strong enough to float an egg. Used to preserve eggs, which it is said it will do for two years, by simply keeping them in it. But we have not tested the process.

(3345) A. W. writes: I want to make a frame with a strong cloth fastened around it, about 3 feet by 4 feet, so I can use it to sketch on with chalk, colored or black, and afterward wash it off clean with a sponge. Glass ground is liable to break, and a board that wide cannot be had here, and would be heavy. I have been using common cheap muslin, and getting it washed after, and using it over again. Cannot cloth (muslin) be prepared in some way as to be used for the above purpose like a blackboard, but white? A. You can prepare cloth like a blackboard by several coats of paint, rubbing down between times with ground pumice. As a final coat use white lead mixed with enough ground pumice to give a "tooth" to the cloth. Or you may use shellac varnish mixed with Chinese white and ground pumice as the final coat.

(3346) J. E. E.—Gutta percha is made to adhere and act as cement by means of heat. One of the most convenient ways of using it is to place a thin sheet of the percha between the surfaces to be joined, and then apply heat by means of a hot pressing iron, applied on the back of the leather until the heat strikes through and melts the percha. This is the mode used by tailors in cementing leather and cloth to cloth. Thin sheet percha is on the market for this purpose. Another method is to dissolve the gutta percha in bisulphide of carbon. Apply the solution to the surfaces to be joined. Let dry. Then place the coated surfaces together and apply heat as before described until the gutta percha is melted and the part thereby cemented together.

(3347) L. H. W. asks: What can I get to wash over stone that is perishing, crumbling away, rubs off like sand? It is Ohio sandstone. Also what kind of cement can I get that will fasten on corners and slivers knocked off, so that they will stay and not attract attention? A. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 526, for illustrated account of the preserving process for the obelisk and discussion on preservation of stone, brick, etc.

Cement for sandstone:

Dry clean fine sand	20 parts.
Litharge	2 "
Pulverized lime	1 "

Mix with boiled linseed oil to a thick paste.

Plaster of Paris colored with any dry paints to a suitable color then quickly wet to a paste and applied makes a good cement where not exposed to the weather.

(3348) I. A. L. says: I see in the SCIENTIFIC AMERICAN, No. 8, August 22, that "oak timber loses about one-fifth of its weight in seasoning and about one-third its weight in becoming dry." Are drying and seasoning different things? Please explain. A. Lumber, when only seasoned or air-dried, is not free from moisture. There is a further loss of moisture and weight by thoroughly drying by heat.

(3349) J. S. L. says: I am running a light locomotive. Can I divide the lead of the valve while it is being run very slowly in this manner: Have the lead openings marked on the valve stem, then take a divider and mark the center of the distance between the two marks? Would the valve be made to cut off true if the eccentric rod was lengthened or shortened as the case may require, so that the valve will travel as far beyond the center mark one way as the other? A. Your method of finding an error in length of connecting rod is correct.

(3350) J. O. says: Will you let me know whether you can drive a pipe two inches in diameter for a well twenty feet deep with a sledge, and if you strike a stone, will you please let me know what to do? A. Yes, you can drive 20 feet with a sledge with a hickory block on the drive cap. Well pipes should be driven with a wooden maul or drop; hickory or locust is best. If stopped by a stone, pull up and start a little way off. A steel cap is good to strike on. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 107, on methods of driving well pipes.

(3351) G. J. L. asks: 1. How can I remove the size from one corner of a piece of paper without discoloration of the same? A. Wet the size with a soft sponge, and after it becomes thoroughly dissolved apply a piece of blotting paper to absorb it. Repeat the operation if necessary. 2. I have built an electric motor according to SUPPLEMENT, Nos. 161 and 599, but it does not work, and I am going to build a new armature. What size wire should I wind the armature with to make a motor to run a sewing machine? A. The motor, as described, should run a sewing machine with a current from four cells of a large plunging battery.

(3352) J. G. asks: 1. What should the dimensions of a boiler for a small engine (nearly 1 horse power) be for running the 8 light dynamo with incandescent lamps? Will No. 16 or 18 galvanized iron answer for this boiler? Should the dynamo be connected up in shunt or series? A. Your boiler should have 20 square feet of heating surface. For small boiler construction for amateurs see SCIENTIFIC AMERICAN SUPPLEMENT, No. 702, with illustrations and dimensions. Galvanized iron is not suitable for steam boilers. Not less than three-sixteenths iron should be used for a 1½ horse power boiler shell. Connect the dynamos in series, as shown in SCIENTIFIC AMERICAN SUPPLEMENT, No. 600.

(3353) E. K. H. asks how to mend meerschaum, or how it can be glued. A. Caseine cement is recommended for this purpose. Boil fresh chcese in water until it is ropy. Dissolve it in water glass or solution of silicate of sodium, stir into it calcined magnesia and use at once. Use equal weights of cheese and water glass solution, and as much magnesia as will mix with it.

(3354) W. S. writes: I have been copper plating the ends of carbon plates for bichromate battery and have washed them well with clean water, but after a short time sulphate of copper has formed on them and broken the soldered connections. What is the cause and prevention of this? A. To prevent the battery solution from acting upon the copper film deposited on the carbon, you will need to paraffine the end of the carbon, that is to say, you should heat the carbon and rub on paraffine until the extreme end of the carbon is saturated. You can electroplate on this and solder your connections to the electroplated surface.

(3355) F. E. C. asks with what to coat stoneware jars where glazing is defective, to render them airtight for preserving purposes. A. Heat the jars to a temperature of boiling water, or a little hotter if possible, and rub paraffin all over the unglazed spots until they have absorbed as much as possible. It is tasteless and harmless, and may be put on inside and outside of the jars to make sure of the jars being airtight.

(3356) R. C. B. asks how to make the best kind of a battery for an electric bell. A. There is nothing better for an open circuit electric bell than the Leclanche battery. You will find this described in SUPPLEMENT, No. 159, also in "Experimental Science."

(3357) W. E. F. asks how to clean and brighten small brass work to be lacquered. Have tried different mixtures of acids, but do not get good results. The acid will either not clean or the work will tarnish (turn black) immediately on taking from the running water. A. The brass must be thoroughly cleaned from grease or dirt before dipping, by boiling in strong caustic soda water; wash in hot water, then dip. We do not know of a better mixture than equal parts of nitric and sulphuric acids, with half a part of muriatic. Dip but a few seconds and immediately plunge the brass in boiling hot water and dry quickly. Cold water will not clear the acid from the porous metal We recommend to you Butt's "Tinman's Manual," $1.25 mailed, which has a variety of receipts for dipping metals.

(3358) T. J. asks for recipes for some cheap wash that will protect a wall plastered with common mortar against the effect of rain and consequently from frost. How will skim milk with lime or cement do? How about the solutions of oxide of zinc and chloride of zinc? Would a wash with Portland cement be sufficient? A. Whitewash used on United States public works: ½ bushel best lime slaked with boiling water, 1 peck salt dissolved in warm water, 3 pounds ground rice boiled to a thin paste, ½ pound ground whiting, and 1 pound clear glue dissolved in warm water. Mix all together, add hot water for proper use, and let stand for several days. Then heat and apply with large brushes. Chloride and oxide of zinc are good but expensive. Portland cement makes a fair brown wash. Skim milk may be used with cement and zinc oxides.

(3359) W. J. U. says: I contemplate building, for a shallow crooked river, a steamboat 65 feet long by 16 feet beam, maximum draught when loaded 2 feet (current 2½ miles per hour); have been advised to put in a single engine to operate four 2 feet propeller wheels by bevel friction, each wheel to be reversed or stopped with engine always going one way. Do you think this will be as good a plan as the ordinary double engine and stern wheel of the river boats? If so, what power should be used to make a speed of 12 miles per hour? A. We do not advise the four small screws for your boat. They are difficult to connect properly, and bevel friction is not suitable or reliable for operating propeller screws, and gearing is too noisy. You will need at least 35 horse power. We recommend a stern wheel with two engines. See SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 398, 217, for illustrations of stern wheel steamers.

(3360) J. H. L. asks: Is it the best to shut up all doors and windows or let as much air get in as possible during electric storms? A. We think the better plan is to close all doors and windows, as a column of warm air issuing from the house would facilitate the passage of the electric discharge.

(3361) W. A. A.—The insect is the common mole cricket, *Gryllotalpa borealis.*

(3362) E. W.—Nigrosine is a coal tar color prepared from the hydrochloride of violaniline. This product is variously modified in the process of manufacture several shades, varying from blue through bluish gray to gray, violet to black, this last being called nigrosine, are produced. Other names for the various other shades are violaniline, elberfeld blue, bengaline, aniline gray, Confier's blue, etc.

(3363) J. C. M.—See SCIENTIFIC AMERICAN SUPPLEMENT, No. 51, on the manufacture of zinc white; carbonate of baryta is used to adulterate both zinc white and white lead. Chemical analysis is the only sure test.

(3364) G. H., Jr., asks: 1. Why is the rising moon red? A. Because of the absorption of the more refrangible rays of light by the great distance that the moon's rays pass through the atmosphere at rising or setting, aided by the hygrometric condition of the air, the water in the atmosphere probably being the most active agent of absorption. The midday sun looks red as seen from a considerable depth in water. Divers notice this peculiarity. 2, Where is the largest marble cutting establishment in the world? The largest marble works are near Rutland, Vermont. 3. I have a copper bath tub which is coated with tin or zinc. This bright coating has worn off in places and the copper turned black. Is there any way in which I can recoat these injured places? A. You can do nothing better than to keep the bath tub clean by polishing with sapolio, or with oxalic acid. You cannot retin the bare spots.

(3365) J. F. M. asks: What is the inclosed powder? It is used in the porous cup of a battery. A. The powder is principally or entirely potassium nitrate, common saltpeter. In the porous cup mixed with dilute sulphuric acid it supplies free nitric acid as a depolarizer.

(3366) W. W. B. asks: 1. What chemicals and in what proportion, added to water, will extinguish fire? A. Most alkaline salts dissolved in sufficient quantity in water act as extinguishers. Sulphate of sodium is excellent. Bicarbonate of ammonium is good, as yielding a certain amount of carbonic acid gas. 2. How can a photographic plate be developed a positive? A. This has not been done except experimentally. No practically successful process is known. Several investigators are now working on the problem. 3. Explain E.M.F., which so often appears in these columns. A. Electromotive force, or the difference of potential which is the cause of a current of electricity. It is produced by batteries and dynamos in general practice.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

September 1, 1891,

AND EACH BEARING THAT DATE.

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

Air brake mechanism, H. S. Hopper ... 458,626
Air compressor regulator, B. V. Nordberg ... 458,975
Alarm. See High and low water alarm. Low water alarm.
Alarm lock, J. H. Smith *et al* ... 458,600
Amalgamator, H. Cook ... 458,923
Amalgamator, C. F. Pike ... 458,858
Ammonia still, Stroh & Osius ... 458,708
Annunciator, W. C. Dillman ... 458,947
Armature for electric motors or generators, J. F. McLaughlin ... 458,856
Awning, W. H. Wallace, Jr ... 458,875
Axle, car, H. P. Willard ... 458,671
Axle making machine, W. L. Morris ... 458,685
Bag holder, N. R. Streeter ... 458,862
Baling press, P. C. Southwick ... 458,641
Band cutter and feeder, A. A. Booth ... 458,885
Bandage winding machine, M. D. Tibbetts ... 458,864
Bar. See Car draw bar. Cutter bar.
Barrel stand, J. J. Van Kersen ... 458,925
Bed bottom, spring, D. Edgar ... 458,655
Beds, portable bottom for sofa, W. Petersen ... 458,858
Bicycle locking attachment, F. H. Hohoff ... 458,832
Bicycle stand, A. P. Merrill ... 458,974
Bicycles, mud guard for, G. Harriott ... 458,806
Bin. See Store bin.
Bin and sifter, combined, D. A. Wilkinson ... 458,610
Bit. See Boring bit.
Blackboard, many-surfaced, W. H. Larew ... 458,852
Bleaching apparatus, F. A. Cloudman *et al* ... 458,822
Block. See Car block. Snatch block.
Boiler. See Steam boiler.
Boiler purifier, steam, J. E. Kintzel ... 458,836
Bolt cutter, J. Lussier ... 458,706
Book rack, J. W. Hine ... 458,902
Boots, machine for buttoning, J. Keith ... 458,835
Boring bit, E. C. Phillips ... 458,640
Bottle holder, nursing, P. Zimmerman, Jr ... 458,933
Bottle flask, L. Jordan ... 458,906
Box. See Cut-off box. File box. Fire box.
Box fastener, J. E. Payton ... 458,857
Box stripping or surfacing machine, G. A. Williams ... 458,651
Braiding machine, tubular, H. W. Struss ... 458,644, 458,645
Brake. See Electric brake. Wagon brake.
Brake shoe fastening, C. Feil ... 458,890
Bread mixing stand, W. Wiesemann ... 458,878
Broom, F. W. Ratcliffe ... 458,757
Buckets, vent for, J. S. Alexander ... 458,883
Buildings, construction of, L. A. Beardsley ... 458,700
Burner. See Kerosene burner.
Cables, machine for laying in the strands of wire, T. F. Borrman ... 458,672
Calendar, H. Fitch ... 458,970
Caliper joint, W. L. Morris ... 458,684
Can, W. W. Grant ... 458,598
Can filling machine, Norton & Hodgson ... 458,639
Can opener, G. Hipwood ... 458,703
Car coupling, W. Dixon ... 458,948
Car coupling, M. N. George ... 458,896
Car coupling, J. D. Hall ... 458,900
Car coupling, Jones & Fagan ... 458,905
Car coupling, V. Larson ... 458,631
Car coupling, R. V. Mitchell *et al* ... 458,812
Car coupling, B. Rowell ... 458,861
Car coupling, F. Walsh ... 458,6 9
Car cushions, machine for cleaning, F. O. Donahue ... 458,949
Car draw bar, G. F. Gage ... 458,569
Car, dumping, J. M. Goodwin ... 458,752
Car grip, cable, Hansell & Gill ... 458,574
Car mechanism, electric, W. E. Badger ... 458,880
Car mover, T. L. Evans ... 458,889
Car warming and ventilating apparatus, street, J. B. Platt ... 458,982
Cars, anti-friction bearing for, C. F. Buschner ... 458,723
Cars, power brake for railway, J. & H. R. Howard ... 458,877
Cars, sand box for, G. T. Drew ... 458,621
Carding engine, C. L. Hildreth ... 458,576
Carpet fastener, lever, B. Irvine ... 458,903
Carpet stretcher, and fastener, L. Fleischmann ... 458,682
Carrier. See Cartridge carrier. Cash and parcel carrier.
Cartridge carrier or charger for repeating small arms, L. M. R. Daudeteau ... 458,825
Cartridge crimper, Beardsley & Moulton ... 458,679
Cartridge loader, automatic, H. & F. C. Bennett ... 458,557
Case. See Lock case.
Cash and parcel carrier, A. A. Caille ... 458,724
Cash indicator and register, C. Carr ... 458,615
Cash register and indicator, W. G. Latimer, 458,810, 458,811
Caustic alkali, making, F. Ellershausen ... 458,563
Chair. See Knockdown chair. Railway chair.
Chimney cowl, P. W. Gardner ... 458,894
Christmas trees, etc., holder for, M. Merk ... 458,756
Churn, Hawks & Peoples ... 458,693
Clamp. See Lumber clamp.
Clasp. See Suspender clasp.
Clocks, synchronizing mechanism for the seconds hands of, H. Munson ... 458,716
Cloth napping machine, I. N. Forrester ... 458,725
Clothes drier, E. S. Fassett ... 458,829
Clutch, friction, L. J. Hirt ... 458,578, 458,579, 458,831
Coiling wire rods, machine for, B. H. Gedge ... 458,572
Coin holder or package, Heim & Schwander ... 458,735
Comb. See Curry comb. Electric comb.
Confectionery drops, machine for manufacturing, M. M. June ... 458,809
Corn crib, J. Z. Benson ... 458,936
Cotton picker, H. P. Dooley ... 458,751
Coupling. See Car coupling. Hose coupling. Pipe coupling.
Cradle, chair, etc., A. A. Cidileau ... 458,673
Crate, folding, M. C. Burr ... 458,689
Crimping machine, W. E. Frost ... 458,851
Crupper, L. S. Ellis ... 458,674
Crusher. See Rock or ore crusher.
Crusher and pulverizer, R. McCully ... 458,638
Cuff holder, G. H. Scharf ... 458,795
Cultivator, B. B. Lewis ... 458,586
Curb and gutter, clamp for moulding a combined, S. P. McKelvey ... 458,915
Curry comb, L. Bailey ... 458,801
Cut-off box, D. B. Weightman ... 458,768
Cut-out, fusible, Van Nuis & Vail ... 458,603
Cutter. See Band cutter. Bolt cutter.
Cutter bar, F. F. G. Jaehnke ... 458,629
Cyclometers, ball bearing for, E. R. De Wolfe ... 458,718
Deborning implement, H. W. Leavitt ... 458,833
Digging machine, A. Johnson ... 458,714
Display horse, H. Schweibold ... 458,598
Diving dresses, means for attaching helmets and breast plates to, A. E. Stowe ... 458,750
Draught attachment for hames, J. N. Schwalen ... 458,983
Draw bars, cushioned carrier iron for, A. W. Van Dorston ... 458,924
Drier. See Clothes drier.
Drill. See Rock drill.
Drill press, A. E. Johnson ... 458,581
Dust collector, H. A. & C. A. Barnard ... 458,965
Dust separator, T. Lee ... 458,773
Dynamo, constant current, E. P. Clark ... 458,618
Dynamo regulator, constant current, E. P. Clark ... 458,617
Electric brake, J. C. Lincoln ... 458,587
Electric circuits, testing switch for, R. C. Smith ... 458,961
Electric comb, J. M. Riley ... 458,952, 458,953
Electric engine and pump, combined, C. J. Van Depoele ... 458,873
Electric engine, reciprocating, C. J. Van Depoele ... 458,874
Electric generator, Henderson & Sargent ... 458,702
Electric light fixture, F. H. Aldrich ... 458,769
Electric machines, automatic cut-out for dynamo, S. H. Short ... 458,666
Electric meter, M. Koechlin ... 458,755
Electric motor, Otis & Smith ... 458,976
Electric motor, E. Thomson ... 458,666
Electric subway, J. C. Reilly ... 458,778
Electric switch, A. Wissler ... 458,879
Electric switch casing, A. Wissler ... 458,880
Electric wire cleat, H. P. Ball ... 458,964
Electro-chemical transformer, T. D. Bottome ... 458,852
Electro-magnetic engines, circuit controller for, C. J. Van Depoele ... 458,869
Electro-magnetic reciprocating engine, C. J. Van Depoele ... 458,872
Electro-therapeutic apparatus, WJ. Herdman ... 458,625
Elevator. See Hod elevator.
Elevator, E. W. Houser ... 458,627
Elevator, A. Sundh ... 458,991
Elevator controlling device, G. H. Reynolds ... 458,917
Elevator controlling mechanism, N. C. Bassett, 458,555, 458,556
Elevator safety device, Moenning & Haeseler ... 458,765
Elevator safety device, electric, Otis & Smith ... 458,977
Engine. See Carding engine. Electro-magnetic reciprocating engine. Electric engine. Steam engine.
Engines, system of reciprocating electric, C. J. Van Depoele ... 458,954
Engines, system of supplying current to reciprocating electric, C. J. Van Depoele ... 458,870
Envelope machine, J. Dennis *et al* ... 458,691
Extractor. See Stump extractor.
Fanning mill, B. S. Constant ... 458,843
Faucet, measuring, F. M. Draper ... 458,701
Feed water heater, B. W. Taylor ... 458,998
Feeder, automatic stock, G. Lloyd ... 458,585
Fence, J. O. Brookbank ... 458,621
Fender. See Plow fender.
Fertilizers, manufacture of, E. Watson ... 458,744
Fifth wheel, vehicle, S. H. Cawley ... 458,942
File box, P. H. Yawman ... 458,882
File cutting machine, J. & T. Fischer ... 458,732
Filter, C. Shuman ... 458,667
Fire box, steam generating, A. Peick ... 458,593
Fires, extinguishing, Dickson & Jones ... 458,561
Flue scraper, boiler, G. R. Ford ... 458,892
Fruit sizing machine, J. Adams ... 458,963
Furnace. See Hot air furnace. Smoke consuming furnace.
Furnace, Herrmann & Cohen ... 458,712
Fuse, protective, Hayes & White ... 458,753
Gag block, W. Lewis ... 458,990
Gauge. See Ring gauge.
Gases with vapors of volatile substances, apparatus for impregnating, E. Blass ... 458,937
Gear wheel, R. C. Smith ... 458,984
Generator. See Electric generator. Steam generator.
Glass beveling machine, P. Wiederer ... 458,799
Glass for light-transmitting and ventilating, J. W. Mark ... 458,854
Glove, swimming, J. G. Eisele ... 458,888
Glycerine from soapmakers' waste, obtaining, J. Van Ruymbeke ... 458,647
Glycerine, plant for treating soapmakers' waste to obtain, J. Van Ruymbeke ... 458,6 8
Grain binders, bundle carrier for, M. Kane ... 458,973
Grain separator and cleaner, G. B. Howland ... 458,713
Gripping device, H. C. Buddenberg ... 458,614
Guitars, etc., stringing, H. Lindemann ... 458,789
Gun, breech-loading, T. Larsen ... 458,704
Gun, magazine, L. M. R. Daudeteau ... 458,824
Gun, repeating spring air, A. B. Ireland ... 458,83
Hair clipper, W. R. Bonham ... 458,940
Hair, manufacturing curled, P. Woll, Jr ... 458,721
Hame, F. Van Patten ... 458,664
Hammock, A. Beals ... 458,688
Hanger. See Hat hanger. Shaft hanger. Trowel hanger.
Harness attachment, Wood & Young ... 458,881
Harrow, W. P. Bettendorf ... 458,820
Harvester, corn, J. Dain, Jr ... 458,709
Hat hanger, W. V. Bleha ... 458,783
Hawser guide, F. Meinzer ... 458,855
Heater. See Feed water heater.
Heating and lighting device, L. T. Wilcox ... 458,669
Heel trimming machines, rest for, T. Pierce ... 458,594
High and low water alarm, C. A. Hatch ... 458,787
Hinge, stop, J. F. McKibben ... 458,7 7
Hitching post, R. C. Bloomfield ... 458,638
Hitching post, J. Massey ... 458,737
Hod elevator, G. W. Brown ... 458,592
Hoisting apparatus, P. Ditchy ... 458,802
Holder. See Bag holder. Bottle holder. Coin holder. Cuff holder. Paper holder. Picture holder. Pillow sham holder. Rein holder. Sash holder. Ticket holder.
Hook. See Lock hook. Tug hook.
Hook, H. W. Matthies ... 458,590
Horse power, E. W. Ross ... 458,586
Hose coupling, Meilink & Wadsworth ... 458,690
Hot air furnace, F. M. Campbell ... 458,969
Hydrant, P. A. Hardwick ... 458,575
Hydrant, gate, T. & J. Galvin ... 458,733
Indicator. See Cash indicator.
Ink, making, E. Watson ... 458,741
Insecticide, P. Leonardi *et al* ... 458,908
Iron. See Shaft iron.
Ironing machine, G. J. Fritz ... 458,893
Ironing machine, J. S. Knisely ... 458,772
Jack. See Lifting jack.
Joint. See Caliper joint.
Journal box lubricator, J. J. White ... 458,816
Kegs, chine strengthener for, P. J. Batchelor ... 458,935
Kerosene burner, A. M. P. Hervy ... 458,901
Knife. See Pocket knife. Table knife.
Knobs, sheet metal blank for, W. A. Turner ... 458,839
Knockdown chair, J. A. Judd ... 458,908
Lamp, S. G. Dodd ... 458,8 6
Lamp burner rest, J. K. Webster ... 458,957
Lamp cut-out, incandescent, T. D. Bottome ... 458,853
Lamp, duplex arc, B. B. Ward ... 458,710
Lamp, electric arc, W. A. Turbayne ... 458,987
Lamp, electric arc, B. B. Ward ... 458,876
Lamp, wickless oil, A. Shedlock ... 458,814
Lamps, carbon clamp for electric arc, A. P. Seymour ... 458,718
Lasting machine, C. Simping ... 458,921
Leaf treating machine, J. H. Strayer ... 458,986
Lifting jack, Hooker & Hatch ... 458,847
Light extinguisher, automatic, J. F. McCormic ... 458,660
Lightning arrester, J. P. Freeman ... 458,656
Liquid cooling device, C. W. Weiss ... 458,607
Lock. See Alarm lock. Nut lock. Scuttle lock.
Lock case, W. H. Taylor ... 458,863
Lock book, F. Splittstoser ... 458,779
Locomotive cab windows, dust guard for, F. C. Bond ... 458,939
Locomotive spring, W. E. Ludium ... 458,705
Locomotor, electric, H. F. & G. F. Shaw ... 458,729
Loom stopping mechanism, J. Hayes ... 458,624
Lorgnette or opera-glasses, J. Green ... 458,73
Low water alarm and boiler feeder, W. D. McLauchlin ... 458,794
Lubricator. See Journal box lubricator.
Lubricator, A. McNett ... 458,813
Lumber clamp, W. A. Madden ... 458,763
Mail bag catcher, G. W. Smith ... 458,960
Mail bag fastening, C. T. Anderson ... 458,770
Mail pouch, J. E. Wells ... 458,955
Marbled surfaces, producing, S. C. Madsen ... 458,764
Mechanical motion, Blackie & Nisbet ... 458,746
Meter. See Electric meter. Water meter.
Milk aerating machine, W. Garrett ... 458,895
Milk aerator, L. W. Farr ... 458,692
Milker, cow, S. Amspacker ... 458,611
Mill. See Fanning mill.
Mill, J. H. Pendleton ... 458,66
Mining machine, electric coal, C. J. Van Depoele ... 458,868
Moulding machine for moulding plastic material, J. Hoffman ... 458,754
Mortiser, groover, rabbeter, and borer, combined, M. P. Brown ... 458,613
Motor. See Electric motor. Pump motor.
Motor, F. C. Moore ... 458,776
Mower, lawn, D. M. Kyle ... 458,715
Nails, machine for polishing, cleaning, and packing wire, B. H. Gedge ... 458,571
Nippers, cutting, S. O. Root ... 458,590
Nozzle, variable, A. A. Charonnat ... 458,783
Nut lock, D. H. Ward ... 458,782
Optical measurements, gauge for centering lenses and making other, A. L. Smith ... 458,922
Ore washer and concentrator, C. F. Pike ... 458,837
Ore washer or concentrator, C. F. Pike ... 458,958
Packing strip, F. E. Watton ... 458,877
Paper bag machine, W. H. Cline ... 458,599
Paper bag machine, F. W. B. McCreedy ... 458,914
Paper feeding apparatus, Crane & Bradshaw ... 458,945
Paper holder, revolving, W. J. Hills ... 458,577
Paper, waterproofed parchment, E. Andrews ... 458,940
Perambulator, J. Martin ... 458,736
Pencil sharpener, J. H. Brookbank ... 458,854
Phonograph, E. Oxley ... 458,916
Photographic apparatus, E. W. Perry, Jr ... 458,981

Photographic apparatus, H. Thumler 458,699
Photographic apparatus, magazine plate holder for, Kipper & Perry, Jr. 458,907
Photographic apparatus, plate holder for, E. W. Perry, Jr. 458,979
Photographic films, manufacture of flexible, Reichenbach & Passavant 458,663
Photographic plates or films, exposing and shifting, E. W. Perry, Jr. 458,980
Picture holder, T. Green 458,711
Pianoforte, H. B. Nickerson 458,591
Pillow sham holder, Rutherford & Robberson 458,758
Pin. See Printers' gauge pin.
Pipe coupling, J. F. McElroy 458,793
Pipe outlet, drain, J. H. Elliott 458,950
Pipe threading and cutting machine, S. D. Gratiaa 458,899
Pipe wrench, J. S. Barden 458,934
Plane, hand, J. H. Ferguson 458,676
Planimeter, polar, A. B. Calkins 458,968
Plaster, composition of matter for restraining the setting of, E. Watson 458,742, 458,743
Plow fender, R. Jefferson 458,659
Pocket knife, S. G. Scholz 458,664
Pole, vehicle, F. L. Sattley 458,728
Post. See Hitching post.
Power. See Horse power.
Power machine, J. J. Otto 458,695
Press. See Baling press. Drill press.
Press, C. H. Weston 458,650
Presses, automatic feed attachment for, M. Jacobs 458,904
Printers' gauge pin, J. W. Eggleston 458,562
Printers' use, imposition furniture for, R. Clarke. 458,886
Printing machine, plate, H. Lee 458,694
Pruning implement, Custer & Gorrell 458,930
Pulley, belt, P. Medart 458,634, 458,635
Pulleys to shafts, fastening for securing, W. C. Irvin 458,580
Pump motor, G. F. Wightman 458,928
Pump, steam, L. P. Dixon 458,771
Rack. See Book rack.
Railway chair and tie, W. Wenstrom 458,988
Railway conductors, system of electric, C. J. Van Depoele 458,867
Railway conduit and contact device, electric, W. H. Knight 458,747
Railway conduit, electric, F. E. Degenhardt 458,619
Railway conduit, electric, E. E. Keller 458,630
Railway, electric, L. O. Dion 458,844
Railway, electric, W. H. Knight 458,583
Railway, electric, H. A. Seymour 458,665
Railway, electric, W. C. Wright 458,931, 458,932
Railway, elevated, J. P. Harper 458,846
Railway rail, E. G. Patterson 458,748
Railway switch, street, A. Machalup 458,790
Railway system, electric, W. H. Knight 458,582
Railway tracks, construction of, T. H. Gibbon 458,657
Railways by dynamic induction, method of and apparatus for operating electric, E. E. Rie 458,859
Railways, closed conduit for electric, C. J. Van Depoele 458,866
Railways, controlling dynamo-electric machines for electric, S. H. Short 458,956
Railways, throw-on sheave for cable, Morgan & McCarthy 458,913
Reel. See Wire rod reel.
Refrigerator, chemical, R. Hirsh 458,726
Register. See Cash register.
Register for counting the revolutions or strokes of machines, S. O. Gould 458,897
Regulator. See Air compressor regulator. Dynamo regulator. Windmill regulator.
Rein holder, R. C. Nugent 458,661
Revolvers, cylinder stop for, H. F. Wheeler 458,687
Ring gauge, A. W. Engel 458,564
Roads, constructing, B. B. Brasell 458,842
Rock drill, O. Terp 458,601
Rock drilling machine, W. Arnold 458,612
Rock or ore crusher, G. W. Taft 458,740
Rope, machine for making hay and straw, O. H. Watkins 458,605
Saddle, harness, J. Thomas 458,781
Safe, burglar proof, M. Mosler 458,637
Sash holder, Sweet & Fergason 458,767
Sawmill dog, W. H. Mitchell 458,912
Saw swage, W. W. Annable 458,841
Saws, metal frame for, J. V. Durand 458,827
Scalder, Dreesman & Puterbaugh 458,803
Scale, adjustable dividing, A. B. Calkins 458,967
Scale and measuring and lifting machine, controlled, C. G. Strubler 458,815
Scale, parallel ruling, A. B. Calkins 458,966
Scalper and grader, Noble & Snyder 458,592
Scuttle lock and operator, E. A. Cole 458,730
Seat. See Vehicle seat.
Seed delinting apparatus, cotton, Hollingsworth & Darwin 458,833
Separator. See Dust separator. Grain separator. Steam separator.
Sewer trap, J. R. Magee 458,589
Shaft hanger, E. W. Cooke 458,731
Shaft iron, vehicle, Parry & Reel 458,978
Shingle machine, O. Melancon 458,775
Skid, safe, H. H. Slough 458,697
Skins, preparing, G. H. Farthing 458,828
Sleigh, H. Brunn 458,722
Slotting machines, tool and tool holder for J. & T. Carter 458,616
Smoke consuming furnace, C. Stauss 458,642
Snatch block, J. Henderson 458,658
Speculum, J. W. Daily 458,708
Speed gearing, changeable, L. Heath 458,830
Spool or bobbin, H. S. Frost 458,971
Spring. See Locomotive spring. Vehicle spring.
Spring tension, device for regulating, C. Sinning. 458,920
Sprinkler, E. Hoxie 458,628
Square, T. T. J. Weaver 458,606
Stable pavement, J. Jungbluth 458,788
Stamp or label affixer, W. B. Shafer 458,599
Stand. See Barrel stand. Bicycle stand. Bread mixing stand. Wash stand.
Steam boiler, J. Baird ..... 458,817 to 458,819
Steam boiler, sectional, A. T. Tregurtha 458,923
Steam engine, H. Christofferson 458,943
Steam generator, F. J. Robinson 458,918
Steam separator, E. Erxleben 458,622
Steam trap, J. F. McElroy 458,792
Steel, method of and apparatus for determining the temper of, C. A. Casperson 458,784
Store bin for sugar, H. D. Streator 458,643
Stovepipe former, H. S. Grannis 458,683
Stump extractor, J. M. Shoemake 458,696
Surgical apparatus, W. M. Lottridge 458,774
Surgical splint, E. R. Ellis 458,804
Suspender clasp, C. R. Harris (r) 11,187
Switch. See Electric switch. Railway switch.
Table, S. Willershausen 458,932
Table, F. E. Wood 458,930
Table knife, W. W. Lee 458,682
Telegraphy, D. Kunhardt 458,586
Telpher system, C. J. Van Depoele 458,871
Tenoning machine, F. H. Narwood 458,678
Ticket holder, pocket, W. E. Gorman 458,786
Ticket holder or till, A. Rokusek *et al.* 458,595
Tile, illuminating, J. Jacobs 458,849, 458,850
Tongue support, J. H. Cassidy 458,690
Torpedo, marine, J. A. Howell 458,677
Trap. See Sewer trap. Steam trap.
Trolley or contact wheel, electric, F. E. Degenhardt 458,620
Trolley, self-lubricating electric, T. Driscoll 458,785
Trowel handle, R. J. Cooper 458,944
Truck, car, C. F. Buschner 458,707
Truck, car, E. Peckham 458,749
Truck, car, W. H. Siebecker 458,759
Truck, electric motor, W. H. Knight 458,584
Tug, hame, C. W. Hudgens 458,848
Tug, harness, J. W. Ganoe 458,570
Tug hook, J. H. Boothe 458,761
Tuning hammer, B. F. Fuchs 458,568
Typewriter cabinet, F. Sanderson 458,959
Typewriting machine, J. M. Fairfield 458,675
Typewriting machines, carriage feeding mechanism for, J. F. Frankey 458,567
Typewriting machines, carriage mechanism for, J. F. Frankey 458,566
Umbrella runner, R. Ardrey 458,884
Umbrella runner, H. S. Frost 458,972
Umbrella runner retainer, J. B. Jesson 458,851
Valve chest bushing, R. L. Frost 458,623
Valve for steam cylinders, relief, A. F. Hall 458,845
Valve, safety, F. W. Fisher 458,891
Vehicle, B. F. Tucker 458,965
Vehicle, four-wheeled, D. M. Parry 458,989
Vehicle seat, G. W. Peters 458,777
Vehicle, spring, L. Miller 458,791
Vehicle spring, W. T. Sample 458,597
Velocipede pedal attachment, W. Wheeler 458,608
Velocipede saddle, E. J. Willis 458,609
Vending machine, Durie & Begg 458,680, 458,681
Veneer cutting machines, pressure plate for, W. Schwegman 458,777
Vessels, apparatus for raising sunken, J. G. Enke 458,565
Vinegar, making, G. Sobotka 458,985
Voting machine, L. S. Gardner 458,805
Wagon brake, J. A. Martin 458,633
Wagon, dumping, Lucas & Murray 458,910
Wagon, dumping, P. Seibert 458,919
Wagon, night lunch, C. H. Palmer 458,738
Wagon, oil tank, Wyeth & McCully 458,610
Wagon, training, G. P. Updegraff 458,668
Wash stand, W. H. Lincoln 458,909
Washer. See Ore washer.
Washing machine, L. D. Brady 4 5894
Watch, M. Benjamin 458745
Watches, safety attachment for stem winding, Lucas & Phelps 458,911
Water meter, R. J. Rogers 458,739
Water purifier, E. Devonshire 458,946
Water purifying apparatus, E. Devonshire 458,887
Wheel. See Fifth wheel. Gear wheel.
Wheel, B. H. Gedge 458,573
Winding yarn into cops, machine for, J. D. Whyte 458,927
Windmill, M. S. Pires 458,766
Windmill, C. H. Van Deusen 458,602
Windmill regulator, automatic, J. E. Van Schaick 458,926
Window, J. Wilson 458,929
Wire rod reel, T. V. Allis 458,760
Wire stretcher, G. W. Warner 458,720
Wire to lengths, machine for cutting, N. C. Stiles 458,780
Wort, producing clear, G. Sobotka 458,986
Wrench. See Pipe wrench.
Wrench, E. Shaw 458,796
Wrenches, making, E. Shaw 458,797

TRADE MARKS.

Buttons, braids, buckles, galloons, and bindings, E. Crager & Co 20,089
Canned salmon, J. O. Hanthorn & Co 20,098
Carpet cleansing and renovating solutions, Laurie & Thompson 20,101
Confectionery, S. F. Whitman & Son 20,103
Face powder and balm for chapped hands, Firm of R. M. Hunter 20,097
Garments, men's and boys' outer, Famous Shoe and Clothing Company 20,096
Glue, liquid fish, Improved Process Glue Company 20,091
Paper, waterproof, F. W. Bird & Son 20,093
Perfumes and perfumed soaps and toilet preparations, Colgate & Co 20,095
Preparation for use in gonorrhea and gleet, Baker & Levy 20,094
Remedies for diseases of the blood, liver, kidneys, and bowels, and for dyspepsia, headache, biliousness, and neuralgia, McClure Drug Company 20,092
Tailors' trimmings, silk, cotton, and woolen goods used for, H. Newman 20,090
Whiskies in bulk, L. Weis & Co 20,099, 20,100
Whisky, Ulman, Boykin & Co 20,102, 20,104

DESIGNS.

Carpet, E. Fisher 21,029
Curling iron ornamentation, R. Nicol, Jr. 21,026
Radiator, J. B. Pierce 21,028
Rug, E. H. Bennett 21,019
Rug, J. Pegel 21,021, 21,022
Spoon, W. F. Michael 21,025
Spoon, C. Osborne 21,027
Stove, L. Kahn 21,024
Table cover, J. Pegel 21,020, 21,023

A printed copy of the specification and drawing of any patent in the foregoing list, or any patent in print, issued since 1863, will be furnished from this office for 25 cents. In ordering please state the name and number of the patent desired, and remit to Munn & Co., 361 Broadway, New York.

Canadian patents may now be obtained by the inventors for any of the inventions named in the foregoing list, provided they are simple, at a cost of $40 each. If complicated the cost will be a little more. For full instructions address Munn & Co., 361 Broadway, New York. Other foreign patents may also be obtained.

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.

PROPOSAL.

U. S. Engineer Office, Wilmington, Del. Aug. 22, 1891.—Sealed proposals, in triplicate, will be received at this office until 12 o'clock, noon, on September 21, 1891, and then opened, for the construction of a new ice pier, and the removal of ice pier "H," in New Castle Harbor, Delaware. The attention of bidders is invited to the Acts of Congress approved February 26, 1885, and February 23, 1887, vol. 23, page 332, and vol. 24, page 414, Statutes at Large. For all information apply to WM. F. SMITH, *United States Agent.*

Proposals for supplying Cut Stone. — United States Engineer Office, Montgomery, Ala., August 30, 1891. Sealed proposals, in triplicate, for supplying cut stone at Wetumpka, Ala., will be received at this office until 12 o'clock noon, standard time, on October 3, 1891, and will then be opened. The attention of bidders is invited to the Acts of Congress approved February 26, 1885, and February 23, 1887, vol. 23, page 332, and vol. 24, page 414, Statutes at Large. Specifications, instructions for bidders, and blank forms for proposals may be obtained at this office.
PHILIP M. PRICE, *Captain Corps of Engineers U. S. A.*

Office of the Lighthouse Inspector, Third District, Tompkinsville, New York, P. O. Box 2128, New York City, August 31, 1891. Proposals will be received at this office until 2 o'clock P. M., on Wednesday, the 16th day of September, 1891, for supplying 17,000 feet, more or less, of three conductor double armor electric cable about two inches in diameter, needed for lighting buoys to mark Gedney Channel, New York Bay. Full information relative to this cable can be obtained on application at this office. The right is reserved to reject any or all bids and to waive any defects.
HENRY F. PICKING, U. S. N., *Lighthouse Inspector.*