... 461,555
Brush, tooth, G. A. Bowman... 461,661
Bunk car, Goodwin & Hunter... 461,732
Burner, See Gas burner.
Butter mottling and measuring machine, J. Woolridge... 461,559
Button, V. N. Savale... 461,644
Button feeding device, Taintor & Mather... 461,649
Car coupling, A. H. Blankman... 461,510
Car coupling, M. F. Ely... 461,703
Car coupling, S. J. Fernald... 461,712
Car coupling, W. R. Hunter... 461,546
Car coupling, G. A. Kennedy... 461,635
Car coupling, A. H. West... 461,527
Car door, Crumbaugh & Prater... 461,739
Car dumping, G. Gibbs... 461,607
Car fan, railway, E. P. Putnam... 461,712
Car propelling system, W. S. Johnson... 461,536
Car seat, H. Cochran... 461,544
Car, single rail railway, J. B. Mahana... 461,763
Cars, automatic pipe coupling for railway, J. Suydam... 461,778
Cars, cars, for electric, E. M. Bentley... 461,748
Cars, draught rigging for, W. H. Miner... 461,443
Cars, underframe for, S. Fox... 461,428
Carding machine screen, Shoefelt & Mayor... 461,595
Carpet rag looper, J. La Rock... 461,482
Carriage body, baby, E. Eder... 461,490
Carriage jack, J. W. Eder... 461,490
Cart, combined barrel and body, H. A. Adams... 461,590
Cart, road, R. D. Scott... 461,645
Cart, road, Whitfield & McCormick... 461,642
Case, See Tobacco case.
Cash register, W. H. Gilman... 461,673
Cash register, W. H. Gilman... 461,673
Cash register cash till, W. G. Latimer... 461,637
Caster, furniture, R. G. Jordan... 461,580
Centrifugal machine, R. Folsche... 461,671
Chair, See Barber's chair. Rocking chair.
Chalk line holder and plummet, R. C. Huxtable... 461,757
Chuck, G. W. Franks... 461,628
Chute, coal, F. G. Humphrey... 461,632
Cigar holder, E. Promis... 461,592
Clamp, See Fence clamp.
Cup, See Whiffletree cup.
Clock winder, electric, J. W. & C. F. Du Laney... 461,423
Clock winding mechanism, circuit closer for, J. W. Du Laney... 461,424
Clutch, G. W. Rowell... 461,713
Coal means for handling, J. Herrmann... 461,576
Coffee mill, C. Morgan... 461,784
Coffee roaster, A. D. Goodwin... 461,753
Coin corner, H. Beers... 461,730
Coins, machine for the assortment of, H. C. Hart... 461,704
Collar fastener, horse, A. E. Saxer... 461,715
Collar, horse, E. L. Brundage... 461,419
Comb, See Curry comb.
Concentrator, B. Yson... 461,692
Confetti, etc., machine, G. Geyer... 461,638
Corset, J. S. Crotty... 461,691
Cot, C. W. Trenholme... 461,691
Coupling, See Car coupling. Pipe coupling.
Coupling, L. S. Goldman... 461,751
Covers, counterbalance for hinged, W. McCabe... 461,485
Crib, F. C. W. Franks... 461,574
Crusher, See Stone crusher.
Crushing and grinding mill, J. F. Winchell... 461,789
Cultivator, W. J. Gohn... 461,674
Cultivator, Moore & Pope... 461,543
Cultivator, C. Sims... 461,536
Curry comb and cleaner, C. J. Carlson... 461,543
Curtain drier, E. Gilmore... 461,808
Cut-out, thermal, L. B. Favor... 461,570
Cutter, See Onion top cutter. Weed and grass cutter.
Cutter roll, J. West... 461,690
Dental purgess, hand piece for, E. Hay... 461,754
Derrick, R. Ashworth... 461,511
Derrick shed, R. Ashworth... 461,495
Door securer, A. A. Long... 461,735
Draught regulator and spark arrester, T. Lyman... 461,585
Drawing and designing apparatus, H. B. Williams... 461,625
Drawer pull, J. Preston... 461,711
Drawing frame, screw mill, R. Ackroyd... 461,660
Drawing, process and apparatus for pneumatic, N. A. Chaffield... 461,667
Dress supporter, C. F. Shan... 461,594
Drier, See Car turn drier. Rotary steam drier.
Drying, desiccating, and roasting apparatus, C. Salomon... 461,550
Dust collector, L. G. Radkey... 461,801
Dust pan, J. S. Cobb... 461,700
Edger, gang, C. B. Fisher... 461,747
Electric element, thermic, C. W. Iden... 461,437
Electric elevator, J. B. Byrne... 461,493
Electric machines, field magnet for dynamo, F. J. Sprague... 461,552
Electric meter, A. B. Herrick... 461,575
Electric switch, G. R. Lean... 461,761
Electric switch, automatic, S. Bergmann... 461,450
Electric wire connection, H. P. Ball... 461,562
Electric wire connector, G. R. Scrugham... 461,452
Electric wire coupler, J. H. Delany... 461,543
Electrical conduit, E. T. Greenfield... 461,677
Electrical connecting device, H. P. Ball... 461,563
Elevator, See Electric elevator.
Embroidering machine, E. R. Cornely... 461,737
Embroidery seam, E. R. Cornely... 461,738
Engine, See Traction engine.
Engraving machine, C. H. & C. H. Field, Jr... 461,745
Entrails, machine for cutting and cleaning, L. M. Hoeman... 461,804
Envelope, J. West... 461,724
Feeder cutter carrier attachment, E. W. Ross... 461,622
Feed water purifier, F. Chapsal... 461,566
Feeder, time stock, C. H. Terry... 461,457
Fence clamp, H. Loether... 461,762
Fence or other posts, surveyors', etc., ground anchorage for, H. O. Hall... 461,753
Fence post support, G. W. Porter... 461,709
Fender, See Vessel fender.
File cutting machine, E. Sweet... 461,729
File, document, A. Dom... 461,781
File, newspaper, C. H. Jaehning... 461,438
Filtering galleries, forming subterranean, C. Monjeau... 461,445
Fire escape, C. M. Fowler... 461,526
Fire escape, J. H. Kennedy... 461,682
Fire escape and hoist, combined, C. F. Ernst... 461,499
Fire extinguisher, H. H. Butler... 461,421
Fish bite alarm, E. Matzenauer... 461,588
Fluid meter, O. C. Pudan... 461,618
Frame, See Drawing frame. Slate frame. Truck frame.
Furnace, See Liquid fuel furnace.
Furnace, J. Mitchell... 461,444
Furnace mouth, C. W. McDaniel... 461,504
Garment sleeve or leg adjusting device, H. W. Henry... 461,434
Garment supporter, G. E. Adams... 461,782
Garment supporter, H. Finkelstein... 461,650
Garment supporter, L. A. Topp... 461,650
Gas burner, C. L. Holden... 461,455
Gas or gasoline vapor engine, P. C. Samsevain... 461,802
Generator, See Steam generator.
Glassware, pneumatic machine for forming, D. C. Ripley... 461,489
Glove, W. J. Fanshawe... 461,744
Gold collecting device, float, R. Elliott... 461,743
Grain binder, J. Keller... 461,794
Grinding machine, W. H. Brown... 461,963
Grinding machine attachment, T. Davis... 461,567
Grinding or polishing wheel stand, C. H. Norton... 461,679
Gun, breakdown, G. Henry... 461,679
Handle, See Auger handle. Saw handle.
Harvester, corn, A. Wickey... 461,539
Hay press, O. B. Pancost... 461,765
Hay rake, N. H. Miller... 461,621
Headed bolt or screw, C. D. Rogers... 461,448
Heel nailing machine, F. F. Raymond, 2d... 461,448
Holder, See Chalk line holder. Cigar holder. Horse tail holder. Label holder.
Hook, See Nail.
Horse power press, W. B. Willis... 461,463
Horse tail holder, A. Diebold... 461,496
Horseshoe, J. Bronnett... 461,733
Horseshoe machine, C. T. Starbuck... 461,598
Horseshoe machine, universal, A. B. Adams... 461,697
Hydrocarbon injector, automatic, C. D. Juvinal... 461,590
Incandescent heat regulating device for, H. A. Coffin... 461,534
Index, M. H. Watson... 461,787
Indicator, See Station indicator.
Ingot mould making machine, C. S. & J. H. Rahl... 461,487
Insulating composition of matter for, Farrar & Howe... 461,467
Insulating support for electric conductors, R. J. Hewitt... 461,631
Jack, See Carriage jack.
Jewelry, swivel joint for, B. A. Ballou... 461,564
Keyboard, transistor, A. Marcy... 461,616
Kiln, See Brick kiln.
Knitting machine, W. H. Pepper et al... 461,506
Label holder, J. H. Elson... 461,702
Ladder, sectional, F. C. Lovejoy... 461,521
Lamp chimney attachment, M. S. French... 461,749
Lamp, electric, C. Schaefer & Scheibner... 461,542
Lamp filament, incandescent, J. T. Marshall... 461,797
Lamp socket, incandescent double key, W. J. McCutcheon, Jr... 461,706
Lamp, spring cushioned or suspended arc, C. F. Brush... 461,420
Lawn sprinkler, T. C. Bonnet... 461,415
Lawn sprinkler, H. Yoe... 461,726
Letter box, G. L. Barney... 461,490
Letter box, house door, J. H. Gross... 461,475
Lighting system, arc, R. S. Dobbie... 461,589
Liquid fuel engine, G. Roe... 461,589
Lock, See Nut lock.
Lock, C. A. Berry... 461,780
Locomotive, J. B. Mahana... 461,483
Locomotive, street car, E. Dederick... 461,406
Loom harness, W. A. Grant... 461,752
Loom saddle, A. W. Frail... 461,405
Loom, long, Landmark... 461,638
Loom, long or beddle weight, J. M. Marco... 461,630
Loom stopping mechanism, swivel, W. J. Lutton... 461,584
Lubricant, A. Sommer... 461,513
Map or chart stand, adjustable, H. E. Hayes... 461,755
Mashing, process of, L. Mandl... 461,684
Mask, for spraying, E. M. Burgoyne... 461,723
Mechanical movement, A. R. Weisz... 461,723
Meter, See Electric meter. Fluid meter. Water meter.
Mill, See Coffee mill. Crushing and grinding mill.
Moulin, Beyer & Harper... 461,777
Music box damper, C. H. Jacot... 461,633
Nail, See Shoe nail.
Neckscarf, I. Noar... 461,766
Needle employed in the manufacture of felted fabrics, A. J. Bonit... 461,602
Nut lock, A. T. Apple... 461,605
Nut lock, M. B. Earnest... 461,605
Nuts in operations on track irons, machine for applying, Allen & Ross... 461,727
Nuts on bolts, appliance for locking, A. Gross... 461,678
Oil, process of and apparatus for refining cotton seed, W. H. Gilman... 461,673
Oiler, journal, Finrock & Veessenmeyer... 461,426
Onion top cutter, H. G. Brakenisck... 461,491
Opera glasses, coin-operated, H. M. Wilson... 461,558
Ore concentrator, F. M. Endlich... 461,425
Organ adjusting device, J. Mueller... 461,641
Packaging machine for automatically filling and weighing, Tuck & Merritt... 461,651
Pan, See Salt pan.
Paper bags, machine for making, J. West... 461,590
Paper bars, machine for the manufacture of, Bockmann & Karthaus... 461,732
Paper folding machine, P. D. Decker... 461,422
Paper, machine for the manufacture of lace, B. Karthol... 461,758
Paper tubing, machine for making, E. T. Greenfield... 461,676
Performing platform for animals, H. Reiche... 461,449
Photograph, album, E. Gundlach... 461,488
Piano pedal, J. W. Reed... 461,532
Pipe coupling, automatic, J. Suydam... 461,532
Pipe wrench, Gillespie & James... 461,750
Pipe wrench, F. S. Patton... 461,769
Pipe wrench, J. Ryan... 461,714
Planing machines, feed mechanism for wood, J. F. Welch... 461,557
Planter, Jay & Iddings... 461,614
Planter, check row corn, J. W. Parker... 461,707
Platform, See Performing platform.
Plow, Buckley, Jr., & Firestone... 461,627
Plow, hills, J. W. Firestone... 461,624
Plows, subsiding device for lister, A. Lindgren... 461,537
Pneumatic dispatch tube, D. Hunter... 461,612
Pneumatic tool, F. H. Marsh... 461,796
Portable boiler, C. L. Weeden... 461,788
Potato bug destroyer, W. Noble... 461,551
Press, See Carriage press. Horse power press. Printing device, chromatic, P. J. Bole... 461,782
Projectiles or shells and apparatus therefor, baiting or tempering, A. Anderson... 461,698
Propelling wheel, T. Dunlap... 461,669
Propelling wheel, J. W. Seeger... 461,547
Pulley and cap, detachable shaft, Kummig & Dowell... 461,501
Pump, R. Branham... 461,417
Rack, See Towel rack.
Radiator, hot air, W. B. Mumford... 461,484
Rail brake, safety, J. W. C. McCurdy... 461,486
Rail support, C. M. Dyer... 461,747
Railway brake, electric, A. I. Ambler... 461,770
Railway brakes, trussed bar for, S. Alley... 461,776
Railway, electric, F. Mansfield... 461,685
Railway, electric, S. H. Short... 461,690
Railway, elevated, J. B. Mahana... 461,704
Railway frog, M. E. Rollmann... 461,511
Railway rail chair, F. Pelton... 461,773
Railway rail fastening, L. Scofield, Sr... 461,717
Railway rails, chair plate for compound, P. Barton... 461,729
Railway switch, automatic, W. H. Davis... 461,495
Railway switch, street, W. H. Snyder... 461,785
Railway tie, J. W. Firestone... 461,571
Railway tie and rail fastening, metallic, E. L. Taylor... 461,775
Railways, conduit and conductor for electric, W. H. Knight... 461,549
Recorder, See Edison recorder.
Register, See Cash register.
Regulator, See Draught regulator.
Revolver stock, adjustable extension, W. L. & E. C. Keller... 461,480
Revolving table, book file and blank case, combined, O. H. Hubbard... 461,756
Roaster, See Coffee roaster.
Rocking chair, platform, A. B. Stevens... 461,648
Roundabout, M. Garland... 461,629
Ruling machine, paper, E. J. Piper... 461,642
Salt pan, A. T. Dora... 461,740
Sash balance, R. McMillen... 461,506
Sash cord fastener, J. F. Fisher... 461,747
Saw handle, J. M. & N. H. Long... 461,502
Sawmill feed, P. Stovall... 461,719
Saws, manufacturing, C. Prouty... 461,509
Sawing machine, H. C. Staver... 461,455
Screen, See Carding machine screen.
Screw jack, H. W. Fisher... 461,643
Screw threads, die for rolling, C. D. Rogers... 461,620
Seal, A. J. Phelps... 461,523
Seat, See Car seat.
Seeding machine, J. L. Harrell... 461,476
Seeding machine, W. J. Pirkle... 461,708
Sewing machine feller and hemmer, A. Laubscher... 461,581
Sewing machine gear, shield for, F. H. Dobeck... 461,497
Sewing machines, hand appliance for operating, J. L. Gardner... 461,803
Ship's ventilator, T. Utley... 461,694
Shoe nail, F. F. Raymond, 2d... 461,510
Shoes, toe protector for children's, V. N. Brown... 461,492
Signal disk control apparatus for the position of, T. Weisser... 461,657
Signal system, electric block, J. La Burt... 461,760
Signaling apparatus, C. T. Barrett... 461,518
Signaling system and apparatus, non-interfering successive, F. B. Wood... 461,464
Slate dressing machine, J. H. Rudolph... 461,442
Slate frame, school, E. L. Kraus... 461,442
Slider and grater, combined vegetable, Weisban & Jaster... 461,656
Snap hook, C. H. Smith... 461,646
Snap cutter, H. P. Ball... 461,560
Snap switch, G. L. Geiger... 461,672
Spoke, M. Hauptmann... 461,477
Spinning machine, T. Downward... 461,628
Spinning spindle support, G. Bernhardt... 461,591
Spinning spindle support, J. R. Gray... 461,432
Spool holder, W. H. Denney... 461,701
Spool or bobbin, H. L. Moulton... 461,686
Spoon, M. L. Schoch... 461,623
Sprinkler, See Lawn sprinkler.
Sprinkler head, automatic, F. G. Jahn... 461,634
Stamp selling and change returning machine, S. B. Whiteside... 461,461
Staple machine, J. D. Warden... 461,854
Staple indicator, M. Packholder... 461,507
Steam drier, rotor, F. C. Hersey... 461,577
Steam generator, J. A. Eno... 461,498
Steam generator, S. D. Stauffer... 461,454
Steel, testing the condition of, J. Pedder... 461,618
Steel wheels, manufacture of annealed, W. G. Stitches... 461,593
Stitches, forming chain, H. Braces... 461,738
Stone crusher, G. Lowry... 461,583
Stove, reservoir cooking, J. White... 461,588
Street sweeper, G. M. Warfel... 461,556
Sulphur apparatus for mining, H. Frisch... 461,430
Sulphur, mining, H. Frisch... 461,429
Supporter, See Dress supporter. Garment supporter.
Switch, I. S. Bunker... 461,541
Switch, See Electric switch. Snap switch.
Table, See Revolving table.
Table, iron powders, machine for compressing, P. M. Hauptmann... 461,683
Tack draw and set, combined, J. Scott... 461,688
Tapping device, H. B. Pullman... 461,800
Tautograph, E. Gray... 461,470, 461,473, 461,474
Telaugraphie communication, art of and apparatus for, E. Gray... 461,472
Teleraphy, E. Gray... 461,471
Telephone system, C. C. Gould... 461,573
Tie, See Railway tie.
Tile moulds, core for drain, W. D. Sherman... 461,453
Time recorder, workman's, G. W. Heene... 461,478
Tobacco case, pocket, Hubbard & Porter... 461,578
Tonic, Schmidt & Ledet... 461,542
Tonic remedy, Schmidt & Ledet... 461,716
Towel rack, J. A. Murray... 461,446
Track cleaner, car, J. E. Chambers... 461,735
Traction engine, walking, E. M. Knollin... 461,441
Transformer, adjustable, E. Thomson... 461,526
Transportation, method of and means for, W. S. Johnson... 461,535
Trap, See Animal trap.
Trolley switch, C. E. Hudson... 461,611
Trolley wire support, L. S. Pfouts... 461,785
Truck, W. J. Hunt... 461,680
Truck, car, C. W. Hunt... 461,680
Truck, car, H. B. Williams... 461,658
Truck, car motor, G. M. Brill... 461,692
Truck frame, car, D. L. Barnes... 461,413
Truck, hand, B. H. Haskins... 461,453
Truck, locomotive tender, E. W. Mackenzie-Hughes... 461,522
Tube, See Pneumatic dispatch tube.
Turret, gunboat, W. H. Avey... 461,517
Typewriting machine, A. W. Steger... 461,553
Type, Dullman's German medicine Co... 461,742
Valve, J. King... 461,440
Valve, automatic, A. F. Nagle... 461,447
Valve, automatic stop, Forslund & Wells, Jr... 461,427
Valve controller electrical, J. V. Stout... 461,594
Valve controllers, shunt magnet for, V. Stout... 461,555
Valve gear for pumping engines, Mistic & Schweizer... 461,640
Valve motion model, link, Miller & Hill... 461,772
Valve operating mechanism for tanks, J. King... 461,459
Vegetable cutter and slicer, M. Blumer... 461,732
Vehicle running gear, J. J. Black... 461,626
Vehicle seat, adjustable, F. Sanford... 461,525
Vehicle spring, T. O'Connor... 461,767
Veloepede, W. E. Roberts... 461,588
Vending apparatus, C. P. Herold... 461,610
Vessel dumping device, S. Geyer... 461,606
Vessel fender, J. T. C. Koch... 461,759
Warp threads, machine for drawing in, R. H. Ingersoll... 461,613
Washing machine, H. Church... 461,736
Washing machine, J. McDonald... 461,738
Watch bow fastener, F. Mink... 461,798
Water and like closet and article, A. G. Chabourne... 461,734
Water, construction of apparatus for softening and purifying, R. S. Brownlow... 461,684
Water meter, P. H. Mansfield... 461,533
Water wheel, J. W. & F. M. Bookwalter... 461,565
Weed and grass cutter, W. Walker... 461,459
Wheel, See Propelling wheel. Water wheel. Whiffletree, N. N. Van Pelt... 461,652
Whiffletree clip and hook, R. L. Kirby... 461,615
Wire fabrics, apparatus for weaving, colored, White & Lloyd... 461,685
Wire hanger, overhead, C. A. Lieb... 461,582
Wire stretcher, W. J. & E. M. Garrett... 461,545
Wrench, See Pipe wrench.
Wrench, Burr & Hankins... 461,403
Yeast, making, Von Sigmond & Genge... 461,774

Advertisements.

Inside Page, each insertion - - - 75 cents a line
Back Page, each insertion - - - \$1.00 a line
The above are charges per agate line - about eight words per line. This notice shows the width of the line, and is set in agate type. Engravings may head advertisements at the same rate per agate line, by measurement, as the letter press. Advertisements must be received at Publication Office as early as Thursday morning to appear in the following week's issue.

USE ADAMANT WALL PLASTER

It is Hard, Dense, and Adhesive. Does not crack or peel. It is used in all cases in which water and disease germs. It dries in a few hours. It can be applied in any kind of weather. It is generally used. Licenses granted for the making, using, and selling.

Advertisement for a lathe, showing an illustration of the machine and text: 'Star' Foot Lathe, \$85, Seneca Falls Mfg. Co. 695 Water St., Seneca Falls, N.Y.

PROPOSALS.

Removal of Wreck on Townsend Inlet Bar, New Jersey - U. S. ENGINEER OFFICE, 1428 Arch Street, Philadelphia, Pa. October 22, 1891. Sealed proposals in duplicate will be received at this office until 11 A. M. Monday, November 24, 1891, and then opened for the removal of the wreck of the steamship Naphar, lying on Townsend Inlet Bar, N. J. The attention of bidders is invited to the Acts of Congress approved February 20, 1885, and February 23, 1887, vol. 23, page 332, and vol. 24, page 411, Statutes at Large. For all information, apply to E. W. RAYMOND, Major, Corps of Engineers, U. S. Army.

Advertisement for tools, showing an illustration of a tool box and text: 'CATALOGUES FREE TO ANY ADDRESS', 'TOOLS OF ALL KINDS', 'GODDARD NIGHTMAN BOSTON'.

SPECIAL NOTICE!

Two handsome photo-engraved display sheets entitled 'Recent Improvements in Air Compressors,' 'Recent Improvements in Rock Drills,' mailed free to any one who will cut out this advertisement and mail it to us with his name and address. INGERSOLL-SERGEANT DRILL CO. No. 10 Park Place, New York, U. S. A.

ASTRONOMICAL OBSERVATORIES, and what is done therein. By F. W. Levander, F.R.A.S. A minute description of an astronomical observatory and of the instruments and appliances to be found therein. Contained in SCIENTIFIC AMERICAN SUPPLEMENTS, No. 817 and 818. Price 10 cents each. To be had at this office and from all newsdealers.

Advertisement for rock drills and air compressors, showing an illustration of a rock drill and text: 'ROCK DRILLS', 'AIR COMPRESSORS & GENERAL MACHINERY FOR MINING, TUNNELING, QUARRY & RAILROAD WORK', 'RAND DRILL CO 23 PARK PLACE NEW YORK'.

Advertisement for cheap printing, showing an illustration of a printing press and text: 'Cheap Printing', 'Do it yourself. Circular press 8s. Size for small newspapers, per \$44. Every rule. Send two stamps for Catalogue to factory. KELSEY & CO., Meriden, Conn.'

MEMORY. BY J. O. HIRSCHFELDER. An interesting revelation of the qualities of the memory and analysis of its operations. Contained in SCIENTIFIC AMERICAN SUPPLEMENT No. 806. Price 10 cents. To be had at this office and from all newsdealers.

LEARN WATCHMAKING of W. F. A. Woodcock, Winoona, Minn. Write for terms

The Scientific American PUBLICATIONS FOR 1891.

The prices of the different publications in the United States, Canada, and Mexico are as follows:

Table with columns for publication titles and rates. Includes 'The Scientific American (weekly), one year - \$3.00', 'The Scientific American Supplement (weekly), one year - 5.00', 'The Scientific American, Spanish Edition (monthly), one year - 3.00', 'The Scientific American Architects and Builders Edition (monthly), one year - 2.50', 'The Scientific American and Supplement - \$7.00', 'The Scientific American and Architects and Builders Edition - 5.00', 'The Scientific American, Supplement, and Architects and Builders Edition - 9.00'. Also includes 'Proportionate Rates for Six Months' and 'This includes postage, which we pay. Remit by postal or express money order, or draft to order of MUNN & CO., 361 Broadway, New York'.

Advertisement for Moss Engraving Co., showing an illustration of a sign and text: 'Moss Engraving Co.', '315 PEARL ST. NEW YORK', 'Catalogue', 'OUR PROCESSES: FINE PRESS WORK, PHOTO ENGRAVING, ZINC ETCHING', 'Our new General Circular "S. A." showing specimens of our work is now ready. Send stamp and particulars for "S. A."s'.