

end of a magnetic needle which is toward the south, when at rest, is of the same kind as that of the north pole of the earth. But when we speak of the north pole of a magnetic needle, we do not refer at all to the kind of magnetism which it contains. We call that pole the north pole which points to the north and which consequently directs a traveler on his way. If any one chooses, he may use the south pole of the needle just as easily as the north to steer by. There is no law to prevent. The Chinese do it.

(7482) W. A. G. writes: In your number of May 28 you gave a description of the "Vizcaya" of the Spanish fleet, and on page 345 I note the following: "They stand high out of the water, they have abundance of berthing space between decks, and they are credited with a coal supply of 1,200 tons, or enough to carry them for 10,000 miles at a 10 knot speed." Am I imposing too much on you to ask whether this statement is correct, as during the course of a conversation here a statement was made that the "Vizcaya" could not cross the Atlantic from Spain to Havana and have two days' coaling left in her bunkers. Based on your statement, it was asserted that she had coal capacity enough to cross from Spain to Cuba and back. As I am in the position to prove that the boat could not have two days' steaming of coal left in her bunkers, I would be pleased to know whether you can give me the correct information. I understand that a United States naval officer is the authority for the statement that there would be no coal left to talk of on her arrival here from Europe. I believe Mr. Charles Cramp, of Charles Cramp & Son, Philadelphia, in a newspaper interview also substantiated this statement. This, however, I cannot get confirmed. A. There is no point regarding war ships about which there is so much uncertainty as their coal capacity and steaming radius. The "Vizcaya" is officially rated as carrying 1,200 tons of coal. At an economical cruising speed, this should carry her from Spain to Cuba and back without recoaling, supposing that her bottom is clean, engines and boilers in good condition, that the coal is of good quality and the firemen understand economical coaling, and that the auxiliary engines do not eat too heavily into the supply. In almost every one of these particulars the Spanish ships were faulty. As a rule the official steaming radius of warships may be reduced one-third. They rarely accomplish in practice what they do on trial.

(7483) H. W. S. writes: I would be much obliged if you would answer these questions: 1. Is it possible to put the Fletcher breech mechanism and mount on the 13-inch rifles now in use, without very much expense and trouble? A. Replying to your questions of August 1: The Fletcher mechanism is already in use on the 13-inch naval guns. 2. How long would it take to make 13-inch Brown wire wound guns for the navy? Would the recoil of four of these be too great for our battleships designed to carry the 13-inch gun now in use? A. The 10-inch Brown wire gun is more powerful than the present 13-inch navy gun. With proper plant one could be made within twelve months. The recoil would not hurt the ship. 3. What is the cost of a book or annual giving a list of the best modern ships and fairly good descriptions of the chief types in the leading navies of the world, and where can this list be obtained? Does the "Naval Annual," which was mentioned by The Engineer in its reply to the SCIENTIFIC AMERICAN's article on our use of S. F. guns? A. We supply Brassey's "Naval Annual." Cost \$5.

(7484) W. P. asks: Please let me know the name of the acid and how it is prepared that is used in detecting positive or negative poles in any source of electricity from battery up to 50 volts, also what number platinum wire should be used as leads. I want something that can be sealed and carried in the pocket. A. A solution of potassium iodide in glycerine will serve as a polarity indicator. The size of wire leading into the solution is not of any importance. A simple polarity indicator may be made by dissolving some potassium iodide in water, add a little starch, and boil. Into this dip blotting paper or any other paper which will absorb the liquid. When dry, cut the paper into small strips 1/4 inch by 1 inch. For use moisten a piece, and apply the ends of the wires to it a short distance apart. The pole which is positive will discolor the paper. Ferricyanide of potash may be used in the same way. So also may phenol phtalein. With these no starch need be used.

NEW BOOKS, ETC.

DAS WASSERWESEN DER NIEDERLANDISCHEN PROVINZ ZEELAND. By Friedrich Müller Berlin: Wilhelm Ernst u. Sohn, 1898. Royal octavo. Pp. xxvi, 612. 121 engravings and 10 maps. Paper \$9.50.

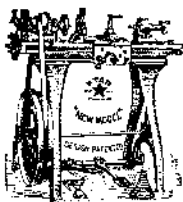
The province of Zeeland, in Holland, perhaps more than any other stretch of coast along the North Sea, owes its preservation largely to the dikes and bulwarks built by the sturdy citizens of Holland. The incessant vigilance and labor which were naturally the outcome of this constant struggle have led to a close study of Holland's waters. In order to prove how important this study is, Herr Müller has written a most comprehensive work based upon researches made in the archives of the country and upon extensive geological, hydrographic, historical, and economical investigations. Of the three divisions of the work, the first treats of the formation of the land and the geological development of the water ways. In this connection it is of particular interest to follow by means of the accompanying atlas the constant changes in the land and the struggles of the stanch Dutchmen against the encroaching waters. In the second division of the work we find an excellent account of dike building and a description of particular portions of the sea coast with their bulwarks and protective structures. The third and most extensive division is devoted to legal and economic considerations, and deals primarily with the laws which have been passed to defend Holland from her implacable enemy, the sea. As a conclusion to his work the author has given a most complete bibliography of the works that he has consulted. The book will no doubt be welcomed not only by engineers, but by many a student of history, for in the historical portions of his work the author has incorporated matter which cannot be found in any other book.

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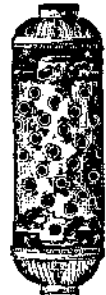
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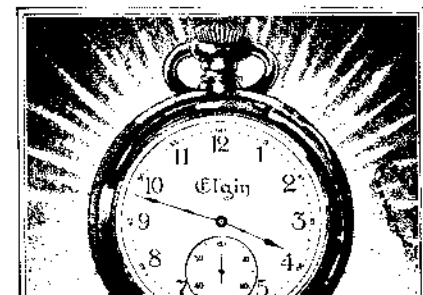
INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted AUGUST 23, 1898, AND EACH BEARING THAT DATE. [See note at end of list about copies of these patents.]

- Air separator, G. S. Emerick..... 609,537
Alarm. See Burglar alarm.
Alloy of iron and titanium and producing it, A. J. Rossi..... 609,466
Alloys of titanium, manufacturing, A. J. Rossi..... 609,467
Amalgamator, N. P. Nelson..... 609,524
Animal trap, automatic self setting, J. J. Shelton..... 609,561
Ankle brace, J. W. & J. H. Frerich..... 609,538
Autographic register, O. C. Reeves..... 609,465
Automatic locking switch, W. H. Jackson..... 609,456
Axle lubricator, H. J. Faust..... 609,423
Back peeling brake, G. Beekman..... 609,551
Bagholder, M. E. Perkins..... 609,589
Bandage, Burger & Lutz..... 609,497
Bearing, anti-friction, W. C. Baker..... 609,448
Bearing ball, J. Faunce..... 609,503
Bearing ball, A. G. Hitchcock..... 609,474
Bearing ball, C. Smith..... 609,463
Bearing roller, M. C. P. Thierry..... 609,526
Bed slat stay, M. Richardson..... 609,703
Beer or ale pipe cleaner, M. Teehan..... 609,635
Beer pump air purifier, H. Beutelspacher..... 609,493
Bicycle, R. A. Miller..... 609,722
Bicycle, M. T. Campbell..... 609,498
Bicycle, C. R. Harris..... 609,581
Bicycle, W. J. Tanner..... 609,634
Bicycle brake, E. W. Hanes..... 609,742
Bicycle brake, W. Wollshlaeger..... 609,647
Bicycle clothing protector, G. M. Hanes..... 609,508
Bicycle gearing, chainless, B. E. Slusser..... 609,471
Bicycle gearing, multiple, M. A. Dibble..... 609,664
Bicycle saddle, H. G. Glover..... 609,616
Bicycle safety device, G. Beekman..... 609,552
Bicycle supporting attachment, A. T. Fenner..... 609,584
Bicycle wheel, G. Hayes..... 609,442
Bit brace, F. M. Sturgis..... 609,478
Block and tackle, C. S. Kershaw..... 609,438
Boat launching device, A. Cappellini..... 609,532
Boiler cleaner, Andrews & Johnson..... 609,400
Boiler furnace, E. Boettcher..... 609,613
Bootsack, Y. Yanagihara..... 609,606
Boot or shoe work trimming machine, B. F. Mayo..... 609,519
Boring machine, dowel hole, J. Yerkes..... 609,567
Bottle nipple, nursing, Coulbourn & Lankford..... 609,415
Bottle, non-refillable, H. G. Woodas..... 609,576
Bottle, non-refillable, G. Giorgio..... 609,572
Bottle, non-refillable, S. S. Whitaker..... 609,716
Box blanks, machine for step mitering and printing, F. P. Kosback..... 609,630
Brace. See Ankle brace. Bit brace.
Brake. See Back peeling brake. Bicycle brake. Brake beam, F. B. Aglar..... 609,396
Brake shoe operating mechanism, M. Q. Kutan..... 609,559
Bread raiser, A. Hough..... 609,546
Brick cleaning machine, S. I. Howard..... 609,547
Broom, H. Burlam..... 609,665
Broom, comb, A. P. Miskaugh et al (reissue)..... 11,688
Building construction, W. H. & F. A. Winslow..... 609,487
Burglar alarm, Fowler & Green..... 609,739
Burglar alarm, D. L. Wartenziuff..... 609,640
Burner. See Hydrocarbon incandescent burner.
Oil burner.
Burner, L. T. Wilcox..... 609,485
Button, cuff, H. E. Swift..... 609,564
Buttonhole cutter, E. E. Zink..... 609,720
Case, hot litter and box or receiver for same, A. R. Wilson..... 609,626
Caisson, movable, C. C. Lovejoy..... 609,656
Can opener, M. F. Connett, Jr..... 609,433
Can opener, J. B. Brown..... 609,406
Can opening nozzle, V. I. Copland..... 609,500
Cap and girder support, combined, G. R. Kurrie..... 609,441
Car brake and fender, O. B. Whitney..... 609,646
Car coupling draught rigging, J. Christie..... 609,410
Car draught appliance, railway, W. T. Van Dorn..... 609,452
Car mover, H. Hardy..... 609,541
Car sanding device, street, Furber & Mitchell..... 609,506
Card shuffler, automatic playing, J. Booth..... 609,729
Card shuffling apparatus, J. Booth..... 609,730
Carrriage, baby, H. P. De Von..... 609,520
Carvings clamp, C. F. Gartner..... 609,539
Case. See Packing case.
Casket lowering apparatus, Lester & Smart..... 609,586
Caster, ball, H. D. Adell..... 609,568
Casting apparatus, F. Hardy..... 609,671
Casting ingots, R. A. McDonald..... 609,693
Cattle guard, J. W. Brightwell..... 609,657
Cell cases, J. P. Cleal..... 609,411
Chair seat fabrics, etc., art of and apparatus for manufacturing composite threads for weaving, E. Morris..... 609,452
Chart table, Greenleaf & Barker..... 609,669
Chlorine and bromine liquor, apparatus for making, W. R. Clark..... 609,608
Churn, H. D. Coffey..... 609,412
Chute, coal, J. S. Chew..... 609,658
Cigarette, mouthpiece, E. T. Gilliland..... 609,741
Clamp. See Carvings clamp. Pipe clamp.
Clasp. See Ribbon clasp.
Cleaner. See Beer or ale pipe cleaner. Boiler cleaner.
Clip. See Tentering machine clip.
Clothes line prop, P. McClafferty..... 609,455
Clutch mechanism, friction, A. L. Skinner..... 609,524
Coal hot litter and box or receiver for same, A. R. Wilson..... 609,626
Coat lifter, J. P. Griffith..... 609,427
Cock, ball, A. J. Robinson..... 609,622
Cock, rotary motor valve, G. Silvestri..... 609,652
Coffee or tea pot handle, Wilhelm & McGovern..... 609,527
Coin dispenser, J. P. Cleal..... 609,411
Confector's separating and filling machine, Heine & Mack..... 609,583
Cooking utensil, odorless, W. S. Truex..... 609,490
Cooking vessel, A. Berchold..... 609,569
Coop, poultry, L. Deveau..... 609,412
Copying press, A. A. Atkin..... 609,687
Corset, E. E. Howe..... 609,606
Corset, E. E. Howe..... 609,434
Corset, C. D. Sapio..... 609,591
Coupling. See Hose coupling. Thill coupling.
Coupling, F. R. Emmitt..... 609,738
Crank fastening, T. Hearson..... 609,433
Cream separator, J. E. Phillips..... 609,461
Crib, foiling, R. P. Ashwell..... 609,491
Crib, foiling, R. H. Buchanan..... 609,496
Crossover, emergency, Coates & Shepard..... 609,600
Crusher. See Rock and ore crusher.
Cultivating and soil stirring device, C. W. Davis..... 609,611
Cultivator, C. W. Davis..... 609,609
Cultivator and soil stirring implement, C. W. Davis..... 609,610
Cultivator fertilizer attachment, W. Eggert, Jr..... 609,502
Cut-off and strainer for cisterns, automatic, A. A. Cutter. See Buttonhole cutter.
Flue cutter.
Digester and protecting same, J. L. Coker, Jr..... 609,733
Dipper, D. W. Harper..... 609,418
Diving apparatus, J. & G. Day..... 609,413
Door and window screen, screen, L. F. Arno..... 609,725
Door guide and closer, sliding, C. F. Agard..... 609,605
Draught rigging, W. M. Piper..... 609,701
Draw bar stop, C. H. Emerson..... 609,737
Drill and seed planter, R. W. Watt..... 609,714
Dye and making same, red, H. R. Vidal..... 609,598
Electrical appliance for assisting anatomical dissections, J. Doty..... 609,614
Electrolytic purposes, diaphragm for, W. G. Luxton..... 609,745
Electromedical apparatus, R. H. Wappler..... 609,639
Electrotypes, stereotypes, etc., machine for shaving, F. Wessel..... 609,643
Elevator, J. H. Clark..... 609,533

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